SMALL GROUP INSTRUCTION:

READING INSTRUCTION UTILIZING LEARNING STYLE PREFERENCES AND THE READING ACHIEVEMENT OF FIRST GRADE STUDENTS

A DISSERTATION

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Abstract

Two overlapping situations in the American educational environment have given fuel for this study: the NAEP reported that 34% of fourth grade students read below grade level and NCLB mandated that all children read on grade level by 2014. First grade students from a Midwestern elementary school participated in an after school reading club that met daily. This reading experience was different from others because these first grade students were grouped by learning style preferences. Meanwhile, many classroom teachers respond to the challenge of differentiating reading instruction based solely on students' reading ability levels creating a forever "reading below grade level" for struggling readers placed in low reading groups.

The primary purpose of this study was to explore reading instruction utilizing learning style preferences of first grade students. An overarching question for this study, "How might reading instruction (nurture) aligned with the child's learning style preference (nature) impact the child's reading achievement?" To investigate this question the researcher created a supplemental reading experience after school by grouping children by their learning style preference to differentiate instruction. Utilizing the *right* kind of quality instruction with the *right* level of intensity and duration with the *right* children at the *right* time created an effective preventive program (Torgesen, 1998). That is differentiated instruction! A pretest and posttest assessment was conducted using running record reading assessments focusing on the total number of errors recorded.

This quantitative research design, randomized pretest-posttest control group analyzed the collected data using a one-way analysis of variance (ANOVA). The results

of the one-way ANOVA analysis showed there was no significant difference in the posttests of the learning style treatment and the leveled reading control groups. Further analysis of the data revealed there was a significance comparing the pretest to the posttest within the treatment group and within the control group. This was important and implied grouping children by learning style preference for reading instruction may be an effective form of differentiation for small group reading instruction.

Dedication

This dissertation is dedicated to my family who provided support, guidance, encouragement, and daily prayers for this project. I am forever grateful to my husband Michael for believing in my ability to complete a doctorate and for encouraging me to venture into this professional journey. I am thankful for the many hours he proofread my writing, thought through dilemmas with me, and kept the home and life going for both of us. To my daughter Jennifer and her enthusiasm for my work listening to my many conversations helping me to think through challenges and struggles during this adventure. I am grateful for her love, friendship, professional wisdom, daily prayers, and patience during my many monologs of sharing my project. I extend a special appreciation to my son Jeff and my son-in-law Jason who challenged my thinking by presenting me with different perspectives broadening my own perspective and understanding.

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Companies like Scholastic Book Club and Rigby create literacy materials that support teachers' reading instruction. I am so appreciative of Scholastic Book Club that donated 200 books for the first grade children who participated in my research project so we could keep the reading going at home. I thank Rigby for granting me permission to include in my appendices the graphic organizers utilized by the visual learners during the after school reading club.

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CHAPTER I: INTRODUCTION

Context

Determining how to best deliver reading instruction to meet the expectations of society has been the mission of educators for decades. Our democracy needs citizens who are readers who think critically. Our communities need productive, contributing members who are informed and skilled. Our schools need to be innovative and resourceful places where knowledgeable educators are skilled in reading instruction that equips every young child to be a successful reader.

The National Center for Education Statistics, the National Assessment of Educational Progress (NAEP) reported that 34% of fourth grade students in Indiana were below Basic in their reading performance according to the fourth grade reading achievement levels for 2009. This means one third of this student population in Indiana was not able to meet basic reading expectations.

"Education is currently under the scrutiny of many people and we, as professionals, are called upon to defend our teaching methodologies. A major benefit can be derived from understanding how individuals prefer to learn and by using instructional methods that meet an individual's learning style" (Dunn & Dunn, p 403, 1978). After thirty years this statement still applies. As twenty-first century educators, we want to examine the varied instructional strategies for teaching reading to primary age children by considering how the brain learns, being aware of learners' preferences and strengths, and incorporating elements of learning styles when teaching reading.

The Elementary and Secondary Education Act of 1965 was reformed as the No Child Left Behind Act of 2001 (NCLB) and has extended the arm of the government deep into classrooms, reaching the very heart of our guided reading groups. For example, Reading First is a federal program distributing grants to states and districts which submit an approved application, to purchase "scientifically based" reading materials for kindergarten through third grade, aimed at teaching decoding skills and comprehension skills through scripted reading lessons, making the teaching of reading a one size fits all approach. The NCLB Act directs teachers to teach to the child's diverse educational strengths using a variety of instructional strategies. An article by Kathleen Manzo (2008) explained the billion dollar Reading First Program has had no measurable effect on students' reading comprehension! Thus, it appeared the current paradigm of reading instruction is not working.

Effective Instruction

The Interstate New Teacher Assessment and Support Consortium (INTASC) Principles, established a set of ten principles to evaluate teachers' professional knowledge, skills, and dispositions. INTASC Principle Three expects teachers to understand how students differ in their approaches to learning and expects teachers to create instructional experiences that are adapted to learners' differences. INTASC Principle Four expects teachers to understand and use a variety of instructional strategies to promote students' development of cognitive and performance skills. To meet these two principles when teaching reading, educators utilize a variety of teaching resources, including different genre in literature, technology, hands-on activities, and varied

instructional approaches. Additional approaches might include whole class, small group, and one-on-one instruction. Small groups might be formed based on the results of periodic assessments of reading levels. Teachers might differentiate reading instruction by adjusting reading content, products of reading assignments, and/or time allotted for reading instruction. Ongoing assessments would continue to inform instructional choices.

In *No Quick Fix: Rethinking Literacy Programs in America's Elementary Schools,* Allington (2007) addressed the issue of "conventional wisdom used to determine school organization and instructional practice." He challenged six different wisdoms (myths) commonly held by educators, four of which apply to reading instruction. Conventional wisdom #1: "Not all children can become literate with their peers," promoted the idea that struggling readers cannot learn to read on schedule. When teachers view individual differences as how much a learner *does not know* it is hard for teachers to think of how to accelerate students reading development so they can catch up with their peers.

Conventional wisdom #3: "Children learn best in homogeneous groups." Allington challenged teachers who ability grouped students for reading instruction. He described the lowest reading group as a "dumping ground with low expectations, few role models, successes and/or peer coaches."

Conventional wisdom #5: "Some children need slowed-down and more concrete instruction." Allington (2007) claimed that once behind in reading always behind in reading! Struggling readers need more intervention not less. He endorsed Marie Clay, 1985, who explained struggling readers needed larger doses of reading instruction in shorter amounts of time.

Conventional wisdom #6: “We should use special teachers to meet the needs of some children.” Rather than pull out programs which can create disjointed learning experiences, children need consistent yet differentiated instruction provided by the classroom teacher. Tomlinson (2005) agreed differentiated instruction can be created by modifying content covered, products for assignments, or time spent during a lesson.

Jerome Bruner (1967), a constructivist, believed learners build their own knowledge through experiences working with materials, tools, and interacting with others. The elements of his theory of instruction included structuring the knowledge in a way that learners can understand, and determining a sequence to present the new information. Structuring the knowledge in a way that utilizes learning style preferences may create differentiated reading experiences that nurture the development of reading and enhance learners’ understanding of how to use reading strategies for decoding and comprehending. Students successfully applying reading strategies may create a successful pattern of reading promoted by Clay.

In her book, *The Early Detection of Reading Difficulties*, Marie Clay (1985) spoke about preventing the development of a “pattern of reading failure” in young children. Children lack successful reading strategies for decoding words and understanding text. For example, a struggling reader is unable to figure out a word s/he usually skips it and goes on reading. Quite often comprehension is lost and the pattern of failure continues. However, proficient readers know how to apply a variety of reading strategies successfully to unlock new words and to promote comprehension. Clay believed it was the teacher who should equip each learner to use effective reading strategies and skills in authentic ways.

Grouping

In *No Quick Fix: Rethinking Literacy Programs in America's Elementary Schools* (2007), Hall, Prevatte and Cunningham wrote about eliminating ability grouping for reading instruction. They explained that once the children are grouped the second month of first grade they remain in those groups for the year (Juel, 1990). Those students in the bottom group get further behind and usually remain in the bottom group for their entire school careers due to the very slow pace and limited reading content covered slowly according to Juel (1990). Wiggins (1994) discussed the use of basal reading programs which support the three reading leveled groups which are formed based on standardized reading tests scores hold back the low group due to instruction moving more slowly and limited in comprehension reading instruction causing them to be further behind peers. Hall, Prevatte and Cunningham (1995) concurred there is no one best method to teach all children reading instruction.

Hall, Prevatte and Cunningham (1995) addressed the approaches of phonics, basal readers, literature, and language experience with writing as components in reading instruction. They proposed the use of four blocks of instructional time which would incorporate these four approaches creating a complete reading experience for all learners. Learning style reading groups might compliment this reading instruction by delivering learning experiences utilizing activities and materials aligned with learning style preferences while eliminating the creation of the bottom reading group where learners are sometimes left behind forever.

Hall, Prevatte and Cunningham (1995) and Allington (2007) wrote about the small group experience Facilitating Reading for Optimum Growth (FROG) which was

developed for first and second graders. This 45 minute small group reading instruction was utilized to create successful reading experiences for all students. These small groups consisted of mixed abilities in reading with one strong student, two or three average readers, and one struggling reader. This reading instruction experience utilized the four block approach and resulted in 57 percent of the first and second graders reading on or above grade level with 43 percent reading at primer or pre-primer level. There were no nonreaders at the end of the year and the children reading on or above grade level were higher than previous years. FROG allowed struggling readers to engage in reading activities with others who modeled effective reading behaviors using reading strategies and skills. The results of this study encouraged this researcher since grouping by learning style preferences might create similar mixed reading abilities groups which may experience similar successful reading experiences when reading instruction utilizes activities and materials supporting learning style preferences.

Strech (1995) discussed the implications of ability grouping based on reading levels for reading instruction in her dissertation *Ability Grouping for Elementary Reading Instruction and its Relationship to the Balanced Literacy Approach*. She presented several studies which showed the failure of ability grouping to increase reading levels. Hallerman and Waterman (1985), cited in Strech, including a) the criteria teachers use determining group placement is inconsistent, b) the below grade level reading groups contain a larger percentage of minorities with low socioeconomic status, c) teachers treat groups reading above grade level differently than groups reading below grade level, d) inequalities between groups in achievement levels increase over time, creating a gap

that leaves below grade level readers further behind, and e) the self-concept of readers reading below grade level decreases. These negatives associated with ability grouping point out the need to rethink criteria when forming small groups for reading instruction.

The achievement experienced by the students in the high group is not worth the negative effects of ability grouping on the students in the low group as expressed by Harris and Harrison in the paper they presented at the Annual Meeting of the California Educational Research Association in1988. Imai et al. (1992) pointed out the behavior of students in high ability reading groups display attitudes of encouragement while the behaviors of students in low ability reading groups tend to distract one another creating a learning environment that is dysfunctional and does not nurture the development of reading. Au et al. (1963) stressed lower ability reading groups receive fewer learning opportunities than peers in higher ability reading group while Juel (1990) pointed out educators use a limited variety of texts in below grade level reading groups. Also, Allington (1980) discovered teachers corrected more frequently the errors made by students in the below grade level reading groups with little or no instruction to help the students understand the correction. Stagnant leveled reading groups trap struggling readers in this mode of reading instruction. Ability grouping in reading has not proven to be a successful nurturing learning experience for all students according to these researchers.

Slavin (1987) explained criteria for effective grouping might be based on a skill being taught, making groups flexible enough to allow teachers to move students from one group to another preventing stagnation, and varying the pace and level of instruction to students' levels of readiness and learning rates. The work of Robert Slavin identified a

variety of grouping plans that support students' academic achievement. Slavin (1987) presented five grouping plans including a) within-class ability grouping, b) ability grouped class assignment within a grade level for math, c) regrouping for reading and mathematics. He recommended The Joplin Plan and the nongraded plan for reading instruction. Slavin did not promote any one grouping plan as one that fits the teaching of all content areas but encouraged educators to find an alternative grouping method for the ability group within a class as it did not prove to enhance student academic achievement.

Slavin believed:

- students should identify with a heterogeneous class
- students should be regrouped for instructional purposes
- Intelligent Quotient or achievement level should not be the criteria used to determine group placement
- groups should be formed based on a specific skill that is to be taught
- teachers should limit the number of groups so they have adequate time to instruct all groups

Learning Styles

Reading is usually taught utilizing auditory and visual techniques according to Dunn, Dunn, & Perrin (1994). Their research has shown that the visual perceptual element in a learner is not strong until around age eight, and the auditory perceptual element is not developed until after age eleven. This information strongly supported that teachers need to utilize the tactile and kinesthetic perceptual elements when instructing

reading to primary children. Therefore, it is essential for teachers to incorporate the tactile and kinesthetic elements during reading instruction.

In this study the four modes of learning style preferences, visual, auditory, tactile and kinesthetic, were used to instruct decoding and comprehension reading strategies with first grade students. Evidence to support the use of these four modes of learning style preferences with first grade students can be found in Teele's (2004) research of multiple intelligences with first grade students. There is an overlapping of the two theories as they relate to the brain. Teele found first grade students' strengths were in four of the nine multiple intelligences areas including, logical-mathematical, linguistic, spatial, and bodily-kinesthetic. These four areas of intelligences incorporate the sensory perceptional senses of visual, auditory, tactile, and kinesthetic when processing information. The logical-mathematical intelligence is found in the visual learning style preference because this learner looks for patterns and relationships between words, while engaging in opportunities to problem solve by decoding new words and making inferences about text read. These learners use flow charts, diagrams, images and pictures as clues to support their understanding of decoding new vocabulary and comprehending text.

The linguistic strength is found in the auditory learner who manipulates the structure of language, listens to the sounds of words, presents orally, engages in talk about reading, and reads aloud. Learners with spatial and bodily kinesthetic intelligence utilize the same learning style preference as the tactile and kinesthetic learners who prefer body sensations to process information. These learners need to move and act out reading skills and concepts which engages the motor cortex of the brain. Learning experiences

that use manipulative teaching tools, simulations, drama, dance, and hands on activities would engage these learners. Teele's findings support this researcher's use of the four learning style preferences with first grade students as appropriate for this study.

Problem to Study

Recognizing that each child's brain processes information just a little differently, it is imperative that instructional strategies be adjusted to embrace these differences. Therefore, differentiated reading instruction is absolutely necessary if every child is to become a successful reader. While ability grouping is one method of addressing differences, what about differentiation according to students' learning style preferences? Might there be any relationship between reading instruction based on learning styles and first grade students' reading achievement?

First grade is a critical time in the development of successful reading behaviors. Some first grade students show success in using reading strategies for decoding and comprehension by second semester, while other first graders are still trying to figure out the purpose of reading strategies. Some first grade students are identified as needing supplemental reading instruction and are placed in pull-out programs separating them even further from the consistent learning environment of successful readers.

In the article "Catch Them before They Fall," Torgesen (1998) promoted prevention rather than remediation for failing readers, "One of the most compelling findings from recent reading research is that children who get off to a poor start in reading rarely catch up" (p. 1). He stressed early detection through assessment. Utilizing

the *right* kind of quality instruction with the *right* level of intensity and duration with the *right* children at the *right* time created an effective preventive program (Torgesen, 1998). That is differentiated instruction! Focusing on these elements in the context of learning style preferences might allow educators to address reading instruction in a way that may prevent reading failure. First grade is the right time and reading instruction utilizing learning style preferences may be the right kind of instruction to ensure success for all children.

Learners experience a feeling of harmony when instruction is aligned with their learning style preferences. When elements of learning style preferences are present during instruction learners have a feeling of comfort. They are engaged in a learning process that is suited to them naturally, allowing them to interact with a reading strategy, concept, or skill in a way that is meaningful for them. Educators need to make instructional choices based on individual student needs and might consider learning styles and how the brain learns when planning reading instruction. Utilizing activities and materials that incorporate learning style preferences to create nurturing learning experiences might enhance the intense reading instruction allowing all students to learn the same reading strategies and skills at the same pace. Creating small groups based on learning style preferences might allow students to experience differentiated reading instruction by modifying assignments or student work samples while keeping the reading content and time spent in reading instruction equal for all students. Consistency of reading instruction in the classroom might enhance the reading development for all learners.

Purpose of Study

The primary purpose of this study was to examine the relationship between reading instruction based on learning style preferences and first grade students' reading performance. To correct the reading deficiency of 34% of fourth grade students reading below grade level, reading instruction needed to be addressed in first grade. Reading instruction planned for students who differ in their ways of learning by using a variety of instructional strategies would be a first step. Allington (2007) challenged educators to rethink their educational beliefs by thinking outside the box when planning instruction.

Therefore, this researcher saw potential in incorporating learning style preferences as a way to group peers creating optimal learning experiences for learners needing to catch up removing the stigma of being in "the low group." Grouping students by learning style preferences created small groups consisting of a variety of reading abilities with opportunities for peer coaching and the modeling of successful reading behaviors for struggling readers. This researcher explored grouping children for reading instruction based on learning style preferences in an attempt to create successful nurturing learning experiences for all children.

Therefore, the formation of learning style groups in first grade created differentiated reading instruction by using materials and activities of a learning style preference. Learning style preferences in this study included visual, auditory, tactile, and kinesthetic. Each learning style group consisted of multiple reading levels providing opportunities for modeling and peer coaching for struggling readers. Each learning style

group was taught the same reading skill/strategy eliminating inequitable learning experiences for below grade level readers.

The results of this study have the potential to provide classroom teachers with another effective way to differentiate reading instruction that is equitable for all students. Grouping students by learning style preferences adjusted reading instruction enough to create nurturing learning experiences that promoted reading achievement for all students.

Research Question

What effect does reading instruction based on learning style preferences have on first grade students' reading achievement? Investigating the change in students' reading performances when instruction utilized learning style preferences, the following hypothesis was tested:

Null Hypothesis

There will be no significant difference between the means of the total number of errors of the running record reading scores of the learning style treatment group and reading leveled control group when comparing the total number of errors pretest mean and the total number of errors posttest mean scores in an effort to show a change in reading performance as reported by the running record reading assessments.

Procedure

This study, conducted as an after school reading club, explored the reading achievement of 45 first grade students from a Midwestern rural elementary school. Predictive Analytic SoftWare (PASW) was used to randomly form the control group and the treatment group based on their reading levels provided by the first grade teachers.

The first grade students participating in the study were administered the *Elementary Learning Style Assessment* (ELSA) to determine their learning style preferences. A baseline reading performance score for each first grade student was determined when conducting running record reading assessments by recording the total number of errors made by each reader after reading 3 same leveled 100-word passages.

Teacher candidates were trained in the format of effective reading instruction. They planned reading instruction based on reading levels for the control groups while instruction for the learning style treatment groups was based on learning style preferences, including visual, auditory, tactile, and/or kinesthetic, of the participating first grade students based on the results of the *Elementary Learning Style Assessment (ELSA)*. The treatment and control groups received the same reading instruction including the decoding strategies and comprehension skills taught daily in the regular classroom.

A research design, Randomized Pretest-Posttest Control Group, was used in this quantitative research to administer treatment and collect data. A one-way ANOVA was used to analyze the pretest and posttest running record reading assessment scores to determine if any significant effect occurred when grouped and instructed by learning style preferences as compared to those grouped and instructed by leveled reading.

Significance of the Study

It is crucial to teach successful reading behaviors before a cycle of reading failure is experienced by the learner. Proficient readers use multiple strategies to decode and comprehend text. When a child is not successful reading a word she often skips unfamiliar words and becomes confused and frustrated and no longer interested. Avoidance of reading delays practice using reading strategies contributing to lack of ability to use reading strategies for problem solving during reading preventing the development of reading enjoyment. If a learner employs a pattern of successful reading strategies he becomes a proficient reader. However, if a child does not use effective reading strategies she becomes a struggling reader.

Nature versus nurture has been an ongoing debate in the field of education. The diagram Nurture through Nature (Figure 1) exhibits the idea of combining nurture and nature as a way to differentiate reading instruction. Nurture through Nature (Figure 1) illustrates the learning cycle experienced by a proficient reader when successfully learning and applying reading strategies. The left side of Nurture through Nature illustrates the combination of reading instruction utilizing the learning style preference of a learner to create that successful cycle of becoming a proficient reader for all students. The learning cycle displayed on the right promotes reading enjoyment which leads to more reading providing frequent opportunities for applying reading strategies as displayed in Figure 1.

To prevent the development of struggling readers Clay (1985) recommended reading instruction that creates a successful reading experience for learners to begin

sooner instead of later. Her program, Reading Recovery, was designed to instruct first grade students' how to successfully use reading strategies. The selection of a first grade population for this research study was critical based on the developmental reading stages of six-year olds (Chall, 1967) and the successful results of the Reading Recovery Program.

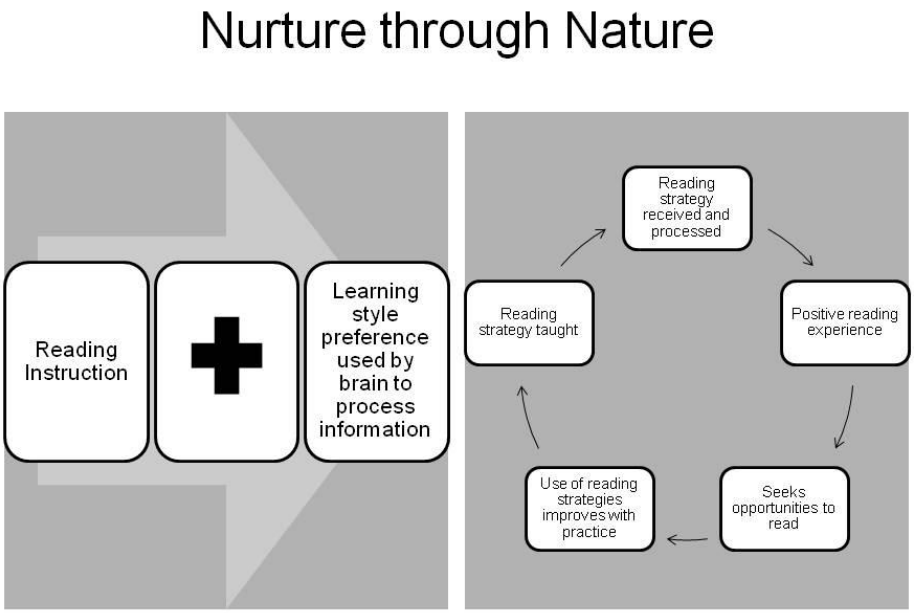

Figure 1. Nurture through Nature model: illustrating a cycle of positive learning.

Closing the gap in reading achievement among diverse learners is a goal of equitable education. Traditional reading groups have been based on reading ability levels (ie. above grade level, reading on grade level, and reading below grade level). Students reading below grade level are taught fewer reading strategies, skills, and concepts which serves to widen the achievement gap. Teachers spend more time on each skill thus

slowing down the reading instruction and covering less material. Slavin (1987) explored a variety of grouping approaches for improving students' learning experiences during instruction. He encouraged educators to continue to seek ways of grouping children for instruction within the classroom. What if a teacher was to teach reading strategies and skills using the learner's perceptual strength as determined by his/her learning style preferences? The reading strategies would be organized to match the learner's natural sensory perception based on learning style preferences, addressing the way s/he learns based on his/her way of cognitively processing information. The learner internalizes the reading strategy or skill sooner so the learner's brain is able to apply the reading strategy thus ready for the next reading strategy keeping reading instruction at a normal pace for struggling readers.

Reading is a complex task engaging the nature of the learner within all areas of the brain. The brain stem is involved with the eye movement tracking text from left to right. The limbic area is engaged through multiple components. The amygdale allows learning to take place if the learner's emotional state is positive. The thalamus receives a new reading strategy or skill and sends it to the hippocampus to be stored as factual memory. The cerebral cortex becomes engaged through assimilation or accommodation of the new reading concept, skill, or strategy based on the prior knowledge and/or learning experiences of the student. This study explored creating a learning environment that was nurturing to this complex task by utilizing the nature of the learner through learning style preferences.

Research studying learning style preferences has been conducted for about forty years even though the concept has been around much longer. The research has taken place in a variety of disciplines, range of settings, and levels in education. There are several definitions to help educators understand the concept of learning styles. According to Riding and Cheema (1991) learning style is the application of a cognitive style in a learning situation. Cognitive style is a component of learning style (Cassidy, 2004). Learning style preferences are ways learners perceptually approach different learning tasks. Learning styles may be a trait that is stable and structural or it can be changing as a process or state of being. Others refer to learning style preference when the learner prefers one method of learning over another. To simplify this concept learning style preferences might be considered the preferred way in which an individual approaches a task or learning situation while processing new information. This study was concerned with examining instructional reading methods for learners based on their learning style preferences utilizing the sensory perceptual modalities of visual, auditory, tactile, and kinesthetic as a way to group learners for effective reading instruction.

Although the need for improved reading instruction is evident as schools struggle to improve an elementary school's academic yearly progress, an effective instructional approach to reading may be as varied as using learning style preferences within a classroom. Slavin (1987) pointed out that studies exploring the variation of grouping for reading are limited due to the fact that researchers are manipulating reading instruction which may negatively impact students' learning to read. This present study sought to further the understanding of differentiated reading instruction to include instruction based on students' strengths, their learning style preferences.

Definition of Terms

Auditory learner. Student who learns best by hearing the information in songs, poems, jingles, lectures, on tape, and during discussion.

Decoding. Semantic, grapho-phonic, and structural cueing, used to figure out words in context.

Kinesthetic learner. Student who learns best by moving, doing, touching, when engaged in big muscle hands-on activities.

Learning style preferences. The sensory perception system including visual, auditory, tactile, and kinesthetic also known as modalities, students' strengths, or preferences.

Leveled reading groups. The practice of grouping students by reading level for small group reading instruction including above grade level, on grade level, and below grade level.

Phonics. A design for reading instruction to connect sounds with letters or groups of letters through blending.

Reading comprehension. The act of understanding text and creating meaning based upon this understanding using strategies of prediction, inferences, determining importance, and synthesis.

Reading growth. The overall difference in an instructional reading level produced as a result of participation in reading instruction.

Reading strategies. The processes used by readers to problem solve when decoding and/or understanding text while reading.

Running record reading assessment. A test of contextual reading accuracy and strategy observed during the actual reading of a leveled text passage while assessor records the types of errors or miscues made by a reader.

Tactile learner. Student who learns best by moving, doing, touching when engaged in small muscle hands-on activities.

Visual learner. Student who learns best by seeing the information on charts, diagrams, in advanced organizers and seeing the body language and gestures of teacher.

Assumptions

It was assumed that first grade students can be grouped by learning style preferences and reading skills, concepts, and strategies can be taught to the treatment and control groups at a uniform pace. First grade reading instruction can be designed to match visual, auditory, tactile, or kinesthetic learning style preferences of the students.

Another assumption important to this research was that learning style preferences can be determined for the first grade students. It was assumed that teacher candidates can be trained to design reading instruction using learning style preferences. It was assumed that the data collectors conducted running records consistently and accurately. Finally, it was assumed that all reading strategies/skills/concepts can be taught in all four learning style preferences.

Limitations

The mortality of sample was experienced when nine of the fifty-four participating students were lost from the study. Four were lost due to family transportation situations

and five were lost due to attending less than 12 club sessions due to illness. The elementary school had five first grade classes with a potential of 120 participants. The final count of 45 students in the sample represented 38% of the first grade students in this school.

Implementation of treatment was anticipated so training sessions to review the format of reading instruction was provided. The use of eight teacher candidates in eight different locations throughout the building was a challenge when monitoring the instruction of the reading strategies for each learning style preference as well as the consistency of teaching the reading strategies between the control group and treatment group. Due to so many teacher candidates an increase in the variability of the implementation of the reading strategies may have created a threat to the results of the study.

The Hawthorne effect was considered as a possibility during the after school program's differentiated lessons. Students in new groups, with different peers, participating in different kinds of reading activities may have begun to feel special creating a positive effect during the after school reading club. The participating students were excited about reading and expressed this in the hallways during the day. Other students would ask how they could join the club. Inflated posttest total number of errors scores cannot be ruled out when analyzing the data results.

Summary

This study was concerned with reading instruction that would address the 34% of students reading below a Basic level. What areas in reading instruction need to be

examined to decrease the number of students reading below Basic? How might instruction be differentiated in first grade to improve the reading performance of future fourth grade students creating readers who are proficient in reading?

Society needs citizens who are life-long independent readers with the ability to apply a set of reading strategies when interacting with text and constructing new knowledge enhancing their schema. A democracy consists of citizens who can read and comprehend text which will assist them when making decisions for the good of the community. Reading is complex but an important skill to the life of a community.

Reading instruction that recognizes the differences in learners and incorporates a variety of instructional strategies, activities, and materials would create successful reading experiences for all learners. Experienced and observant educators have a wide range of approaches when teaching reading strategies which are flexible and creative when planning for different learners. They differentiate the learning by modifying the assignment, the process, and/or the length of time creating effective learning experiences for all students.

Chall (1967) reminded educators reading develops over time, and Clay believed there was no magical moment in the learner's reading development but a journey in the direction of developing successful application of reading strategies. May (2001) explained reading comprehension was not a set of rules but a set of choices students learn to apply successfully. Learning experiences that allow proficient readers to model and coach struggling peers contributes to the reading development of struggling readers.

Slavin's recommendation for an alternative method of grouping students within a classroom is the rationale for this study. The purpose of this study was to investigate

reading instruction for small groups based on learning style preferences using visual, auditory, tactile, and kinesthetic learning style activities and materials. These small groups were a mix of reading levels which created opportunities for scaffolding in the form of modeling and peer coaching for struggling readers as proposed by Vygotsky (1978). Struggling readers who have limited or no internalized language for applying reading strategies heard the think alouds of proficient readers and saw the modeling of reading strategies in action. These learning experiences lead to the development of their own internalized language for applying reading strategies.

Bruner (1967) encouraged teachers to seek the appropriate presentation and organization of a concept or skill being taught so all learners can learn. Allington (2007) challenged teachers to let go of the conventional wisdom that peers cannot learn from one another. According to Chall (1967) Stages One and Two are the foci for reading development for first grade students. Combining the wisdom of each of these theorists this researcher sought to create nurturing reading instruction by grouping first grade students based on their learning style preference.

Reading strategies for decoding and comprehension presented to learners in their preferred learning style preference may have enhanced the learner's understanding the purpose of the reading strategies and when to apply the strategies while reading. If learners encountered reading strategies in a way that made sense to them, their brains perceived the reading strategies as relevant and processed the reading strategies into their long term memory making the reading strategies available for application when reading.

Focusing on the students' learning style preferences differentiates the instruction making it meaningful and the content relevant to the learner. Providing opportunities for

learners to predict, to make choices, to experience challenges, to practice, and to reflect helps to maintain the relevancy of the reading strategies and build reading schema. This is the differentiated reading experiences the after school reading club provided.

CHAPTER II: LITERATURE REVIEW

Determining how to best deliver reading instruction to meet the expectations of society has been the mission of educators for decades. Our democracy needs citizens who are readers who think critically. Our communities need productive, contributing members who are informed and skilled. Our schools need to be innovative and resourceful places where knowledgeable educators are skilled in reading instruction that equips every young child to be a successful reader.

According to the National Center for Education Statistics, National Assessment of Educational Progress (NAEP) the fourth grade reading achievement levels reported for Indiana was 34% of the students are below basic in their reading performance in 2009. That was one third of a student population in Indiana not able to read to meet basic reading expectations. This study was concerned about reading instruction in the elementary classroom that contributed to these reading statistics. What changes in methods of reading instruction need to be addressed to decrease the number of students reading below basic? How might reading instruction in first grade change to improve the reading performance creating fourth readers who are proficient in reading?

The Interstate New Teacher Assessment and Support Consortium (INTASC) addressed reading instruction expectations within the standards three and four for beginning teacher licensing and development. Principle Three emphasized educators understanding how students differ in their approaches to learning and creating instructional opportunities that are adapted for diverse learners. This included designing learning experiences creating an inclusive learning community. Principle Four

emphasized educators use a variety of instructional strategies during learning experiences leading to the development of critical thinking, problem solving and performance skills within all learners. The cognitive growth of all learners is to be monitored and instructional strategies adjusted based on student's progress. Educators need to make instructional choices based on individual student needs analyzing learning styles and how the brain learns when planning reading instruction for the children in their classrooms.

A search was conducted of the literature available related to reading strategies, how the brain works, learning styles, and grouping students for learning within the area of reading. In the process of reviewing the literature the author sought research concerning instructional reading strategies used by educators and how the brain processes information, the teaching of reading according to students' learning styles, and grouping students for reading instruction.

Reading Instruction

Jean Chall (1967) was the first to propose that reading was (a) a developmental process and (b) reading instruction should include both phonics and whole language components. She personally favored phonics for two reasons (1) its benefits were sustained over time and (2) phonics was logic and sight words as memory. Chall observed that children who had been taught by the look-say method appeared to be stronger in the beginning but fall behind later. Logic is a more reliable problem solving tool for the life-long learner. To provide practice in decoding, she supported a "controlled text in first grade which would be much higher in decidability for the child" (2001).

Chall believed reading was not learned all at once but developed over time. Therefore, she defined six levels or stages of reading development. Stage Zero was the prereading stage from birth to school age. This reading stage included the child being able to recognize environmental print. Stage One was the beginning of reading instruction including letter shapes, sounds, and decoding skills. Stage Two was the continuation of the decoding skill practice including phonetic patterns and whole-word patterns developing fluency by phrasing. Stages Zero-Two have been text-driven with focus being the decoding of words. Stage Three was the beginning of reading for information. Decoding was more automatic with reading for the meaning to build knowledge being the purpose for reading. Stage Four, the reader was now growing cognitively by making inferences based on clues within the text read. Stage Five was a mature level of reading involving analyzing and synthesizing what was being read to what the reader already knew. Stages Three-Five are focused on the readers acquiring new knowledge through their reading. Chall believed it took 20 years to develop Stage 5 reading characteristics.

Components of Literacy

Chall taught there was not one single method to reading instruction that solved all the reading problems for all children as some of her contemporaries believed. She believed teaching children the alphabet and sounds empowered the children giving them knowledge and skills. Chall stressed that reading was a difficult skill and teachers needed to be consistent, skillful, and open-minded to be effective in the classroom. She presented

the idea that reading development depended on interaction between environmental and biological factors.

Marie Clay (1985) believed reading development was a journey of developing effective reading behaviors. She was a strong advocate for promoting successful reading by preventing failure. She believed successful reading was not based on maturation but on the use of effective strategies to figure out unfamiliar words thus understanding what was read. The daily one-on-one approach to reading instruction, found in Reading Recovery, taught the learner how to problem solve and self-check becoming an independent reader skillful with reading strategies for decoding new vocabulary and comprehending text when reading. This approach to reading instruction begins in first grade before the child experienced a cycle of reading failure and provided the child with an effective set of reading strategies.

Dorothy Strickland discussed the importance of effective early intervention inFarstrup & Samuels (2002) book entitled *What Research has to Say about Reading Instruction*. She promoted a language arts program "combining semantic, syntactic, grapho phonic cues and background knowledge" (p. 75). Early literacy activities out teach the alphabet, concept of print, and phonemic awareness. Children would also listen to stories and also have opportunities to write. Primary grade reading instruction would emphasize reading comprehension strategies, word recognition strategies, fluency, and writing skills.

In this same book, *What Research has to Say about Reading Instruction*, Nell Duke and David Pearson discussed the effective practices for developing reading comprehensions skills within learners. They promoted a balanced approach of instruction

which included explicit instruction and time to read, write and discuss. A supportive program would include time set aside for reading together, reading real text for real reasons, reading a variety of genre, a rich print environment, time to write, and high quality discussion time.

Gregory and Nikas (2005) discussed active teaching in *The Learning Communities Guide to Improving Reading Instruction.* They pointed out that the effective teacher provided time for learners to read independently, utilized small group instruction, taught explicit phonics instruction using real text, and emphasized all levels of comprehension, with writing responses to reading. According to Gregory and Nikas reading is a thinking process that utilizes phonemic awareness, phonics, and vocabulary to construct meaning when interacting with print. The reader constructs schema to make connections with prior knowledge, experiences, emotions, and understanding. During reading a reader will ask questions and make inferences while constructing meaning of the text.

The community of experts, who also supported active teaching include Allington, Fogarty, Vygotsky and Routman. They shared Allington's six T's for reading instruction which brain research supports. These include:

- Time
- Tasks
- Texts
- Teaching
- Talk
- Testing

Fogarty's four-corner framework was presented which included climate for learning, skills taught explicitly, authentic opportunities to apply, and self-assessment with reflection. Gregory and Nikas incorporated Vygotsky's zone of proximal development and Routman's teaching-learning zone. In their chapter on comprehension, they stressed learners should learn vocabulary indirectly labeling this "incidental word learning." They believed students learn 3000 words a year naturally while only 300 words are learned from organized instruction which they label "intentional word learning." Gregory and Nikas provided a list of interventions a classroom teacher could utilize when supporting their learners during intentional word learning.

Roller (2002) focused on comprehensiveness, development, motivation, differences and time. She stressed the three essential components of K-3 reading instruction are print-sound decoding, getting the meaning, and developing successful reading habits.

Torgesen, Wagner and Rashotte (1997) focused on word identification skills. They promoted "play with oral language" developing the learner's phonological awareness and spending more time reading stories from trade books. They stressed the importance of integrating writing with reading instruction so the child's writing vocabulary would reflect the reading vocabulary. When a child experiences speaking, reading and writing together learning becomes more meaningful.

in Blanchman's (1997) *Foundations of Reading Acquisition and Dyslexia: Implications for Early Intervention* Nicholson stressed the importance of the alphabetic principle. He promoted the teaching the alphabetic principle and phonemic awareness emphasizing a set of letters with sounds based on rules to help learners to read. He

explained the alphabetic principle can be taught through language games, alliterations, rhyming, and reading nursery rhymes and Dr. Seuss stories. There must be planned instruction to learn reading skills. He reminded educators how hard it is for some learners to discover the different sounds just through hearing which means educators need to point out sounds during instruction.

Comprehension

Reading comprehension is a complex activity showing that meaning exists within a message waiting to be interpreted and exists within the learner whose comprehension is influenced by prior knowledge and experiences. The National Reading Panel referred to reading comprehension as "a multidimensional activity consisting of the context of the message, the reader and the text starting as an inner process leading to an external process" (p. 114). Reading comprehension involves problem solving with the reader using prior knowledge and experiences to construct meaning as s/he reads a text.

Block and Pressley (2002) described reading comprehension instruction as modeling and explaining when reading a story aloud for the primary grades. They stressed the importance of teaching the learner how to decode well, build vocabulary, relate the text to learner's prior knowledge and experiences, monitor if the text is making sense, and to read a variety of genre.

Frank May (2001) stressed the importance of reading comprehension instruction. He believed reading comprehension should be taught during reading. He believed comprehension was taught best not by having students retell a story or answer questions following a reading of a text but addressing the miscues made while reading. May stated,

"Reading comprehension is an interacting process and product of interaction of ideas, images, and experiences of the writer with prior ideas, images, and experiences of the learner" (p. 111).

Frank May (2001) presented seven myths about reading in his book *Unraveling the Seven Myths of Reading: Assessment and Intervention Practices for Counteracting their Effects.* He claimed that while children are taught to read by learning to decode words the ultimate goal should be to understand what was read. May stated, "Poor readers use unsuccessful strategies attempting to understand the message while good readers use successful strategies attempting to understand the message" (p 27). He believed children needed a collection of effective strategies to use flexibly when reading independently. The strategies would successfully decode words and promote comprehension. May further explained the brain has parallel wiring, instead of serial wiring, so the brain uses several problem solving strategies at one time to understand the meaning of the text. This concept is supported by Judy Willis (2007) in her article "The Gully in the 'Brain Glitch" Theory. She explained learning to read is more complex than neuroscience is showing in research conducted during MRIs. Many parts of the brain are engaged while the learner is reading a text not just the left hemisphere posterior part of the brain known for decoding words.

The Scalon and Vellutino (1997) study results indicated cognitive abilities including visual and auditory were related to kindergarten students who were at risk for reading difficulties at the beginning stages of learning to read. Both of these studies recognized the need for reading instruction to utilize a variety of cognitive abilities or

strengths allowing learners to process information in a format that may allow the learner to retrieve reading strategies learned and apply them during reading.

Differentiated Reading to Teach Literacy Components

Sternberg, Grigorenko and Jarvin (2001) presented the Triarchic Model emphasized reading instruction based on students' strengths as well as weaknesses. The authors promoted teaching students three different ways including analytical, creative, and practical. They stressed this approach would provide the students' "more mental retrieval routes to gain access to the material they have learned" (p 49). "Reading is a part of cognition," and the authors explained, "poor readers generally show a variety of problems in their cognitive processing of reading material" (p. 49).

Another study supporting the use of multiple sensory perceptions when learning is the study conducted by Dev, Doyle and Valente (2002) in 1996. Their study incorporated the Orton-Gillingham technique utilizing visual, auditory, and kinesthetic learning style preferences. Their small sample of 11 participants showed improvement in reading. Their results documented the benefits of multisensory methods of instruction for reading promoting more exploration into the instructional strategies used by classroom teachers when teaching reading.

Reviewing the literature presented in this section on reading instruction, it is evident of the role both the nature of the child and the cognitive nurturing of reading instruction contribute to positive reading experiences. Bruner (1967) addressed the idea of a child's nature be considered when planning instruction impacting the organization and the presentation of the concepts. Children can learn if the information is presented in

a way that matches learners' ways of processing new information. As was stated by Willis (2007) and May (2001), many parts of the brain are engaged while reading and the brain uses several problem solving strategies at one time when constructing the meaning of text. To aid in the understanding of the complexity of reading it is important to have an understanding of how the brain processes information when nature and nurture work together.

Nature versus Nurture

Nature

As referred to in Chapter One reading is a complex task engaging all the areas of the brain including the amygdale which allows learning to take place when the learner's emotional state is positive keeping the cognitive side of the brain open and ready to interact with information. Educators matching instruction to the learner's sensory perceptions including visual, auditory, tactile, and kinesthetic learning style preferences when processing new information create learning experiences that may establish optimal learning environments that are emotionally nurturing, compatible, and safe for learners.

Information Process Theory, as presented by Seigler, Deloache, and Eisenberg (2006), suggested that task analysis, problem solving, memory, and thinking occurs over time. Task analysis revealed children's thinking through performance which changes as their ability to engage in the thinking process develops. The problem solving component is based on children's memory and past experiences. As children develop the memory capacity increases. Children learn about their world through their senses. As they encounter new information their memories are engaged. The sensory memory collects

information, the working memory looks for relevancy based on prior knowledge, and the long-term memory retains it indefinitely for use. Educators refer to this as building schema.

Educators know there needs to be prior knowledge to build upon when teaching new information. Memory is an important element to the skill of reading. The learner needs to have access to prior knowledge (memory) so s/he can understand text by making connections with the text. As comprehension takes place the learner's brain engages the working memory looking for relevancy within the text. When relevant text is read the long-term memory retains it to be used during literature circle discussions, retellings, or written responses to literature through assessments or creative writing activities. This retention of information is based on prior knowledge, schema, already stored in the long-term memory creating a successful reading experience for the learner. Effective teachers help children make these connections so they see relevance of what they are reading. Prior knowledge promotes comprehension.

When discussing the topic of reading, Teele (2004) explained the nature of students' brains have common components but are different due to "initial wiring and rewiring" caused by different learning experiences within their environment. The three main areas of the brain are the brain stem, the limbic system and the cerebral cortex. The more complex the learning task the more areas of the brain engaged during the learning.

Tileston (2000) explained how the brain continuously looks for connections between new concepts and skills building on existing connections and creating new connections which are added to long term memory. She promoted learning as a social experience energizing the brain. Sousa (2001) called these old and new connections

"transfers." The brain experiences a positive transfer when new connections (understanding) match old connections (prior knowledge) in the long term memory and experiences a negative transfer if the old connection (previous experience) inhibits the learning of the new concept or skill. He also pointed out the brain experiences confusion or frustration when it finds no connection within the long term memory. This new concept or skill is then placed into the working memory waiting for relevance, but Tileston (2000) pointed out the working memory can only handle a few chunks of information at a time. Jensen (1998) created an analogy comparing the memory pathways to a filing cabinet. The five drawers are 1) semantic, 2) episodic, 3) procedural, 4) automatic, and 5) emotional. The brain files new concepts and skills into the appropriate drawer labeling how the new concept or skill was processed. For example, a new concept is learned through *words* aurally or visually and travels the path leading to the *semantic drawer* in long term memory, while another new concept is learned through a *process* so the brain sends this through the *procedural drawer* to long term memory.

According to Silver (2000) the brain does not like to learn random chunks of knowledge but prefers to delve in depth with concepts and skills. Over time the concept becomes more meaningful, internalized enhancing schema and with the development of new dendrites, the new information moves from the working memory to the long-term memory. Long-term memory is where reading strategies should be stored so they can be retrieved by the brain when the learner is reading independently.

Silver (2000) also suggested that motivation impacts successful reading. The brain likes to engage in topics of interest, therefore educators need to design an engaging and relevant curriculum with choices. The brain decides relevancy within the first 20

minutes of a lesson with the new information (Sousa, 2001); therefore, relevancy and motivation are linked.

Nurture

Sociocultural theories focused on learning takes place through direct interactions between children and others as opposed to learning which occurs along and independently. Vygotsky's (1978) theory was an example of the Sociocultural theory. As social beings, learners engage in learning through language and thought. Thoughts were internalized speech a learner had heard during nurturing interactions with others. An example might be a person more knowledgeable explains to a learner how to decode an unfamiliar word encountered when reading. Through multiple opportunities of interaction, eventually, a learner would control his/her independent reading experiences by engaging in private speech when thinking out loud how to decode other unfamiliar words encountered when reading. As the private speech is internalized a learner's reading continues to develop due to nurturing learning experiences.

Vygotsky's (1978) Sociocultural theory incorporates two concepts that promote the social interactions proposed by the Sociocultural theory. These two concepts include: a) social scaffolding and b) zone of proximal development (ZPD). Scaffolding was the temporary support provided by a more knowledgeable peer or adult which allowed a learner to experience success at a higher level. In the case of reading instruction, scaffolding would allow a first grader to read challenging text or engage in constructing new understandings of a reading skill or concept with the support of a fourth grade reading buddy. The concept of ZPD identified the area between what a learner can do

alone and what s/he can do with assistance. For example, guided reading instruction, which takes place in the ZPD, would challenge a learner to read more difficult text above his/her independent reading level. As the ZPD changes due to the development of decoding and comprehension skills scaffolding would change. Gradually scaffolding would diminish over time as a learner developed the vocabulary, decoding skills, and comprehension strategies to read the text independently.

Tomasello (2001) explained humans have a natural inclination to teach and learn. This extended Vygotsky's (1978) ideas of learning through communicative scaffolding creating learning experiences that nurture learners within relationships based on a natural desire for knowledge. Bronfrenbrenner's biolecological model diagram showed peer influence through relationships during learning experiences within the microsystem. Thus, the debate of nature versus nurture is integrated by the literature review creating an opportunity for nurture and nature to work together.

Considering the nature of the learner, some brains are "wired" to process new information through a visual preference while others process new information through an auditory, tactile, or kinesthetic preference. Educators who recognize these differences within learners can create reading instruction that utilizes both the nature of learners and nurture reading development through effective instruction.

Learning Styles

To enhance educators' understanding of the concept of learning styles Cassidy (2004) described and compared several models and assessments. He created a comparison table consisting of 23 learning style models. From his report, learning styles

may be a trait that is structurally fixed or a state with the process changing due to experience or situation. Within his table Cassidy created three categories (1) Curry's Onion Model, presenting models as layers of construct; (2) Riding and Cheema's Fundamental Dimensions Model, focusing on the processes of wholistic-analytic and verbaliser-imager; and (3)Rayner and Riding's Cognitive-centered, Learning-centered and Personality-centered Models, classifying functions as cognitive and perceptual.

Hall and Moseley (2005) conducted an overview of learning style models and discovered 71 models. They constructed a diagram displaying 50 of the 71 models into three categories and from this table created a focus list of 13 models for their literature review. The diagram was arranged in a continuum showing the beliefs of learning style models which ranged from fixed traits, to personalities, and to fluid traits being the other end of the continuum. Hall and Moseley grouped theories focused on visual, auditory, kinesthetic-tactile in the fixed traits category which included Dunn and Dunn and Gregorc. The personality category included theories like the Myers-Briggs Personality Inventory. The fluid traits category included theories pertaining to learning preferences, approaches, and strategies. Some of the theorists were Kolb and Sternberg. Hall and Moseley called educators to utilize many approaches when teaching focusing on more than just one way for learners to understand new skills and concepts.

James Keefe's (1987, 2000) works in *Learning Style: Theory and Practice* and *Personalized Instruction: Changing Classroom Practice* promoted three factors involved in the learning process. These factors included the student, the teacher, and the environment in which they interact. He proposed a model of student learning styles and believed learning was represented as "changed student behavior" (Keefe, 1987). His

definition for learning style would be the "consistent way of functioning that reflects the underlying causes of learning behavior" (Keefe, p. 11). Keefe explained that learning style was a combination of the cognitive, affective and physiological components of the learner. The cognitive component was how the learner processed information, the affective component was the motivational engagement of the learner, and the physiological was the bodily response when learning the information. These three components were not equal in importance but were very much interconnected in the learning process.

Slack and Norwich (2007) explained that learning style was a dispositional concept of how a learner approached new information. Knowing a child's learning style will help educators plan for appropriate instruction. They defined cognitive style as the habitual mode of a learner when processing new information and learning strategies as a set from which a learner selects when interacting in a learning situation. Thus, learning style would be a trait quality describing the approach a learner engages in while interacting with new information.

Curry (1983) reviewed 21 learning style models and grouped them in three layers: 1) cognitive personality, 2) information processing style, and 3) instructional preferences creating the "Curry Onion." The information processing style represented the learner's intellectual approach to assimilating new information, the interaction between personality traits and the environmental learning choices. Instructional preferences consisted of the learner's preferences in the learning environment.

Rayner and Riding's (1997) clarified learning styles through three models including 1) process model, 2) preference-based model, and 3) cognitive skill model. The

preference-based model was based on the learners' preferred modes of learning including visual, auditory, tactile, and kinesthetic.

Ken and Rita Dunn (1978) developed a model of learning styles consisting of twenty-one elements. Their definition of learning style focused on the way learners begin to gather, process, store new skills and concepts. Out of the 21 elements their research determined eleven of those elements associated with students learning. An interesting study using the Learning Style Inventory (LSI) was conducted to determine which of the learning style elements surfaced for high achieving readers and low achieving readers. The results of the study included the elements of preferences in lighting, design, motivation, persistence, responsibility, sensory strengths, times of day, food intake, mobility and others.

Effective Instruction

Keefe's work with Jenkins (2000) presented the basic elements of individualized instruction as student's prior knowledge, learning style preference, opportunity to interact, with flexible scheduling and pacing while providing authentic tasks and assessments to engage learners. Keefe and Jenkins (2000) developed a list of various examples of individualized instruction from accelerated learning to topic study. They stressed the importance of the following elements during instruction including student's prior knowledge, learning style preference and level of engagement; the teacher's competency, teaching style, and commitment to teaching; and the organization of the learning environment.

Dunn, Dunn, and Perrin (1994) pointed out how reading instruction usually focused on auditory and visual techniques. Research has clearly shown however, the visual perceptual element was not strong until around age eight, and the auditory perceptual element was not developed until after age eleven. This implied the tactile and kinesthetic reading activities would be the most effective instruction for primary children. They listed several task card activities for teachers to create for the tactile learning experiences and suggested games for the kinesthetic learning experiences. They even suggested beginning with these activities first presenting new reading skills that would utilize visual and auditory learning style preferences.

Dunn, Dunn, and Perrin (1994) suggested teachers need to assess the learning style preferences of their students. They believed students can have one sensory perception strength (learning style preference), equal sensory strengths, or multiple sensory strengths as presented by Sprenger (2003). They also believed primary students are usually global processors instead of analytic processors, but some students may not have a process preference. Once learning style preferences have been diagnosed then design a program for teaching reading through approaches matched to the determined learning style preferences. The chapters in *Teaching Young Children through their Individual Learning Styles: Practical Approaches for Grades K-2* suggested a plethora of activities stressing manipulative tools, participation with real-life, and concrete tasks to teach reading to primary age children. Dunn, Dunn, and Perrin (1994) proposed beginning reading instruction of new materials using the strongest learning style preference first and then skills can be reinforced in the next two strongest preferences.

According to Denig (2004) each student has a primary learning style preference and a secondary learning style preference. The primary learning style would be for initial teaching of new skills and concepts. The secondary learning style would be used to reinforce the new skill or concept providing a new perceptual experience with the information being added to learners' schema through assimilation and/or accommodation. Denig reported a meta-analysis of 42 studies done regarding the use of learning styles during instruction. From these studies an effect size of .775 was determined suggesting that instruction given in students' learning style preferences could lead to academic achievement.

A study exploring the effects of incorporating learning style preferences during reading instruction was conducted by Braio, Beasley, Dunn, Quinn, and Buchanan (1997). This study consisted of five phases using a sample of special education students and regular education urban low achievers. A story book, introducing learning styles, was read to the participant followed by the learning style inventory being administered. Reading instruction was accommodated to students' learning style preferences including auditory, visual, tactual and kinesthetic. In Phase One a unit was being taught without learning style accommodations. In Phase Two a unit was being studied with only environmental preferences being incorporated. In Phase Three, the teacher added tactile and kinesthetic preferences for all participants during the unit. In Phase Four, all other learning style preferences were added and matched to learners during the unit of study. In Phase Five, all learning style preferences were removed as a new unit of study was experienced by students. Each unit of study lasted two weeks and a posttest was administered following each unit of study. The general education participants with

environmental and movement preferences showed a gradual increase in reading achievement during Phases One-Four while showing a decrease in reading achievement during Phase 5 when learning style preferences were removed. Thus, as each learning style preference was incorporated the learner's reading achievement improved. This study suggested using learning style preferences when teaching reading may improve students' reading achievement.

In the process of exploring the reliability and validity of a learning styles inventory Slack and Norwich (2007) conducted a study utilizing the content area of spelling. Their sample included 19 students ages 7-10 who were administered an inventory designed to determine a student's learning style including visual, auditory or kinesthetic. The study found the inventory was reliable in the learning styles of visual, auditory and mixed auditory and visual but not in the learning style kinesthetic. Based on the results of the inventory Slack and Norwich selected a smaller sample including the learning styles visual, auditory and mixed visual auditory and taught spelling words incorporating activities that matched the learning style of each subgroup. The method included a pretest, teaching, posttest and delayed posttest. The study focused on the gain between pretest, posttest, and scores of the delayed posttest. The results showed highest gains when spelling was taught utilizing learning style preferences. Also, the decreased gain between initial posttest and delayed was least when the spelling instruction matched the learning style.

Schuchardt (1987) conducted a case study to determine if learners who received reading instruction based on their individualized learning style preferences showed improvement in their reading comprehension scores. She utilized the Minimal-Grade

Competencies: Reading 2 to check reading comprehension and Marie Carbo's Reading Style Inventory (RSI) to determine changes needed in reading instruction. A pretest was administered to determine the baseline reading levels of participants; treatment was given with accommodations made for learning style preferences based on results of the RSI, followed by a posttest. The participants were two second grade students in Schuchardt's classroom. The findings showed both participants mastered one or more objectives in the Minimal-Grade Competencies: Reading 2 than they had in the Minimal-Grade Competencies: Reading 2 pretest. These results suggested educators need to identify students' reading style preferences and make accommodations in reading instruction materials designed to teach to students' learning style preferences.

Keefe (1987) presented two schools of thought "cognitive researchers/theorists and the practitioners/researchers." The cognitive researcher analyzed different instructional conditions and their variables looking for a basic model for teaching and learning. Such researchers were interested in helping the learner to cope in the learning environment by teaching the learner skills and strategies to utilize when learning. The practitioners focused on ways to change the learning environment making it more conducive to the learner enhancing the processing of information. They believed the learning style and cognitive component of the learner were consistent, so they varied the setting, resources, or method of instruction. Piaget combined the two thoughts with his biological theory that the learner adapted through assimilation and accommodation. The learner assimilated new knowledge needing no modification of knowledge structure when processing or accommodated new knowledge needing modification of existing schemas when processing. Piaget said there was "equilibrium" when there was a balance between

processes of assimilation and accommodation leading to learning. Learning was challenging when there was a "discrepancy between learners' assimilations and accommodative capacities and the difficulty of the task" (Keefe, 1985).

Differentiation

In her book *Differentiation through Learning Styles and Memory*, Sprenger (2003) spoke of differentiation as a way to meet learners' needs by utilizing their learning style preferences. She believed all participants in the learning process are teachers, all are learners, and the brain wants to learn. Sprenger (2003) promoted teaching with the brain in mind and listed some brain basics which include opportunities for "predictability, feedback, novelty, choice, challenge and reflection" (Sprenger, p 71). She focused on the sensory system and limited the learning style preferences to visual, auditory and kinesthetic labeling these as students' strengths putting her in the fixed traits category of Hall and Moseley's diagram. Sprenger explained the dominant sense is developed through experience, genetics, and the way the brain processes information. This resource provided educators with explanations of how the brain receives new information through the sensory system and how to determine the student's dominant sense. She provided examples of activities for educators to use as well as sample educational plans for the different learning style preferences. She stressed that each student utilizes all three so each example would include all three sensory components which include auditory, visual, and kinesthetic (VAK).

Each brain is uniquely "wired" for processing information based on genetics and learning experiences within the environment according to Sprenger. A learning style preference within a learner is based on genetics inherited as well as nurtured through learning experiences s/he has encountered. Educators who understand this is one way students differ in their approaches to learning will create learning opportunities in reading that adapt to students learning needs.

Grouping for Instruction

Historically speaking, schools started out as multi-grade and multi-leveled classroom with students of various ages learning reading, writing and math on various levels within one room. This arrangement progressed over time to one grade per classroom which contained multiple levels of abilities. The method of grouping students by ability levels became prevalent around the early 1900s following the development of the Intelligent Quotient Measurement tool by Stanford Binet. This approach to grouping learners may have been efficient for working with the masses but research has shown this may not be effective academically for learners in the low groups as presented in the seminal work of Allington (1980). Students in the low reading groups tend to remain at this level throughout their school years.

Cluster grouping was utilized with gifted and talented students in Gentry's investigation in 1999. Her three year study involved five classrooms per grade beginning with third grade through fifth grade. One classroom was designated as the high achieving students while the other classrooms would consist of mixed achievement levels. Gentry's studied growth in student achievement. Teachers teaching to a smaller achievement range

allowed the creation of more learning opportunities than might have been experienced in a heterogeneous classroom. Teachers' expectations of their students also influenced student performance. Even though the treatment school students achieved lower scores than the control school students at the beginning they surpassed the control school students at the end of the three years. Reviewing the ten implications from Gentry's investigation, implication number nine emphasized the need to create learning opportunities allowing talent and skills of other learners to emerge. Number ten suggested teachers are better able to meet the individual needs when grouping students of similar needs.

Chorzempa and Graham (2006) conducted a study to examine the use of ability grouping in reading in the primary grades. The participants in this study included 222 public school teachers of first through third grade. The teachers completed a survey consisting of reading practice, beliefs about ability grouping, self-efficacy for teaching reading, and beliefs about reading instruction. The results of the survey gave insight to the variables pertaining to ability grouping within a classroom. One out of every five teachers were using within class ability grouping. Teachers used multiple assessments, formal and informal, for determining the placement of students within each group. The instruction within each group was different, which was to differentiate the instruction to meet students' individual learning needs, including less silent reading time and more low level thinking questions for students in below average reading groups as compared to students in average and above average reading groups.

The effect of ability grouping on academic achievement and self-esteem on students was investigated by Abadzi (1984). Her study divided students into high and

average ability groups at the beginning of fourth grade. Six hundred fourth graders were selected at random for the study. The results of her study showed the lowest third of the high ability group had the largest gains in academic achievement compared to the upper third of the average ability group which revealed the largest losses. The average ability students did not improve in academic achievement by being ability grouped. The possible stigma of being in the "low group" for the lower third of the high ability group did have a negative effect on this group of learners as well. Abadzi's study encouraged the rethinking about criteria used to determine groups.

In Slavin's *Success for All Reading Program* there are two essential principles which are prevention and intervention. The *Success for All Reading Program* utilized tutors and grouped students by reading performance ability across age groups. This grouping style was also known as the Joplin Plan. This grouping was different from the traditional ability grouping and the results revealed an increase in reading achievement of children in elementary grades. Every eight weeks the students' reading was assessed with regrouping and tutoring services changed to meet the students' new needs.

In his article on "Neverstreaming: Prevention and Early Intervention as an Alternative to Special Education," Slavin presented several reading programs that have impacted the reading achievement of students at risk. He identified Success for All by Slavin, Madden, Karweit, Livermon & Dolan 1990; Reading Recovery by Marie Clay; and Prevention of Learning Disabilities by Arnold, Barneby, McManus, Smeltzer, Conrad, Winer, & Desgranges 1977. He pointed out that the concept of neverstreaming, should be a goal to accommodate students' differences within the regular classroom.

Slavin emphasized a need to experiment with alternative methods of grouping and more effective strategies of instruction to prevent children's failure to read at grade level.

Flexible patterns of grouping for instruction were presented by Flood, Lapp, Flood and Nagel (1992) which included whole class, small group, pairs, and one on one. The teacher would determine who will be in the group, how long they will be in that group, what materials will be covered, and the scaffolding needed within each group. Flood et al promoted the idea that the best group structure is the one that meets the needs of the teachers and the students. Flood et al warned that using ability grouping only was detrimental to students in the low group, while the use of flexible grouping patterns would prevent the isolation experienced by such students.

In the article, "What If Young Children were Grouped for Reading with Learning-style Responsive Approaches?" Rita Dunn and Andrea Honigsfeld (2006) discussed several approaches to reading instruction promoting the investigation of how students' learning-style preferences might impact their reading achievement. The authors presented the analytic and global tendencies to processing information. They stressed the point that children need to learn *new information* in their perceptual strength and preferred processing style. They explained that phonics is an analytic and auditory method but that 80 percent of children are global, kinesthetic/tactile learners.

Effective Reading Instruction

The reading skills to be developed during effective reading instruction include phonemic awareness, phonics, vocabulary, fluency, and comprehension strategies. The order of activities within instruction might be (1) rereading a familiar text, (2) introducing

a new skill or strategy to develop a learner's ability to decode a word or comprehend a text, (3) providing an opportunity for the learner to apply the new skill in a writing experience, and (4) ending with supportively presenting a new text to read to continue practicing the new skill.

All learners need the knowledge of reading strategies in order to become independent readers. The reading strategies come from the five areas of literacy including phonemic awareness, phonics, vocabulary, fluency, and comprehension. When anticipating the reading intervention instruction for learners an educator needs to plan activities to strengthen the learner's knowledge in these five literacy areas. For example, when teaching phonemic awareness it may become apparent that oral language play may have been limited or non-existent in the learner's prior experiences. Understanding how the brain shears parts not used, the learner may need extensive oral language play to redevelop the ability to hear sounds within words. The oral language play promoted by Torgesen, Wagner and Roshotte (1997) would enhance the development of new dendrites as the learner interacts with familiar vocabulary developing an understanding that words consist of sounds. As the learner applies this knowledge of phonemes to new vocabulary the brain experiences synapses from these dendrites creating additional new dendrites leading to further phonemic awareness development. This learning experience builds schema about the sounds within words through assimilation and accommodation storing this new knowledge in long term memory. This stored information will be retrieved and built upon during future word analysis and decoding activities. Oral language play would consist of listening to nursery rhymes, poetry, Dr. Seuss stories and/or playing rhyming games. As Nicholson pointed out earlier, some learners may need teachers to provide

scaffolding by pointing out sounds within words when instructing within the child's zone of proximal development until they internalize the language of that phonemic skill developing that level of phonemic discrimination.

The next element of literacy development would be phonics. Phonics was the process of analyzing a word by labeling its sounds and letter or letters representing those sounds. The development of the learner's phonological ability included decoding a word by segmenting the word one sound at a time and then blending the sounds together again while listening for a familiar word. The alphabetic principle has been taught many ways including the use of individual letters and sounds to using onsets and rimes, which are groups of letters. 1) The synthetic process of phonics instruction is the learner saying the sounds the graphemes represent and writing the letters forming words. 2) The analytic method consists of breaking words into beginning, middle and ending sounds with the learner discovering each phoneme and grapheme. 3) The phonogram method uses the onsets and 37 rimes (ie. ake, amp, and ut) that will allow the learner to create 500 new words. 4) The vowel pattern method teaches the learner the different patterns of consonants and vowels found in words.

May (2001) pointed out that each of these methods has strengths and weaknesses when teaching phonics: a) analytic - not all words are applicable to sounding out one letter at a time, b) synthetic - each letter sound is not consistent, c) vowel pattern approach - is not age appropriate until approximately eight years of age, which is when we want the learner to be reading on grade level and independently using the phonics strategies, and d) phonogram approach - is dependent on the learner's level of phonemic awareness. As educators plan for phonics instruction it would be effective to select a

variety of approaches to teaching phonics while analyzing the vocabulary being introduced. All learners will need to be able to analyze words based on the concept of the alphabetic principle which is based on phonemes and graphemes. Learners will need to be able to hear the different sounds within words, segmenting and blending sounds independently.

The phonetic learning experiences would involve the integration of reading, spelling and writing encouraging the development of vocabulary. From Dunn and Dunn's research educators know that more of the primary-age learners have global learning style preference which is whole to part learning utilizing onsets and rimes for teaching phonics instead of the analytic learning style of part to whole using isolated sounds. Writing opportunities for learners encourages the application of the phonetic instruction and builds vocabulary. Writing, a tactile activity of application, will move the new information from working memory to long term memory as relevancy for the phonetic information is discovered by the learner. The writing activities might have the learner generating new words utilizing a new rime, writing a sentence putting the new vocabulary in context enhancing the meaning, or reconstructing new meaning through letter manipulation using prefixes, suffixes, and inflected endings. The learners engage in reading their own sentences for fluency and comprehension as well as developing an understanding of spelling patterns. Educators need to remember the learner puts in a considerable amount of energy into reading so this instruction time needs to be enjoyable as well as informative.

Reading instruction that includes the five literacy areas would teach fluency (oral reading) and comprehension strategies which are enhanced by motivation, social

interaction, graphic organizers, and integrated curriculum stems from the learner's interests, prior knowledge, ability, personal experiences, and culture. Vygotsky promoted the social aspect of learning to read with dialogue between learner and teacher or peers. Children learn by talking about what was read. Routman (2000) encouraged literature circles or conversations between teacher, learners, and peers. This is especially helpful to auditory learners.

Modeling and thinking out loud are other strategies to teach comprehension. A think aloud would model how to monitor if the text is making sense (semantics), how to think about the letters and sounds of unfamiliar words (graphophonemic), or how to think about the sentence structure (syntax). Educators should also incorporate graphic organizers to help the learner categorize information recalled from the text. Visual learners benefit the most from using such tools.

Comprehension is enhanced when reading is embedded in the curriculum; connecting stories to what is studied in social studies or science, through the use of a thematic unit, enhances the relevance of both texts being read (Roller, 2002). When learners have multiple opportunities to interact with concepts across the curriculum, new schema are created through assimilation and accommodation of new knowledge. Sousa (2001) reminded educators that the brain waits for relevancy of new information before transferring it from the short term memory to the long term memory.

As May (2001) explained comprehension is a process and a product of interaction between the learner and the author. As educators plan for instruction in comprehension strategies actual reading needs to take place providing opportunities for the learner to problem solve using a collection of strategies to discover the message of the author. An

educator models using strategies by thinking out loud to demonstrate how proficient readers think and create images of what is understood by the word choices the author uses in the text. An educator would explain the usefulness of a particular reading strategy and how to use it flexibly when reading. Think alouds help the learner to see how to use prior knowledge and previous experiences to help problem solve and come to conclusions, inferences, and possible predictions. Reading strategies are activities the brain seeks because they are challenging and add depth to the learner's schema of reading. Instruction of comprehension strategies is an ongoing process focusing on application during reading. Educators help learners create a set of reading strategies to choose from when reading independently.

Effective reading instruction should include the introduction a new book or text for the learner to experience with support. The learner would read and utilize the new skill or strategy of phonemic awareness, phonic, vocabulary, fluency, and/or comprehension strategy taught providing an opportunity for application of the skill with support giving relevancy to the reading strategy. The child would reread the new book independently applying reading strategies as needed. The new book is the first text read during the next reading session providing an opportunity for the learner to apply the strategy within text preventing the teaching of reading strategies in isolation.

Roller (2002) promoted the educator selecting three or four reading activities and building a predictable schedule with learners actually reading, some direct instruction of a skill, concept, or strategy and ending with an opportunity to apply these skills and concepts in reading with support. Strategies and skills should not be taught in isolation but should be based on real reading with real purposes.

Summary

This study was concerned with the 34% of fourth graders that were reading below Basic. As the research in the literature review revealed through various theorists there was no one way to teach all learners how to read, but each theorist has common components that were presented as a model or a system. The common components for teaching all learners consisted of diagnosis of student characteristics and nature, planning instruction that nurtured the development of reading, flexible placement within the reading program, and instruction followed by evaluation. What adjustments can be made in this reading instruction format in first grade that might improve the reading achievement of fourth grade students?

Children bring prior knowledge and experiences for educators to build upon during reading instruction. As educators ponder the nature of the brain and how it develops new dendrites with each new synapse enhancing the brain's capacity to learn and understand, they need to create nurturing learning experiences for the development of new schema which encourages dendrite growth. Utilizing a learner's learning style preference may be a way to teach reading.

Historically, reading instruction has been planned for learners based on their reading ability level without consideration of the nature of the learner in the area of learning style preference. Educators have focused on the content of reading and reading strategies needed to decode new vocabulary and comprehend text when reading limiting their focus on the learner. Effective reading instruction can be differentiated by

combining the nature of the child with the nurture of reading instruction promoting the understanding and application of reading skills, concepts, and strategies.

The research presented indicated that grouping students for learning is a complex and controversial field of study. As the literature review suggested children are more likely grouped for reading by reading ability creating a low group consisting of dysfunctional reading peers. Grouping by learning style preferences was a way to create opportunities for all students to shine through discussion and modeling reading strategies. An atmosphere of a "leveled playing field" based on similar learning style preferences was created producing a positive impact on reading development among all learners.

This literature review of the research supported the present researcher's exploration of grouping students by learning style preferences preventing the creation of "the low group." Grouping students by a learning style preference mixes reading abilities creating a nurturing reading learning experience through Vygotsky's communicative scaffolding with group members modeling, thinking aloud, and dialoging about reading strategies providing peer coaches for struggling readers. Grouping by learning style preference may be the variable that would prevent 1) the formation of the low reading group, 2) the development of unsuccessful reading cycle, and 3) once in the low group always in the low group.

CHAPTER III: METHODOLOGY

Restatement of the Purpose of the Study

The primary purpose of this study was to examine the effect of reading instruction when incorporating learning style preferences on first graders' reading achievement as measured by their performance during running record reading assessments. The learning style preferences in this study included visual, auditory, tactile, and kinesthetic perceptual preferences. The formation of small groups based on learning style preferences allowed teachers to differentiate reading instruction by teaching to a specific perceptual strength or strengths in each small group. The results of this study have the potential to provide classroom teachers an effective way to plan and instruct students' in reading based on the students' learning style preferences to insure success for all emerging readers.

Null Hypothesis

There will be no significant difference between the means of the total number of errors of the running record reading scores of the learning style treatment group and leveled reading control group when comparing the total number of errors pretest mean and the total number of errors posttest mean scores in an effort to show a change in reading performance as reported by the running record reading assessments.

Description of Participants

Sample

The sample for this research study was created by offering an after school reading program for first grade students to participate as an extra-curricular activity. The

Midwestern community school district contained one elementary school of K-4. This school district was selected based on the principal's willingness to participate in the proposed study (see Appendix A for permission letter).The first grade students returned the form of consent with parent signatures granting permission for them to participate in the study representing a percentage of the first grade population within that school (see Appendix B for consent form). There were five first grade classrooms eligible to participate with approximately 125 first grade students who would be eligible to participate in the experimental study. The first grade students were in their second trimester of the school year and reading at various levels as determined by running record reading assessment scores. The age range was from 6.7 to 7.4 years of age. Ninety-six percent of the first grade students were white, 1% was Hispanic, and 3% were multiracial. Twenty-seven percent of the students qualified for free or reduced lunch.

Method of Selection

The 54 participating first grade students, who returned a signed form of consent, were divided into two groups. The researcher entered the students' identification code numbers and their reading levels into an Excel spread sheet and conducted an electronic random sampling to determine a treatment group and a control group that were similar in leveled reading performance. Twenty-seven of the random sampling became the learning style treatment group and the other twenty-seven of the sample was the leveled reading control group. The 54 first grade students were administered a pretest which was a running record reading assessment determining the baseline reading performance of all first graders participating in the study (see Appendix C for the running record sheet). The

54 participating first grade students also completed a learning style inventory on computers to determine their learning style preference including visual, auditory, tactile, and/or kinesthetic (see Appendix D for sample of learning style assessment). This learning style assessment is the *Elementary Learning Style Assessment* (ELSA) (copyright [2007] Dunn, Rundle, and Burke) found at http://www.learningstyles.net .

The researcher divided the twenty-seven member treatment group into four small reading groups based on the learning style preferences inventory results with a visual, auditory, tactile, and kinesthetic group (see Appendix E a sample ELSA report). The treatment group of first grade students was selected according to learning style preferences as determined by *Elementary Learning Style Assessment* (ELSA). The learning style inventory software was accessible from the internet. The control group consisted of first grade students divided into four small groups based on reading levels determined by their classroom teachers for small group reading instruction. Each small group consisted of six or seven first grade students.

Senior teacher candidates from a small Midwestern college volunteered to teach reading instruction to a treatment group of first grade students grouped by learning style preferences or a control group small group based on reading levels. The researcher selected eight teacher candidates from the volunteer pool of teacher candidates to implement reading instruction to the learning style treatment groups and the leveled reading control groups. Two raters (assessors) were selected from the volunteers based on their academic performance within the Midwestern college teacher education program courses pertaining to reading instruction.

The selected volunteer teacher candidates voluntarily selected one of the learning style preferences and participated in a training session with the researcher for the selected learning style preference. The treatment reading instruction training presented activities that included specified learning style preferences using graphic organizers for visual learners (see Appendixes F, G, H, I, J, and K for graphic organizers), poems and songs for auditory learners (see Appendixes L, M, and N for song words), manipulative teaching tools for tactile learners (see Appendix O for the hand sheet), or large muscle movement literacy activities for kinesthetic learners and reviewed an effective small group reading instruction method. Senior teacher candidates choosing the control group participated in a training session with the researcher for a review of small group reading instruction method and needs of readers performing at grade level, above grade level and below grade level. All of the teacher candidates teaching received the strategy sheets to support them as they taught (see Appendixes P, Q, and R).

Instrument and Measurement Procedures

Running Record

Running record reading assessments provided the total number of errors reading scores to be used during this quantitative study. The running record assessment tool was developed by Marie Clay to assist teachers in documenting the reading behaviors and determining the reading strategies used by their students when reading aloud. Teachers are able to analyze a student's use of syntax, semantics, and grapho-phonemic cueing system while engaged in the act of reading. The miscues and errors made by a student as

s/he reads aloud are recorded by a classroom teacher giving insight to the reading strategies the learner utilized when decoding and comprehending text during reading. Some miscues include substituting the wrong word, omitting a word, inserting a word, and rereading words.

During this research study the two raters (assessors) administered this reading assessment tool as a pretest and a posttest. The raters sat next to the first grade student listening to the child read a leveled passage. The student had the text and each rater used a running record sheet to record observations using specific symbols to document miscues and errors. As the first grade student read the raters recorded a check mark for each correctly read word, when the first grade student read a word incorrectly the raters recorded exactly what the student said or coded each miscue made when reading. These miscues were classified as meaning miscues (semantics), sentence structure miscues (syntax), or visual miscues (graphophonemic). This reading assessment determined the first grade student's knowledge of reading strategies based on the miscues revealing insights to reading strategies or weaknesses in the cueing system s/he needed to develop in order to limit miscues and improve application of decoding and/or comprehending reading strategies when reading printed text. The raters calculated a student's reading score based on the total number of errors made when reading which determined a first grade student's reading performance. The total number of errors was the score utilized for determining reading performance for each first grade student. The raters listened to the first grade student read three different passages of 100 words each. Each rater counted the total number of errors for each passage recorded and then averaged the three for a more

accurate score for each first grade student. Each rater's averaged score was then averaged together to increase the reliability of the running record reading assessment.

Running record reading assessment results have been used by teachers to group students into small groups for reading instruction based on their similar reading levels. The teacher plans instruction to meet students' needs utilizing appropriate leveled reading books. Ongoing running record reading assessments are used to monitor growth signaling when students need to be regrouped. Often these groups are formed utilizing a range of levels labeling students as reading above grade level, at grade level and below grade level.

Instrument Reliability

According to Fawson, Reutzel, Smith, Ludlow, and Sudweeks (2006) the reliability of running record reading assessments are enhanced by the number of passages read and the number of raters scoring the running record reading assessments. Fawson et al conducted a study to examine the reliability of running records and determined the reliability was increased if the student read three passages at the same level and two raters were used to score the miscues made by the student while reading aloud. The average of three scores recorded by each rater were averaged together to derive at the reading level of the student. This gives an absolute score. The researcher in this study used two raters and utilized three passages of the same reading level provided by the classroom teacher to determine the pretest and posttest scores of each participating first grade student. The scores in this study have the potential to be absolute as in the study conducted by Fawson et al.

Instrument Validity

The running record reading assessment was developed by Marie Clay and is similar to the miscue analysis system by Ken and Yetta Goodman. According to Ross (2004) the validity of running record reading assessment cannot be confirmed due to the fact it can not be separated from the instructional treatment which exists within the running record. The strength of the running record for this study was the fact the assessment was aligned with the instruction of reading strategies and it does measure the students' applications of the different reading strategies taught. The reading strategies assessed during a running record are the same strategies taught during reading instruction thus aligning the assessment with instruction. Pinnel, Lyons, DeFord, Bryk, & Seltzer (1994) explained the validity of running record reading assessments exists due to the fact running record assessments correlate with other early literacy measurements. A running record reading assessment measures a student's reading performance while in the process of reading, using the cueing system, and monitoring comprehension. This is different from responding to questions about reading or reading words from a selected list of vocabulary while being timed as in the Dynamic Indicator of Basic Early Literacy Skills (DIBELS). The groups of first grade students participating in this study found the running record reading assessments a familiar task since their classroom teachers have utilized them during the school year to determine reading levels, to plan reading instruction, and to monitor growth lessening the effect of testing threat to this study due to an unfamiliar assessment tool.

Learning Style Inventory

The *Elementary Learning Style Assessment* (ELSA) is a learning style inventory online for ages 7-9 and/or grades 2 to 4. The Dunn and Dunn Learning Styles Assessments, Testing, Surveys, & Online Community are found at www.learningstyle.net. Students click on a graphic when selecting a response to an item in the inventory. The ELSA was designed to respond to global learners using stories, fantasy, holistic writing, images, pictures and humor to determine a learner's learning style preference. This learning style inventory compiled students' data and reported the students' learning style profiles giving specifics concerning their learning style preferences. Teachers use the information within these reports to group the students with similar profiles creating small groups for reading instruction including decoding and comprehension strategies students will need to become successful independent readers. The researcher selected this inventory as it allowed the student to respond to items online that created a learning style preference profile as opposed to a teacher creating a profile of student's learning style preferences based on observation.

Instrument Reliability

The researcher conducted a pilot study to investigate the reliable of first grade students' scores upon completing the ELSA as an assessment tool to determine the learning style preferences of first grade students. A quantitative research pilot study provided a data based on the responses made by first grade students as they completed the assessment tool on computer compiling characteristics of their learning style preferences. The researcher examined the assessment tool as it existed in relation to the

conditions in this particular situation. It included observation and survey results giving a "snapshot" according to Mertler (2009) since the data from the *Elementary Learning Style Assessment* (ELSA) tool reflected the learning style preferences for this group of first grade students, in this location, at this time, and under these conditions in the pilot study.

The researcher conducted the pilot study in 2009 utilizing the *Elementary Learning Style Assessment* to determine the appropriateness of this learning style assessment tool for first grade students for this present research study in 2010. The researcher used three intact first grade classrooms in a Wabash County elementary school for the pilot study. Each class had an average of 20 students. This elementary school was selected for this pilot study based on its similar school population data to the school used for the present research study. Overall, the pilot had the potential for approximately 60 participants. The first grade teachers volunteered to participate in the pilot study of the *ELSA*.

Once all assessments of the pilot study were completed by the 35 participating first grade students the researcher printed out a full report for each first grader to give to his/her classroom teacher for future differentiated instruction. The researcher reviewed the information on each report to explore the process of determining the learning style preferences of each first grader based on the information provided by the report and found it supportive. The feasibility of forming reading groups for small group instruction based on learning style preferences was also evident. The researcher obtained a copy of the data set from Dunn Learning Styles which produced and maintains the ELSA. This

data set helped the researcher explore the estimated reliability of the pilot study student scores for the ELSA using Cronbach.

The ELSA data set was set up in an Excel format providing information for 25 elements that designate learning style preferences within the 75-item survey. The scoring key that accompanied the data explained the range of scores to be -2 to +2. A positive strong preference for a learning style element was a +2, a preference was +1, 0 for it depends, negative preference -1, strong negative preference -2. These data represented student responses to the items in the assessment were formatted in Excel which was then checked for reliability using the Cronbach Alpha Statistical Analysis System. This is the most commonly used analysis to estimate reliability and represented a correlation among individual items within the instrument.

The data set compiled by the ELSA results based on the responses made by the first grade students in the pilot study provided evidence that supported the researcher as she decided how effective the ELSA was to determine the learning style preferences of first graders for use in this present research study. If the Cronbach Alpha was below .5 the researcher may decide not to use this assessment tool for use in a future study.

The researcher selected four of the learning style elements including visual, auditory, tactile, and kinesthetic preferences from the 25 elements that made up the 75 items in the assessment. Reviewing the items in the reliability statistical table analysis results the researcher discovered a pattern among these four elements with a mean larger than 1.0 and a standard deviation pattern range of .8 to .9. It is interesting these four preferences shared the large mean and large standard deviation pattern as compared to the other 21 elements measured by the ELSA. The auditory mean score was 1.14 with a

standard deviation of .944, visual mean score was also 1.14 with a standard deviation of .944. The tactile mean score was 1.06 with a standard deviation of .968, and the kinesthetic mean score was 1.31 with a standard deviation of .832. With a mean greater than one the variation in student responses were wider than normal distribution within the bell curve. The standard deviations of each of the four learning style preferences showed a variability and range in relation to one another. The estimated level reliability of the students' scores for the ELSA after running the Cronbach Alpha was .760. This is a large value which shows the consistency of the students' scores when completing the ELSA. Another factor that may have influenced the strength of this number is the ELSA has 75 items in the instrument and there were only 35 first grade students in the sample that completed the assessment. Normally research would have 75+ participants in a sample for a 75 item instrument however, this was a pilot study.

Instrument Validity

The *Elementary Learning Style Assessment* (ELSA) is a survey used to determine the learning style preferences for children. The survey has 75 computer electronic items referring to the 22 elements of learning preferences that assist educators as they plan learning experiences for initial and ongoing instruction. The survey is divided into three sections of 25 survey items in each section. Each section of 25 items starts with a story to direct the children to think about learning style preferences. The 25 items are presented in each section repetitiously allowing the children to revisit that learning style preference a minimum of three times in the survey. Each survey item has three statements of preference for a learning style element including a positive statement of wanting that

preference, a negative statement of not wanting that preference, and a statement of "it doesn't matter" for those children who do not have a preference for that learning style element. The 22 learning style preferences are from Ken and Rita Dunn's research in the area of learning style preferences and instruction.

The initial reliability and validity study of the ELSA was completed using a test-retest method. The test-retest reliability coefficients ranged from .643 to .942 showing a strong reliability of the students' scores when using the ELSA. This inventory has also been field tested with first grade through fourth grade students and was made available to educators the spring of 2008.

The Learning Style Inventory is the paper version of the electronic ELSA and Keefe (1982) identified the Learning Style Inventory as practitioner friendly and frequently used in the elementary setting to determine learning styles of children. Curry (1987) reported the Learning Style Inventory as having one of the highest ratings in validity and reliability when assessing cognitive learning style preferences.

Research Design

An experiment using the Randomized Pretest-Posttest Control Group Design was used in this study to determine the effect of reading instruction on first grade students' achievement in reading when incorporating learning style preferences as shown in Figure 2. Each first grade student who participated in the study was administered a running record reading assessment by reading three passages to two raters who determined reading performance levels based on the total number of errors as a pretest to set a baseline score. According to Fraenkel and Wallen (2006) setting a baseline is necessary

when a researcher wants to show the amount of change over time within a sample. This research study searched for possible changes within a first grade student's reading ability performance based on total number of errors after participating in the after school reading club. Following a three-week participation in the after school reading club, the first grade students participated in a second running record reading assessment reading three passages the same level as the pretest to the same two raters to determine a total number of errors score following the after school reading experience. Each rater averaged three total number of errors scores resulting from three running record reading assessments at the same level as the pretest and recorded this on a data sheet. The two data sheets were collected and each first grade student's posttest scores were averaged. The averaged posttest scores for total number of errors and the averaged pretest scores for total number of errors established a data set to be used to determine if any change existed in first grade students' reading performance following their participation in the after school reading club.

Figure 2

54 First Grade Students Randomized Pretest-Posttest Control Group Design

Treatment group (27 students)	R	O	X	O
Control group (27 students)	R	O	C	O

The independent variable for this research study was the formation of small groups for reading instruction based on learning style preferences. Each first grade student in the learning style treatment group, utilizing learning style preferences, was

placed in a reading group based on his or her learning style preference determined by the results of the reports generated by the *Elementary Learning Style Assessment* (*ELSA).* Reading instruction was differentiated by utilizing activities and materials geared toward a particular learning style preference including visual, auditory, tactile and/or kinesthetic. The leveled reading control group was divided into small groups based on reading levels and engaged in reading instruction differentiated by utilizing activities and materials geared toward a particular reading level including on grade level, above grade level, and below grade level.

Reading instruction for both learning style treatment and leveled reading control groups reinforced the reading skill, strategy or concept taught by their classroom teachers during a whole group reading lesson that day in the first grade classes. Blackline story books provided by the school aligned with first grade students' reading levels were used during the small group reading instruction time for both learning style treatment and leveled reading control groups. The after school reading club was conducted for three weeks. The teacher candidates teaching the after school reading club learning style treatment and leveled reading control groups followed the same instructional format. The format included 1) first grade students reading a familiar blackline story, 2) a skill or strategy was taught that related to the text read, 3) the skill or strategy was practiced, 4) word wall words were reviewed, and 5) a new blackline story was introduced to read that evening to further practice the skill or strategy. The new blackline story became the familiar story read at the beginning of the next reading club session.

The dependent variable in this research study was the total number of errors recorded during a posttest running record reading assessment. The posttest was

administered during Week 5 of the five-week research study. The two raters administered the posttest running record reading assessments to both the learning style treatment group and the leveled reading control group with planned ignorance of the first grade student's pretest score and the group s/he attended. Each rater administered three running record reading assessments for each first grade student, recorded the total number of errors for each 100-word leveled passage read, and calculated an average total number of errors recorded. The two averages from the raters' data sheets were averaged for a true score representing the total number of errors for each first grade student. This data was later compared to the pretest data collected during Week 1.

This design insured some control in the areas of subject characteristics, mortality, instrument decay, testing, history, maturation, and regression. To control instrument decay the running record reading assessments were scheduled with breaks for the raters in order to prevent exhaustion which might lead to inaccurate coding of miscues while the first grade student was reading. Running record reading assessments were not a testing threat since the first graders had experienced the running record reading assessment process regularly during the year. The pretest during Week 1 and the posttest during Week 5 were familiar experiences for the first grade students. There were no known unusual events that occur during the three-week after school reading club or during the pretest or posttest weeks that may have caused a history threat. The treatment was delivered during the after school reading club utilizing an equivalent control group and was conducted for three weeks to limit the threat of maturation. The threat of regression was limited due to the fact first grade students typically represent a wide range

of reading levels and the equivalent control group results provided a frame of reference in the interpretation of the results from the treatment group.

Some threats to internal validity are location, data collector characteristics, data collector bias, attitude of subjects, and implementation of treatment. Location was held constant as each small group experiences were in the same classrooms each day with similar resources available in the classrooms for reading instruction including tables and chairs, teaching resource equipment, and school supplies. The running record reading assessments were conducted in the same room keeping the location a constant for the pretest and the posttest results. This familiar location created a comfortable assessment experience for first grade students while creating a constant for their reading performance. To control the threat of data collector characteristics the same two raters conducted the pretest and posttest running record reading assessments for all first grade students participating in the study. The raters had experienced similar training in conducting running record reading assessments using the standard procedures for recording miscues and errors made by first grade readers when reading aloud which controlled for data collector bias. Also, the raters did not know which first grade students were in the learning style treatment group or the leveled reading control group creating a "planned ignorance" by the researcher.

The Hawthorne effect may have been experienced by the first grade students experiencing the learning styles reading instruction as they were engaged in reading activities that may have been different than what they had experienced before the study giving them a feeling of being special and thus performing better during posttest running record reading assessment. The first grade students were grouped with first graders not

from their classrooms due to regrouping based on ELSA inventory results which may also have given the students a feeling of being special. These new groups were of varied reading levels gave the below grade level readers the opportunity to observe what good readers do by modeling using reading skills and/or strategies which enhanced the learning experience of struggling readers. Students who were struggling in above level reading groups may have felt special when they were with varied reading abilities giving them a chance to show their strengths when engaged in reading with on grade level or below grade level readers.

The implementation of treatment may have been a threat due to the number of different teacher candidates delivering the reading instruction creating the possibility of inconsistent reading instruction experiences. The researcher selected the teacher candidates, from a list of volunteers, who have the ability to deliver reading instruction based on their academic performance in the teacher education program courses for reading instruction at a small Midwestern college. Senior teacher candidates received training pertaining to the small group reading instruction format with emphasis on order of instruction, length of time for small group experience, and length of time spent reading and writing to create consistency in the implementation of reading experiences for both treatment and control groups.

Procedures

The null hypothesis was created with the purpose of comparing the differences of the mean scores for pretest and posttest running record reading assessments between the first grade students in the learning style treatment group receiving reading instruction

incorporating learning style preferences and first grade students in the leveled reading control group receiving reading instruction while grouped by reading levels. The hypothesis generated the question of will there be no difference in the mean score of total number of errors calculated in pretest running record reading assessments when compared to the mean score of total number of errors calculated in posttest running record reading assessments of the learning style treatment group and the leveled reading control group. The mean score for total number of errors for the pretest running record reading assessments was determined by the data collected for each first grade student during Week 1 was compared to the mean score for total number of errors for the posttest running record reading assessments administered during Week 5 of the research study. An alpha was set at .05 to reject the following null hypothesis.

Null Hypothesis

H0: There will be no significant difference between the mean score for total number of errors for the pretest and the posttest reading assessments when calculating the running record reading assessment mean score for total number of errors calculated for the learning style treatment groups and the running record reading assessment mean score for total number of errors calculated for the leveled reading control groups.

The estimated timeline for this quantitative research study exploring the first grade students' reading achievement when utilizing learning style preferences during small group reading instruction during the after school reading club was as follows:

Permission was requested in the fall semester of 2009-10 from the Institutional Review Board at Ball State University and Manchester College to conduct this proposed study during the Institutional Review Board's December 2, 2009 meeting.

First grade participants were recruited by the end of second trimester of 2009-10 from a Midwestern elementary school. Each first grade family received an informed consent form for this study including potential risks and benefits of their child's participation. Fifty-four first grade families signed an informed consent form giving permission for their child to participate in this study. The consent forms were returned to the elementary school classroom teacher and collected in the elementary school office and were given to the researcher.

The teacher candidates, who taught the small groups after school, assessed running record reading assessments, and/or participated in the research study in other capacities volunteered by the end of fall semester of 2009-10 from a Midwestern college. The researcher reviewed the list of volunteers and chose eight for small group teachers, two for running record reading assessment assessors, two for substitute teachers, and two to help assemble fifty-four blackline leveled stories daily. This created a staff of fourteen for this research study.

The teacher candidates implementing reading instruction received training pertaining to how to deliver reading instruction based on specific learning style preferences, reading levels, and they were provided materials, activities, and scaffolding when planning the fifteen after school club reading lessons in an attempt to control the actual reading lesson creating consistency. Each small group reading lesson began with the first grade students reading aloud a familiar blackline leveled story. The lesson led

into a mini lesson for decoding (grapho-phonemics), vocabulary (semantic), or comprehension strategy (syntax) focusing on the cueing system component taught earlier that day during the whole class reading lesson in the first grade classrooms. A writing experience followed providing the first grade students an opportunity to apply the mini lesson skill or strategy. The lesson ended with the introduction of a new blackline leveled story which provided authentic application of the reading skill or strategy taught during this reading lesson. This blackline leveled story book became the familiar story read the next day during the next after school small group reading lesson.

The two teacher candidates selected to be the raters (assessors) based on their academic performance in the reading courses at a Midwestern college reviewed the running record assessment process as their training session. The teacher candidates explained and demonstrated the use of the standard marking technique when recording miscues on the running record recording sheet, determining the total number of errors of a recorded running record assessment. The researcher explained they would be conducting three running records by listening to each child read three leveled passages of 100 words. The assessors would then average the three total number of errors scores and record that number on the data sheet under the pretest column. They would repeat this process again after the children had completed three weeks of after school reading club. The researcher stressed the importance of consistency in the use of the running record assessment process to the data results.

Week 1 of the research study, January 2010, fifty-four first grade students participating in the study were administered individual running record reading assessments to determine their total number of errors for the pretest to set baselines. The

baselines represented the pretest total number of errors which were used to determine a mean score of total number of errors for the pretests. This mean was used to calculate any significant difference in first grade students reading performance at the end of the three-week participation in the after school reading club. First grade students read three same-leveled passages of 100 words each to two raters. Each rater totaled the number of errors for each story and then averaged the three scores to determine a total number of errors score for each first grade student on his or her data sheet under the pretest column. The researcher collected the pretest data sheets and then averaged the two total number of errors score for each first grade student maintaining the reliability of the score and creating a baseline total number of errors score for each first grade student.

The researcher introduced the two raters to the first grade students before the running records began. The raters escorted the first grade student to the room designated as the research study running record reading assessment location for both pretests and posttests. The raters introduced the three reading passages and allowed the first grade student to choose the order each would be read aloud. The raters sat next to the child as s/he read a passage. The student held the text so each rater could see the text and complete a running record form to record observations using specific symbols to document miscues and total number of errors. As the learner read each rater recorded a check mark on the form for each correctly read word, if the learner misread a word incorrectly each rater recorded exactly what the student said or coded each miscue made when reading. These miscues included meaning miscues, sentence structure miscues, or visual miscues and were recorded as errors. Each rater calculated the student's score based on the total number of errors recorded on the running record form. The averaged

totaled number of errors calculated by the two raters was the running record reading pretest total number of errors to establish the baseline reading performance of each participating first grade student. The total number of errors baseline was used to determine a mean score to be compared to a posttest mean score for total number of errors collected at the end of the fifteen days.

Week 1, in January 2010, fifty-four first grade students participating in the research study were administered the *Elementary Learning Style Assessment* (*ELSA)* to determine their learning style preferences. The ELSA was completed by the first grade students during their weekly scheduled computer lab time and administered and supervised by the researcher with the assistance of the computer lab tech teacher. The first grade students not participating in the research study engaged in a familiar computer activity, Read, Write, and Draw during this same computer lab time.

Students' learning style preferences were determined using the *Elementary Learning Style Assessment (ELSA).* The researcher prepared an index card for each participant providing the student identification code as the user name and the account code for logging in giving the access to the ELSA. The researcher prepared the first grade students for completing the ELSA by reading aloud the story *Elephant Style* which explained learning style preferences in concrete ways helping the first grade students identify with the different learning style preferences. This story was read right before they went to the computer lab. The ELSA was administered by the researcher with the assistance of the computer lab tech to the students during the weekly scheduled computer lab time since the ELSA can be completed in approximately 30 minutes. The students used the identification code created by the researcher as their login usernames when

completing the *Elementary Learning Style Assessment.* The ELSA electronically generated reports that supported the researcher as she grouped the first grade students based on their learning style preferences in the areas of visual, auditory, tactile, and kinesthetic preferences. The one page reports of the learning style assessments were printed and given to the classroom teachers for future differentiated instruction and for the students to give to their parents. As each class of first grade students completed the *ELSA* the researcher debriefed with the students the next day meeting with each class and reading aloud the story, *Kids with Style.* This story was to clarify learning style preferences and created opportunities for the students to ask questions or engage in discussion to help them understand that all learning style preferences are good, different learning style preferences call for different ways of learning, and everyone has learning style preferences.

Predictive Analytic SoftWare (PASW) Statistics was used to randomize the fifty-four participating first grade students into a learning style treatment group and a leveled reading control group based on their reading levels. The researcher entered each student as a code created by using their initials from first and last name, four numbers selected from a random numbers table, and ending with the initials of their classroom teacher. The researcher then entered the reading levels for each participating first grade student. She selected "data editor" from the drop down box, selected "cases," chose variable 00004, selected "random," and clicked on sample. When finished the PASW program divided the fifty-four students into two groups of 27 based on their reading levels. The researcher clicked "continue" and chose "copy selected cases to a new data set naming the data set "ContGroup" and clicked OK.

Welcome letters were sent home to the families of the participating first grade students (see Appendix S for the welcome letter).

Weeks 2, 3and 4 of this five-week study engaged the first grade students in an after school reading club with small group reading instruction based on learning style preferences or reading levels. Differentiated learning experiences were planned to meet the reading instructional needs of the visual, auditory, tactile, and kinesthetic groups focusing on reading strategies and skills to develop decoding skills, word recognition, and comprehension of text. The presentation of these strategies and skills used the learning style preference designated for each learning style group. To develop students' phonemic awareness, phonetic structures of words, and comprehension strategies students engaged in decoding words using phonics, reading stories, listening to stories, acting out stories, completing graphic organizers, creating word cards with pictures, poems and songs that teach decoding and comprehension strategies, and played games. The order of these tasks was determined by the reading instruction format presented at the teacher training sessions.

The teacher candidates conducting reading instruction utilized the organized instructional method with each small group reading lesson beginning with the first grade students reading aloud a familiar leveled story. They taught a mini lesson for decoding (graphophonemic), vocabulary (semantic), or a comprehension strategy (syntax) focusing on the cueing system component taught earlier during the whole class reading lesson in the first grade classrooms. A writing experience followed providing the first grade students an opportunity to apply the mini lesson skill or strategy. The lesson ended with the teacher candidate introducing a new blackline story that provided authentic

application of the reading skill or strategy taught during the small group lesson. This blackline story book became the familiar story the child read the next day during the next after school reading club small group lesson. This instructional format was selected based on effective reading instruction models like Reading Recovery and Four Block which use similar components in a similar format of instruction.

The club newsletter Readers Exploring Reading was sent home at the end of each week to inform the parents of reading experiences their children had during the week (see Appendix T for a sample of the club newsletter).

Certificates of Participation were awarded during the last club meeting to each participating first grade student (see Appendix U for the certificate of participation). They also received 4 trade books donated by Scholastic Book Club to keep the children reading at home by having their own personal books. These books were made possible due to the Book Grant written and awarded to the researcher (see Appendix V for book grant). The researcher sent thank you letters to the parents to show her appreciation for their support during the research project (see Appendix W for the thank you letter).

Running record reading assessments were administered by the two teacher candidate raters during Week 5 to the forty-five first grade students who completed the after school reading program, to obtain posttest total number of errors scores. Four of the first grade students had withdrawn during the three weeks of club due to transportation problems and five students did not meet the required minimum of 12 club meetings. The two raters utilized the same running record reading assessment process as used during the pretest maintaining consistency in the collection of data. The raters had no knowledge of

which first grade students were in the learning style treatment group or the leveled reading control group experience creating a "planned ignorance" of each rater. The pretest scores were removed from the data sheets the raters would record the posttest running record reading assessment scores maintaining "planned ignorance."

Data Analysis

The researcher used the Statistical Package for Social Sciences (SPSS) to analyze the quantitative data collected during this research. A one-way analysis of variance (ANOVA) test was used when analyzing of the data collected during the research study. Maintaining the sample of participants was difficult due to family transportation issues and student illness. A total of forty-five first grade students were in the sample providing data for analysis. Each subject's total number of errors recorded during a running record reading assessment were measured at two intervals: before the treatment and after the treatment. Subjects missing a pretest and/or posttest total number of errors were dropped from the analysis. The data collected during this research study was interpreted with alpha set at .05 which is customary in most educational research to determine the level of significance. The researcher will reject the null hypothesis if significance is lower than the .05 alpha.

The researcher used the student identification code created for the first grade students' login usernames when completing the *Elementary Learning Style Assessment* (*ELSA*). This consisted of the students' initials, four numbers selected from a table of random numbers provided by Fraenkel and Wallen's (2006) book *How to Design and Evaluate Research in Education*, and their classroom teachers' last initials. This

prevented the use of the first grade students' names. A learning style preference code (1= visual, 2 = auditory, 3 = tactile, and 4 = kinesthetic) designated each learning style preference for each student entered into the data analysis system. The learning style treatment group (1) and the leveled reading control group (2) were the codes used to identify sample members in the data set. The total number of errors for each subject for the pretest and posttest were entered in the appropriate column as the actual number of errors recorded during the running record reading assessment. The researcher also coded the gender of each participant designating female as (1) and male as (2).

Following the collection of the posttest data the researcher began to analyze the data. Predictive Analytic SoftWare (PASW) Statistics was used to conduct a one-way analysis of variance (ANOVA) to determine the mean scores of the pretest. This was done by using the total number of errors collected during the running record reading assessments made by the first grade students in the learning style treatment and the leveled reading control groups. The one-way analysis of variance, ANOVA, was used to confirm the learning style treatment and the leveled reading control groups were statistically similar in reading performance based on pretest running record reading assessment total number of errors scores of the first grade students. This statistical technique controlled for any statistical significance of differences among the means of total number of errors scores of the learning style treatment and leveled reading control groups pretest reading assessment mean scores. The researcher entered the student identification code, the treatment or control group identifying number, and the pretest running record reading assessment total number of errors scores for each member of the treatment and control groups. The comparison of the mean score pretest total number of

errors for the treatment group with the mean score of the pretest total number of errors for the control group allowed the researcher to establish that both groups were statistically similar before treatment.

A one-way analysis of variance (ANOVA) between subjects allowed the researcher to analyze the results of the treatment and control groups by comparing their posttest total number of errors mean scores. The researcher used this data to determine the level of effectiveness of reading instruction when utilizing learning style preferences on the reading achievement of first grade students. The researcher entered the student identification codes, the number codes for treatment or control group, the pretest and posttest reading assessment total number of errors scores, and the codes for learning style preferences for the 45 first grade students participants.

Paired sample t-tests within subjects were used to compare the total number of errors means of the pretests and posttests within the treatment and control groups. This determined if there was a statistical significant difference between the pretest and the posttest of the treatment and control groups. A p value less than the alpha of .05 was set by the researcher to determine significance within-subjects. The paired sample t-tests allowed the researcher to (1) compare the treatment group's mean pretest total number of errors to mean posttest total number of errors; (2) compare the control group's mean pretest total number of errors to mean posttest total number of errors.

Cohen's scale was used to determine the effect size of the posttest means in relationship to the pretest means for the learning style treatment group and the leveled reading control group. The paired sample t-tests did not provide an effect size but it was calculated by squaring the t score and dividing it by t^2+degrees of freedom -1. Fraenkel

and Wallen (2006) recommended calculating effect size when using pre-to-post gains to compare groups in quantitative studies. They also recommend reporting the results of this type of study as confidence intervals instead of significance levels.

Summary

In this era of educational research pertaining to how the brain works and learns much consideration was given to reading instruction. Educators questioned the methods of instructing reading and pondered options that are research-based. The researcher of this study formulated a question seeking a connection between reading instruction and students' learning style preferences.

The purpose of this chapter was to present the sample, instruments and measurement, procedures, research design and data analysis of the present study. The researcher used a quantitative method to determine the effect of small group reading instruction that utilized learning style preferences with first grade students during the after school reading club. The sample consisted of forty-five first grade students from a Midwestern rural school. The researcher randomly grouped a treatment and control group from the first grade student participants utilizing Predictive Analytic SoftWare (PASW) Statistics program. The learning style preferences for the participating first grade students were determined by using the *Elementary Learning Style Assessment (ELSA)*. The running record reading assessments were administered for the pretest and posttest and scores were recorded as total number of errors for both the treatment groups and control groups.

A one-way ANOVA was conducted to determine the mean score of the pretest running record total number of errors scores to establish the treatment and control groups were statistically equivalent.

A one-way ANOVA was conducted to compare the results of the pretest and posttest mean scores to reveal any change in the first grade students reading achievement following a three-week after school small group reading experience for the learning style treatment and the leveled reading control groups. This data determined if the null hypothesis was to be rejected.

Paired sample t-tests within subjects were performed to explore the means of the pretest and posttest to determine if a level of significance existed between the pretest and posttest of the learning style treatment and the leveled reading control groups.

First grade is a pivotal year for reading development as proclaimed by many in the reading research field including Chall (1967), Clay (1985), and Juel (1990). A goal in education has been to create positive reading experiences for beginning readers that engage them in a cyclical reading experience that included enjoying reading, developing proficient reading skills and strategies, and leading to more time reading. This research study explored the possibility of utilizing learning style preferences during reading instruction with first grade students. This research study allowed the researcher to contribute information pertaining to the ways reading instruction might be differentiated for first grade students in the future by focusing on the nature of the learner when teaching reading strategies by incorporating learning style preferences. The reading instruction included the five areas of literacy: 1) phonemic awareness, 2) phonics, 3) vocabulary, 4) fluency, and 5) comprehension strategies creating a complete reading

program. Effective instruction consisted of performing think alouds to demonstrate the thinking of a proficient reader when using the cueing system of semantic, syntax, and graphophonemic. This created a learning environment that nurtured the development of reading.

Grouping students by learning style preferences varied the materials and activities within the small group learning experience and allowed the teacher to focus instruction of reading strategies to a particular style of learning nurturing the students' development of critical thinking, problem solving, and reading performance skills. This created learning experiences that were harmonious with the way the brain processed information producing effective learning experiences for all students.

CHAPTER IV: RESULTS AND DISCUSSION

Restatement of the Research Question

The purpose of this research study was to examine the effect of small group reading instruction that utilized learning style preferences on first grade students´ reading achievement when measured by their performance during running record reading assessments. The researcher limited the learning style preferences to include visual, auditory, tactile, and kinesthetic perceptual preferences. By forming small groups based on a learning style preference a learning environment was created that differentiated reading instruction based on the small group's specific perceptual strength. This research study presented an opportunity to explore the potential of an effective way to plan and instruct reading when utilizing learning style preferences to insure success for all emerging readers during the after school reading program.

Null Hypothesis

There will be no significant difference between the means of the running record reading assessment total number of errors scored by the learning style treatment group and the reading ability leveled control group when comparing the pretest mean and the posttest mean scores in an effort to show a change in reading performance as reported by the running record reading assessments.

Participants

Subjects in the present study included 45 first grade students that created a treatment and a control group. The 23 first grade students in the treatment group

consisted of 9 girls and 14 boys, which included 6 visual learners, 6 auditory learners, 6 tactile learners, and 4 kinesthetic learners. The 22 first grade students in the control group consist of 10 girls and 12 boys. These 45 Readers Exploring Reading Club members had attended 12 or more club session, read 13 different stories, and had engaged literacy activities to promote what good readers do before, during, and after reading.

By comparing the learning style treatment group to the leveled reading control group, the researcher wanted to determine the effectiveness of utilizing learning style preferences when instructing first grade students during reading.

Data Analysis

Initial Analyses

Descriptive Analysis

The researcher used the Predictive Analytic SoftWare (PASW) Statistics, which is a computer program, to analyze the quantitative data collected during this research study. Predictive Analytic SoftWare (PASW) Statistics was used to group the 54 participating first grade students by selecting data editor from the menu bar. The 54 participating first graders were randomly grouped by PASW Statistics based on their reading levels provided by the classroom teachers. Two groups of 27 were formed during this process and were designated by the researcher as a leveled reading control group and the other as a learning style treatment group.

To determine the mean score of total number of errors on the pretests running record reading assessment of the learning style treatment group and the leveled reading control group the researcher conducted a one-way analysis of variance (ANOVA). Due

to transportation difficulties and illness the sample population dropped from 54 to 45 participating first grade students at the time of this statistical analysis. Five students quit attending the after school reading club due to family transportation issues and four were dropped from the data sheets due to missing more than three days of reading club. The learning style group, N=23, had a pretest mean of 6.48 and the leveled reading group, N=22, had a pretest mean score of 6.68 as shown in Table 1.

Table 1

Means for Total Number of Errors of Pretest Running Record Reading Assessment

Source	N	Mean	Standard Deviation	Standard Error
Learning Style	23	6.48	3.84	.802
Leveled Reading	22	6.68	4.02	.859

This statistical information also provided the researcher with an analysis that controlled for any differences between the learning style group and the leveled reading group and established the fact that both groups were statistically equally based as shown by the significance score of .863 between groups. The Test of Homogeneity of Variances for the pretest showed a significance value of .862 which is larger than .05 and allowed the researcher to assume the variance in pretest scores were the same for the learning style and leveled reading groups. The one-way ANOVA table for the pretest showed an F score of .03 which is a small variance between the learning style and leveled reading groups. The significance value was .863 which meant there was no significant difference between the mean scores of the total number of errors on the running record reading

assessment pretests for the learning style and leveled reading groups as shown in Table 2. This information permitted the researcher to determine the baseline mean scores were comparable between the two groups and to continue the data analysis looking for significance between groups in the posttests means.

Table 2

One-way Analysis of Variances for Pretest Running Record Reading Assessments

Source	DF	F	p
Between Groups	1	.030	.863

Primary Statistical Analyses

One-way Analysis of Variance

A one-way ANOVA test was conducted to determine the mean score for the total number of errors for the learning style and leveled reading posttest running record reading assessments. This would determine any significance between the learning styles and leveled reading group posttests. The results showed the learning style group, N=23, with a mean of 5.00 and the leveled reading group, N=22, a mean of 4.45 as displayed in Table 3. The Levene's test showed a significance of .487 which is greater than .05 showing the variance was the same in posttest scores for the learning style group and the leveled reading group. Reviewing Table 4 the posttest between groups showed a significance of .583 which is larger than .05 reporting there was no significant difference between the learning styles and leveled reading groups in the total number of errors in the

running record reading assessment posttest. Thus the researcher was not able to reject the null hypothesis.

Table 3

Means for Total Number of Errors of Posttest Running Record Reading Assessment

Source	N	Mean	Standard Deviation	Standard Error
Learning Style	23	5.00	3.11	.650
Leveled Reading	22	4.45	3.48	.744

Table 4

One-way Analysis of Variances for Total Number of Errors for Running Record Reading Assessments

Source	DF	F	p
		Between Groups	
Pretest	1	.030	.863
Posttest	1	.306	.583

The posttest mean scores of total number of errors for running record reading assessments for the learning style treatment group and the leveled reading control group were lower than the pretest mean scores of total number of errors for running record reading assessments showing there was improvement in the first grade students reading achievement. The lower total number of errors for the running record reading assessment posttest was not significantly different for the learning style treatment group when

compared to the leveled reading control group. Thus small group reading instruction utilizing learning style preferences treatment when compared to the leveled reading control group was not significantly different in the reading achievement of this particular group of first grade students participating in this research study at this time, under these conditions, and in this location.

Paired Sample T-tests

Due to the improved reading performance during the posttest running record reading assessments for both the learning style and the leveled reading groups, the researcher conducted paired sample t-tests within subjects to search for levels of significance between the total number of errors for the pretest and posttest running record reading assessments. The data for the pretest and posttest was then analyzed for significance for the learning style treatment group and the leveled reading control group through the use of paired sample t-tests. The results of the paired sample t-tests showed the treatment group, N=23, with a pretest mean of 6.48 and a posttest mean of 5.0 which documented an improvement from the pretest to the posttest for this group of first grade students, at this time, under these conditions, in this location. The results in the Table 5 paired samples t-test under the heading of significance (2-tailed) gave the probability value which determined the overall significance of the difference between the pretest mean score for total number of errors and the posttest mean score for total number of errors for the learning style treatment group. This value of .025 was less than .05 which allowed the researcher to conclude there was a significant difference between the mean score for total number of errors for the pretest running record reading assessment to the

mean score for total number of errors for the posttest. The total number of errors statistically decreased significantly with scores from the pretest (M=6.48, SD= 3.84) to the posttest [M=5.00, SD=3.11, t(22)=2.4, p<.025]. The eta squared statistic (.20) indicated a small effect size according to the Cohen guidelines. The magnitude of this small effect size for the small group reading instruction of the learning styles group between the pretest and the posttest documented the improvement in reading achievement for this group of participating first grade students, at this time, under these conditions, in this location.

A paired sample t-test was conducted for the leveled reading control group to calculate the level of significance for the pretest and the posttest. The one-way ANOVA had presented a mean for the leveled reading control group pretest as 6.68 and a posttest mean of 4.45 which exhibited on average fewer errors were made during the posttest than made during the pretest running record reading assessment. Table # showed the result of the paired sample t-test and revealed a significant (2-tailed) score of .000 which is lower than .05. There was a statistically significant decrease in total number of errors made during the pretest running record reading assessment (M=6.68, SD=4.028) to the total number of errors made during the posttest running record reading assessment [M=4.45, SD=3.48, t(21)=5.16, p<.000]. Based on Cohen's guidelines the eta squared statistic (.55) indicated a medium effect size documenting the magnitude of the small group reading instruction for the leveled reading group between the pretest and the posttest. This supported the conclusion that the first grade students in the control group experienced significant improvement in their reading achievement at this time, under these conditions, in this location.

Table 5

Paired Sample T-tests for Total Number of Errors of Pretest and Posttest Running Record Reading Assessments

Source	Means	Standard Deviation	t	DF	p	Eta Square
Within Subjects						
Learning Style						
Pretest	6.48	3.84	2.40	22	.025	.20
Postest	5.00	3.11				
Leveled Reading						
Pretest	6.68	4.02	5.16	21	.000	.55
Posttest	4.45	3.48				

Discussion

Summary

The Predictive Analytic SoftWare (PASW) Statistics was used to conduct several tests to determine the effectiveness of the small group reading instruction that utilized the learning style preferences of first grade students. The researcher conducted a one-way analysis of variance using the pretest total number of errors during a running record reading assessment to determine a mean score of total number of errors for the learning style treatment and the leveled reading groups and to establish the fact that the leveled reading control group and the learning style treatment group were statistically equivalent.

Another one-way analysis of variance between groups was conducted to determine the mean score of total number of errors for the posttests of the learning style and the leveled reading groups.

Paired sample t-tests within groups was conducted to explore the level of significance between the pretest mean scores for total number of errors and the posttest mean scores for total number of errors. A paired sample t-test was completed for the learning style and the leveled reading groups with the pretest data and the posttest data paired.

Results

It was determined the learning style treatment group and the leveled reading control group were statistically equivalent. The one-way analysis for variance calculated a mean score for total number of errors as 6.48 for the learning style treatment group's pretest and 6.68 for the leveled reading control group. The mean score for the total number of errors for the posttest was calculated by using a one-way analysis for variance for the learning style treatment group and the leveled reading group. The posttest mean scores for total number of errors for the learning style group was 5.00 and the leveled reading control group was 4.45. With a significance of .583 which is larger than the alpha set at .05 there was not a significant difference between the learning style treatment group and the leveled reading group.

The null hypothesis was not rejected based on the results of this study. There was no significant difference between the means of the running record reading assessment total number of errors scored by the learning style treatment group and the leveled

reading control group when the pretest mean and the posttest mean scores were compared in an effort to show a change in reading performance during running record reading assessments.

The paired sample t-tests within groups did show a significant difference from the pretest to the posttest mean score for total number of errors for the learning style group and the leveled reading group. The leveled reading group had a significance of .000 and the learning style group had a significance of .025. Both of these are less than the alpha set at .05 showing there was an improvement in the reading performance of the first grade students in the learning style treatment group and in the reading performance of the first grade students participating in the leveled reading control group.

Literature Review

Based on the between subjects statistical analysis of the posttests mean scores for the total number of errors for the learning style treatment group and the leveled reading control group the researcher was not able to reject the null hypothesis. Exploring within subjects statistical analysis the researcher discovered significance between the pretest mean scores and the posttest mean scores for both the learning style treatment group and the leveled reading control group. Both forms of grouping experienced improvement in the reading achievement of the first grade students that participated in this research study. A review of the literature presented in Chapter II may contribute an explanation for these results.

In Scalon and Vellutino (1997) study focused on the cognitive abilities and the instructional characteristics of the language arts program in kindergarten. The results of

their study suggested there is a common difficulty in reading and verbal memory among struggling readers. This present study utilized tactile and kinesthetic instructional activities which may have addressed this deficiency within struggling readers by providing them learning experiences that enhanced the memory through tactile and kinesthetic sensory perceptions instead of verbal only. Of the 31% of the first grade students participating in this present research study who were reading below grade level 38% of them were tactile and kinesthetic learners. Utilizing tactile and kinesthetic activities may have contributed to the improvement of total number of errors in their running record reading assessment posttests as reported by the paired sample t-tests.

In 1996 Dev, Doyle and Valente (2002) conducted a study utilizing multiple sensory learning experiences through the Orton-Gillingham technique which included visual, auditory, and kinesthetic learning style preferences. Their 11 participants showed improvement in reading promoting the benefits of multisensory methods of instruction for reading. The results of the paired sample t-tests in this present study reported an improvement in reading experienced by the first grade students in the learning style treatment group supporting future exploration using learning style preferences as an effective way to differentiate reading instruction.

Vygotsky's (1978) theory of learning through language and thought may explain the reading improvement experienced by the children in the treatment and control groups. The small group reading instruction experienced in the after school reading club was interactive with modeling and dialog of reading strategies conducted by peers. In the case of the learning style treatment group the struggling readers were mixed in with good readers removing them from their dysfunctional reading peers providing them the

opportunity to see and hear what good readers do before, during, and after reading. For the struggling readers in the leveled reading control group, maybe the multiple opportunities to dialog and practice the reading strategies taught during the day at school in the after school reading club may have provided nurturing learning experiences that led to the internalization of what good readers do. Both the treatment and control groups included struggling readers who may have experienced scaffolding within their zone of proximal development furthering their development of effective use of reading strategies.

The dynamics of the after school reading club may be explained by Bronfrenbrenner's biolecological model presented in a diagram showing peer influence through relationships and learning experiences within the microsystem. The students in both the treatment and control groups identified with the subculture of the reading club through fellowship during snack time and singing the club song. Then the first grade participants broke up into their small groups based on learning style preferences or leveled reading groups exploring reading strategies with their club buddies.

Denig (2004) conducted a meta-analysis of 42 studies done addressing the use of learning style preferences during instruction. The effect size of these studies was .775 suggesting instruction based on learning style preferences could lead to academic achievement. The results of the paired sample t-tests of this present study may suggest further research utilizing learning style preferences as an effective form of differentiated reading instruction.

In the study conducted by Slack and Norwich (2007) nineteen students 7-10 years of age engaged in spelling instruction that utilized learning style preferences. Their study focused on the gain between the spelling pretest and posttest. The results showed the

highest gains were experienced by the students who received spelling instruction through their learning style preference. The present study did not have results showing the learning style treatment group having higher gains than the leveled reading control group, even though the paired sample t-tests showed the treatment group did experience improvement in the total number of errors made during the running record reading assessment posttests.

Abadzi (1984) explored ability grouping with 600 fourth grade students and found the lower third of the high ability group experienced a stigma of being in the "low group" when divided into high and average ability groups. She encouraged teachers to rethink the criteria of leveled reading when forming groups. The paired sample t-tests of the present study showed reading improvement for the participating first grade students. Thirteen of the 45 first grade students read below grade level and are usually grouped with their dysfunctional reading peers. The seven first graders grouped by learning styles were removed from the stigma of "low group" which may have created learning experiences that supported them within their zone of proximal development as they learned the reading strategies in their preferred learning style. Their growth calls for further research.

Chorzempa and Graham (2006) examined the use of ability grouping in the primary grades. Of the 222 public school teachers that participated in a survey, Chorzempa and Graham determined teachers gave less time for silent reading and low level questions for students in the low reading groups when compared to the silent reading time and high level questions used with students reading on and above grade level. Grouping children in the present study by learning style preferences allowed

struggling readers to experience the same amount of reading time and high level questions due to being with various reading levels.

Summary

The results of the data gathered during this present study quantitatively reported no significance between subjects in reading achievement when comparing first grade students grouped by learning style preferences or leveled reading abilities. The researcher did not reject the null hypothesis for this research study. Further statistical testing revealed within subjects a significance in reading achievement following the first grade students' participation in the after school reading club. The researcher proposed that twenty-first century teachers continue to seek ways to differentiate reading instruction that supports the struggling reader by creating nurturing learning environments when grouping students a variety of ways.

CHAPTER V: SUMMARY AND CONCLUSIONS

This chapter includes a summary of the present study, conclusions, and recommendations for future research. The summary of the study includes a restatement of the purpose of the study, research hypotheses, participants, and procedures. Conclusions include a summary of the results, limitations of the study, and conclusions in reference to the literature review. Recommendations for future research and a final summary will conclude the chapter.

Summary of the Study

Purpose of the Study

The primary purpose of this study was to examine the effect of small group reading instruction utilizing learning style preferences on the reading achievements of first grade students. Of the 45 first grade students participating in this research study, 31% of them were reading below grade level in January 2010 when this study was conducted. This closely aligns with the 34% of fourth grade students reading below grade level in Indiana in 2009 as reported by the National Assessment of Educational Progress (NAEP) illustrating a similar population of readers reading below grade level. Educators seek varied instructional strategies for differentiating reading instruction for primary age children to improve the instructional needs of the 32% who are reading below grade level. During this research study the researcher explored using the learning style preferences of first grade students to group children for small group reading instruction.

Research Hypothesis

In order to investigate the degree to which first grade students' reading performance was affected by the intervention, the following null hypothesis was tested:

Null Hypothesis

There will be no significant difference between the means of the total number of errors of the running record reading scores of the learning style treatment group and reading leveled control group when comparing the total number of errors pretest mean and the total number of errors posttest mean scores in an effort to show a change in reading performance as reported by the running record reading assessments.

Participants

The sample for this research project consisted of 45 first grade students from a Midwestern rural elementary school. There were 26 boys and 19 girls that participated. They were electronically randomly divided using Predictive Analytic SoftWare (PASW) Statistics creating a treatment group of 23 and a control group of 22 first grade students. The reading levels for this sample of students included: two at Level Four, eleven at Level Five, five at Level Six, nine at Level Seven, four at Level Eight, eleven at Level Nine, one at Level Eleven, one at Level Twelve, and one at Level Thirteen. Forty-seven percent of the first grade students were free and reduced lunch with 4% multiracial and 3% Hispanic.

Quantitative Procedures and Analysis

Quantitative Procedures

The present study was conducted over a five week period in January of 2010. A Randomized Pretest-Posttest Control Group Design was used to determine the effect of small group reading instruction that utilized learning style preferences on the reading achievement of first grade students. The first grade students engaged in a pretest running record reading assessment to determine the baseline reading performance before participating in the after school reading program. The *Elementary Learning Style Assessment* (ELSA) was administered to all students participating in the after school reading program during their weekly scheduled computer lab providing the researcher with data showing the learning style preferences of each first grade student. At the end of the three-week after school reading program the students completed the posttest running record reading assessment in order to assess the extent to which each child's reading performance changed for both the treatment and control groups. The recorded total number of errors for the pretest and the total number of errors for the posttest were then analyzed.

Quantitative Data Analysis

Data analysis was conducted using a one-way analysis of variance (ANOVA) to determine the effectiveness of the treatment in reading performance of first grade students when compared to the control group who received similar small group reading instruction, but who were grouped by reading levels instead of learning style preference. A search for significance continued by conducting paired sample t-tests within subjects to

explore the extent to which the learning style treatment group and the leveled reading control group may have improved in reading achievement. The mean scores were tested at the .05 level of significance to determine the effect of the intervention for the participating first grade students.

Conclusions

Summary of Results

The pretest and posttest data were analyzed using Predictive Analytic SoftWare (PASW) Statistics. The one-way analysis of variance (ANOVA) was conducted to determine the mean scores of the pretest and the posttest between subjects. Paired sample t-tests were performed in search of a level of significance within subjects between the pretests and the posttests. The following null hypothesis was tested at the .05 level of significance:

There will be no significant difference between the means of the total number of errors of the running record reading scores of the learning style treatment group and reading leveled control group when comparing the total number of errors pretest mean and the total number of errors posttest mean scores in an effort to show a change in reading performance as reported by the running record reading assessments.

The one-way ANOVA determined there was not a level of significance between subjects in the mean score for the posttests for the learning style treatment and the reading leveled control groups. The researcher could not reject the null hypothesis based

on these findings. Differentiating the small group reading instruction by utilizing learning style preferences did not result in better reading achievement than small group reading instruction that was delivered to first grade students grouped by reading levels.

The paired sample t-tests revealed a level of significance within subjects from the total number of errors made during the pretest to the decrease in total number of errors made during the posttest for both the learning style treatment group and the leveled reading control group. The data from the paired sample t-tests implied that an additional 30-minute reading instruction time after school may have contributed to improving reading achievement for these first grade students.

Limitations

Important limitations to the present study must be addressed in reference to the findings presented. Efforts to control extraneous variables to the fullest extent possible are critical to the experimental process. The Randomized Pretest-Posttest Control Group Design contains five areas of threat concerns including the location, data collector characteristics, data collector bias, attitude of subjects, and implementation. The researcher was able to control the location by assigning each small group the same small learning space every day after school. The data collectors, two assessors conducting the running record reading assessments, were kept blind to who was in the treatment group or the control group as well as reviewed their skills in administering running record reading assessments controlling for the bias. The same two assessors were used for the pretest and the posttest. This controlled the data collector characteristics limitation for this study.

Sample size, implementation of treatment, and the attitudes of the participating first grade students are addressed as possible limitations of this research design.

Sample size may have been a limitation of the present study. The learning style treatment group of 23 and the leveled reading control group of 22 may have compromised the effectiveness of the results. According to Fraenkel and Wallen (2006) when working with a sample smaller than 30 the pretest becomes important to establishing the equivalence of the treatment and control groups. The Predictive Analytic SoftWare (PASW) was used to randomize the treatment and control group based on their reading levels to create equivalent groups, and a one-way ANOVA was conducted to establish the fact that the treatment and control group were statistically equivalent.

The researcher had multiple teachers for the four leveled reading control subgroups and one teacher for each learning style treatment subgroup including a visual teacher, auditory teacher, tactile teacher, and kinesthetic teacher. The eight teacher candidates serving as small reading group teachers attended a training session to create uniformity of instruction delivered during the small group reading experiences. The small group instructional format presented at the training session included starting with a familiar story to be read aloud to the teacher and/or peer, instruction in using a reading strategy, practice using this strategy, introducing a new story to read that evening which became the familiar story for the next small group meeting. Despite the teacher training session, the delivery of instruction may have been a threat to the results of the study.

A final limitation was the attitudes of the first grade students participating in the after school reading program which were not able to be controlled, as everyone chooses his or her own reaction to experiences. Even though the effect of this kind of threat was

low to moderate in this design, the first grade students attending the after school reading program were excited when invited to be scientists and explore reading. They were excited about coming together, meeting with different peers than their classmates, having college students as teachers, and reading. The reasons these particular first grade students participated are varied but they all wanted to help explore reading as scientists. They were focused and on a mission which may have created an attitude of importance or being special. This may explain why 96% of the first grade participants improved in their reading performance during the running record reading assessment by significantly decreasing their total number of errors from the pretest to the posttest.

Discussion

Paired sample t-tests within subjects showed improvement in reading was experienced by the group of 23 first grade students, who participated in the after school reading program, and suggested small group reading instruction utilizing learning style preferences may be an effective way to differentiate instruction. The learning style treatment group did not significantly improve when compared to the leveled reading control group. However, the results of this present study implied the after school small group reading instruction time may have contributed to the improved reading achievement of the first grade students.

Utilizing the child's learning style preferences allowed the teachers in this present study to deliver reading instruction incorporating materials and activities of a specific learning style preference to address the challenge made by the Elementary and Secondary Education Act of 1965 (No Child Left Behind). This Act of 1965 challenged

teachers to teach to the child's diverse educational strengths using a variety of instructional strategies.

Using reading activities that include more than visual and auditory preferences may reach more of the 34% of struggling readers in our classrooms today. As educators interpret Principle Three from the Interstate New Teacher Assessment and Support Consortium (INTASC) which stated, "…understands how students differ in their approaches to learning…" teachers may see this study as a door opener to utilize their students' learning style preferences when differentiating small group reading instruction. Principle Four (INTASC) required teachers to use a variety of instructional strategies to promote students' development of cognitive and performance skills.

Allington's (2007) book *No Quick Fix: Rethinking Literacy Programs in America's Elementary Schools,* challenged teachers to rethink the "conventional wisdom used to determine instructional practices" in the classroom. This study addressed four of the six challenges he presented. Conventional wisdom #1, "Not all children can become literate with their peers," promoted the thought that not all children can learn to read on schedule. This kind of thinking creates barriers within teachers prohibiting the mindset of how to accelerate students reading development so they can catch up with their peers. Small group reading instruction utilizing the student's learning style preference may present a reading concept or skill in a format that matches the way a child processes new information enhancing the child's reading development.

This research study prevented the formation of the low reading group in the learning style treatment group by removing the struggling child reading below grade level from his/her dysfunctional reading peers. Allington's (2007) conventional thinking #3,

"Children learn best in homogeneous groups," tended to create leveled reading groups which resulted in the formation of a low reading group. Allington referred to this as a "dumping ground with low expectations, few role models, successes, and/or peer coaches." By grouping children with their learning style preference peers, the small groups included varied reading levels creating opportunities for good readers to model and coach their struggling peers. The struggling reader had a better opportunity to engage in reading experiences with proficient readers.

Allington's (2007) conventional wisdom #5, "Some children need slowed-down and more concrete instruction," was another challenge addressed during this research project. The small group reading groups met daily after school for 30 minutes of instruction time for three weeks. There was no slow-down planned and the focus of each session supported the reading instruction the children had received that day in their classrooms. The learning style treatment group instruction was more concrete as it incorporated activities that addressed their learning style preferences. This research project related to the work of Marie Clay (1985) which promoted larger doses of reading instruction in shorter amounts of time for children in this age group. Supporting the reading instruction taught by the classroom teacher increased the amount of instruction the children received of that specific reading strategy while keeping the instruction short and to the point during the after school reading program.

The results of this study showed improvement in the first grade students reading performance during the running record reading assessments and these improvements were not the result of special teachers implementing instruction as a pull out program as suggested by Allington (2007) in his conventional wisdom #6, "We should use special

teachers to meet the needs of some children." The researcher in this study challenged this thinking when teacher candidates from a Midwestern college provided instruction to first grade students. Focused reading instruction was provided without interrupting the learning experienced in the regular classroom. Allington dared teachers to think of other ways to deliver reading instruction besides utilizing a pullout program during the day.

Based on the results of this present study the paired sample t-tests utilizing learning style preferences may be another way to effectively differentiate reading instruction creating reading opportunities of success for all children. Tomlinson (2005) promoted differentiating instruction by modifying the content, the product, or time spent during the lesson. When forming the small reading groups by learning style preferences during this research study, an environment was created that allowed the teacher to modify the product by matching it to the learning style preference of the children in the small group. The results of the paired sample t-tests reported improvement within subjects for both the learning style treatment and leveled reading groups of this research study.

Response to Intervention (RTI) was an instructional approach to preventing reading failure used in schools creating effective teaching. Data from screening reading assessments were used to determine additional reading instruction learners needed. It was delivered in small groups or one-on-one instruction. This approach promoted frequent progress monitoring to maintain the alignment of reading needs with reading instruction which resulted in the movement of students from whole group, to small group, to one-on-one format giving more intense reading instruction based on students' progress. This approach was applicable to the theory of preventing a pattern of reading failure and defied the previous practice of "wait to fail" that operated in our schools. Response to

Intervention small group instruction would be compatible with activities and materials based on learning styles. Learning style preference activities would add depth for the learners creating nurturing reading instruction enhancing the content areas of phonemic awareness, phonics, vocabulary, fluency and comprehension.

The work of Hall, Prevatte, and Cunningham (1995) with mixed ability groups addressed the need to get the children reading below grade level with good readers who could read, write, and model what good readers do. Their study referred to the Winston-Salem Project created a support program call Facilitating Reading for Optimum Growth (FROG). The small reading groups formed by learning style preference during this present study created the same kind of reading environment for struggling readers separating them from their dysfunctional reading peers and placing them with peers of mixed reading abilities.

Slavin's (1987) challenge to teachers to find alternative ways to group children to create optimal learning environments was accepted by this researcher. The small groups formed by learning style preferences created optimal learning environments as insinuated by the paired sample t-tests results of improvement in reading performance of participating first grade students in this research study. The groups were mixed ability and separated the low readers from their dysfunctional reading peers while exposing them to good reading models and providing opportunities for them to practice what good readers do with peer support. The dialog that developed among the first grade students within their small groups mimicked Vygotsky's (1978) theory of learning through social exchanges. The more knowledgeable students would scaffold the struggling students

providing guidance within their zone of proximal development while reading stories together.

The improvement in reading performance experienced by the participating first grade students in this study may be due to the age of the students. Marie Clay's (1985) studies stressed six-year olds are the age for intervention and the researcher selected a first grade sample population for the research study based on Clay's work.

Ninety-six percent of the first grade students participating in this study experienced an improvement in reading performance during the running record reading assessment posttest. This may be due to the format of small group reading instruction utilized by all the teachers in the learning style treatment and leveled reading control groups. The selected format contained the same components found in the work of Cunningham and Hall's (1995) Four Block and also utilized in Clay's (1985) Reading Recovery. These components included reading a familiar story at the beginning of instruction time, teaching a reading skill, working with words, writing, and introducing a new story for application of the reading skill. The new story becomes the familiar story and the cycle repeats itself. These two effective reading programs have created optimal learning experiences for all learners and may be the reason for the success experienced by the first grade students in this research study.

Recommendations for Future Research

Although the first grade students experienced an improvement in their reading achievement as reflected by the decrease of total number of errors from the pretests to the posttests for both the learning style treatment and the leveled reading control groups, it is

evident for this group of first grade students the learning style treatment during after school reading program did not experience more improvement when compared to the students in the leveled reading control group. Reflecting on the results of this present study, additional approaches arise pertaining to the use of learning style preferences as criteria when differentiating reading instruction.

The first grade students participated in this research project for five weeks which met daily after school creating a concentrated reading experience in a short amount of time. The prospect of conducting this after school reading program for a longer period of weeks may yield different findings. When considering the design method for the research project, the researcher recommends including a group of students who do not attend the after school program in the sample. This would allow the data from the paired sample t-tests to provide evidence of the impact of the after school program on the posttest results.

Utilizing learning style preference criteria for grouping students for small group reading instruction during the school day may also create a different set of results. This might be conducted as action research by classroom teachers who have utilized a variety of grouping methods in their classroom. The learning style reading groups might meet once a week, focusing on the reading strategy or strategies being taught that week.

Using teachers that have more experience in instructing children in small group reading may affect the results when grouping children by their learning style preferences. These teachers would have a perspective of reading development and a plethora of reading activities that would enhance the teachable moments that arise during small group reading instruction which the teacher candidates use in this study have not yet

acquired. Future researchers would want to consider teachers with similar professional development experiences as well when selecting teachers for future experimental studies.

Reflections

Imagine as a first grade student being invited to explore reading as a scientist with other first grade students. It was an after school reading club called Readers Exploring Reading Club that met every day for 40 minutes. It started with a snack of juice and pretzels, singing the club song:

We are readers,

Mighty good readers,

Everywhere we go,

People want to know,

Who we are,

And we tell them…

Then off to the club meeting with enthusiastic friends ready to learn and empowered teacher candidates who had planned engaging reading activities and new stories for every meeting. Many of these friends are familiar because of shared activities like riding on the bus, eating lunch, and playing together at recess but most have never been together in the same reading group. This learning community does sound exciting.

The present researcher, after teaching reading to first graders for eight years, had pondered since 1989 the effect of grouping children by their learning styles for small group reading instruction and its effect on their reading achievement. She approached a

couple of superintendents, a few principals, and several classroom teachers before finding a principal that was willing to join in this exploration of reading instruction.

The accountability that No Child Left Behind Act has put upon educators and administrators has created a "hands off" policy when adapting small group reading instruction making it a challenge for the researcher to find a sample of first grade students. Educators and administrators know that first grade is a crucial time in the development of reading skills which made it a "protected population" when it came to experimenting with reading instruction. The fact that first grade is a critical time in the cognitive development of reading made it a "prime population" for this experimental research project. Reading First Grants control the resources and methods used during reading instruction limiting teachers thinking of how to conduct reading instruction and added to the cautious thinking of administrators which Allington (2007) challenged in his book *No Quick Fix: Rethinking Literacy Programs in America's Elementary Schools*,.

Once a principal opened the doors of her first grade classrooms to the researcher, the first grade teachers and students were enthusiastic, supportive, and available. The teachers shared reading materials, adjusted their schedules, and encouraged their participating students during this project. One first grade teacher made a comment about one of her struggling readers, "Because of your song, he thinks of himself as a reader." When the researcher walked down the hall of the school during the day participating first grade students greeted her as their "reading teacher" with enthusiasm telling of something new they were doing when reading. Frequently students who were not in the after school reading club asked how to join the club.

The final project presented was an after school reading club for three weeks that met daily for 40 minutes. The college provided the teacher candidates and the parents committed to picking up their children at the end of the club experience making the research project a reality.

Johnston and Pennypacker (1993) stated there was almost always a difference when comparing the treatment group to the control group; the question is if it is enough of a difference to meet the requirements of the set numerical criteria. They explained that within-subject tests allow the researcher to describe findings data is thought to support. The researcher reflected on the data provided by the paired sample t-tests which were within-subject. Reading improved for the individual subjects but what caused the improvement is not evident. The research project had a treatment group and control group but no group of first grade students that did not attend the club meetings to include in the comparison.

Inferences made about the individual subjects experiencing interactive learning opportunities that contributed to their reading improvement address the interaction between subjects and the learning environment. Vygotsky's (1978) theory would address the interaction between the below grade level readers and the good readers over time contributed to the improvement in reading. Different subjects take different amounts of time to respond to new conditions, so if the treatment were longer perhaps there would be enough statistical difference when comparing the learning style treatment group to the leveled reading group. If certain procedures were repeated would the results be the same? If certain procedures were modified would the results be the same? This can only be clarified with additional research.

Jennabeth Settle (1989) explored the effect of learning styles-modality strength reading instruction for low-achieving first grade students. Her results were astounding as 15 students made an average gain in their reading achievement of 7.25 months during her five months of learning style-modality strength instruction. Her summarizing comments reflect the thinking of the present researcher that drove this present research project:

> In many occurrences of low achievement and even student failure, perhaps it is not the student who has failed to master the material presented. It may be that the presentation of appropriate grade level skills is being executed in such a manner that the child's opportunities for success are limited. In reality, it may be that some educators are failing to use appropriate instructional methods to insure student success.

Bruner's (1967) theory of three ways of knowing and organizing and presenting new information to learners would support Settle's (1989) comments. Bruner, Settle and this researcher challenge educators to utilize different ways of presenting reading instruction by incorporating materials and activities that support all learners.

As teachers continue to seek effective ways to differentiate reading instruction, small group reading instruction will be used. The criteria for the formation of the small reading groups will be critical to the reading development of all children. The instructional needs of students may be the affective criteria instead of their academic inadequacies. Many teachers are cautious to adapt reading instruction that works for most students most of the time, but educators need to plan for the success of all students. The small reading group needs to be an optimal learning environment that would promote successful learning experiences for all children, including the struggling readers.

In the present study, learning style preference was the criteria used to form the small group reading experiences. This allowed the struggling reader who reads below grade level to be separated from their dysfunctional reading peers and to spend time with good readers who dialog and model reading skills and strategies while supporting their struggling peers. This differentiated learning experience engaged the struggling readers within their zone of proximal development providing opportunities for them to participate in reading with support creating a nurturing learning environment that utilized their specific nature.

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Appendix A

Permission Letter

Manchester Elementary School
Home of the Falcons
301 River Road
North Manchester, In 46962
Phone (260) 982-7541 • Fax (260) 982-8020

November 23, 2009

Re: Small Group Instruction: Reading Instruction Utilizing Learning Style Preferences and the Reading Achievement of First Grade Students

Dear Institutional Review Board of Ball State University,

This letter comes to confirm my school's eager participation in the research project being conducted by Vicki Eastman. I understand that Vicki's project is targeting the effects of small group reading instruction when coupled with learning style preferences. First grade students in my building are invited to participate.

I understand that participating students will complete a learning style survey, a reading pretest, and posttest. The treatment period will involve reading activities that support the preferred learning style of individual students.

I have approved the parent permission letter and am hopeful that Vicki will have a tremendous response from our parents.

I look forward to the results of Vicki's research, knowing that her work will benefit, not only the students, but the faculty as well.

Sincerely,

Bonnie Ingraham
Manchester Elementary School
Principal

Appendix B

Parental Consent Form

Small Group Instruction:
Reading Instruction Utilizing Learning Style Preferences and the Reading Achievement of First Grade Students

The purpose of this research project is to examine the effects of reading instruction when utilizing learning style preferences. For this project, your child will be asked to complete a learning style survey, a reading pretest, reading activities that support his/her learning style preferences or reading level, and a reading posttest. Your child will complete a learning style survey by responding to the items in the *Elementary Learning Style Assessment* (ELSA). S/he will listen to the story *Elephant Style* to explain the concept of learning style preferences then your child will complete the ELSA on the computer in the computer lab. Following the completion of the learning style survey your child will receive a print out of his or her learning style preference report, learn about activities and materials that support his/her learning style preferences, and listen to the story *Kids in Style*. The running record reading assessment pretest and posttest will be administered by two teacher candidates from a Midwestern college under the supervision of the researcher. Small group reading instruction will be provided by teacher candidates from a Midwestern college under the supervision of the researcher. The duration of the study is five weeks. Week one your child will complete the learning style survey to determine learning style preferences and a pretest, a running record reading assessment, to determine his/her baseline for the total number of errors. Weeks two, three, and four your child will participate in an after school reading club for 30 minutes daily receiving small group reading instruction that utilizes activities and materials that support his/her learning style preferences. Week five, your child will complete a posttest, a running record reading assessment, to determine the total number of errors when reading.

All data will be maintained as confidential and no identifying information such as names will appear in any publication or presentation of the data. Data will be stored in a locked filing cabinet in the researcher's office for 18 months and then shredded.

There are no foreseeable risks or ill effects from participating in this study. As a precautionary measure, your child will be allowed to visit his/her school counselor if s/he experiences any anxiety as a result of participation.

One benefit your child may gain from participating in this study may be a better understanding of knowing his/her learning style preference. A second benefit, by using materials and activities that support his/her learning style preference, the small group reading instruction may enhance your child's learning to read.

Your child's participation in this study is completely voluntary. Your child may choose to discontinue participation at anytime and you are free to withdraw your permission at anytime for any reason without penalty or prejudice from the researcher. Please feel free to ask any questions of the researcher before signing this Parental Permission form and at any time during the study.

For one's rights as a research subject, the following person may be contacted: Office of Research Compliance, Ball State University, Muncie, IN 47306, (765) 285-1600, irb@bsu.edu.

I give permission for my child to participate in this research project entitled, "Small Group Instruction: Reading Instruction Utilizing Learning Style Preferences and the Reading Achievement of First Grade Students." The study was explained to me and questions have been answered to my satisfaction. I read the description of this project and give my permission for my child to participate. I understand that I will receive a copy of this informed consent form to keep for future reference.

_____ _____

Parent's Signature Date

Child assent statement:

The research project was explained to me and I had the opportunity to ask questions. I understand what I am being asked to do as a participant and I agree to participate in the research.

_____ _____

Child's Signature Date

Principal Investigator:
Vicki Eastman, Doctoral Student
Meeks Distinguished Professor
Elementary Education

Faculty Supervisor:
Dr. David McIntosh, David and Joanna
Special Education

Ball State University
Muncie, IN 47306
Telephone: 260.982.5279
Email: vleastman@bsu.edu

Ball State University
Muncie, IN 47306
Telephone: (765) 285-5701
Email: demcintosh@bsu.edu

Appendix C

Running Record Sheet

RUNNING RECORD SHEET

Name: _____ Date: _____ D. of B.: _____ Age: _____ yrs _____ mos.

School: _____ Recorder: _____

	Text titles	Errors / Running Words	Error Ratio	Accuracy Rate	Self-correction Ratio
Easy	_____	_____	1: _____	_____ %	1: _____
Instructional	_____	_____	1: _____	_____ %	1: _____
Hard	_____	_____	1: _____	_____ %	1: _____

Directional movement _____

Analysis of Errors and Self-corrections

Information used or neglected — Meaning (M), Structure or Syntax (S), Visual (V)

Easy _____

Instructional _____

_____

Hard _____

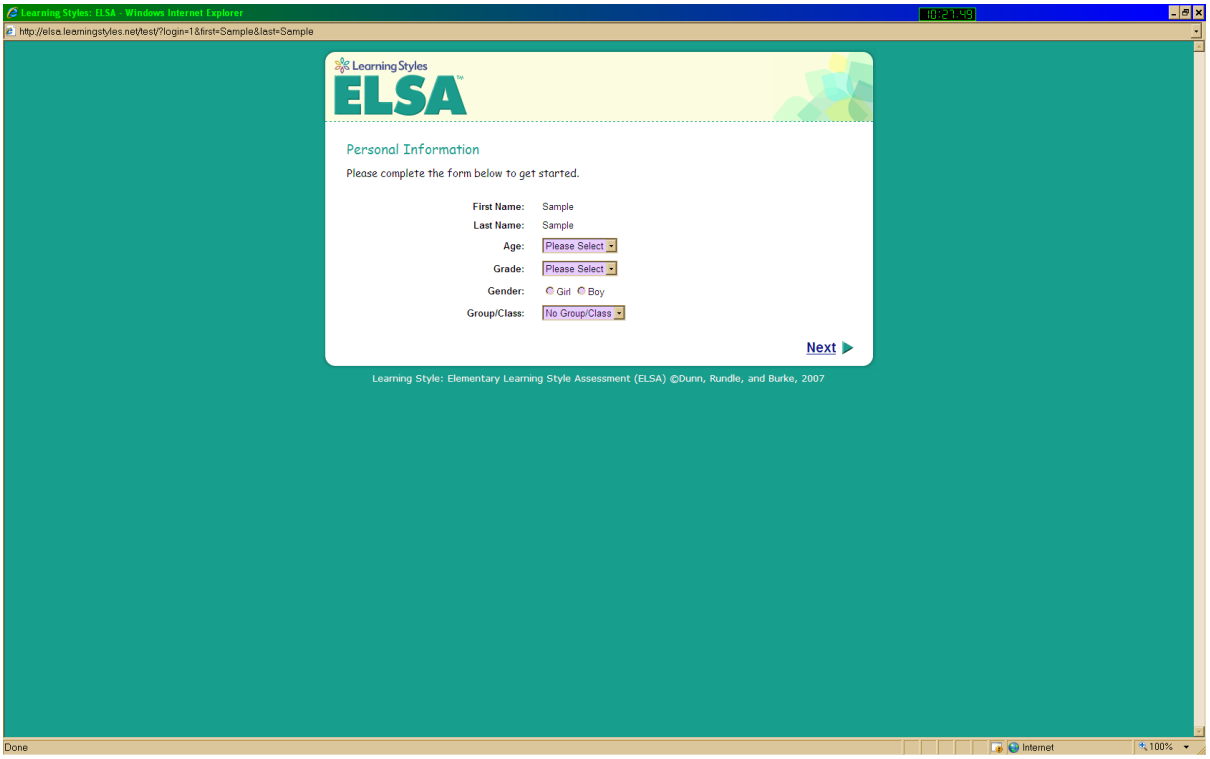
_____

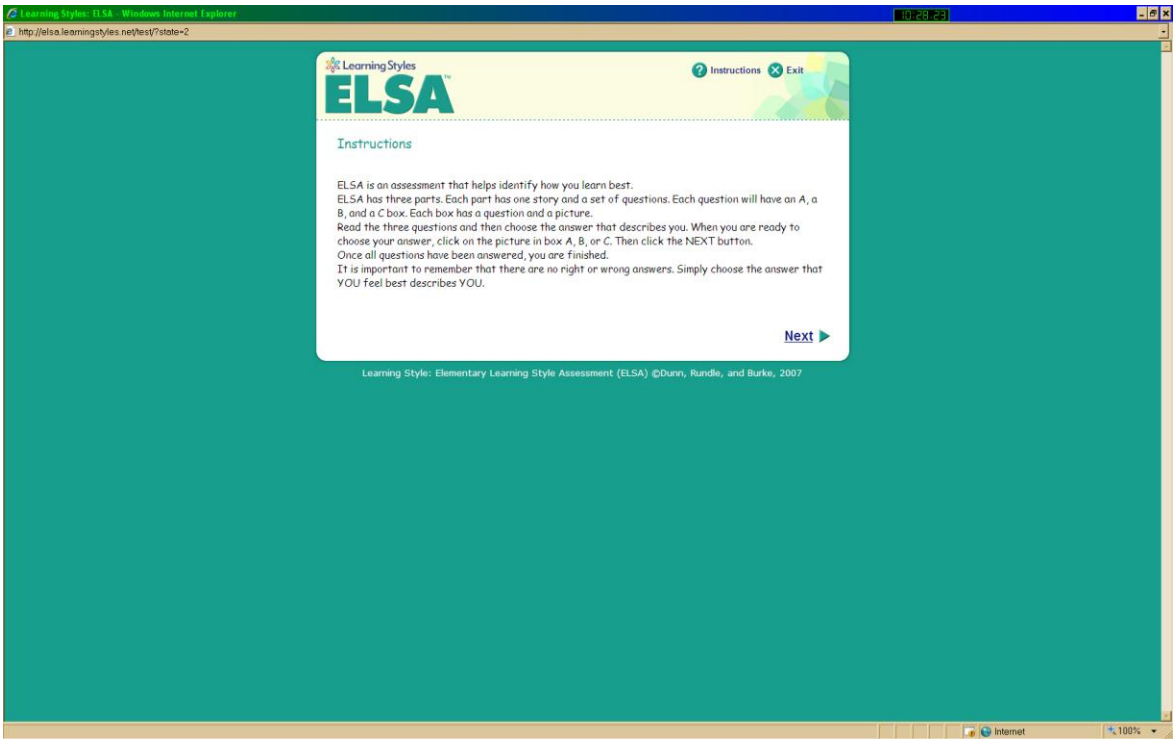
Cross-checking on information (Note that this behavior changes over time)

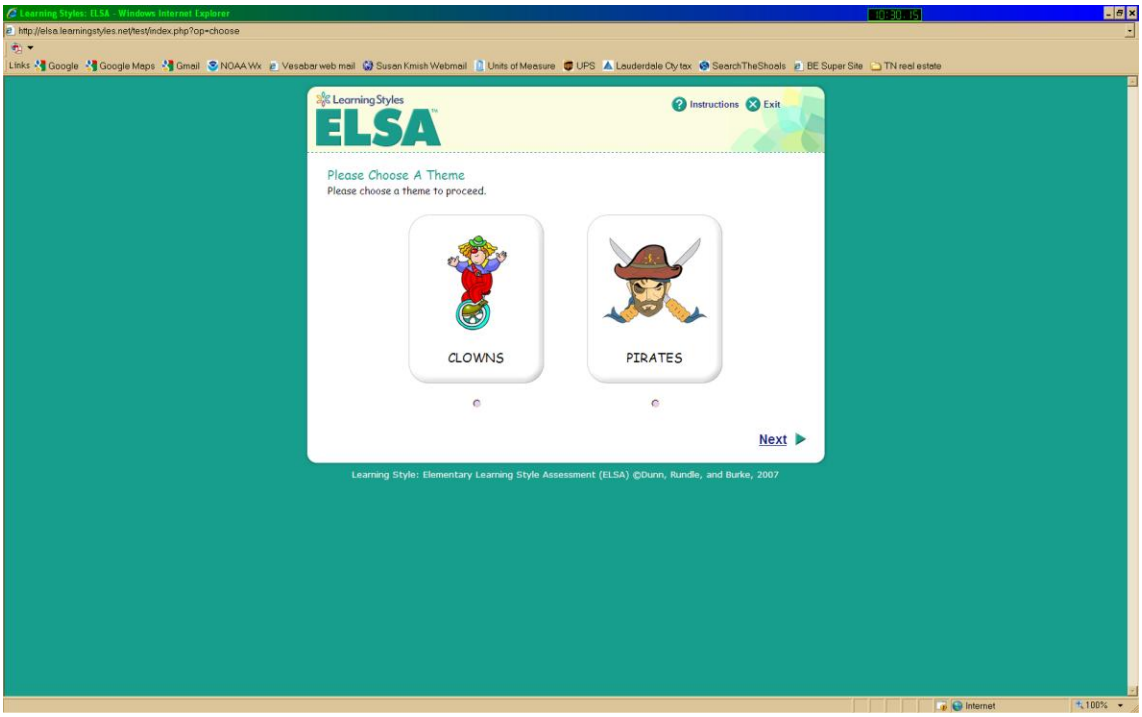
		Count		Analysis of Errors and Self-Corrections	
				Information used	
Page	Title	E	SC	E MSV	SC MSV

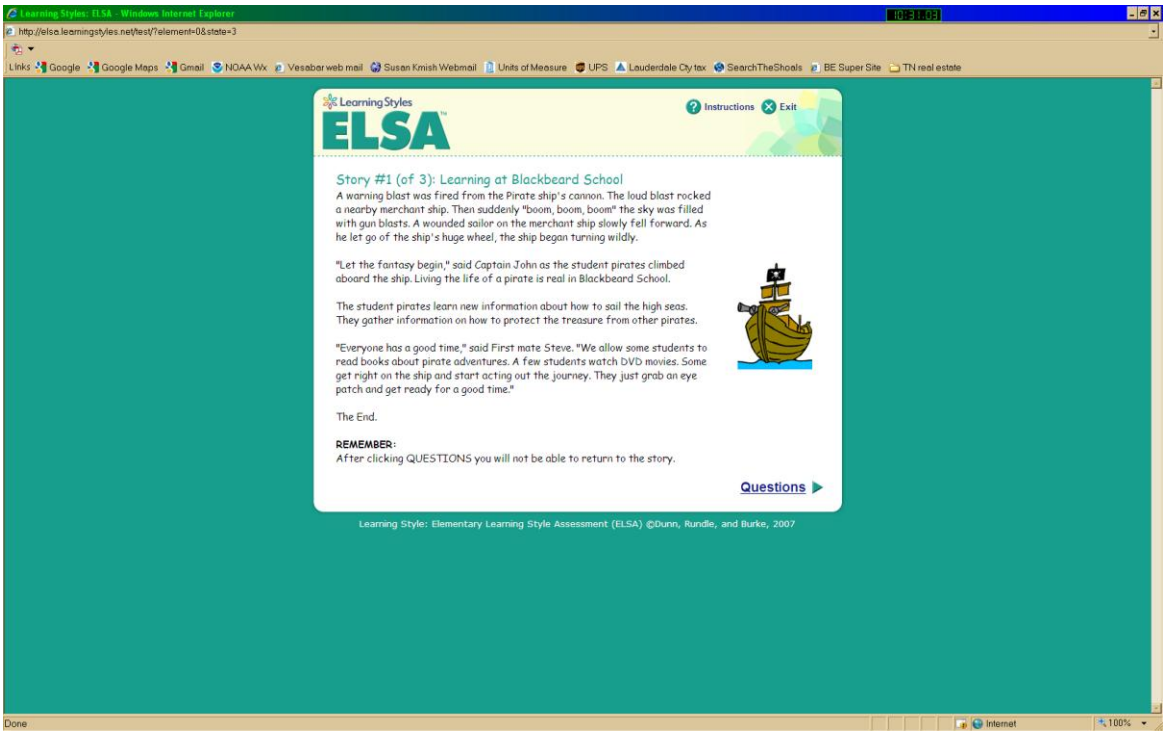
Appendix D

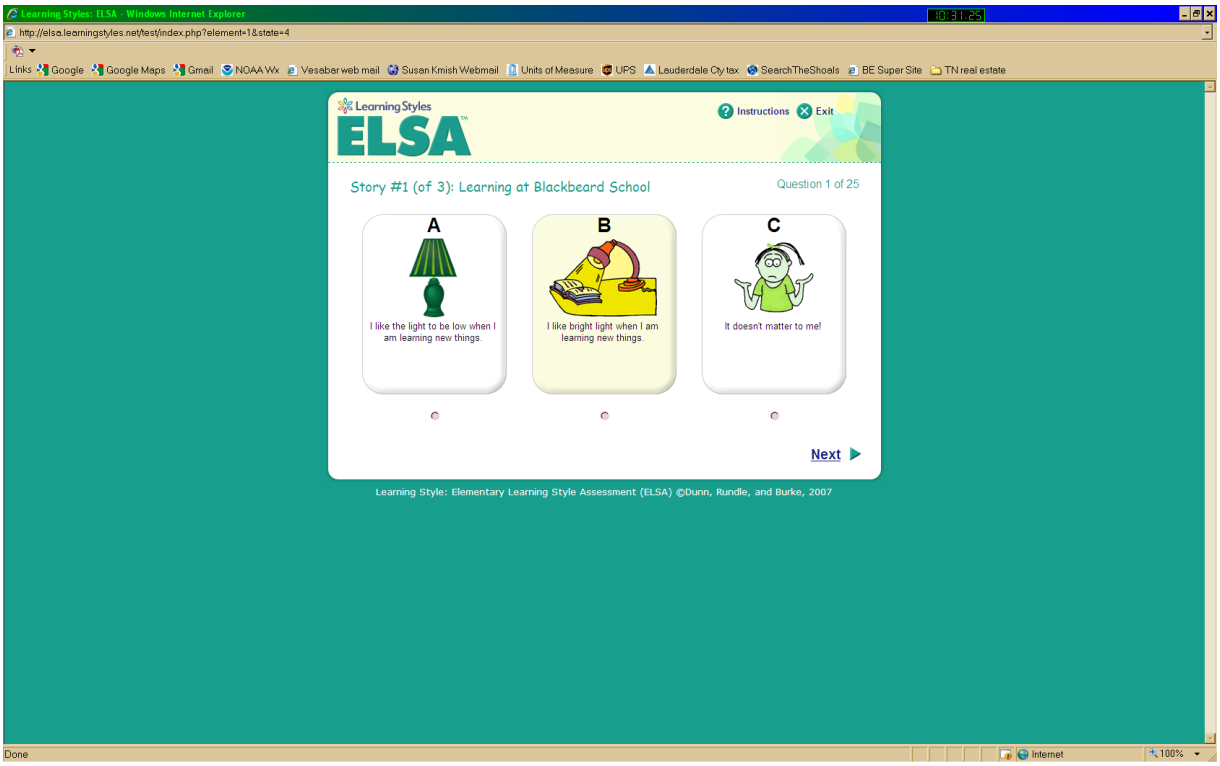
Elementary Learning Style Assessment


Learning Styles: ELSA - Windows Internet Explorer
http://elsa.learningstyles.net/test/?login=1&first=Sample&last=Sample
Learning Styles
ELSA
Personal Information
Please complete the form below to get started.
First Name: Sample
Last Name: Sample
Age: Please Select
Grade: Please Select
Gender: Girl Boy
Group/Class: No Group/Class
Next
Learning Style: Elementary Learning Style Assessment (ELSA) ©Dunn, Rundle, and Burke, 2007
Done
Internet
100%


Learning Styles: ELSA - Windows Internet Explorer
http://elsa.learningstyles.net/test/?state=2
Learning Styles
ELSA
Instructions
Exit
Instructions
ELSA is an assessment that helps identify how you learn best.
ELSA has three parts. Each part has one story and a set of questions. Each question will have an A, a B, and a C box. Each box has a question and a picture.
Read the three questions and then choose the answer that describes you. When you are ready to choose your answer, click on the picture in box A, B, or C. Then click the NEXT button.
Once all questions have been answered, you are finished.
It is important to remember that there are no right or wrong answers. Simply choose the answer that YOU feel best describes YOU.
Next
Learning Style: Elementary Learning Style Assessment (ELSA) ©Dunn, Rundle, and Burke, 2007
Internet
100%


Learning Styles: ELSA - Windows Internet Explorer
http://elsa.learningstyles.net/test/index.php?op=choose
Learning Styles
ELSA
Instructions
Exit
Please Choose A Theme
Please choose a theme to proceed.
CLOWNS
PIRATES
Next
Learning Style: Elementary Learning Style Assessment (ELSA) ©Dunn, Rundle, and Burke, 2007


Learning Styles: ELSA - Windows Internet Explorer
http://elsa.learningstyles.net/test/?element=0&state=3
Learning Styles
ELSA
Instructions
Exit
Story #1 (of 3): Learning at Blackbeard School
A warning blast was fired from the Pirate ship's cannon. The loud blast rocked a nearby merchant ship. Then suddenly "boom, boom, boom" the sky was filled with gun blasts. A wounded sailor on the merchant ship slowly fell forward. As he let go of the ship's huge wheel, the ship began turning wildly.
"Let the fantasy begin," said Captain John as the student pirates climbed aboard the ship. Living the life of a pirate is real in Blackbeard School.
The student pirates learn new information about how to sail the high seas. They gather information on how to protect the treasure from other pirates.
"Everyone has a good time," said First mate Steve. "We allow some students to read books about pirate adventures. A few students watch DVD movies. Some get right on the ship and start acting out the journey. They just grab an eye patch and get ready for a good time."
The End.
REMEMBER:
After clicking QUESTIONS you will not be able to return to the story.
Questions
Learning Style: Elementary Learning Style Assessment (ELSA) ©Dunn, Rundle, and Burke, 2007
Done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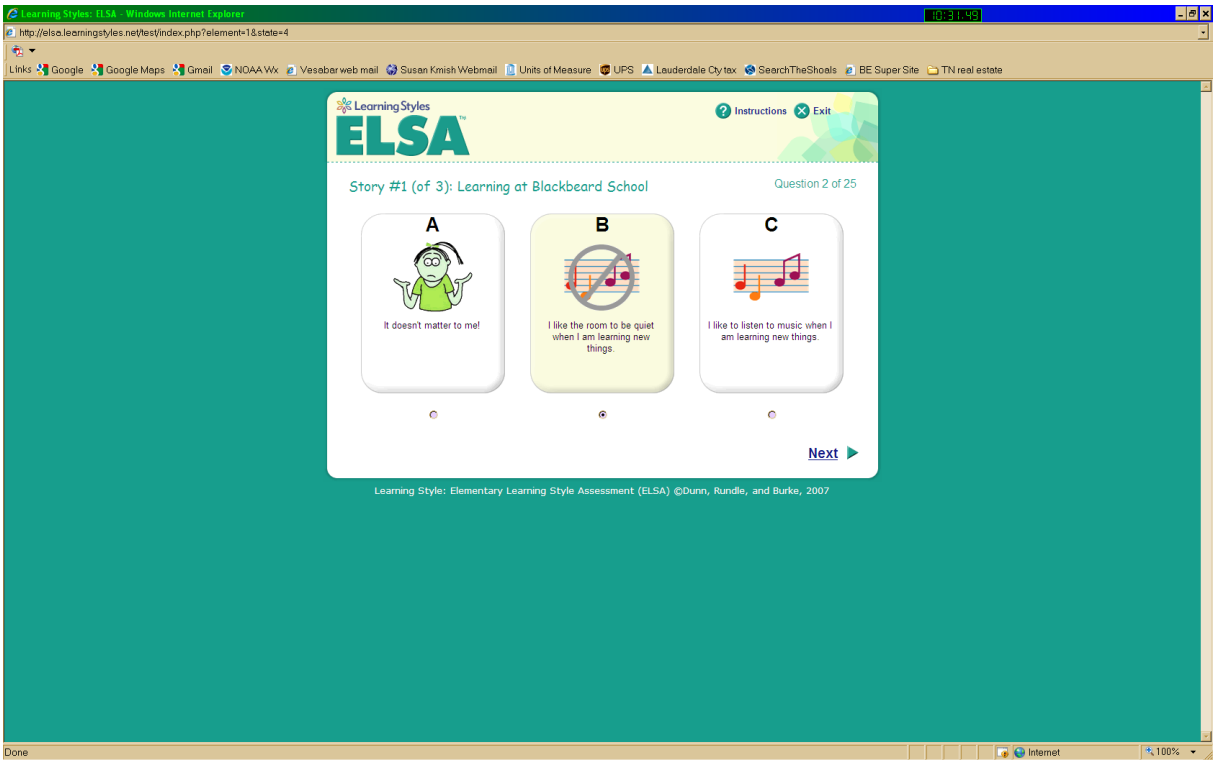
Links Google Google Maps Gmail NOAA Wx Vesaber web mail Susan Kmish Webmail Units of Measure UPS Lauderdale City tax SearchTheShoals BE Super Site TN real estate
Learning Styles
ELSA
Instructions
Exit
Story #1 (of 3): Learning at Blackbeard School
Question 1 of 25
A
I like the light to be low when I am learning new things.
B
I like bright light when I am learning new things.
C
It doesn't matter to me!
Next
Learning Style: Elementary Learning Style Assessment (ELSA) ©Dunn, Rundle, and Burke, 2007
Done
Internet
100%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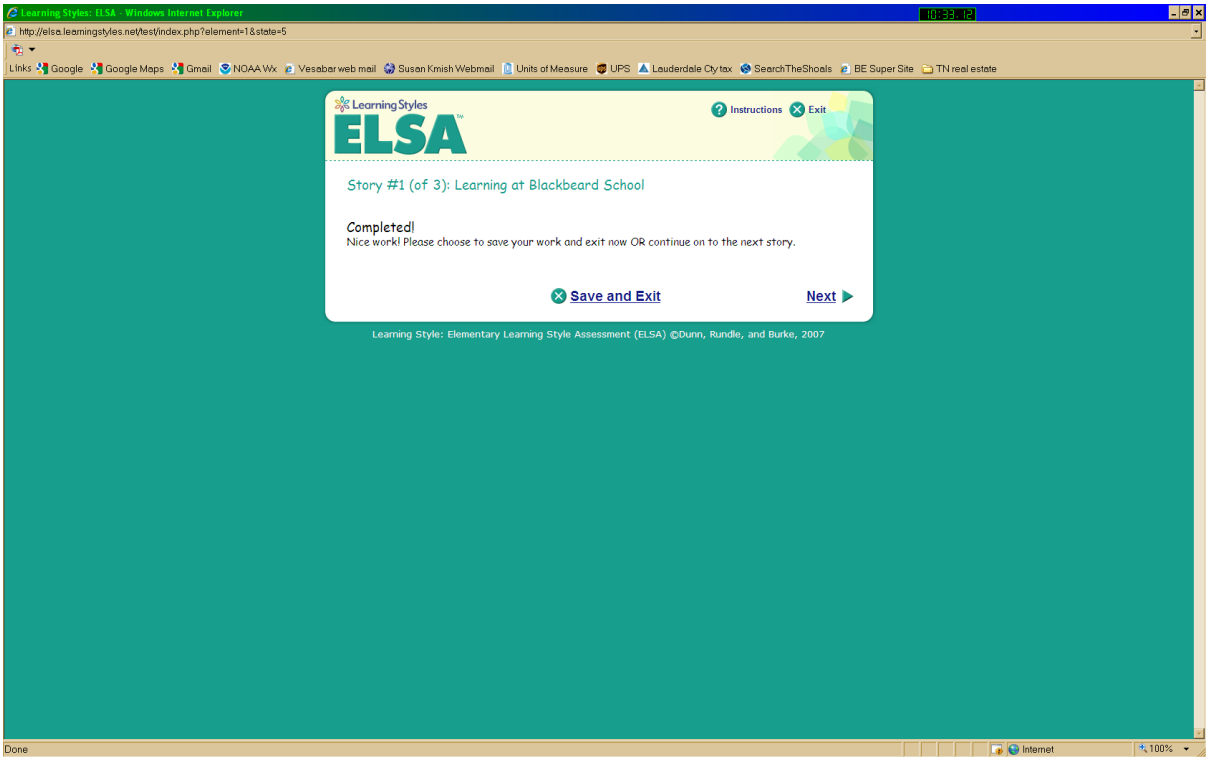
Learning Styles
ELSA
Instructions
Exit
Story #1 (of 3): Learning at Blackbeard School
Question 2 of 25
A
It doesn't matter to me!
B
I like the room to be quiet when I am learning new things.
C
I like to listen to music when I am learning new things.
Next
Learning Style: Elementary Learning Style Assessment (ELSA) ©Dunn, Rundle, and Burke, 2007
Done
Internet
100%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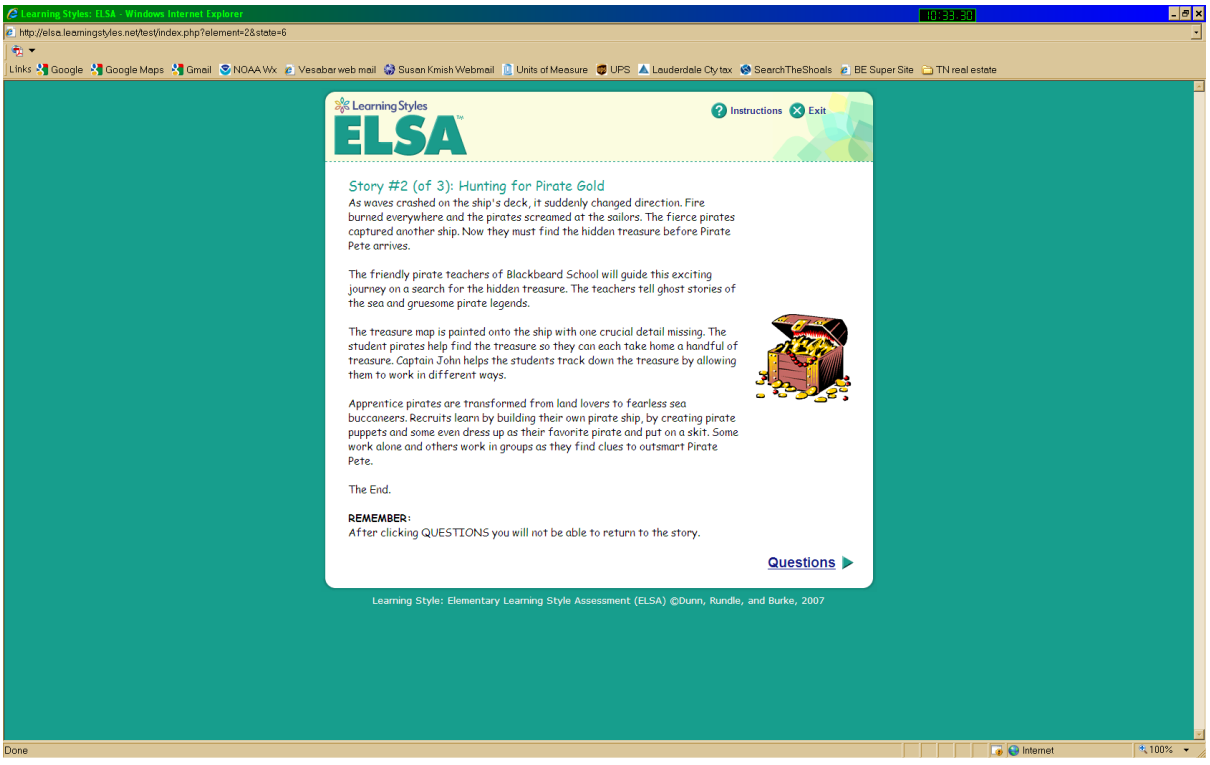
Learning Styles
ELSA
Instructions
Exit
Story #1 (of 3): Learning at Blackbeard School
Completed!
Nice work! Please choose to save your work and exit now OR continue on to the next story.
Save and Exit
Next
Learning Style: Elementary Learning Style Assessment (ELSA) ©Dunn, Rundle, and Burke, 2007
Done
Internet
100%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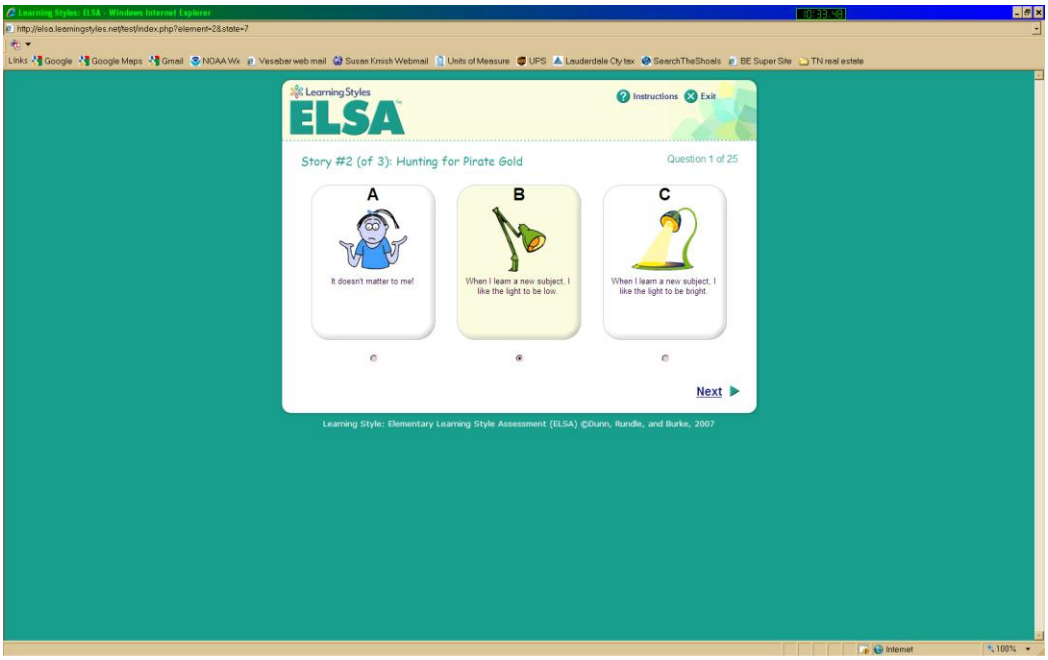
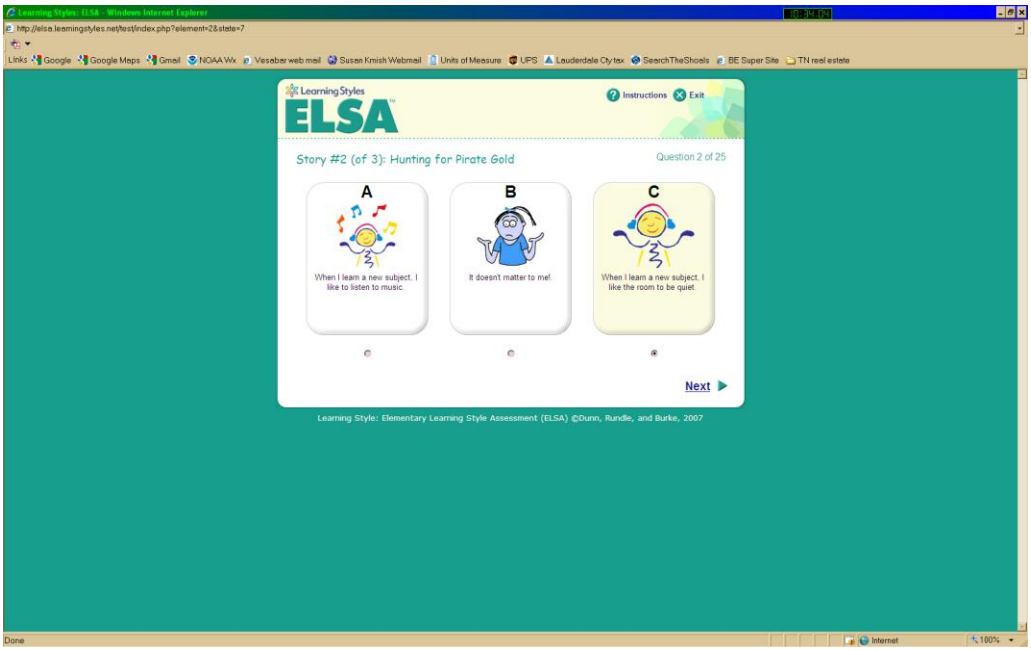
Learning Styles
ELSA
Instructions
Exit
Story #2 (of 3): Hunting for Pirate Gold
As waves crashed on the ship's deck, it suddenly changed direction. Fire burned everywhere and the pirates screamed at the sailors. The fierce pirates captured another ship. Now they must find the hidden treasure before Pirate Pete arrives.
The friendly pirate teachers of Blackbeard School will guide this exciting journey on a search for the hidden treasure. The teachers tell ghost stories of the sea and gruesome pirate legends.
The treasure map is painted onto the ship with one crucial detail missing. The student pirates help find the treasure so they can each take home a handful of treasure. Captain John helps the students track down the treasure by allowing them to work in different ways.
Apprentice pirates are transformed from land lovers to fearless sea buccaneers. Recruits learn by building their own pirate ship, by creating pirate puppets and some even dress up as their favorite pirate and put on a skit. Some work alone and others work in groups as they find clues to outsmart Pirate Pete.
The End.
REMEMBER:
After clicking QUESTIONS you will not be able to return to the story.
Questions
Learning Style: Elementary Learning Style Assessment (ELSA) ©Dunn, Rundle, and Burke, 2007
Done
Internet
100%


Learning Styles
ELSA
Instructions
Exit
Story #2 (of 3): Hunting for Pirate Gold
Question 1 of 25
A
It doesn't matter to me!
B
When I learn a new subject, I like the light to be low.
C
When I learn a new subject, I like the light to be bright.
Next
Learning Style: Elementary Learning Style Assessment (ELSA) ©Dunn, Rundle, and Burke, 2007


Learning Styles
ELSA
Instructions
Exit
Story #2 (of 3): Hunting for Pirate Gold
Question 2 of 25
A
When I learn a new subject, I like to listen to music.
B
It doesn't matter to me!
C
When I learn a new subject, I like the room to be quiet.
Next
Learning Style: Elementary Learning Style Assessment (ELSA) ©Dunn, Rundle, and Burke, 2007


Learning Styles: ELSA - Windows Internet Explorer
http://elsa.learningstyles.net/test/index.php?
Learning Styles
ELSA
Instructions
Exit
Completed!
Nice work! You have successfully completed the assessment. Your work has been saved. Click below to print your report or exit.
One-Page Report
Full Report
Exit
Learning Style: Elementary Learning Style Assessment (ELSA) ©Dunn, Rundle, and Burke, 2007
Done
Internet
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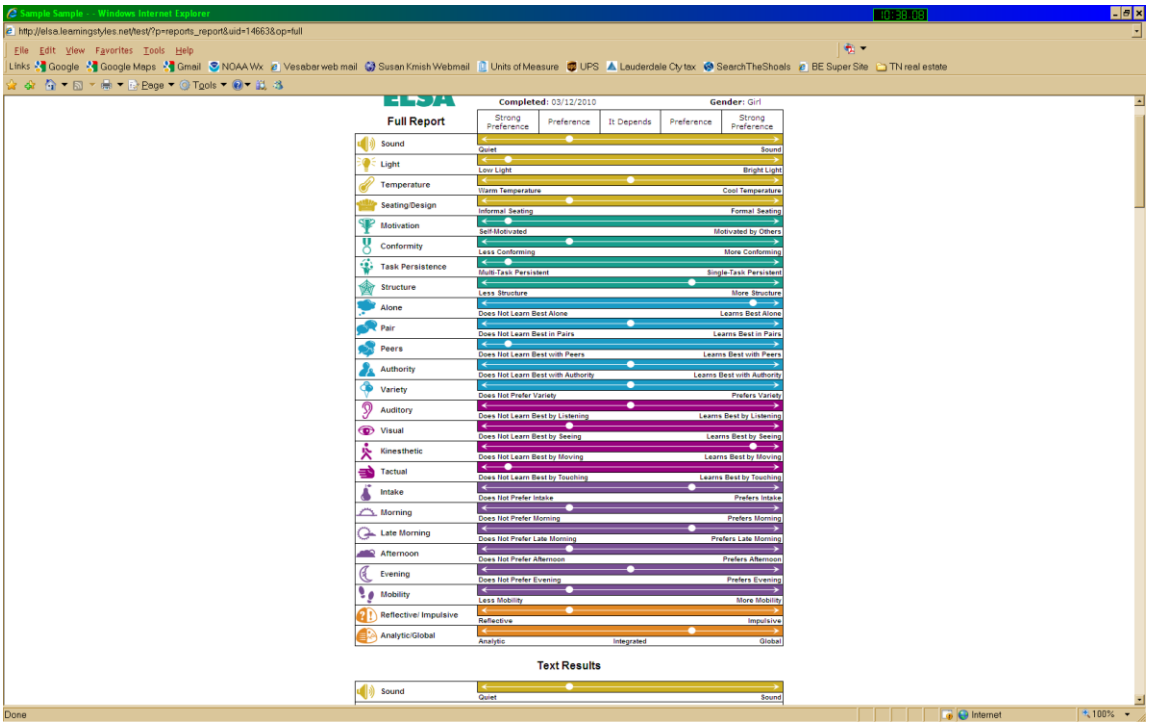
Appendix E

Elementary Learning Style Assessment Report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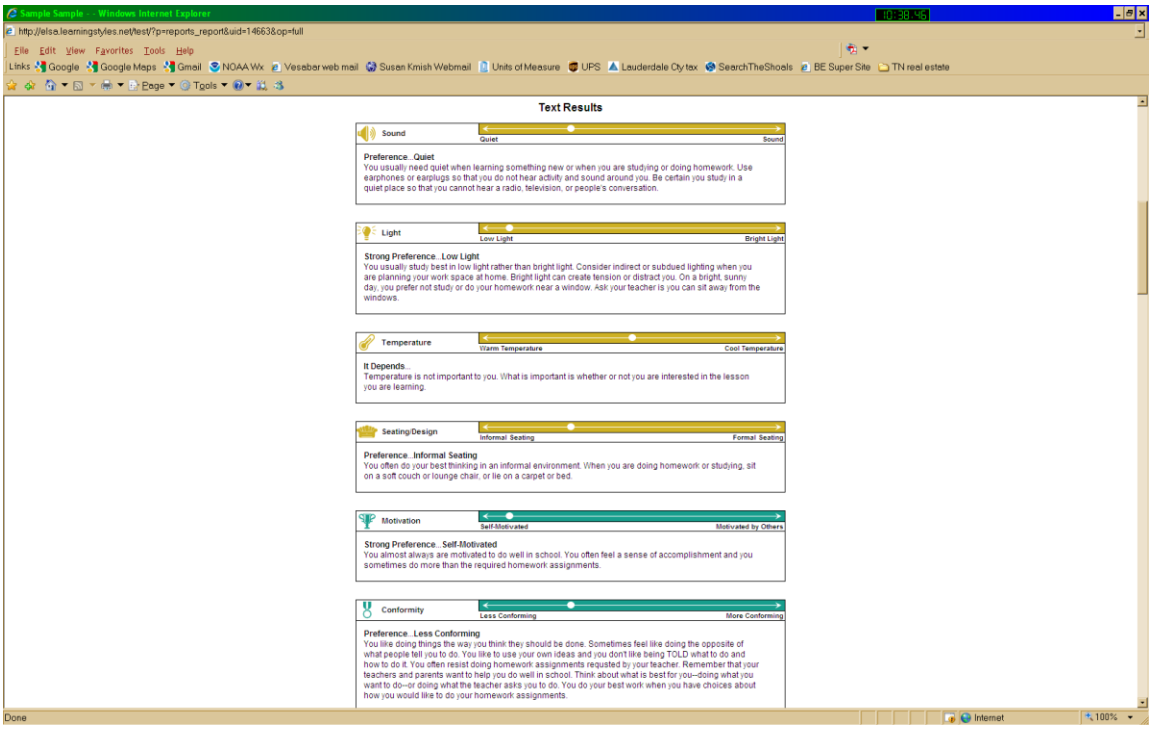
Full Report
Strong Preference
Preference
It Depends
Preference
Strong Preference
Sound
Quiet
Sound
Light
Low Light
Bright Light
Temperature
Warm Temperature
Cool Temperature
Seating/Design
Informal Seating
Formal Seating
Motivation
Self-Motivated
Motivated by Others
Conformity
Less Conforming
More Conforming
Task Persistence
Multi-Task Persistent
Single-Task Persistent
Structure
Less Structure
More Structure
Alone
Does Not Learn Best Alone
Learns Best Alone
Pair
Does Not Learn Best in Pairs
Learns Best in Pairs
Peers
Does Not Learn Best with Peers
Learns Best with Peers
Authority
Does Not Learn Best with Authority
Learns Best with Authority
Variety
Does Not Prefer Variety
Prefers Variety
Auditory
Does Not Learn Best by Listening
Learns Best by Listening
Visual
Does Not Learn Best by Seeing
Learns Best by Seeing
Kinesthetic
Does Not Learn Best by Moving
Learns Best by Moving
Tactual
Does Not Learn Best by Touching
Learns Best by Touching
Intake
Does Not Prefer Intake
Prefers Intake
Morning
Does Not Prefer Morning
Prefers Morning
Late Morning
Does Not Prefer Late Morning
Prefers Late Morning
Afternoon
Does Not Prefer Afternoon
Prefers Afternoon
Evening
Does Not Prefer Evening
Prefers Evening
Mobility
Less Mobility
More Mobility
Reflective/ Impulsive
Reflective
Impulsive
Analytic/Global
Analytic
Integrated
Global
Text Results
Sound
Quiet
Sound
Done
Internet
100%


Sample Sample - - Windows Internet Explorer
http://elsa.learningstyles.net/test/?p=reports_report&uid=14663&op=full
File Edit View Favorites Tools Help
Links Google Google Maps Gmail NOAA Wx Vesabar web mail Susan Kmish Webmail Units of Measure UPS Lauderdale Cty tax SearchTheShoals BE Super Site TN real estate
Page Tools
Text Results
Sound
Quiet
Sound
Preference...Quiet
You usually need quiet when learning something new or when you are studying or doing homework. Use earphones or earplugs so that you do not hear activity and sound around you. Be certain you study in a quiet place so that you cannot hear a radio, television, or people's conversation.
Light
Low Light
Bright Light
Strong Preference...Low Light
You usually study best in low light rather than bright light. Consider indirect or subdued lighting when you are planning your work space at home. Bright light can create tension or distract you. On a bright, sunny day, you prefer not study or do your homework near a window. Ask your teacher is you can sit away from the windows.
Temperature
Warm Temperature
Cool Temperature
It Depends...
Temperature is not important to you. What is important is whether or not you are interested in the lesson you are learning.
Seating/Design
Informal Seating
Formal Seating
Preference...Informal Seating
You often do your best thinking in an informal environment. When you are doing homework or studying, sit on a soft couch or lounge chair, or lie on a carpet or bed.
Motivation
Self-Motivated
Motivated by Others
Strong Preference...Self-Motivated
You almost always are motivated to do well in school. You often feel a sense of accomplishment and you sometimes do more than the required homework assignments.
Conformity
Less Conforming
More Conforming
Preference...Less Conforming
You like doing things the way you think they should be done. Sometimes feel like doing the opposite of what people tell you to do. You like to use your own ideas and you don't like being TOLD what to do and how to do it. You often resist doing homework assignments requsted by your teacher. Remember that your teachers and parents want to help you do well in school. Think about what is best for you--doing what you want to do--or doing what the teacher asks you to do. You do your best work when you have choices about how you would like to do your homework assignments.
Done
Internet
100%

PERFORMANCE CONCEPTS
INTERNATIONAL LIMITED

INTERNATIONAL LEARNING STYLES NETWORK

12 March 2010

Victoria L. Eastman, Instructor
Education Department
Manchester College
604 E. College Avenue
North Manchester, IN 46962

Dear Victoria:

It is with pleasure that I provide you with this letter of permission to include the ELSA documents in the appendixes of your dissertation.

I wish you the best of luck.

Regards,

Susan M. Rundle

Susan M. Rundle
Director, International Learning Style Network
President, Performance Concepts Int'l.

DUNN CERTIFIED DUNN

1708 Monticello Road ♦ Florence, AL 35630 ♦ Phone: 256.740.0307 ♦ Fax: 256.740.0310

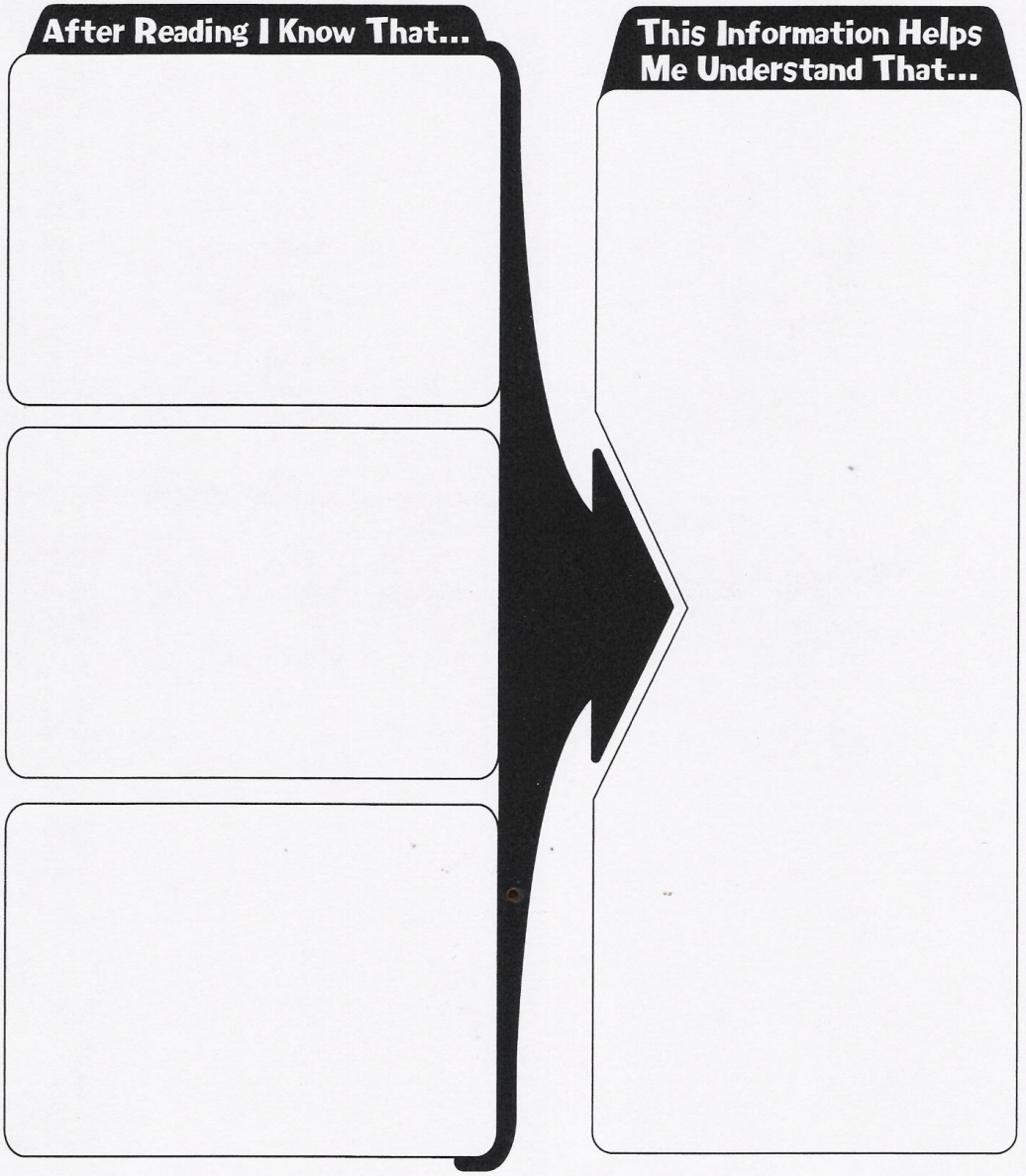
Appendix F

Synthesis Organizer

Name _____ Date _____

SYNTHESIZE ORGANIZER

My Book _____



Appendix G

Sequence Organizer

Name _____ Date _____

SEQUENCE ORGANIZER

My Book _____

First

Next

Then

Last

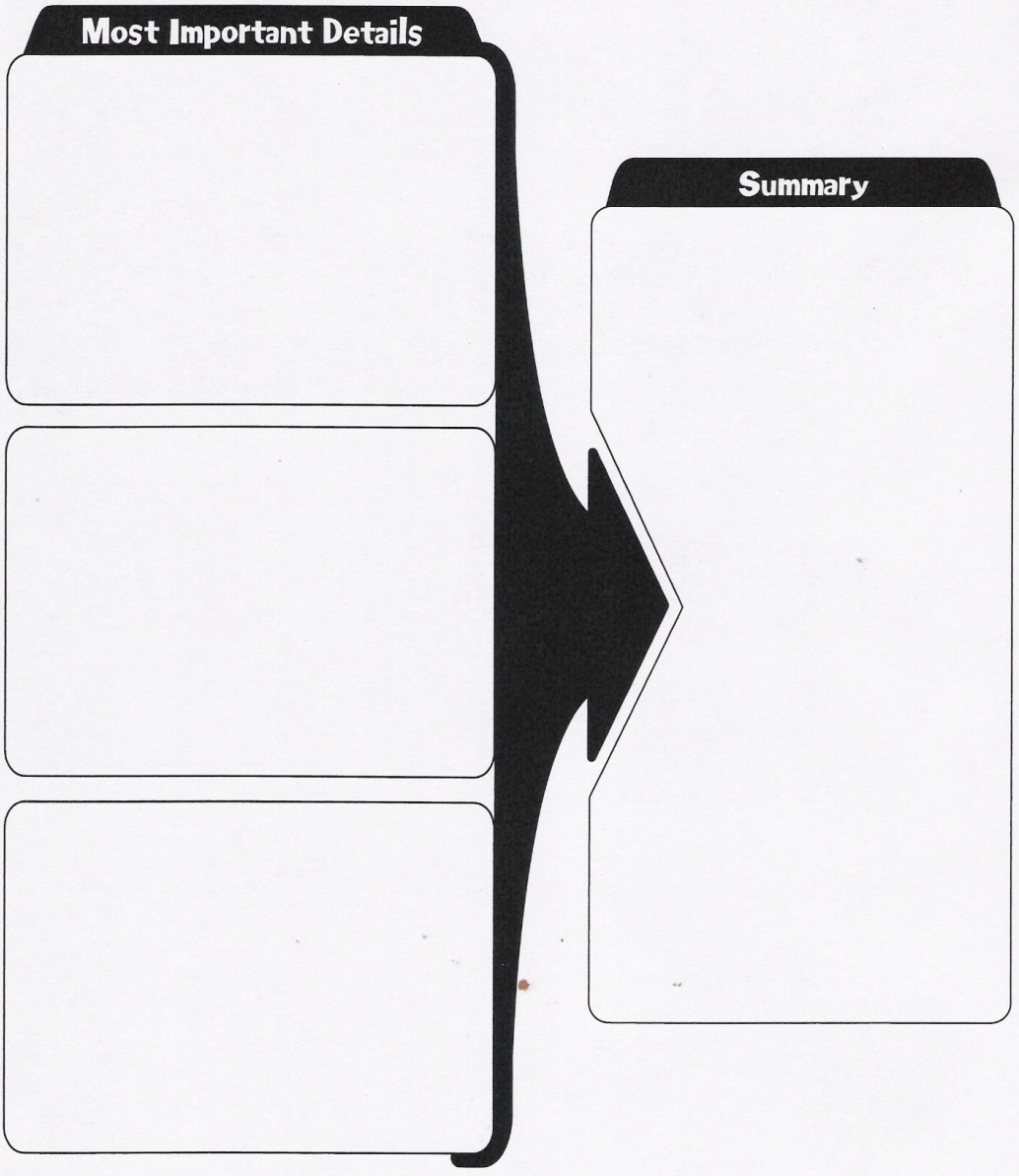
Appendix H

Summarize Organizer

Name _____ Date _____

SUMMARIZE ORGANIZER

My Book _____



Appendix I

Process Organizer

Name _____ Date _____

PROCESS ORGANIZER

My Book _____

1

2

3

Appendix J

Classify/Categorize Organizer

Name _____ Date _____

CLASSIFY/CATEGORIZE ORGANIZER

My Book _____

Categories			
Examples			

Appendix K

Retell Organizer

Name _____ Date _____

RETELL ORGANIZER

My Book _____

Most Important Ideas and Events

Appendix L

How to Figure Out an Unknown Word

How to Figure Out an Unknown Word
To the tune of "Jingle Bells"
Eric Ambler

Look at the picture,
And think of the story.
Go back to the beginning
of the sentence and reread…

Say the beginning sound,
The sound that can be heard.
Also say the ending sound
of every unknown word…

OHHH…
Unknown words, tricky words,
Are not a mystery…
I can figure them out when
I use my strategies!

Unknown words, tricky words,
Are no problem for me…
I can figure them out when
I use my strategies!

If you're stuck on a word,
A word you can not read;
Go back and read the sentence with
A word that will agree…

Ask yourself three things,
While you think it through…
Does it make sense, hey does it match?
Does it sound right to you?

OHHH…
Unknown words, tricky words,
Are not a mystery…
I can figure them out when
I use my strategies!

Unknown words, tricky words,
Are no problem for me…
I can figure them out when
I use my strategies!

Appendix M

Strategies That Help Me Know How to Read Song

Strategies that Help Me Know How to Read

('The Bear Went Over the Mountain')

Eric Ambler

Intro: **These are some of the strategies…that help me learn how to read!**

I predict and check the picture,
predict and check the picture,
I predict and check the picture… it helps me learn how to read!

I point to the words when I'm reading,
I point to the words when I'm reading,
I point to the words when I'm reading, it helps me learn how to read!

It helps me learn how to read,
It helps me learn how to read,
These are some of the strategies…that help learn how to read!

I think about the story,
Think about the story,
I think about the story… it helps me learn how to read!

I find chunks in the words,
Find chunks in the words,
I find chunks in the words… it helps me learn how to read!

It helps me learn how to read,
It helps me learn how to read,
These are some of the strategies…that help learn how to read!

I self-correct when I miss words,
Self-correct when I miss words,
I self-correct when I miss words… it helps me learn how to read!

I slide to the end of the hard words
Slide to the end of the hard words,
I slide to the end of the hard words… it helps me learn how to read!

It helps me learn how to read,
It helps me learn how to read,
These are some of the strategies…that help learn how to read!

Appendix N

What Good Readers Do Song

Good Readers!

To the tune of "The Hokey-Pokey"

Eric Ambler

Good readers look for chunks,
We look for picture clues.
Good readers point to the words,
And reread a time or two.

We say beginning letters of the new words, it's true!
That's what good readers do!

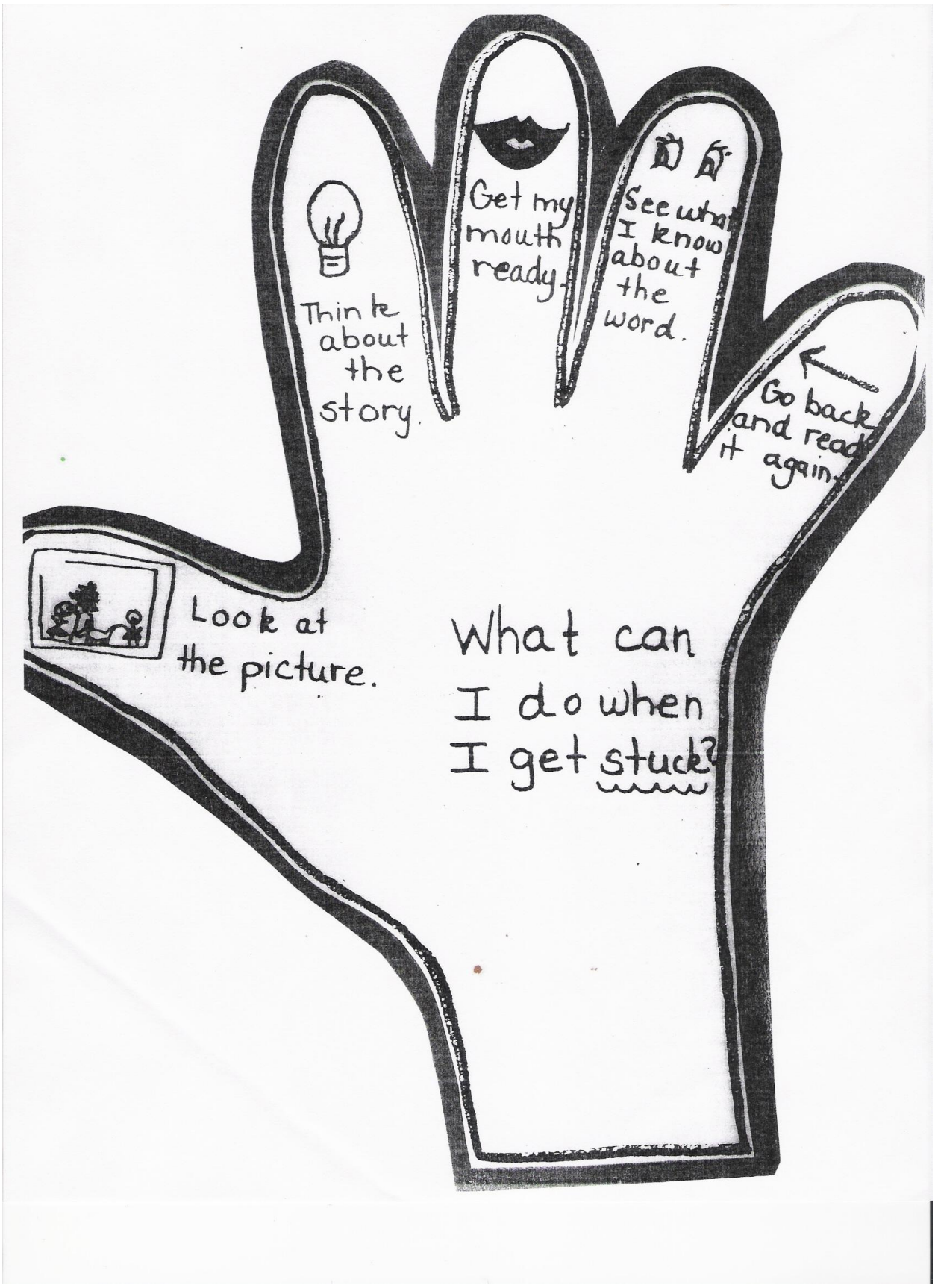
We read around the tricky part,
And then we go back through
We guess a word that sounds right
And we use some context clues.

We say beginning letters of the new words it's true!
That's what good readers do!

You know we are…good readers,
You know we are…good readers,
We say beginning letters of the new words it's true!
That's what good readers do!

Appendix O

Hand Strategies Sheet


Look at the picture.
Think about the story.
Get my mouth ready.
See what I know about the word.
Go back and read it again.
What can I do when I get stuck?

Appendix P

How to Figure Out an Unknown Word Strategy Sheet

HOW TO FIGURE OUT AN UNKNOWN WORD

1. Look at the picture and think of the story.
2. Go back to the beginning of the sentence and reread.
3. Say the beginning sound (or ending sound) of the word.
4. Read until the end of the sentence.

Go back, reread the sentence and try out a word.

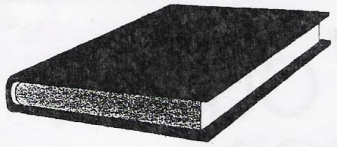
Ask yourself:

- Does it make sense?
- Does it match?
- Does it sound right?

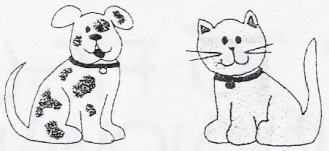
Appendix Q

Strategies That Help Me Know How to Read Strategy Sheet

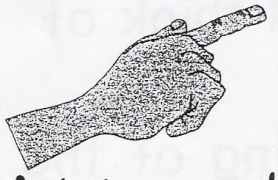
Strategies that help me learn to read!



predict



check the picture



point to words

dog

start at the beginning of the word

cat

slide to the end of the word

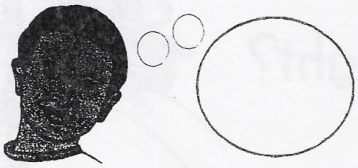
yesterday

find chunks in the word

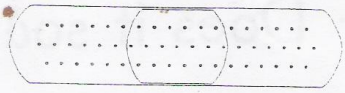
"read like you talk"

"try that again"

reread



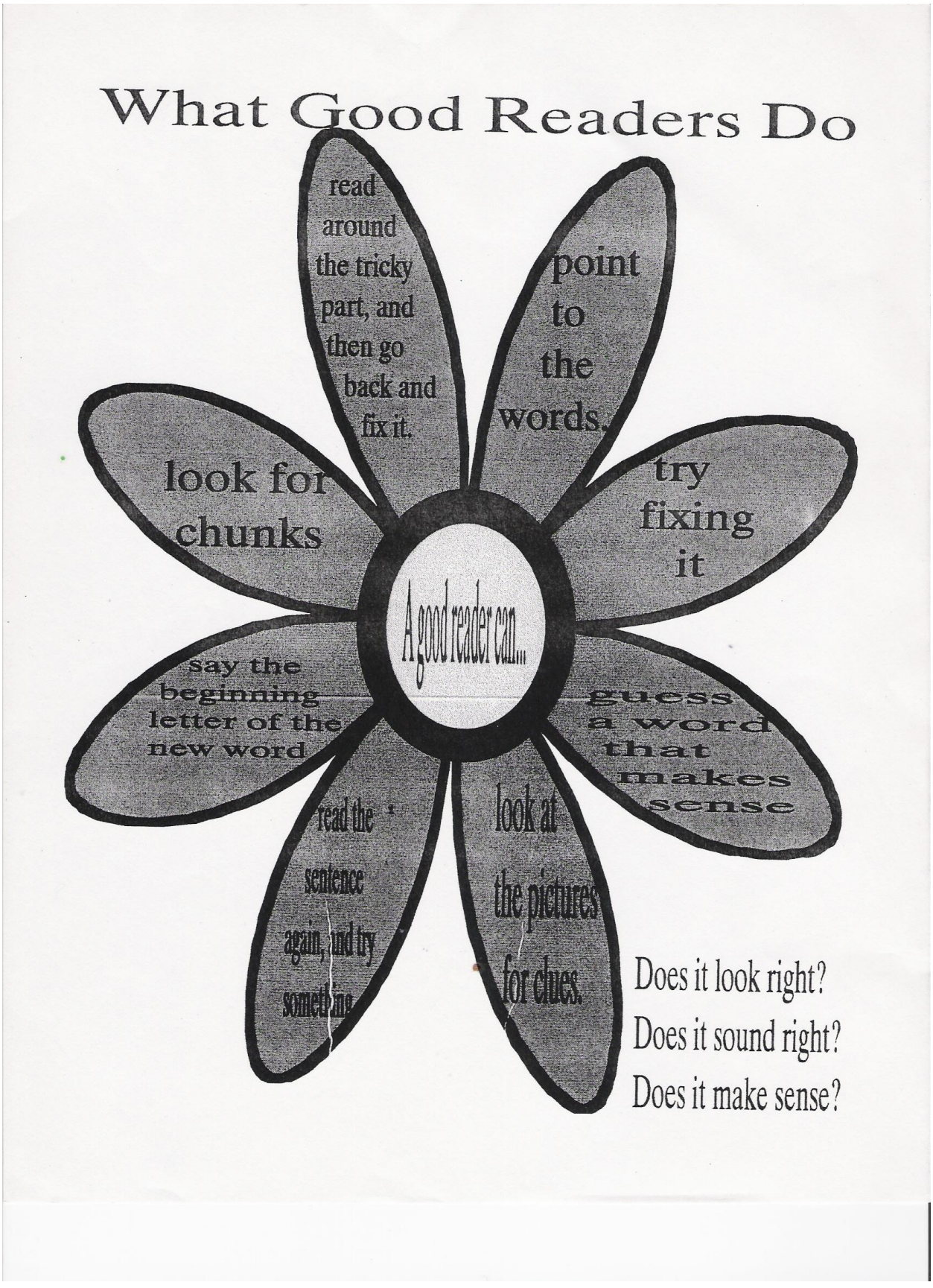
think about the story



self-correct

Appendix R

What Good Readers Do Strategy Sheet


What Good Readers Do
read around the tricky part, and then go back and fix it.
point to the words.
look for chunks
try fixing it
A good reader can...
say the beginning letter of the new word
guess a word that makes sense
read the sentence again, and try something
look at the pictures for clues.
Does it look right?
Does it sound right?
Does it make sense?

Appendix S

Welcome Letter to Parents

January 4, 2010
Dear parent/guardian and first grade student,
We are so excited that your child decided to join our club! We look forward to being scientists and exploring reading while reading stories and talking about stories and their authors. Our reading club will be at Manchester Elementary after school every day for three weeks starting Monday, January 11th through Friday, January 29th. We are glad your child will be with us during this time. The reading club session will **begin at 3:00 pm and your child will be ready to be picked up by you at 3:40 pm** at the usual curbside in front of Manchester Elementary.

Mon	Tues	Wed	Thurs	Fri
Jan 11, 2010	Jan 12, 2010	Jan 13, 2010	Jan 14, 2010	Jan 15, 2010
Jan 18, 2010	Jan 19, 2010	Jan 20, 2010	Jan 21, 2010	Jan 22, 2010
Jan 25, 2010	Jan 26, 2010	Jan 27, 2010	Jan 28, 2010	Jan 29, 2010

Your child will be enjoying a snack and reading books selected with input by his/her classroom teacher and participating in small group reading activities that support what s/he is learning in class. Teacher candidates from Manchester College will be teaching the small group reading activities. As a thank you your child will receive his or her very own book from Scholastic Book Club and a certificate of participation.
Thank you for permitting your **child to participate as a reading scientist and explore** with me different ways to teach reading. I look forward to working with your child.
Sincerely,

Victoria Eastman, Instructor, Department of Education
Manchester College
vleastman@manchester.edu
260.982.5279 (office) *260.982.2564 (home)*

Appendix T

Readers Exploring Reading Newsletter

Readers Exploring Reading Club Newsletter

Week 1, Jan 11-15th

The first week of club has come to an end. Readers have talked about reading and stories. Eight college teachers and 50 first grade students meet in various rooms throughout the Manchester Elementary School. They talk about how good readers decode new words and the different ways good readers connect with the characters, setting, and story plot of different kinds of books.

Next week, Jan 18th-22nd, is our second week of club.

Thank you for being on time for pick up at 3:40 pm

Club Song

We are readers,
Mighty good readers!
Everywhere we go,
People want to know,
Who we are,
And … we tell them…

We will continue to read new stories and talk about what good readers.

Club begins in the Commons with a snack to energize our minds. College teachers and first graders connect and talk. The students finish snack at 3:10 pm, sing the club song, join their teachers, and go to their club meeting.

At 3:35 pm the students and their teachers return to the Commons to put on their coats. They line up with Mrs. Eastman and head to the curb to meet their families at 3:40 pm.

Read Aloud

Each club member has a new story to read to you. Thank you for listening to your child read and allowing him/her to explain to you what good readers do when reading.

Appendix U

Certificate of Participation

Certificate of Participation

This certificate is awarded to reading scientist

For completing the After School Reading Club

Readers Exploring Reading Club

Victoria Eastman

Date

Appendix V

Scholastic Book Club Grant

Department of Education
604 E College Avenue
North Manchester, IN 46962
Tel. 260.982.5056 Fax 260.982. 3212
www.manchester.edu

Ms. Massman and Ms. Herrera,

As a doctoral student at Ball State University and an instructor in the Education Department at Manchester College, I am conducting a research project that is investigating the impact of reading instruction that utilizes learning style preferences of first grade students. My doctoral committee at Ball State University approved this research study. While investigating this form of small group reading instruction I, also, intend to serve the instructional reading needs of at-risk children in a rural school in Wabash County in Indiana.

The elementary school participating in this study has five first grade classrooms with a potential of 110 students to participate in the research study. The student population in this rural elementary school includes 47% free and reduced lunch. As an incentive for attending the 15 small group after school reading club sessions, I am applying for a grant of 200 books for these first grade students. The first grade students will select two books to take home as their own creating an opportunity to engage in reading at home. Research shows that the more books a child has in the home the better a reader the child becomes. Sending books home with first grade students will begin this process of supporting reading development earlier as opposed to later.

Enclosed you will find the tax exempt certificate from the Manchester College Business Office.

Thank you for reviewing this book grant request and supporting this reading opportunity for first grade students who are at risk in their reading development.

Sincerely,

Vicki Eastman, Instructor
Department of Education
Manchester College
604 E. College Avenue
North Manchester, IN 46962
260.982.5279
vleastman@manchester.edu

Appendix W

Thank you Letter to Parents

January 29, 2010

Dear parent/guardian and first grade student,

We are so grateful that your child participated in the after school reading club! As scientists exploring reading your child engaged in reading stories, talking about stories and the reading strategies that good readers use.

Your child enjoyed a snack and reading books selected with input by his/her classroom teacher and participated in small group reading activities that supported what s/he was learning in class. The teacher candidates from Manchester College enjoyed teaching the small group reading activities and enhancing your child's reading development.

As a thank you your child was given four books from Scholastic Book Club and a certificate of participation. The books were donated by Scholastic through a book grant written by me. Your child will continue to grow in his/her reading and using reading strategies the more s/he reads. Having your own books is a way to keep reading going at home.

Thank you for permitting your **child to participate as a reading scientist and explore** with us different ways to teach reading. It has been a pleasure to work with your child. If you would like to visit the website that was used to determine your child's learning style preference, visit http://www.learningstyles.net/index.php . If you would like a copy of the report concerning your child's learning style preferences please use the information below to contact me and I will see that you receive a copy of the report.

Sincerely,

Victoria Eastman, Instructor,

Department of Education

Manchester College

vleastman@manchester.edu *260.982.5279 (office)* *260.982.2564 (home)*