

ENHANCING HEAD START CHILDREN'S EARLY LITERACY SKILLS:  
AN INVESTIGATION OF INTERVENTION OUTCOMES

A Dissertation by

Emily Marie Whiting

MA, University of Central Florida, 1996

BS, University of Central Florida, 1994

Submitted to the Department of Communication Sciences and Disorders  
and the faculty of the Graduate School of  
Wichita State University in partial fulfillment of  
the requirements for the degree of  
Doctor of Philosophy

December 2006

ENHANCING HEAD START CHILDREN'S EARLY LITERACY SKILLS:  
AN INVESTIGATION OF INTERVENTION OUTCOMES

I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirement for the degree of Doctor of Philosophy with a major in Communication Sciences and Disorders.

---

Barbara W. Hodson, Committee Chair

We have read this dissertation and recommend its acceptance:

---

Tina L. Bennett-Kastor, Committee Member

---

Julie Scherz, Committee Member

---

Marlene Schommer-Aikins, Committee Member

---

Kathy Strattman, Committee Member

Accepted for the College of Health Professions

---

Peter Cohen, College of Health Professions, Dean

Accepted for the Graduate School

---

Susan Kovar, Dean

## DEDICATION

To my wonderful family,  
Mom, Dad, Anthony, and Angela  
who always believed in me and gave their unconditional love and never-ending support.

## ACKNOWLEDGEMENTS

*“Education is an admirable thing but it is important to remember that nothing this is worth knowing can be taught.” -Oscar Wilde*

As I reflect on the past five years, I feel like I have taken a journey of self-discovery. I started this experience in search of answers and I complete the process asking more questions. I have learned more about myself than I expected I would. I realize there are many people who have had an impact on my life during this process.

First and foremost, I would like to thank my committee. To my chair and mentor, Barbara Hodson. I will always cherish our time in phonology clinic. You have taught me more than you will ever know. To Marlene Schommer-Aikins (Marlo), thanks for always challenging me to ask questions and to look beyond the numbers. To Kathy Stratman, Julie Scherz, and Tina Bennett-Kastor, thank you for your kind words of wisdom and exquisite editing skills.

This project would not have been possible without the support of Wichita Head Start, especially Dottie Bishop and the participation of many children and families of St. Mark’s and Martin Luther King Head Start. I must also thank the student clinicians at the WSU Speech-Language-Hearing Clinic for assisting in the data collection. I want to thank Jaymie for her help in the final stages of the dissertation and for always having chocolate when the computer had a mind of its own and I got a bit stressed.

I also want to thank my colleagues in Vero Beach, Florida and at Wesley Medical Center in Wichita for their words of encouragement during this chapter of my life. Specifically, my friends Judy Whalen and Lisa Workman who have always made time to listen to me and encourage me to follow my heart. Special bonds are made between

work-mates and I am especially thankful for my “soul-mate” SLP sister, Nancy Dotson and her wonderful husband Paul. Thanks for opening your home and heart to me. You were my surrogate family while in Wichita and will remain forever in my heart.

Finally, I would like to thank my family. I grew up in a family where I was always encouraged to follow my dreams. When I decided to pursue this dream, I knew I had an army behind me. Mom and Dad, I could never have made this dream come true if it wasn't for the both of you. You taught me to believe in myself and I am forever grateful for having the best parents in the world.

*“We don't receive wisdom; we must discover it for ourselves after a long journey that no one can take for us or spare us.” –Marcel Proust*

## ABSTRACT

The primary purpose of this study was to implement and evaluate two instructional programs designed to enhance early literacy skills of pre-kindergarten 4-year-olds enrolled in Head Start. A second goal was to compare literacy task assessment measures of three instructional groups, (1) explicit literacy instruction (ELI; N= 26), (2) shared book reading (SBR; N = 25), and (c) no specialized treatment (NST; N = 29), prior to the onset of treatment and again 15 weeks later.

Pre-treatment group differences on measures of early literacy and receptive vocabulary were not significant. Intervention for the ELI group focused on providing explicit, systematic, developmentally appropriate instruction to enhance phonological awareness skills and increase alphabet knowledge. The SBR intervention, which focused on enhancing oral language, involved scaffolding strategies. Children in the two intervention groups received instruction two times per week for 15 weeks. Post-treatment outcome measures obtained for these two groups were compared with each other and also with scores of children in the NST group who received Head Start standard curriculum instruction only.

ANOVA results indicated that post-treatment scores for the ELI group were significantly better than those of the other two groups on overall primary literacy measures and for the phonological awareness component, but not for alphabet knowledge. Differences between the SBR and NST groups were not significant for any measures. These results indicate that explicit, systematic early literacy instruction can improve Head Start children's literacy scores.

Results of a stepwise multiple regression analysis indicated that of the five predictor variables (age, gender, mother's education, receptive vocabulary, and treatment group), receptive vocabulary accounted for the greatest amount of variance for the 80 children on the early literacy criterion measure, followed by group assignment, gender, and age. The fifth variable, mother's education, was not a significant predictor for this study.

## TABLE OF CONTENTS

CHAPTER I. INTRODUCTION.....	1
Literacy in the United States: Current Situation.....	3
Limited Literacy Experiences.....	5
History of Head Start.....	6
Statement of the Problem.....	8
CHAPTER II. REVIEW OF LITERATURE.....	10
Components of Literacy.....	11
Reading Programs.....	14
Shared Storybook Reading: Language Underpinnings.....	15
Emergent Literacy Skills: Predictive Studies.....	19
Phonological Processing [phonological and phonemic awareness].....	20
Alphabet Knowledge.....	22
Phonological Processing and Speech-Language Impairment.....	24
Phonological Processing and Other Factors.....	26
Summary.....	29
Emergent Literacy: Intervention Studies.....	30
Summary.....	37
Overall Needs of Emergent Readers.....	38
Research Needs Specific to Head Start.....	39
Purpose of Study.....	41
CHAPTER III. METHOD.....	42
Participants.....	42
Procedures.....	44
Data Collection.....	45
Vocabulary Measure.....	45
Literacy Skills Measurement.....	46
Scoring and Analysis: Primary Literacy Skills Measure.....	48
Reliability.....	48
Intervention.....	49
Explicit Literacy Instruction (ELI) Group.....	49
Small-Group Instruction.....	50
Large-Group Instruction.....	51
Shared Book Reading (SBR) Instruction.....	52
Procedures.....	53
Data Analysis.....	54
CHAPTER IV. RESULTS.....	55
Pre-Treatment Performance Comparison.....	55
Post-Treatment Performance Comparison.....	58
Research Question 1.....	58
Total Test Score.....	58



Phonological Awareness Component.....	59
Alphabet Knowledge Component.....	59
Research Question 2.....	63
Summary.....	63
 CHAPTER V. DISCUSSION.....	 66
Summary: Research Question 1.....	67
Summary: Research Question 2.....	70
Instructional Method: Theory & Delivery Model.....	71
Educational Implications for Head Start.....	73
Limitation of Current Study.....	76
Direction for Future Research.....	77
 LIST OF REFERENCES.....	 79
 APPENDIXES	
A. Definitions.....	91
B. Consent Letters.....	92
C. <i>PPVT-III</i> Instructions.....	94
D. Phonological Awareness Activities.....	95
E. <i>Animated Literacy</i> Instruction.....	96
F. Student Generated Examples of Writing-Drawing Component.....	97
G. Shared Book Reading List.....	98
H. Shared Book Reading Reference List.....	99
I. Raw Data.....	100

## LIST OF TABLES

TABLE		Page
1.	Participant Characteristics: Pre-test	56
2.	ANOVA: Pre-Treatment Test Data	57
3.	ANOVA: Post-Treatment Test Data	61
4.	Post-Treatment Test Data	62
5.	Stepwise Regression Analysis	65

## LIST OF ACRONYMS

ACRONYM	FULL NAME
ANOVA	Analysis of Variance
APLS	Assessment of Primary Literacy Skills
ASHA	American Speech-Language Hearing Association
DI	Direct Instruction
DISTAR	Direct Instructional System for Teaching and Remediation
ELI	Explicit Literacy Instruction
LLE	Limited Literacy Experience
MELP	Montana Early Literacy Project
NCLB	No Child Left Behind Act
NICHHD	National Institute of Child Health and Human Development
NRP	National Reading Panel
NST	No Specialized Treatment
PA	Phonological Awareness
PAL	Phonological Awareness Peer Dyad
PPVT-III	Peabody Picture Vocabulary Test-Third Edition
PPVT-R	Peabody Picture Vocabulary Test-Revised
SBR	Shared Book Reading
SLP	Speech-language Pathologist
WSU	Wichita State University

## CHAPTER I

### INTRODUCTION

The role of literacy in achieving success in today's society is indisputable. Literacy skills serve as the major foundation for academic and occupational success. Learning to read could quite possibly be the most important, yet challenging, task for a young child (Snow, Burns, & Griffin, 1998; Stone, Silliman, Ehren, & Apel, 2004; Shaughnessy & Sanger, 2005). At the beginning of formal education, children bring different levels of experience and preparedness for learning, yet are expected to learn to read in a relatively short time frame. A predetermined road map (i.e., state mandated curriculum) has been established for all children entering school. Formal reading instruction generally begins in kindergarten. Decoding is expected to be mastered by the end of second grade. The focus of instruction from third grade on shifts from fluency and decoding (learning to read) to comprehension (reading to learn) (Chall, 1983).

The growth of society and progress within cultures is dependent on a commitment to fostering a love of learning and providing an enriching environment in which all children can develop to their full potential. Children who do not have the necessary skills needed to be successful in learning to read often encounter overall failure. This sense of failure could be quite devastating to the social and emotional well being of a young child, and the educational impact can be quite damaging. Parents, teachers, researchers, and policy makers alike are constantly challenged by the responsibility to nurture the minds and spirits of future generations. Educators and researchers must work collaboratively to provide insight into determining the most effective teaching strategies and instructional methods, supported by evidence-based research.

Children are expected to be skilled in every area of learning, and mastery of each subject area is required. Children with poor reading skills have difficulty gaining information in other content areas (e.g., science, social studies) because they cannot read the grade level texts. Knowledge that should be gained from reading is lost while these children continue to struggle with decoding. Moreover, information provided by the No Child Left Behind Act (NCLB, 2001) indicates that students who fail to read on grade level by the end of the fourth grade have an increased likelihood of dropping out of school and of a lifetime of diminished success. Failure to learn to read propagates poverty while further increasing the division between social classes. Furthermore, poor reading skills deprive children of the experiences of a literate world by limiting imagination and stifling vocabulary development. According to Torgesen (2005), the goal of helping all students read “at grade level or above” means students need to (a) be able to read grade level texts with a reasonable level of understanding, (b) read fluently so that reading a text does not take an inordinate amount of time, and (c) find pleasure in reading books while focusing on meaning.

An individual is challenged throughout an entire school career and beyond. For those children who start school behind their better-prepared peers, however, many obstacles interfere with academic success. Torgesen (2005) stated “the central problem in reading instruction arises, not from the absolute level of children’s preparation for learning to read, but from the diversity in their levels of preparation.” Torgesen further explained ways in which children learning to read are diverse (a) in their preparation for learning to read words accurately and fluently, (b) in their oral language knowledge and

abilities (e.g., vocabulary and word knowledge), and (c) in their abilities to manage their learning behaviors and their motivation to apply themselves to learning to read.

### **Literacy in the United States: Current Situation**

The United States has been engaged in a prolonged campaign of educational reform which has spanned across decades. Federal, state, and local policy makers have used a variety of strategies to reorganize instructional delivery, enhance professional skills of teachers, and restructure the relationship between schools and communities (Elmore, 1990). As we celebrate the fifth anniversary of the implementation of the No Child Left Behind Act (2001), progress is beginning to occur in American public schools. U.S. Secretary of Education, Margaret Spellings (U.S. Department of Education, 2006; Press Release) reported that preliminary results are “beginning to show along with a revival in mathematics achievement in the early grades, there has been more reading progress in the past five years among nine-year-olds than in previous three decades.” In addition, NCLB claims to be working to close the achievement gap, with gains in reading occurring for both African-American and Hispanic students.

The National Center for Educational Statistics (2003) declared that current concerns about literacy are not derived solely from declining levels of literacy in our schools but also from recognition that demands for higher levels of literacy are rapidly accelerating in our society. Additionally, major factors such as hearing loss, speech/language impairments, environmental experiences, non-native English speakers, and neurobiological problems (Shaywitz, 2003) interfere with literacy acquisition. Another factor, limited literacy experiences, is common in lower income (socioeconomic) homes (Payne, 2003). Collaborative efforts of the National Reading Panel (NRP, 2000),

the National Institute of Child Health and Human Development (NICHD, 2003), and the U.S. Department of Education (2001) determined that intervention programs that provide systematic and explicit instruction in phonemic awareness were significantly more effective than approaches that were less focused on the reading skills to be taught (i.e., incidental learning). The NRP found that children as young as 4-years of age benefited from instruction in phonemic awareness and the alphabetic principle when the instruction was delivered in an interesting, entertaining, and systematic manner. Improving literacy outcomes for preschool children from low socioeconomic backgrounds is one of the primary goals of the national Reading First, Early Reading First initiative. Initiatives such as this were built on the NRP's findings, which recommended investing in scientifically based reading instruction programs.

Even with current policies in place, the public educational system continues to struggle in the area of teaching literacy. American public education, specifically literacy acquisition, remains in a state of crisis. The National Institute of Child Health and Human Development (NICHD, 2003) deemed that difficulty in learning to read is no longer an exclusive educational problem but constitutes a serious public health concern as well. According to Lyon (2003), approximately 5% of children learn to read effortlessly, and some 25% learn to read relatively easily. For at least 20% of our nation's children, however, learning to read is extremely challenging. An analysis by the U.S. Department of Education (2001) indicated that 46% of children entering kindergarten presented with one or more of the following risk factors for reading acquisition: (1) poverty, (2) non-English speakers, (3) expressive phonological impairment, and (4) specific language impairment. Lyon also reported that 38% of fourth-grade students in the United States are

reading below grade level, which means they cannot read well enough to comprehend their text books. Overall, 43% of U.S. students across all grades are reading below a “basic” level (Lyon, 2003; National Center for Educational Statistics, 2003).

Additionally, according to national assessments (Donahue, Finnegan, Lutkus, Allen, & Campbell, 2001), 60% of children from high-poverty homes scored below even a basic level in reading at the end of the primary grades. Despite more than three decades of federal funding for programs to remediate and more recently to prevent reading failure, achievement remains low for students from high poverty schools (Lutkus & Weiner, 2003).

### **Limited Literacy Experiences**

The majority of academic difficulties experienced by a vast number of minority children are traceable to limited-literacy experiences (LLE) (Belsky & MacKinnon, 1994; Snow, Burns, & Griffin, 1998; Snow & Paez, 2004). According to Payne (2003), low achievement is closely correlated with poverty, or a lack of resources such as financial, emotional, physical, and support systems. In addition, children who encounter a slower start in the early school years are more likely to continue being behind (Stanovich, 1999; Whitehurst & Lonigan, 2001; Whitehurst & Massetti, 2004). Furthermore, because of the cumulative nature of instruction in the early years of formal schooling, the potential of a child with limited-literacy experiences may be diminished. As a result, most children from homes with LLE continue to perform significantly below their advantaged peers in reading once they enter school (Juel, 1988; NCLB, 2001; Scarborough, 2001). Children who learn to read successfully tend to remain good readers, whereas children who struggle in learning to read tend to have problems throughout their school career.



Stanovich (1986) referred to this phenomenon as “Matthew Effects” (from a biblical reference in which the rich get richer and the poor get poorer).

Children from LLE environments have been found to be particularly at risk for academic failure. Parents and the literacy environments they create in their homes are widely believed to play an important role in the development of children’s reading skills. Evidence to support this belief has often focused on the (a) time parents spend reading to their children, (b) number and quality of books in the home, (c) parental strategies during story time, and (d) overall feeling about and interest in reading (Roberts, 2005). Large numbers of children from low-income homes do not have a preschool experience and tend to fall behind their more advantaged peers. Children living in poverty have less access to academic resources, and they often begin school with language abilities that lag more than a year behind their peers from middle-class families (U.S. Department of Health and Human Services: Head Start Reauthorization Act, 1998).

Twenty-seven million children in this country live in low-income homes, accounting for almost 40% of all children in the United States (Aber, Pedersen, Brown, Jones, & Gershoff, 2003). Children under the age of 6-years are particularly vulnerable to poverty. In 2001, large percentages (18.2%) of children under 6 were living in poverty (US Census Bureau, 2005).

### **History of Head Start**

In 1965, a national program called Head Start was created to provide a comprehensive developmental program to aid in the promotion of social, emotional, and cognitive development, as well as provision of health services for children from low-income homes (Children’s Defense Fund, 2005). A major goal of Head Start, our nation’s

largest preschool program for children from low-income families, is to prepare children for success in school. Head Start is an early intervention program designed to ensure that the neediest children have the same preparations for success as children from more privileged environments. In addition to providing services to children from low-income homes, 12.7% of the Head Start enrollment for the 2003-2004 school year consisted of children with disabilities (e.g., mental retardation, emotional disturbances, speech/language impairments, and physical handicaps) (U.S. Department of Health and Human Services, 2003a); this is slightly higher than the 10% required by Head Start (U.S. Department of Health and Human Services: Head Start Reauthorization, 1998). Therefore, educators must recognize that children who attend Head Start may have more than one risk factor (i.e., not socioeconomic status alone) for reading difficulties.

Head Start reports indicate that their students are learning but still fall behind most of their peers upon entering kindergarten (U.S. Department of Health and Human Services, 2003b; 2003c). For years Head Start has been regarded as a good program, with great potential for becoming even better. One contributing factor to the lag in student progress is that the majority of students enrolled in Head Start enter the program with knowledge levels far below national averages (e.g., enter at 21<sup>st</sup> percentile), and most children exit the program with knowledge levels far below national averages (e.g., exit at 24<sup>th</sup> percentile) (U.S. Department of Health and Human Services: Head Start FACES, 2003a). Additionally, expectations for overall preparedness for kindergarten are on the rise. Kindergarten is no longer viewed as a time of social/emotional development (McAllister, Wilson, Green, & Baldwin, 2005); a shift has been made for more academic

school readiness. Due to national directives and state accountability issues there is a considerable amount of pressure for academic instruction, specifically reading.

Head Start children are not being prepared adequately for school in the area of literacy, which has been shown to be a critical factor in later success in school (U.S. Department of Health and Human Services: Head Start FACES, 2001; 2003a). In addition, an extremely large number of former Head Start students are being referred for Title 1 (e.g., remedial reading) services, because of being the lowest readers in class. In 1997, prior to the 1998 reauthorization of the Head Start Act, former National Head Start Association president Ron Herndon stated, “because the lifelong success of children from Head Start is related to their ability to excel at reading, they should be expected to learn to read throughout their participation in the Head Start program” (p. 8). This statement met with some initial resistance. Traditional views of the Head Start Association were that children were not ready at ages 3 and 4 years to be exposed to literacy instruction. Some believed this was too young to intervene.

### **Statement of the Problem**

Clearly, there is a critical need to better prepare children from homes with limited literacy experiences for successful school careers. Educators, researchers, and politicians all agree that children living in such homes are in need of explicit, systematic, age-appropriate, research-based instruction (Moats & Lyon, 1993) that promotes academic growth through improved literacy acquisition. As a result, efforts exist to provide at-risk children with early education through programs such as Head Start, Reading First, and Early Reading First. Additionally, legislation, such as No Child Left Behind, demands that more attention be paid to literacy, requiring states to develop programs to enhance

instruction in literacy skills at the preschool level. Resources for early childhood education have been established to ensure all children get an optimal start (NCLB, 2001). States, districts, and schools are held accountable for making sure all children are reading on grade level by the end of third grade. Additionally, national literacy initiatives have been established with the goals of closing the achievement gap and ensuring that all children obtain a high-quality education.

Children who learn to read successfully tend to remain good readers, whereas children who struggle in learning to read tend to have problems throughout their school career (Stanovich, 1986). The two best predictors of early reading success are alphabet knowledge and phonemic awareness (Adams, 1990). Children do not think about words as being specific sounds, a skill in which children need in order to learn to read (Catts, 2005). This skills (learning about letters) does not develop on its own and although it is initially influenced by the environment (literacy experiences); children require explicit instruction in learning letters and sounds (Catts, 2005). In order for early intervention, such as Head Start, to be successful in preparing children for kindergarten, research needs to focus on evidence-based practices to meet these growing needs.

In the next chapter, research results of major studies that were conducted to enhance literacy skills are reviewed. Chapter 3 provides details about a study conducted to enhance early literacy skills of 4-year-olds attending Head Start. Chapter 4 explains statistical analyses and outcomes of the study. A summary of the study and discussion of the meaning of the findings and the implications are provided in the final chapter.

## CHAPTER II

### REVIEW OF THE LITERATURE

Phonological awareness skills have been identified as a primary influence on early reading acquisition (e.g., Adams, 1990; Bradley & Bryant, 1983; National Reading Council, 1998; National Reading Panel, 2000; Stanovich, 1999, 2000; Torgesen, 2005; Torgesen, Wagner, & Rashotte, 1994; Vellutino, 1991; Wagner & Torgesen, 1987). Phonemic awareness and letter knowledge are highly predictive of reading success in school-age children (Torgesen, Wagner, & Rashotte, 1994). This relationship has not been investigated as fully in the preschool population, particularly in preschool children from low socioeconomic backgrounds. In contrast, there is a large body of literature related to providing remedial help to school-age children who demonstrate difficulties learning to read (e.g., Fuchs, Fuchs, Thompson, Otaiba, Yen, Braun, & O'Connor, 2002; Lyon, 1999, 2003; Stanovich, 1999).

Additionally, results from a number of investigations (e.g., Blachman, Ball, Black, & Tangel, 1994; Gillon, 2000, 2002, 2005; Wagner, Torgesen, & Rashotte, 1994) indicate that well-designed treatment programs that focused on enhancing phonological awareness skills have helped kindergarten children learn to read and spell. The long term effects of a comprehensive, systematic phonological awareness intervention program designed to teach emergent literacy skills to Head Start children have received minimal research attention (e.g., Hawken, Johnston, & McDonnell, 2005; McAllister et al., 2005; Paulson, Kelly, Jepson, and van der Pol, 2004; Ryan, 2005). Despite this, the expectation for early childhood educators (e.g., Head Start teachers) to assess and provide age-appropriate instruction that improves the emergent literacy skills of 4-year-olds has

increased (McAllister et al., 2005). In addition, the level of expectation for academic preparedness for children entering kindergarten has increased. If Head Start is to be successful in better preparing students for kindergarten, then more research needs to be conducted to address these growing needs.

The goal of this chapter is to build this knowledge base by providing (a) a brief summary of the components essential for early literacy (Appendix A provides definitions of key terms), (b) a summary pertaining to the language underpinnings of literacy development and shared storybook reading, (c) a discussion of evidence from studies that have examined the relationship between phonological awareness skills and reading (causal and predictive), (d) a review of intervention studies specific to emergent literacy, and (e) a discussion of research specifically related to Head Start.

### **Components of Literacy**

Learning to read depends on many skills, including attention, memory, language and motivation (Snow, Burns, & Griffin, 1998). Social, cultural, and environmental factors also contribute to a child's experiences and interest in reading. Other factors which further impact a child's success in learning to read is cognitive ability, hearing status, and speech-language competence (Snow et al., 1998). These skills and factors influence a child's emergent literacy development.

Literacy is defined as the ability to read and write and is usually acquired in a relatively predictable manner, beginning at birth and continuing throughout life, assuming the appropriate exposure to print and instruction are present (Snow, Burns, & Griffin, 1998). Literacy development, as described in early literacy theory (Teale & Sulzby, 1986), is conceptualized as a developmental continuum, in which literacy begins

to develop at birth and continues throughout the lifespan. Early literacy refers to the behaviors of young children (i.e., 2- to 3-year-olds) as they attempt reading and writing acts prior to understanding letter-sound relationships (Paulson et al., 2004; Whitehurst & Lonigan, 1998, 2001). According to Paulson et al. (2004), emergent literacy refers to the behaviors observed in 4- and 5-year-old children when an awareness and understanding of letter-sound relationships begins to develop. Developmentally appropriate practices are a set of principles centered on the idea that children are active learners who construct meaning and knowledge through meaningful interactions with objects and individuals in their environment (Bredekamp & Copple, 1997).

The process of emergent literacy develops as children expand their oral language structure, gain awareness of the sound structure of language, and find meaning in the symbols around them (Adams, 1990; Lonigan, Burgess, & Anthony, 2000; Torgesen, 2005). Therefore, emergent literacy comprises the essential skills, knowledge, and attitudes that prepare children for formal reading and writing instruction that will be encountered in kindergarten and first grade. For purposes of this paper, emergent literacy will be viewed as the basic foundation for learning to read, write, and spell.

Language is the primary foundation upon which reading and writing develop. Increased attention has been given over the past 20 years to the importance of early and emergent literacy skills that children acquire about the process of reading and writing before beginning formal schooling (e.g., Sulzby, 1985; Whitehurst & Lonigan, 1998). These early developmental abilities in the areas of (a) phonological awareness, (b) the alphabetic principle, (c) letter-sound knowledge, (d) understanding of print concepts, (e)

early writing, and (f) the development of narrative structure, lay the foundation for later developing reading and writing.

Additionally, three major areas found to be critically important in the development of early and emerging literacy skills are (1) a strong foundation in oral language skills, (2) an awareness of the sound structure of language, and (3) a great deal of exposure to and experience with print (Lonigan, Burgess, Anthony, & Barker, 1998; Paulson et al., 2004; Snow et al., 1998; Torgesen, 2005; Whitehurst & Lonigan, 1998). A similar description provided by Adams (1990) indicates that skillful reading depends on (a) phonological processing/awareness, (b) orthographic knowledge (exposure and experience with print), and (c) oral language skills. A strong foundation in oral language skills (i.e., spoken language) develops as children grasp an understanding of the syntactic (i.e., structure) and semantic (i.e., meaning, understanding) features of language.

Phonological processing is a set of language and listening skills that develop a child's understanding of how words are made up of distinct sounds produced by particular letters. As stated in Torgesen and Mathes (2000), *phonological processing*, which refers to how the sounds of a language (phonological or phonemic information) are used to interpret written and oral language, includes both *phonological* and *phonemic awareness*. *Phonemic awareness* refers to the ability to focus on and manipulate specific phonemes, in addition to the sounds of spoken word. *Phonological awareness* encompasses phonemic awareness as well as awareness of the rhyme and syllable levels. Phonological processing skills develop in conjunction with other developmental skills; however, they do not constitute all the necessary components for successful reading development.



Phonological awareness skills develop once children demonstrate an understanding that words have structure as well as meaning, which then allows children to manipulate sounds and words in their environment depending on the context. Print awareness develops as children see and play with written symbols in their everyday life (e.g., magnetic alphabet letters, grocery lists, and Wal-Mart signs). Following a thorough review of the literature, the National Reading Panel (2000) identified five essential components of learning to read: (a) phonological/phonemic awareness, (b) phonics, (c) vocabulary, (d) fluency, and (e) comprehension. Emergent literacy development in preschool children is the focus of this chapter. The first of the five essential components for learning to read, phonological/phonemic awareness, is discussed extensively in this chapter. A brief discussion pertaining to a highly structured reading program that has been used for over 40 years and the benefits of shared book reading (e.g., vocabulary) are provided in this chapter as well.

### **Reading Program**

Historically, programs such as *DISTAR* (Direct Instructional System for Teaching and Remediation), a phonics-based reading program, have been used wisely to help students (from lower-income families) who lagged behind their peers in language skills (Sexton, 2001). Created by Bereiter and Engelmann in the 1960s, *DISTAR* uses direct instruction, high levels of teacher feedback, and error correction to improve students' reading comprehension (Adams & Engelmann, 1996). *DISTAR* is currently used in schools across the country, as well as Canada, the United Kingdom, and Australia (Sexton, 2001). According to the National Institute for Direct Instruction, direct instruction (DI) is a model for teaching that emphasizes well-developed and carefully

planned lessons designed around small increments of time and includes (a) scripted lesson plans (little to no variation), (b) immediate feedback for all reading fluency errors, (c) small-group design based on similar reading levels, and (d) frequent assessment and data collection.

Despite extensive evaluation research results that support the effectiveness of the *DISTAR* and DI curriculum, these programs have not been accepted as widely in the United States as methods such as whole language. In addition to the absence of enriched literature, *DISTAR* and DI lack two critical components for reading development, instruction in phonological/phonemic awareness and vocabulary. The long-term effects (e.g., comprehension) DI have not been as strong as the progress during the early stages of reading (decoding and fluency) (Dudley-Martin, 2006). DI programs have difficulty with the step reading to learn. *DISTAR* and DI are used most with struggling readers as a form of intervention or supplemental instruction (Sexton, 2001).

### **Shared Storybook Reading: Language Underpinnings**

Language is critical to a child's literacy development, including listening, speaking, reading, and writing skills. As previously stated, several factors (e.g., phonological awareness, letter-sound knowledge, and socioeconomic status) are known to correlate highly with successful achievement in the acquisition of literacy thus providing predictive measures of successfully learning to read. Additional skills, such as vocabulary, letter naming, concepts of print, and oral language are considered pre-requisite skills for literacy development. Readers use oral language to understand words seen in print (Beck, McKeown, & Kucan, 2002). For purposes of this paper, these pre-

requisite skills will serve as the language underpinnings for literacy development and be discussed here.

Reading aloud with children is considered by some to be the single, most important activity facilitating children's emergent literacy behaviors (Wells, 1985). Initially, words are learned from context, but as children develop, the types of context change. Early learning takes place through oral language contexts, and oral language environments play a role forever, but under most conditions they begin to play less of a role as more is learned from print (Hart & Risley, 1995). Thus, books become "teaching tools." The NRP (2000) suggests considering multiple approaches for avenues of vocabulary development in school-age children. Conflicting messages regarding methodology in language-literacy development has resulted in multiple instructional approaches (e.g., storybook interactions, phonics, whole language) and varied service delivery models (e.g., explicit instruction, incidental learning) being implemented in preschool classrooms. Shared or interactive storybook reading is a common practice in homes, daycare centers, and preschool classrooms across the country. Caregivers and educators use strategies (or scaffolding) to help children communicate and learn language. With daily exposure, children who are read to on a regular basis are better prepared to make the transition to conventional reading (Scarborough & Dobich, 1994). This activity alone, however, is not typically identified as a significant factor in acquiring literacy skills.

Vocabulary plays a critical role in people's lives and future possibilities. Vocabulary knowledge is strongly related to reading proficiency and comprehension in particular and school achievement in general (Beck et al., 2002). One particular problem

with vocabulary is the profound differences in vocabulary knowledge across social classes. Moats (2001) describe this negative impact as “word poverty.” For example, first grade children from high income homes know about twice as many words as their peers from low income homes (Beck et al., 2002). In addition, many children from low-income families enter kindergarten with only half the words and can understand only half of the meanings and language conventions compared to a child from a typical literacy-rich, high-income home (Beck et al., 2002). In a longitudinal observational study, Hart and Risley (1995) investigated how children learn to talk through casual social interactions at home. Forty families were observed on a monthly basis for 27 months. Researchers found that the average mother on welfare used only 1000 different words in talking to her children over the several hours of research recording. On average, however, professional parents talked to their toddlers more than three times as often as welfare parents. The researchers concluded that the amount of parenting per hour and quality of verbal content associated with parenting were strongly related to social and economic status. To fully understand the importance of vocabulary development, Beck and colleagues (2002) claimed students need to add 2000 to 3500 word meanings to their reading vocabulary per academic year to be successful readers. Shared storybook reading at the preschool level may provide a means to meeting these expectations.

Scarborough’s (1998) meta-analysis studying associations between kindergarten oral and written language skills and later reading achievement showed kindergarten vocabulary to be associated consistently with later reading performance. Of the 19 predictor variables Scarborough studied, expressive vocabulary was the second strongest predictor of later reading achievement after alphabet knowledge, sharing second place

with print concepts and story recall. Thus, links between early deficits in vocabulary to risk for reading problems were demonstrated.

Shared storybook reading, as an intervention to increase vocabulary skills, is a common and useful tool for speech-language pathologists. Storybook reading is considered a strong vocabulary building activity for young children. Adult-child storybook interactions provide highly contextualized exposures to novel words in a routine that is familiar, authentic, and often engaging to young children (Justice, Meier, Walpole, 2005; Kaderavek & Justice, 2002). Furthermore, the style and amount of reading children participate in has an influence on increasing vocabulary. When reading to young children, it is the elaboration rather than mere exposure that encourages word learning through shared storybook reading (Justice et al., 2005). Vocabulary skills influence the rate at which new words are learned. Similar to Stanovich (1986), Penno, Wikinson, and Moore (2002) made a similar reference to the “Matthew Effects” indicating the higher the vocabulary skills of the child the faster the response to intervention, and more words are learned at a faster rate.

Quality reading experiences occur when books are carefully selected and presented in a developmentally appropriate manner to encourage active child participation. In a series of Head Start studies, Whitehurst, Falco, Lonigan, Fischel, DeBaryshe, Valdez-Menchaca, and Caulfield (1988) investigated four components of preschool literacy activities including (1) vocabulary size, (2) writing, (3) phonological/phonemic awareness, and (4) print concepts. Specifically, the form of instruction (e.g., interaction style during joint book reading encounters) and its influence on vocabulary development was investigated. Whitehurst et al., (1988) concluded that

when shared storybook reading was presented in a dialogic manner the rate of language development increased. Additionally, the children who participated in one-on-one or small-group book reading interactions increased their language and literacy skills more than children who received book readings in large-group instruction.

In summary, a strong relationship has been established between vocabulary knowledge and reading comprehension. Reading comprehension is the ultimate goal for teaching reading. Significant attention must be given to children from literacy poor environments in order to close the language gap. Speech-language pathologists are equipped to assist educators in increasing oral language environments in preschool and kindergarten classrooms to promote literacy skills and overall language development. Shared storybook reading is one way to increase language skills while constructing the building blocks necessary to support learning to read.

### **Emergent Literacy Skills: Predictive Studies**

Scientific research about emergent literacy acquisition and reading difficulties has increased greatly in the last few decades with crucial implications for instruction in reading (e.g., Adams, 1990; American Speech-Language-Hearing Association, 2001; Blachman, 1991; Stanovich, 1999; Torgesen, 2005). This rapid growth in evidence-based research provides immeasurable potential benefits for children; it also increases the challenges for educators and speech-language pathologists alike. Teaching beginning reading effectively, especially to at-risk children, must draw on an extensive knowledge base. The focus of this chapter is to explore the relationship between predictors of reading success and the implications for intervention for at-risk preschool children prior to starting formal reading instruction in kindergarten.

*Phonological awareness.* Children need to be aware of speech sounds in order to acquire letter-sound correspondence knowledge and use this knowledge to decode printed words. If children are not aware of the sounds contained in a word, they will have difficulty associating sounds with letters. Success in reading can be predicted at age 4-years based on performances in sound awareness. The seminal work of Bradley and Bryant (1983, 1978), which identified sound awareness skills, specifically oddity tasks in rhyming and alliteration, were the first predictors to be identified and often referred to as the first adequate empirical evidence demonstrating a causal link between phonological awareness and literacy. Student performance measures over a 4-year period (ages 4- and 5-years at onset) indicated that children who performed the highest on oddity rhyming tasks (e.g., which one does not sound the same) were better readers in the 3<sup>rd</sup> grade. Furthermore, spelling development was related to knowledge of nursery rhymes and rhyme detection (Bryant, Bradley, MacLean, & Crossland, 1989). Knowledge of nursery rhymes seems to enhance children's phonological sensitivity which in turn assists children in learning to read and spell.

Phoneme segmentation is another predictor of reading success. A reciprocal relationship exists between phonemic knowledge, specifically phoneme segmentation ability and learning to read when measured in non-reading kindergarten students (Vellutino & Scanlon, 1987). The evidence presented by Muter, Hulme, Snowling, and Taylor (1997) indicated that segmentation, not rhyming, predicted early progress in learning to read. Their study consisted of 38 children, ages 3:10 to 4:9. The participants were administered multiple phonological awareness measures over a 2-year period. At the end of the first year, segmentation not rhyming correlated most strongly with reading

and spelling scores. Additionally, letter naming predicted success in reading and spelling, with an interaction effect with segmentation. It was not until the end of the second year that rhyming started to predict spelling but not reading. The most interesting difference between the previously discussed studies is how *rhyme* and *onset plus rime* were differentiated. *Onset* refers to the part of the syllable that comes before the vowel. The *rime* refers to the vowel and any consonant(s) that follow it in a syllable. In Bryant (1998), data from Muter et al's., (1997) study was re-scored giving credit for both rhyming and alliteration. Bryant pointed out that the directions given (which one “sounds like” and “rhymes with”) were two different tasks. Moreover, Muter et al. did not give credit for alliteration. By combining both directions (e.g., sounds like, rhymes with) in the rhyme category, Bryant purported that a new category, *onset plus rime*, is a much better predictor of success in reading and spelling than segmentation. He provided support for Goswami and Bryant's (1990) theory, suggesting that the sensitivity to onset and rime, as well as awareness of phonemes, may play a critical part in children's success in reading and awareness to spelling associations.

Phonological/phonemic awareness skills are a foundation upon which children build language-literacy concepts and eventually automaticity for reading. In 2002, Anthony, Lonigan, Burgess, Driscoll, Phillips, and Cantor added to the growing body of evidence theorizing the developmental conceptualization of phoneme sensitivity. The primary purpose of their study was to investigate whether rhyme or phoneme sensitivity was most important for reading acquisition and addressed the debate between Muter, Hulme, Snowling, and Taylor (1997) and Bradley and Bryant (1983, 1978). Emergent literacy skills (e.g., letter knowledge, concepts of print, and decoding skills), as related to



linguistic complexity, were examined in two groups of children, 149 older children (ages 4:0 to 5:11) and 109 younger children (ages 2:3 to 3:11). A developmental trend was observed in each group demonstrating that the older children scored higher on all phonological sensitivity and print knowledge items than the younger children. They concluded that children's sensitivity to words, syllables, rhymes, onset-rime, and phonemes represent a single, underlying phonological ability of increasing linguistic complexity. The results did not answer the debate but proved the necessity for children to acquire both skills. Anthony et al. (2002) challenged the research community to determine the acquisition of pre-reading skills along the continuum of growth development.

Phoneme segmentation is considered crucial for the spelling of unfamiliar words (Adams, 1990). Phoneme segmentation, although difficult for preschoolers, is the best measure of simple phonological awareness (Yopp, 1988). The evidence provided by Foy and Mann (2001, 2003) showed rhyme awareness to be more closely aligned with natural language skills (e.g., vocabulary, speech development), whereas phoneme awareness was associated more closely with the products of literacy experience (e.g., alphabetic principle). Further research findings (e.g., Muter et al., 1997; Hulme, 2002; Hulme, Hatcher, Nation, Brown, Adams, & Stuart, 2002) indicated that rhyme awareness in a preschool sample is not necessarily linked to reading; phoneme awareness, however, consistently has been the stronger predictor of emerging literacy skills in pre-kindergarten children.

*Alphabet knowledge.* Learning the alphabet has had a long tradition as an important component of learning to read and write. Young children learn about the

features of alphabet letters before they can recognize and name them. It is this knowledge of letter features that is important to their learning to discriminate, recognize, identify, and, finally, to write the letters. Specifically, accuracy and fluency of letter naming is a strong predictor of reading success in first grade (Badian, 1998). The most important reading task in the first grade is to learn to decode unfamiliar words quickly and accurately (Adams, 1990). Familiarity with letter naming is helpful in acquiring this skill. Children learn letter names better when oral practice is paired with kinesthetic practice of the letter (Mann & Foy, 2003). Therefore, initial instruction should teach correct letter formation accompanied by learning to recognize and identify letters. After a child has begun to learn about letters, environmental print (e.g., golden arches of McDonalds, stop sign) is a valuable tool that increases knowledge about letters and sounds. This letter knowledge allows children to “break the alphabetic code,” which facilitates learning to read.

Kindergarteners’ letter-sound knowledge (i.e., recognition) is another strong predictor of reading success (Torgesen, Wagner, & Rashotte, 1994), leading researchers to conclude that a causal relationship between phonological processing skills and reading may be reciprocal. In this longitudinal study, Torgesen et al. identified three research design weaknesses across previous studies that threatened this causality claim, which included (a) omitting other known plausible causes, (b) failure to allow for bi-directionality between phonological awareness development and reading instruction, and (c) relationships among variables that had been measured with imperfect reliability (i.e., both true scores and variance). To overcome previously identified flaws, measures of reading, phonological processing (e.g., phonological awareness, phonological memory,

and rate of access for phonological information), and general verbal ability were obtained. Three types of phonological processing skills were investigated simultaneously, whereas, prior studies investigated these aspects one at a time. Participants of the Torgesen et al. (1994) study had no formal reading instruction prior to kindergarten and participated in a curriculum comprised of whole language with supplemental phonics instructions (e.g., one letter per week). The strongest phonological awareness skill, letter-sound knowledge, was predictive of reading success in follow-up testing conducted at the beginning of both first and second grades.

In contrast, Dodd and Carr (2003) compared three essential early literacy skills: (1) letter-sound recognition, (2) letter-sound recall, and (3) letter reproduction in children from lower and upper socioeconomic backgrounds. Letter-sound recognition was the most well developed skill, providing a partial reading cue prior to the alphabetic code link. Letter-sound recall was a more difficult task, possibly due to the need to retrieve the appropriate phoneme from a large number of sounds already stored linguistically. Letter reproduction, which required motor involvement, was the most difficult task. Children from upper-class families had better developed phonological awareness skills than their peers from working class families. Researchers concluded that if a child performed poorly on one task then weaknesses were likely to occur on all tasks, indicating that letter-sound awareness is not as predictive a measure.

*Phonological awareness and speech-language impairment.* The relationship between phonological awareness development and speech-language disorders is of importance to speech-language pathologists (SLPs). The promotion of literacy has recently been included in the scope of practice for SLPs (ASHA, 2001); therefore, it

would be beneficial for SLPs to fully understand who is at risk for delayed acquisition in phonological awareness skills and possibly difficulties learning to read. When spoken language skills are compromised, a reading deficit is likely. The relationship between language disorders and diminished phonological awareness skills has been documented thoroughly in the literature (e.g., Bishop & Adams, 1990; Catts, Fey, Zhang, & Tomblin, 2001; Tomblin, Zhang, Buckwalter, & O'Brien, 2003; Torgesen, 2005), further indicating that children with specific language impairments are at risk for delayed phonological awareness acquisition and reading development.

Less is known about children with a history of moderate-to-severe speech disorders. Webster and Plante (1992) were the first to investigate speech intelligibility and beginning reading skills by comparing phonological awareness skills of children with persistent phonological impairments to peers without phonological impairments. The children without phonological impairments scored significantly higher on phonological awareness tasks than did the children with phonological impairments. Speech intelligibility was a highly significant predictor of performance on phonological awareness tasks. In a similar study of 4-year-old children, Rvachew, Ohberg, Grawburg, and Heydig (2003) compared the phonological awareness skills of children with delayed expressive phonology (i.e., moderate-to-severe delay) to the phonological awareness skills of children with typically developing phonological (i.e., speech) skills. The children with expressive phonological delays demonstrated poorer phonemic perception and phonological awareness skills than their typically developing peers. Results indicate that preschool children with delayed expressive abilities would benefit from being screened for their phonological awareness skills even when their receptive language skills are

considered developmentally appropriate. Similar findings were obtained in Sutherland and Gillon (2005) in which phonological awareness and underlying phonological representations were examined in preschool children from New Zealand with moderate/severe speech impairments. Phonological representations measured included holistic (i.e., words are the smallest unit, single unit) and segmental (i.e., subunits of words, onset-rime). The phonological representation skills of children with speech impairments were significantly below children without speech impairments. According to Nathan, Stackhouse, Goulandris, and Snowling (2004), children with speech disorders are at risk for long-term difficulties in effectively using phonological information when reading and spelling, even after their speech error(s) have been resolved. These findings further support the need for SLPs to be attentive to the phonological awareness and emergent literacy skills of the students they serve.

In Raitano, Pennington, Tunick, Boada, and Shriberg (2004), children with persistent speech impairments and co-occurring language delays demonstrated more weaknesses on phonological awareness tasks than the children whose speech errors had been resolved. The group of children whose speech errors had resolved performed significantly below their typically developing peers on phonological awareness tasks. These findings support the conclusion of previous studies (e.g., Bird, Bishop, & Freeman, 1995; Bishop & Adams, 1990; Clarke-Klein & Hodson, 1995; and Nathan et al., 2004) in which children with histories of speech impairment (i.e., speech errors resolved) are at risk for literacy acquisition deficits (reading and spelling).

*Phonological awareness and other factors.* Social class, age, and cultural differences are additional predictors of success in learning to read. A longitudinal study

by Lonigan, Burgess, Anthony, and Barker (1998) investigated these variables by assessing 238 children from middle-and upper-class homes (92% Caucasian) and 118 children from lower-class homes (82% African American). Phonological sensitivity measures included (a) rhyme oddity detection, (b) alliteration oddity detection, (c) blending, (d) elision, (e) rhyme matching, and (f) rhyme category. Researchers found that children from lower-income homes performed substantially lower than children from the other groups. These findings indicate that social class differences in phonological sensitivity are present at an early age. Overall findings indicated that phonological awareness abilities and print knowledge are present during the preschool years and are predictive of beginning reading and spelling success. Most importantly, results from Lonigan et al. (1998) indicated that as children mature their performance in phonological awareness tasks both improves and becomes more stable over time, despite social class, cultural differences, or language abilities.

In Burt, Holm, and Dodd (1999), 57 children, ages 46 to 58 months, from “working” (middle class) and upper-class homes were matched for age and gender in an effort to obtain normative data about phonological awareness. Phonological awareness assessment measures included: (a) syllable segmentation, (b) rhyme awareness-oddity, (c) alliteration-oddity, (d) phoneme isolation, and (e) phoneme segmentation of two-syllable words (e.g., *carrot*) and words containing consonant clusters (e.g., *star*). Differences in phonological skill levels were observed for age, gender, and social class. Older children were more likely to have stability and accuracy in phonological variability and nonsense word imitation by 46 months of age. Girls performed slightly better at the onset (i.e., less than 48 months), but by age 4, there were no gender differences. Due to

the small sample size (n=57), a definitive statement about gender differences was inconclusive. Children from upper-class homes had better developed phonological awareness skills than their peers from working-class families. Participants developed syllable awareness skills based on their performances on syllable segmentation tasks. The evidence provided by Burt et al. (1999), supports prior research and theories (e.g., Stanovich, 1986) that syllable awareness is one of the first stages of phonological awareness to develop. More importantly, phonologically based skills are essential in the beginning stages of reading. Overwhelmingly, results indicated that children demonstrated more awareness of syllable units of onset-rime than alliteration. Overall, children performed poorly (40% mean score) on phoneme isolation tasks. Children from upper-class families demonstrated phoneme awareness proclivity but not substantial enough to skew the findings, providing evidence to further support Stanovich (1999), who stated “preschool children have not developed awareness for individual phonemes but they are beginning to develop awareness of onsets,” (p. 158).

Many studies incorporate more than one predictor variable when trying to identify the skills required for successful reading. For example, in addition to phonological awareness as a predictor of reading success, Scarborough (1989, 1998) included family history of reading deficits as a predictor. Catts et al. (2001) generated similar findings with one of their most effective predictors being biological mother’s education level. Additional research studies have focused on, but have not been limited to, parental involvement (e.g., Boudreau, 2005), genetics (e.g., Petrill, Deater-Deckard, Thompson, DeThorne, & Schatschneider, 2006), and vocabulary (e.g., Justice, Meier, & Walpole,

2005) as predictor variables as well; however, these studies are beyond the focus of this paper.

When making causal claims, it is important to note the many differences among studies measuring phonological awareness skills in preschool children. In addition to the differences in age, ethnicity, and social class, there are discrepancies among studies measuring phonological/phonemic awareness skills. Researchers often use the same label for tasks yet vary the method of elicitation. For example, rhyme production or supply and rhyme oddity are different tasks assessing similar skills. Additionally, one must consider the age of children at the time of initial assessment and whether testing occurred prior to reading instruction. It is important to consider the implications of age of children being compared when making causal claims. Social class and ethnic differences must be considered as well. Most studies were conducted with children from middle-and upper-class homes that were predominantly Caucasian.

*Summary.* Deficits in reading development are due primarily to inadequate phonological awareness skills, specifically phonological and phonemic awareness. Phonemic awareness skills along with letter-sound knowledge are the strongest predictors of reading success (Torgesen, Wagner, & Rashotte, 1994). A predictive relationship between early measures of phonological/phonemic awareness and later success in reading has been well documented. A causal relationship between phonological awareness skills and reading development is reciprocal in nature. Results of research studies have documented that deficits in phonological awareness abilities are strongly predictive of deficits in reading. For example, children with dyslexia and children who have difficulty decoding printed words (i.e., alphabetic principle) have deficits in phonological



awareness abilities (Lyon, Shaywitz, & Shaywitz, 2003; Scarborough, 1990, 1989; Vellutino, 1987).

Factors that result in identifying pre-reading skills in young children include letter-sound awareness, sound segmentation and blending, onset-rime, and phoneme awareness. These factors must be considered when conducting future studies of phonological awareness for preschool children, including children from low-income homes. Likewise, any suspected language and literacy factors should be considered when developing assessment tools and intervention programs for pre-readers. Early screenings to predict future reading abilities have become important in recent years. Testing in the preschool years to predict later reading difficulties can identify children who need additional support in learning to read. Preschool children identified as at-risk and who receive preventative measures often enjoy success in the early stages of their academic career.

### **Emergent Literacy: Intervention Studies**

The amount of environmental and/or language experiences provided to a child is a strong indicator of subsequent phonological awareness ability upon entering elementary school. Children benefit from intensive early reading instruction in order to prevent reading failure (Torgesen, 2005). Research has consistently demonstrated that learning in the early years must be based on high quality, developmentally appropriate instruction in order to be most beneficial. Additionally, Ehri (1989) asserted that when children do not learn to read and spell proficiently, it is because of instructional failure in teaching phonological awareness skills explicitly.

Knowledge of letter names assists children in learning letter sounds. It is critical that young children be taught early and in natural situations about letters when they become interested in them. In the same way, school-age children should be taught about letters in the context of meaningful print. Children need to understand the relationship between letters and reading, rather than focusing on letter identification in isolation. Byrne and Fielding-Barnsley (1991a) designed a study to teach preschool children a select group of letters-sounds /s, m, t, l, p, a/ previously identified (by frequency of occurrence in the English language) as critical for reading. Children participated in weekly small group instruction in phoneme identity training, from the *Sound Foundations* program, an intervention manual designed by the Byrne and Fielding-Barnsley (1991b). The non-intervention group received similar instruction but without the phonological reference. Follow-up testing one-year post intervention indicated that children who participated in the intervention group performed higher on reading pseudowords. Differences between groups on letter identification were not significant. The authors concluded that explicit instruction of a select group of letters generalized to learning other letter-sound correspondences.

In a study of 235 kindergarten students from Denmark, Lundberg, Frost, and Petersen (1988) found that phonological awareness can develop before and be independent of reading instruction. They concluded that instruction in phonological/phonemic awareness skills (e.g., rhyming, segmentation, and letter-sound awareness) must be taught explicitly instead of embedded in lessons. Cunningham (1990) investigated the difference between explicit and implicit instruction in phoneme awareness in 42 kindergarten and 42 first grade students. Phonemic awareness skills (e.g.,

deletion, oddity, and sounds in syllables) were measured at the onset of the study and again following a 10-week intervention program. One intervention taught phonological awareness in a decontextualized manner and targeted only segmentation and blending, while a metalinguistic approach (i.e., children were instructed to reflect upon the story and decide which word fits) was used in the second intervention group. Participants in each intervention group were compared to a non-intervention group of children who listened to stories and answered comprehension type questions. The researchers found that following intervention the treatment groups performed better in both grades than the comparison group. The researchers concluded that the type of instruction did not make a difference in the level of phonological awareness skill. The meta-level intervention, however, generalized to reading achievement while the other approach did not. Based on these results, phonological awareness instruction improved the children's reading ability.

Educators must provide children who experience learning difficulties in reading with supplemental instruction. The evidence presented by Blachman, Ball, Black, and Tangel (1994) demonstrated that with appropriate professional development, teachers and teacher assistants are effective in teaching phonological/phonemic awareness skills to children and helping them read real words and pseudowords after an 11-week intervention program in kindergarten. This study was one of the first to involve at-risk children from inner city, low-income homes. Criteria for participation excluded children on the following basis: (a) did not have one-to-one correspondence, (b) failed a sound counting task, and (c) scored more than 1.5 standard deviations below the mean ( $M=100$ ;  $SD=15$ ) on *The Peabody Picture Vocabulary Test-Revised* (Dunn & Dunn, 1981). The criteria for exclusion actually described children most at risk for academic failure.

Teachers and teacher assistants provided small-group instruction for 15-20 minutes sessions four times per week. Explicit instruction from the *Road to the Code*, a resource manual created by Blachman, Ball, and Tangel (2000) designed specifically for regular education teachers to implement in the classroom, was used in this study. Three areas were targeted in intervention: (1) phoneme segmentation activities (*say-it-and-move-it*), (2) segmentation related activities (sound categorization and alliteration), and (3) direct instruction in letter names and sounds. In addition to improving reading on real words and pseudowords, the group differences were significant for segmentation, letter-sound knowledge, and developmental spelling, with the explicit instruction group outperforming the large-group instruction.

Service delivery to preschool children who are at risk for academic failure continues to be a major goal for many professionals. In Fuchs et al. (2002), kindergarten teachers provided weekly instruction to children with varying degrees of speech and language impairments in either phonological awareness (PA; n = 6) or phonological awareness with peer dyad components (PAL; n = 9). Ten children with similar diagnoses participated in the regular curriculum with no additional instruction. The PAL group scored higher than the other groups on all post-treatment measures: (a) rapid letter naming, (b) phoneme segmentation, (c) reading of pseudo words, (d) word identification, (e) phoneme blending, and (f) spelling. Children with speech and language impairments make the greatest gains in phonological awareness development and reading instruction when the instruction is explicitly taught.

Gillon (2002) shared similar findings yet with an unforeseen outcome, speech productions improved along with emergent literacy skills when children were provided

phonological awareness training while expressive phonology was targeted indirectly. In Gillon (2002), the children were identified as having speech impairments (best described as mild or developmental articulation errors). In this study, both groups of children made progress in decoding, reading of pseudo words, and spelling; however, the group who received two, 1-hour individual sessions (i.e., 20 hours) of phonological awareness instruction made more progress over time when compared with children who received traditional speech therapy. The long-term benefits of the phonological awareness training were evident in follow-up testing, indicating a strong phoneme-grapheme connection in spelling and reading. The children developed an awareness of letter-sound relationship and gained access to the alphabetic code.

Similar to earlier research, Gillon (2005) investigated the phonological awareness skills and early literacy development of twelve 3-year-old children with moderate-to-severe phonological disorders. Over a 3-year period, the phonological awareness development was monitored in the intervention group and compared to a group of 19 children without speech impairments. Children were enrolled in the study on a rolling basis and monitored through kindergarten. Participants received two speech therapy sessions per week: one small-group session and one individual session at a university clinic. Therapy sessions were scheduled in blocks of 4 to 6 weeks; the number of blocks received depended on the severity of the speech disorder and ended when the speech errors were resolved. Each treatment session targeted three areas (1) improvement of speech intelligibility, (2) facilitation of phonological awareness at the phoneme level, and (3) letter-name and letter-sound knowledge. Results of this study indicate that phoneme awareness can be stimulated in 3- and 4-year old children with speech impairments. As in

Gillon (2002), phonemic awareness skills can develop while speech intelligibility improves as well. The integration of these findings into clinical practice will provide further support that enhancing phonological awareness and letter-sound awareness during the preschool years will be beneficial for children with speech impairments.

Previous research conducted on children served in clinical settings indicates a co-occurrence of speech and language deficits with poor phonological awareness skills. Briefly, children with speech and/or language impairments benefit from direct, explicit instruction in phonological awareness. Phonological awareness skills are easier to teach than reading deficits are to remediate (Catts, et al., 2001; Torgesen, 2005). Early identification needs to occur prior to or at the onset of formal reading instruction. In Catts et al. (2001), letter identification was the strongest predictor variable of later reading skills. The importance of early identification of oral language deficits before the onset of formal reading instruction was indicated by this study which demonstrated a relationship between oral and written language.

The long-term benefits of phonological sensitivity training and program design are two crucial factors to consider when planning for intervention. The manner in which intervention is provided and the frequency of intervention varies among studies. Because of the variability in these factors it is difficult to make claims as to which intervention program is the most beneficial to emergent readers. The structure of the phonological awareness program influences student progress. In a study by Nancollis, Lawrie, and Dodd (2005), the effects of a 9-week (e.g., summer term) phonological awareness intervention program were examined two years post-intervention. Ninety-nine 4-year-old children from low-income homes participated in weekly (e.g., 45 minute sessions, 9 total

sessions) instruction provided in the preschool classroom by a speech-language pathologist. Tasks in syllable, rhyme, and initial phoneme discrimination received equal time within each session. Results from follow-up assessments, conducted 1-and 2-years post-intervention, suggested that the intervention focusing on syllable and rhyme awareness did not increase literacy acquisition. The authors provided possible explanations for these findings (a) the timing of the study (e.g., summer before kindergarten) may have been problematic, (b) the instruction may have been limited (i.e., only phoneme tasks), and (c) fidelity of service delivery was not monitored.

It has been widely accepted that children from low-income homes are at greater risk of academic failure. That assumption proved untrue in Nancollis et al., (2005) where children from the intervention groups and typically developing children performed within normal limits on pre-testing and post-testing. These results confirm previous work by Hatcher, Hulme, and Snowling (2004), which explored 4-year-old children's performance in three intervention programs: (1) reading with rhyme, (2) reading with phonemes, and (3) reading with rhyme and phoneme. In each treatment condition, the reading element contained a strong phonemic component. Researchers concluded that reading instruction which included a highly structured phonemic component was adequate for most 4- and 5-year-old children to master the alphabetic principle and to learn to read effectively, without explicit phonological processing training. Additionally, Hatcher et al., (2004) concluded that young children at risk for reading delay would benefit from instruction in which phonemes are linked with letters.

The Montana Early Literacy Project (MELP; Paulson et al., 2004) investigated the impact of the MELP model on improving the early and emerging literacy skills of

preschool children in Head Start. Researchers developed partnerships with families, schools, and community members and implemented developmentally appropriate services to expand on existing everyday events in the classroom and home. The five components of the MELP were to (1) identify thematic units with specific strategies that embedded literacy and language throughout the child's school day; (2) develop and implement Individualized Education Programs based on student needs; (3) provide strategies for family participation; (4) provide culturally responsive literacy services and celebrate cultural differences (e.g., Native Americans); and (5) provide teachers and families with training to implement this model. Pre- and post-test measures included three foundation areas of literacy development: language use, phonological awareness, and print awareness. Literacy and language skills (MELP components) were embedded into existing classroom routines and events during the school year. Children who participated in the MELP classrooms increased their language and literacy skills more than their peers who received the traditional Head Start curriculum. Researchers concluded that the MELP components were vital for providing optimal opportunities for children who are at risk for developing later reading difficulties. Additionally, research findings provide support for evidence-based practices when deciding on curriculum.

In summary, results from a number of investigations (e.g., Anthony & Lonigan, 2004; Blachman, et al., 2000; Gillon, 2002, 2005; Wagner, et al., 1994) indicate that well-designed intervention studies, focusing on enhancing phonological awareness skills, have helped kindergarten children learn to read and spell. Various approaches have been used to teach phonological/phonemic awareness skills across studies. Most commonly, explicit, systematic instruction in phonological awareness leads to improved reading



(e.g., word decoding) for many children. The number of studies involving enhancing early literacy skills of preschool children is relatively small. Although it is known that phonological awareness skills are influenced by socioeconomic status (e.g., Burt, Holm, & Dodd, 1999), the majority of studies to date have investigated children from middle- and upper-class homes. A reciprocal relationship does exist between reading and phonological awareness. Initially, phonological awareness influences reading; however, once reading instruction is initiated, the process of learning to read influences phonological awareness (Hogan, Catts, & Little, 2005). Therefore, it is imperative to build a preschool child's literacy foundation through phonological awareness instruction and to prepare children for the increasing demands of reading in kindergarten. Intervention needs to have direct transfer value to be successful.

### **Overall Research Needs for Emergent Readers**

The summation of this literature review indicates more research is needed to clarify the strength and nature of the relationship between early literacy skills and predictors of later reading failure, particularly in the area of preventative instruction with "at risk" preschool children, especially those from low-income families. This requires several components of investigation. The first component needs to be correlational in nature and focus on identifying predictor variables before the onset of formal reading instruction in children under 5-years who constitute one or more risk factor for reading acquisition. The second component needs to be longitudinal in nature and center on examining whether (a) early reading deficits are stable over time, and (b) preventative instruction in phonological awareness skills are truly a precursor to later success in reading and beneficial over time. The final category needs to be experimental in nature

and focus on studying the relationship between phonological awareness skills and other underlying features of language to support reading development. Experimental studies need to focus on the development and implementation of emergent literacy programs and follow up to see the longitudinal benefits of such programs. Researchers need to focus on testing two alternative research questions: (1) Do the long term benefits of preventative instruction make a difference (i.e., are they cost effective?), and (2) Do outcome measures differ when the methods of the preventative instruction differ (i.e., length of instruction, instructor)?

### **Research Needs Specific to Head Start**

In order for Head Start to fully support instruction in emergent literacy and better prepare the most vulnerable children, those from impoverished backgrounds, to be successful in learning to read, several issues must be addressed. First, a specific curriculum designed to promote children's social language and literacy development during everyday activities needs to be implemented. Second, a more specific approach developed to target phonological processing skills needs to be implemented explicit, systematic instruction (i.e., small group, teacher directed) manner and must be intertwined with the current curriculum for social, emotional, and health related instruction.

Diversity among children's knowledge and skill level upon entering kindergarten creates an enormous challenge for educators. Therefore, 'leaving no child behind in reading' is going to pose significant challenges for years to come. Meeting these challenges for preschool children will involve continued professional development for

teachers, curriculum reorganization, ongoing assessment, and a persistent focus on the individual needs of every child.

Current research overwhelmingly supports the importance of facilitating emergent literacy skills in preschool children as a critical foundation of literacy development. There is limited information available to guide program development and implementation of a proactive emergent literacy skills program. Research is well documented in identifying risk factors, causal relationships of reading difficulties, and remedial intervention for struggling readers. There is very little known about what 4-year-old children from low-income environments are familiar with in regards to phonological processing. Published reports on the rate and ease of teaching phonological awareness skills to preschool children are sparse. Furthermore, the lasting effects for future academic success (i.e., the ease of learning to read) have not been thoroughly investigated. Researchers should consider the potential benefit of providing explicit, direct instruction in phonological awareness skills to 4-year-old children.

The current study was motivated by the assumption that most children from low income homes and literacy-poor environments (i.e., students participating in Head Start) are most at risk for literacy difficulties upon entering kindergarten and further at risk for later literacy difficulties. Children who participate in the Head Start program have typically come from the poorest families in the United States. According to the U.S. Census, in 2005 the Federal Poverty Level was \$16,090 for a family of three. In an income comparison, the poverty household income is similar to increase guidelines used to consider eligibility for attending Head Start. Head Start children, therefore, are at a disadvantage from the beginning and are at greater risk of academic failure.

### **Purpose of the Study**

The primary purpose of this study was to implement and evaluate two instructional programs designed to enhance early literacy skills of pre-kindergarten 4-year-olds enrolled in Head Start. A second goal was to compare literacy task assessment measures of three groups, (1) explicit literacy instruction (ELI), (2) shared book reading (SBR), and (c) no specialized treatment (NST), prior to the onset of treatment and again 15 weeks later. Intervention for the ELI group focused on providing explicit, systematic, developmentally appropriate instruction to enhance phonological awareness skills and increase alphabet knowledge. The SBR intervention, which focused on enhancing oral language, involved scaffolding strategies. The children in the NST group received Head Start standard curriculum instruction only.

## CHAPTER III

### METHOD

As previously stated, the overall purpose of this study was to analyze and compare literacy-related outcomes following treatment of at-risk children from Head Start. A primary goal was to develop, implement, and evaluate two comprehensive, age-appropriate preschool early literacy programs and compare results across the three conditions. A secondary goal was to examine the effects of two 15-week intervention programs, an explicit literacy instruction (ELI) intervention and a shared book reading (SBR) intervention, and compare the performance of these two groups on early literacy tasks with each other and also with a no specialized intervention (NST) group.

Based on the current literature in emergent and early literacy, the following research questions were developed:

1. Were post-treatment differences among the three groups of participants (ELI, SBR, and NST) significant and, if so, which performances were highest?
2. Which of the following predictor variables of age, gender, receptive vocabulary, mothers' education level, and treatment group accounted for significant variance for the criterion variable (total post-treatment score for early literacy tasks)?

Participants, preliminary procedures, and assessment tasks are described first in this chapter. The two intervention programs are explained next followed by data analysis procedures.

#### **Participants**

Eighty-nine 4-year-old children (47 females, 42 males) from two Head Start Centers in Wichita, Kansas, participated in this study. The genders of participants per

group are as follows, ELI (15 males, 13 females), SBR (11 males, 17 females), and NST (16 males, 17 females). Their ages ranged from 51 months to 63 months ( $M = 57$  months). Of the 89 participants, 71 were African American, 9 Caucasian, 8 Hispanic, and 1 was Vietnamese. This composition reflects the ethnic make up of Head Start attendees in Wichita, Kansas. Four of the 89 participants were receiving speech/language services from Wichita public schools. Fifty-seven participants had attended a prior year of Head Start.

The Head Start director identified the two classrooms with the largest number of 4-year-old children (i.e., transitioning to kindergarten during the coming school year). Children in these classrooms were selected to participate in the Explicit Literacy Instruction (ELI) (i.e., explicit, systematic instruction in phonological awareness and alphabet knowledge) intervention group because these classrooms had the highest number of 4-year-olds. Three classrooms of children at another Head Start Center were selected to participate in the Shared Book Reading intervention group (SBR). Again, selection was based on overall numbers of 4-year-old children per classrooms. Participants in the ELI and SBR groups received the same amount of intervention (two-30 minute sessions per weeks for 15 weeks; 15 hours total time). Children in other classrooms at both centers were selected to comprise the no specialized treatment group (NST) that received no specialized treatment. All of the children participated in the regular Head Start curriculum.

## Procedures

### *Preliminary*

At the onset of this study, all classrooms contained both 3- and 4-year-old children. A verbal agreement was made between the investigators and Head Start to include the 3-year-old children in both the assessment and in the large-group classroom activities but to exclude them from small-group instruction and data analysis.

The investigator met with teachers to provide a brief description of the study. Two different forms of consent letters, intervention and non-intervention, were distributed to Head Start staff and teachers to circulate to parents. Caregivers were given letters explaining the project and asked to sign an informed consent form (see Appendix B). This consent form permitted pre- and post-treatment assessment, access to Head Start records, and participation in intervention both in the classroom and in small-groups outside of the classroom.

Head Start staff had administered several screening instruments at the beginning of the school year and also had collected personal information on every child enrolled in the program. These procedures, which are standard practice for all Head Start Centers, are required by program mandates. The primary investigator reviewed the screening information of the participants, which included hearing screening, speech production (*Assessment of Phonological Processes Revised-Screening*; Hodson, 1986), letter-naming knowledge (Head Start generated instrument), cognitive and language performance (*Brigance Preschool Screen*; Brigance, 1997), and fine motor skills (*Developmental Test of Visual-Motor Integration*; Berry & Berry, 1997). Information, such as income level, birth order, medical/education diagnosis, years in Head Start, and mother's education

level, also was reviewed by the primary investigator. No children were excluded from participation in this study.

### *Data Collection*

Following receipt of parental permission, pre-treatment measures were administered to all participants. Initial testing, which was conducted near the end of the fall semester, included a receptive vocabulary measure and a literacy measure, which includes phonological awareness and alphabet knowledge tasks. The participants were tested individually over two 20- to 30-minute time periods. Initial testing was completed over a 4-week period. The Assessment of Primary Literacy Skills (APLS; Hodson, 2002) was administered by the primary investigator (a licensed speech-language pathologist). The vocabulary test was administered by the primary investigator and also by graduate students from the Department of Communication Sciences and Disorders at Wichita State University (WSU), who were supervised by the primary investigator. A page of instructions for administering the vocabulary measure was provided to the student examiners (see Appendix C).

Post-testing was conducted following the 15-week intervention. *The Assessment of Primary Literacy Skills* (APLS; Hodson, 2002) was administered by graduate students who were trained and supervised by faculty members.

### *Vocabulary Measure*

*The Peabody Picture Vocabulary Test-Third Edition* (PPVT-III; Dunn & Dunn, 1997), which assesses knowledge of receptive vocabulary, was administered according to instructions in the manual. The PPVT-III is a norm-referenced test that becomes increasingly more difficult as the test proceeds. Children are presented with four pictures



per page and asked to point to specified pictures. Raw scores were obtained and converted to standard scores, which were used for data analysis.

### *Literacy Skills Measure*

*The Assessment of Primary Literacy Skills* (APLS; Hodson, 2002) was administered to obtain pre- and post-treatment measures of early literacy skills. At the time of this study, no published test of phonological awareness skills for preschool children was available. The APLS is a result of extensive clinical and experimental research at the WSU Speech-Language-Hearing Clinic. The APLS was developed for assessing emergent literacy skills in children with expressive phonological disorders. The purposes of the APLS are to (a) identify phonological awareness and alphabet knowledge deficits, (b) provide a direction for intervention (goals and objectives), and (c) measure and document progress in children. The APLS is intended for use with children ages 4- through 6-years who are at risk for difficulties in learning to read (e.g., spoken language deficits, low socioeconomic status).

The APLS consists of three assessment components. For the phonological awareness tasks, one practice item was provided, and four test items were administered for each task. Picture cards and small colored blocks were used to assist children in completing the tasks. **Part 1** includes tasks that assess rhyming, and also segmentation, blending, and manipulation at the syllable and compound word level. The first task assesses identification of the number of syllables in a word (syllable segmentation and counting). For example, “Say *cookie*. How many parts are in *cookie*?” The rhyme detection task involved having children select from three pictures the two pictures that do rhyme or the one picture that does not rhyme. For example, “Which two words sound the

same at the end/which two words rhyme? Which word is different/does not rhyme?” The syllable blending task required children to put “small parts of words” (i.e., syllables) together to make words or new words. For example, “Say each part after I say it, *pop* (pause) *corn*. Now let’s put the parts together. What is the new big word?” (*popcorn*). For the syllable deletion task, children were to leave off part of a word. For example, “Say *rainbow*. Now take away *bow*. What is left? (*rain*).” For syllable substitution tasks, children were to replace a syllable of a word to generate a new word. For example, “Say *football*. Now change *foot* to *base*. What is the new word? (*baseball*).” For syllable transposition, the last task in Part I, children were to switch two words around to make a new word. For example, “Say *corn* (pause) *pop*. Now switch the words and make a new word. What is the new word? (*popcorn*).”

**Part II** assesses naming of letters and sounds and invented spelling. Five letters, (Aa, Tt, Bb, Mm, and Ss) were assessed on the pre-treatment test; post-treatment testing included the original five letters and an additional five letters (Ff, Ll, Nn, Zz, and Hh). Each letter (both capital and lower case) was presented on a separate card and were asked to identify it. For example, “What is the name of this letter? What sound does it make?” The pre-test invented spelling task required children to write three words (*bat*, *car*, *top*). One additional word (*man*) was added for post-testing.

The final section of the APLS, **Part III**, involves alliteration and phoneme level tasks of blending, segmentation, manipulation, and categorization for initial and final sounds. For the alliteration task, children were to identify picture cards with the same initial consonant. For example, “Which two words *snake*, *snail*, *rug* start with the same sound? Which one starts with a different sound?” For the phoneme blending task,

children were to put individual phonemes together to make a word. For example, “n” “o” “z” is (*nose*). For the phoneme segmentation task, children were to count phonemes. For example, “How many sounds are in *no*?” The final consonant categorization task required children to identify the two picture cards that end the same way. For example, “Which two words *rock, lake, car* sound the same at the end?” The three phoneme manipulation tasks included (1) phoneme deletion, “Say *beat*, now say it again but leave off “b”. What’s the new word?” (*eat*), (2) phoneme substitution, “Say *tall*, now change “t” to “b”. What’s the new word?” (*ball*), and (3) phoneme transposition, “Say *top*, now let’s switch the sounds around. What’s the new word?” (*pot*)

#### *Scoring and Analysis: Primary Literacy Skills Measure*

The APLS was scored according to the procedures outlined on the test form. Responses to the phonological awareness and alphabet knowledge (letter name, letter sound) portions were scored as correct or incorrect. The spelling portion (5 possible points per word) was scored as follows: (a) one point for correct number of letters, (b) one point for each phoneme-grapheme match (including grapheme-phoneme substitutions such as k for c), and (c) five points if spelled correctly. For example, the scoring of the word (*car*) is as follows: (a) r = one point, (b) kr = two points, (c) tar = three points, (4) kar = four points, and (e) car = five points for correct spelling.

#### *Interscorer Reliability*

For purposes of assessing interscorer reliability, two trained observers scored 20 APLS protocols and generated a phonological awareness score, an alphabet knowledge score, and an overall test score for each of the 20 samples. Values for the reliability

coefficient alpha were the same (.99) for the phonological awareness scoring and alphabet knowledge scoring, indicating satisfactory reliability.

## INTERVENTION

### *Explicit Literacy Instruction (ELI) (Phonological Awareness and Alphabet Knowledge)*

Two classrooms of children received comprehensive phonological awareness and alphabet knowledge intervention biweekly for 15 weeks. These participants received one 30-minute small-group session and one 30-minute large group (i.e., entire class) session each week. Instruction was provided by the primary investigator, who had several years of experience working with preschool children and was familiar with Head Start. Early literacy skills addressed in intervention were discussed and agreed on jointly by the investigator and her advisors. Selection of activities and materials was the responsibility of the primary investigator. Age-appropriate, enjoyable activities were developed from programs such as *Road to the Code* (Blachman, Ball, & Tangel, 2000), *The Sounds Abound Program* (Lencher & Podhajski, 1998), and *Phoneme Awareness in Young Children* (Adams, Foorman, Lundberg, & Beeler, 1998).

The primary investigator and the research advisors reviewed weekly lesson plans. The research advisors also observed several treatment sessions.

*Small-Group Instruction.* Direct instruction was the service delivery model chosen for the small groups. The focus of intervention was on rhyming, blending, segmentation, and sound manipulation. Three sets of phonological targets, with 5 weeks allotted for each set, comprised the intervention. **Set 1** included instruction in rhyme recognition and production, syllable segmentation, initial sound recognition and identification, and phoneme blending. **Set 2** included instruction in syllable segmentation

and blending, initial sound identification and isolation. **Set 3** included instruction in initial sound categorization and identification, phoneme blending, segmentation, and counting, syllable and phoneme deletion, phoneme substitution and manipulation, and final consonant categorization and identification. Activities within each section were in approximate developmental order and built upon each other. The specific instructional order is summarized in Appendix D.

*Small-Group Procedures.* Small-group assignments were developed by ranking participants based on their APLS score and distributing children with high scores and low scores equally per group. This allowed for a range of prerequisite skills per group. Groups of three or four children at a time accompanied the primary investigator to an empty classroom for approximately 20 minutes of direct instruction. The primary investigator introduced the target activity and carried out the instruction. The participants acquired the skills at different rates. Although the majority of the activities were for preschool children, some activities were suitable for slightly older children.

Positive reinforcement such as verbal praise and “high fives” were used to motivate children. Initially stickers were given to participants; however, this sometimes created problems in the classroom. Head Start staff asked the investigator to discontinue the use of stickers.

*Large-Group Instruction.* The goal of the large group instruction sessions was to teach phoneme-grapheme correspondence and print awareness. This was accomplished by providing activities adapted from *Animated Literacy* (Stone, 1995), a program that provides literature and an Animated-Alphabet as teaching tools for acquiring alphabet knowledge. *Animated Literacy* uses songs, alliteration, letter characters, and stories to

engage children in learning about letters and sounds. Hand movements and gestures were paired with the target sounds to provide a physical cue for children when identifying sounds. For example, the phoneme /p/ is paired with pretending to hold a paintbrush while making up and down strokes when saying “Polly Panda’s” sound /p/.

Ten consonants (B, C, D, F, M, N, P, R, S, T) and 5 vowels (A, E, I, O, U) were selected for the 15-weeks of large group instruction based on the program manual. The list of the letters/sounds and the order of presentation are provided in Appendix F. Specific activities included (a) providing a picture of each character with an accompanying story, (b) learning a song for each sound, (c) learning the letter name and sound, (d) coloring an animated character sheet, (e) writing and drawing component related to the sound/letter, and (f) hearing and singing songs for phoneme manipulation. An example of the writing and drawing component is provided in Appendix E.

*Large-Group Procedures.* Children were seated in a circle on the floor while the primary investigator led the group instruction. The classroom teachers sat with the children. Each child was given a copy of the weekly letter/character coloring page. This page was placed on the floor in front of the child while the character story was being read aloud. Next, the physical cue to make the sound was taught to the children. Following the targeted sound cue, the movements for the song were explained and practiced. The song was played multiple times for the children to sing and to practice the routine. Finally, the writing-drawing component was introduced. The children were asked to watch as the primary investigator demonstrated the drawing component and verbally explained the directions. Following an example, the children were given *Thin Crayola Markers* and asked to follow the oral directions and draw the specified item. For example, the letters

(*p*) and (*u*) were introduced in Week 1. This allowed children to spell and draw (*pup*) on the first day. Once the picture was drawn, the participants were encouraged to write the word (*pup*). Lastly, the word was circled and attached by a line to the drawing to demonstrate that the word is a noun. For the purpose of this investigation, pictures were collected and copied, and then the originals were returned to the participants the following session. Two student generated examples are provided in Appendix F.

Each session built on the previous lesson taught, and a review of all sounds occurred at the beginning of each session. Children were asked to demonstrate an understanding of these sound-letter characters by completing the following tasks each session (e.g., “Show me Polly Panda” or “What does Uncle Upton say?”). When time permitted, children were given the opportunity to sing more than one song per week. To preserve the integrity of the study, materials did not remain in the classroom. Each week participants were allowed to take home the coloring page of the Animated Alphabet character and song. They were encouraged to share the story with their parents and to color the picture at home.

#### *Shared Book Reading Intervention (SBR)*

The goal of this intervention was to provide oral language experience without providing explicit instruction on phonological awareness and alphabet knowledge skills. This intervention was modeled after Kaderavek and Justice (2002) in which scaffolding strategies, including cloze procedure, turn taking cues, comprehension questions, and story retelling were utilized. Participants were provided opportunities to make predictions, ask questions, and make comments about the story. Other strategies implemented during these sessions included expanding and extending on the child’s

utterances, focusing and maintaining attention, and talking about the parts of the book (e.g., title, author, and illustrator).

The storybooks used in the intervention represented a variety of developmentally appropriate themes and were narrative in nature. Several of the books were accompanied by cassette recordings of the story that were played following the oral reading. Appendix G provides the storybook titles and the sequence of reading. The reference list for the storybooks is provided in Appendix H .

*Procedures.* In the SBR intervention, the primary investigator introduced a new book during each session. Participants, in groups of three or four, attended two 30-minute sessions per week. Participants were accompanied by the primary investigator to a quiet environment for story time. Each session began the same way. To target concepts of print, children were instructed about the title, author, cover, and title page of each book. Children were then asked to predict the content of the book based on the title and illustration on the cover. The story was read in its entirety accompanied by scaffolding strategies. For example, children were encouraged to participate in reading by allowing them to ask questions and identify characters and events in the book. Following the initial reading, children were encouraged to talk about the story, ask questions, share similar personal experiences, and tell what they liked best about the story. After this discussion period, the story was re-read. The second reading of the same book allowed for more child interaction during the reading. Open-ended statements were often used. The children were asked questions involving comprehension and to predict what would happen if the story had another page. If rhyming words were present in the story no



additional attention was given to them. The majority of the books were narrative story books providing enrichment for vocabulary and story structure.

### **Data Analysis**

Pre-and post-treatment test data were obtained for early literacy skills of the participants. Statistical analyses were performed using SPSS 11.5 (Sprinthall, 2003). A one-way Analysis of Variance (ANOVA) was used to determine if differences between groups were significant prior to and following intervention. In addition, regression analysis was performed to determine which predictor variable(s), (a) group membership (ELI, SBR, or NT), (b) receptive vocabulary, (c) gender, (d) age, or (e) mother's educational level accounted for significant variance for the criterion variable, the post-treatment total APLS score (including both phonological awareness and alphabet knowledge components).

## CHAPTER IV

### RESULTS

The current study was designed to evaluate the outcome data of two 15-week intervention programs, Explicit Literacy Skills (ELI), Shared Book Reading (SBR), and a No Specialized Treatment (NST) group, on the acquisition of emergent literacy skills of 4-year-old children attending Head Start. The following research questions were examined: (a) were post-treatment differences among the three groups of participants (ELI, SBR, and NST) significant and, if so, which performances were highest?, and (b) which of the following predictor variables (age, gender, receptive vocabulary, mothers' education level, treatment group) accounted for significant variance for the criterion variable (total post-treatment score for early literacy tasks)? Raw data are provided in Appendix I.

#### **Pre-Treatment Performance Comparison**

The initial assessment mean scores for each of the intervention groups are shown in Table 1. As can be seen in this table, the mean scores are similar;  $F(2,86)=1.22, p>.05$ . Pretreatment early literacy and receptive vocabulary scores (by group) also are provided in Table 1. Results of a one-way Analysis of Variance (ANOVA) prior to the onset of treatment, indicated that differences among the three groups of children (ELI, SBR, and NST) for the Assessment of Primary Literacy Skills (APLS) composite score  $F(2,86)=1.311, p>.05$  and for both of the APLS component scores  $F(2,86)=2.14, p>.05$  (phonological awareness) and  $F(2,86) =.581, p>.05$  (alphabet knowledge) were not significant (see Table 2).

**Table 1.** The Distribution of the Participant Sample (N = 89) at Pre-treatment Testing for Early Literacy (APLS) and Receptive Vocabulary (PPVT-III) Scores by Group (Explicit Literacy Instruction (ELI), Shared Book Reading (SBR), and No Specialized Treatment (NST)).

Group	<u>Age</u>		<u>APLS</u>		<u>PPVT-III</u>	
	M	SD	M	SD	M	SD
ELI (N=28)	57.11	3.22	11.5	7.16	91.07	12.05
SBR (N=28)	56.86	3.26	9.86	7.14	90.04	10.68
NST (N=33)	57.03	3.9	8.36	8.15	87.24	12.89
Total (N=89)	57	3.46	9.82	7.57	89.33	11.95

**Table 2.** Analysis of Variance Tables for Pre-treatment Test Data.

<b>Total Test Score</b>	<i>df</i>	Sum of Squares	Mean Square	F	Sig.
Between groups	2	149.059	74.529	1.311	.275
Within groups	86	4890.065	56.861		
Total	88	5039.124			

<b>Phonological Awareness Score</b>	<i>df</i>	Sum of Squares	Mean Square	F	Sig.
Between groups	2	126.814	63.407	2.144	.123
Within groups	86	2543.635	29.577		
Total	88	2670.449			

<b>Alphabet Knowledge Score</b>	<i>df</i>	Sum of Squares	Mean Square	F	Sig.
Between groups	2	13.353	6.677	.581	.561
Within groups	86	987.635	11.484		
Total	88	1000.989			

## Post-Treatment Performance Comparisons

Six months elapsed between pre- and post-treatment testing for all participants. Of the 89 participants who entered the study, 80 were present for post-testing. The following aspects were examined following treatment to determine if there were differences among the three groups for (a) overall performance on primary literacy tasks as measured by the APLS, (b) the phonological awareness component of the APLS, and (c) the alphabet knowledge component of the APLS. In this chapter, each research question will be addressed by reporting descriptive statistics, results of analyses, and effect sizes (partial  $\eta^2$ ).

### Research Question 1: Post-Treatment Differences

The first research question was: Were post-treatment differences among the three groups of participants (ELI, SBR, and NST) significant and, if so, which performances were highest?

#### *Total Test Score*

The total test score was derived from Parts I, II, and III of the APLS. Skills assessed included phonological awareness skills at the syllable and phoneme level and alphabet knowledge including phoneme-grapheme naming and spelling. Results of an Analysis of Variance (ANOVA; see Table 3) revealed that differences among groups were significant,  $F(2,77) = 5.723$ ;  $p = .005$ . A partial  $\eta^2$  of .129 was calculated as an estimate of effect size (see Appendix A for effect size information). The three intervention groups (ELI, SBR, and NST) served as the independent variable and the post-treatment test score was the dependent variable. The post-treatment mean scores for each of the intervention groups are shown in Table 4. Because the overall  $F$  value was

significant at the .05 level, post-hoc analyses were conducted. All findings reported here were significant at the .01 level. The Explicit Literacy Instruction (ELI) group ( $M = 41.77$ ;  $SD = 16.52$ ) obtained significantly higher scores than did the other intervention groups, Shared Book Reading (SBR) group ( $M = 32.08$ ;  $SD = 11.82$ ) and the Non-Specialized Treatment (NST) group ( $M = 29.97$ ;  $SD = 12.09$ ). Performances of the ELI group were significantly better than that of the SBR and NST groups. Differences between the SBR and NST groups were not significant.

#### *Phonological Awareness Component*

The phonological awareness component test score was derived from Parts I and III of the APLS. Tasks assessed phonological awareness skills at the syllable and phoneme levels. Results of an ANOVA (see Table 3) revealed that differences among groups were significant,  $F(2,77) = 11.468$ ;  $p = .000$ . A partial  $\eta^2$  of .230 was calculated as an estimate of effect size. Because the overall F was significant at the .05 level, post-hoc analysis was conducted. The ELI group ( $M = 29.92$ ;  $SD = 9.291$ ) obtained a higher mean than did the other intervention groups, SBR group ( $M = 21.88$ ;  $SD = 7.849$ ) and the NST group ( $M = 19.17$ ;  $SD = 8.469$ ). The ELI group performed significantly better than the SBR and NST groups. Differences between the SBR and NST groups were not significant.

#### *Alphabet Knowledge Component*

The alphabet knowledge component score was derived from Part II of the APLS which assessed naming of letters and sounds and also invented spelling. The post-treatment measure included a total of 10 letters (upper-and lower-case) and spelling of four words. The ANOVA (see Table 3) revealed that differences among groups were not

significant,  $F(2,77) = .249$ ;  $p = .780$  A partial  $\eta^2$  of .006 was calculated as an estimate of effect size. Similar means were obtained for each group; the ELI group ( $M = 11.81$ ;  $SD = 9.355$ ), SBR group ( $M = 10.28$ ;  $SD = 6.611$ ) and the NST group ( $M = 10.79$ ;  $SD = 7.485$ ).

**Table 3.** Analysis of Variance Tables for Post-Treatment Data.

<b>Total Test Score</b>	<i>df</i>	Sum of Squares	Mean Square	F	Sig.
Between groups	2	2121.259	1060.630	5.723	.005
Within groups	77	14270.541	185.332		
Total	79	16391.800			

<b>Phonological Awareness Score</b>	<i>df</i>	Sum of Squares	Mean Square	F	Sig.
Between groups	2	1681.363	840.682	11.468	.000
Within groups	77	5644.624	73.307		
Total	79	7325.988			

<b>Alphabet Knowledge Score</b>	<i>df</i>	Sum of Squares	Mean Square	F	Sig.
Between groups	2	31.050	15.525	.249	.780
Within groups	77	4805.837	62.413		
Total	79	4836.887			



**Table 4.** The Distribution of the Participant Sample (N=80) at Post-Treatment Testing for Group Gender and their Early Literacy (APLS) Scores by Group (Explicit Literacy Instruction (ELI), Shared Book Reading (SBR), and No Specialized Treatment (NST)).

<i>Assessment Primary Literacy Skills</i>								
Group	<u>Gender</u>		<u>Total Score</u>		<u>PA Component</u>		<u>AK Component</u>	
	M	F	M	SD	M	SD	M	SD
ELI (N=26)	15	11	41.77	16.525	29.92	9.291	11.81	9.355
SBR (N=25)	11	14	32.04	11.816	21.88	7.849	10.28	6.611
NST (N=29)	13	16	29.97	12.090	19.17	8.469	10.79	7.485
Total (N=80)	39	41	34.45	14.405	23.51	9.630	10.96	7.825

## Research Question 2: Predictors

The second research question was: Which of the following predictor variables: (a) age, (b) gender, (c) mothers' education level, (d) treatment group, or (e) receptive vocabulary accounted for significant variance for the criterion variable (total post-treatment score for early literacy tasks)?

Four predictor variables emerged in the following order as a result of a step-wise regression analyses: (a) receptive vocabulary score, (b) treatment group, (c) gender, and (d) age. Receptive vocabulary entered first, accounting for 22% of the variance ( $F = 21.42, p = .000$ ). Treatment group entered next, accounting for an additional 10% of the variance ( $F = 11.51, p = .001$ ). In addition, gender accounted for 5% of the variance ( $F = 6.69, p = .012$ ) and age for an additional 4% of the variance ( $F = 5.28, p = .024$ ) (See Table 5). Mother's educational level was not significant. Receptive vocabulary, gender, and age were important factors in post-treatment performance for all children, The Early Literacy Instruction (ELI) did contribute to the total variance once receptive vocabulary was accounted for. A summary of the stepwise multiple regressions are provided in Table 5.

### Summary

Results of the ANOVAs indicated significant differences between groups on the total score of the APLS and the phonological awareness component but not alphabet knowledge. The Early Literacy Instruction (ELI) group out performed the other two groups and demonstrated significantly higher phonological awareness skills. Results of a stepwise regression indicated that the variable accounting for the largest amount of significant variance for post-treatment performance was receptive vocabulary. The

treatment group (ELI) contributed an additional 10% of the variance. Gender and age added small, but significant, variance for post-treatment performance. In summary, receptive vocabulary, treatment group, gender, and age were found to be predictive of early literacy skills. The mother's educational level did not predict post-treatment performance. These results will be discussed in the following chapter.

**Table 5.** Summary of Stepwise Multiple Regression Analysis: Total Post-Treatment Score as Criterion Variable (N = 80)

Predictor Variable	R <sup>2</sup> Change	<i>b</i>	<i>F</i>	Sig
Receptive Vocabulary	.215	.557	21.41	.000
Group Assignment	.102	9.79	11.51	.001
Gender	.055	6.79	6.69	.012
Age	.041	.860	5.28	.024
Mother's Education Level				.722

## CHAPTER V

### DISCUSSION

The primary purpose of this study was to implement and evaluate two instructional programs designed to enhance early literacy skills of pre-kindergarten 4-year-olds enrolled in Head Start. A second goal was to compare literacy task assessment measures of three groups, (1) explicit literacy instruction (ELI; N= 26), (2) shared book reading (SBR; N = 25), and (c) no specialized treatment (NST; N = 29), prior to the onset of treatment and again 15 weeks later.

Participants were 89 4-year-old children from two Head Start centers. Initial testing included a measure of receptive vocabulary and primary literacy skills. Pre-treatment group differences on measures of early literacy and also receptive vocabulary were not significant. Intervention for the ELI group focused on providing explicit, systematic, developmentally appropriate instruction to enhance phonological awareness skills and increase alphabet knowledge. Specifically, the ELI program targeted phonological awareness tasks such as (a) rhyming, (b) blending, (c) segmentation, (d) alliteration, (e) manipulation, and alphabet knowledge (*Animated Literacy*). The SBR intervention, which focused on enhancing oral language, involved scaffolding strategies. Both intervention groups received the same amount of instruction. Children in the two intervention groups received instruction two times per week for 15 weeks. The amount of intervention (15 hours total) was the same for both intervention groups (ELI and SBR).

Of the 89 children who began the study, 80 were present for post-treatment measures. The Assessment of Primary Literacy Skills (APLS) was administered at the completion of the intervention (6 months after pre-testing).

This chapter provides a summary of the findings, information about instructional methods, the educational implications for Head Start, and limitations of the study. Future research needs are provided as well.

## **Summary**

### *Research Question 1*

The first research question was designed to investigate the overall improvement in early literacy skills. Specifically, were post-treatment differences among the groups significant, and, if so, which group(s) made the most gains? Post-treatment outcome measures obtained for the two intervention groups were compared with each other and also with scores of children in the NST group who received Head Start standard curriculum instruction only. ANOVA results indicated that post-treatment scores for the ELI group were significantly better than those of the other two groups on overall primary literacy measures and for the phonological awareness component, but not for alphabet knowledge. Differences between the SBR and NST groups were not significant for any measures. These results indicate that explicit, systematic early literacy instruction can improve Head Start children's literacy scores.

Results of this investigation demonstrated that an explicit, systematic primary literacy (phonological awareness and alphabet knowledge) intervention program provided in small-groups improved the abilities of 4-year-old children from low-income homes to complete phonological awareness tasks such as syllable and phoneme awareness, identification, segmentations, blending, and manipulation. Through an explicit method of instruction for the ELI group, participants' overall abilities to understand and manipulate language at the phoneme level improved. All three groups' demonstrated improvement

on some early literacy skills, but measures of improvement differed for all three groups. Post-treatment test scores were significantly better for the ELI group in the area of total test score and for the phonological awareness component. The ELI group was provided with explicit instruction designed to target specific phonological aspects of language; therefore, as expected, they made the greatest gains. Overall, post-treatment measures between the SBR and NST groups were not significant.

Phonological awareness has been firmly established as a primary influence of reading development (Adams, 1990). The findings in this study indicate that the developmental concepts of language that underlie the foundation of learning to read can be taught to 4-year-old Head Start children with relative ease. It has been well established that systematic, explicit phonological awareness instruction and alphabetic principle learning facilitates early reading acquisition, especially for children who are at risk for academic failure (e.g., Blachman, et al., 1994). By providing primary literacy instruction in a developmentally appropriate manner, children may be less likely to reject formal reading instruction and be more interested in learning to read. The results of this investigation add to the growing body of research and support the converging evidence documented in the literature.

Gains of the comparison groups (SBR and NT) were not comparable to those made by the ELI group in the area of phonological awareness skills and overall performance. Although the benefits of shared storybook reading (e.g., vocabulary, story structure, cause and effect) are necessary for language-literacy development, this alone is not enough to properly prepare children for future reading instruction.

This treatment did not, however, increase the participants' abilities to correctly identify letters and sounds, as predicted. There were no significant differences among all three groups on the alphabet knowledge component of the APLS. Possible explanations are described later in this chapter.

Potential integration of these findings into educational practice has many implications. The results are consistent with the literature and provide support to the recommendations that systematic, explicit, developmentally appropriate programs designed to target specific areas of primary literacy skills are beneficial to pre-kindergarten children. The results of this study further strengthen the research base which confirms that children with limited language-literacy experiences make greater gains in primary literacy skills when provided with explicit, systematic instruction.

In summary, the phonological awareness component of the ELI intervention program targeted the necessary skills for establishing a strong foundation for learning to read in a comprehensive, "user-friendly" manner which can be implemented by teachers, Head Start professionals and non-degreed child care workers with minimal training. The alphabet knowledge component of the intervention program did not yield significant differences among the groups. Additionally, the exposure to print concepts and shared book reading did not yield significant differences. The strategies taught in *Animated Literacy*, however, were evident in some of the ELI participants' post-treatment performances. For example, naming letter with character name and using physical gesture when making letter-sound.



### *Research Question 2*

The second research question focused on which factors predicted post-treatment early literacy scores: (a) age, (b) gender, (c) mother's education level, (d) treatment group, or (e) receptive vocabulary. Results of a stepwise multiple regression analysis indicated that of the five predictor variables, receptive vocabulary accounted for the greatest amount of variance for the 80 children on the early literacy criterion measure, followed by group assignment, gender, and age. The fifth variable, mothers' education, was not a significant predictor for this study.

Of the five predictor variables identified in this study (age, gender, mothers' education level, treatment group, and receptive vocabulary) receptive vocabulary accounted for the largest amount of significant variance for post-treatment performance, as expected. The treatment group (ELI) contributed an additional 10% of the variance, which coincides with the ANOVA results. Gender and age added small, but significant, variance for post-treatment performance. The females performed better than the males on literacy based tasks. This finding is different from the findings of Dodd and Carr (1999) that girls did better than boys until age four, after which there was no difference in gender on phonological awareness tasks. Age-related findings are consistent with those of Dodd and Carr (1999) that "older" children had more stability and accuracy in phonological awareness tasks. In this study, the mothers' educational level did not predict post-treatment early literacy performance as shown by Catts et al. (2001) where mothers' educational level was predictive of success in reading. In the current study, however, there was not a wide range of educational levels present among the mothers of Head Start students (restricted variance).

## **Instruction Method: Theory and Delivery Model**

Controversy has existed for decades regarding the best instructional methods for teaching children to read. In recent years, a debate between two opposing viewpoints has been referred to as “The Reading Wars.” This ongoing debate pits phonics-based instruction against whole-language instruction, which many educators view as the pendulum swinging (see Chall, 2003; for review). Researchers on both sides of this debate have cited authorities and research to support a particular point of view in efforts to convince school systems and training institutions to adopt a specific method of instruction. Adopting one approach over another can unquestionably limit a teacher’s arsenal of available strategies to teach reading. The idea that one curriculum meets the needs of all children is a fallacy and unrealistic; each curriculum needs to encompass key components that support the language underpinnings of literacy development. Regarding preschool learning, Dahl and Scharer (2000) investigated the effects of blending both theoretical approaches and deemed favorable results.

The results of this study demonstrated that children’s ability to recognize letters and produce letter sounds of the alphabet did not vary significantly among the three groups of participants following treatment. Perhaps one explanation is the method of instruction for alphabet knowledge in this study. First, instruction in alphabet knowledge (*Animated Literacy*) was provided in a large-group setting. This large-group setting did not allow specific attention to be given to those children who struggled with the instruction. For example, traditional teaching techniques such as immediate feedback and modifying instruction were not provided given the strict time constraints of the research design. Therefore, accommodations for student differences were not made. Another

possible explanation for the lack of group differences in alphabet knowledge scores is the curriculum choice. *Animated Literacy* is a program designed specifically for children in kindergarten through second grade. This program has many components and perhaps more time is needed to successfully teach these skills to pre-kindergarten children. The instruction was fast paced and children were expected to acquire many components in a relatively short period of time. Additional attention should be given to the most beneficial components of *Animated Literacy* for young children. Another explanation is that Head Start is teaching letter names.

All children bring some level of background knowledge to beginning reading (e.g., how they hold a book, knowledge of words, awareness of environment). Primarily this background knowledge, or relating new knowledge to that which is already known, helps children draw on their experiences as a means of understanding new information. When sufficient background knowledge does not exist, it will be necessary to adjust or modify instruction accordingly. One suggestion may be to focus on the letters and characters of *Animated Literacy*, providing supplemental stories and songs, for a semester prior to introducing the writing component. This modified approach may be adequate in establishing the letter names and characters corresponding to the letters and providing a pre-teaching component; the alphabet letters could then be re-introduced and additional components added during the second semester. This will allow background knowledge to be established.

More importantly, small-group instruction in which the instructor can provide multiple opportunities for practice and immediate feedback to children learning letters and sounds would be most beneficial. A small-group instruction also may lead children to

self-correcting, peer-interactions, and eventually self-monitoring of their alphabet knowledge.

### **Educational Implications for Head Start**

The current educational system is designed to assist children entering kindergarten who are identified as struggling to learn to read, or more often when they have failed all together. Once children are identified as having problems learning to read, supplemental academic support or remedial reading programs are provided (IDEA, 2004). In order to decrease children's failure to learn to read in kindergarten and first grade, early identification practices must be established at the preschool level. Furthermore, preventive measures, such as phonological awareness instruction, need to be implemented. Lyon (2003) referred to children as "developmental moving targets," suggesting that emergent literacy skills are both enjoyable and easily taught to young children.

The views of Head Start teachers toward instruction in the area of language and literacy appear to be changing. Recently, Hawken, Johnston, and McDonnell (2005) conducted a national survey in which 273 Head Start preschool teachers responded to questions related to assessment views and practices related to emerging literacy skills. Although limitations existed (e.g., sample size, distribution) in this study, findings indicate Head Start teachers are attempting to implement different strategies in the classroom to improve literacy. Furthermore, teachers agreed that instruction should be occurring daily. Most importantly, findings suggest Head Start teachers now consider teaching emergent literacy skills to children to be developmentally appropriate.

Although Head Start is making gains in the development of policies and procedures in the area of emergent literacy, the agency as a whole falls short of bringing children up to the typical levels of performance of their middle- and upper-class peers. The reauthorization in 1998 of the Head Start Act addressed the need for highly qualified teachers who could implement scientifically based emergent literacy instruction (Coats Human Services Reauthorization Act of 1998). Currently, the Head Start initiative only recommends direct, age-appropriate instruction in the areas of language and literacy and provides guidelines for teachers to use in assessing critical skills for school readiness (Head Start, 2003). With the creation of a National Reporting System (e.g., Galileo) in 2003, Head Start centers are required to assess all children and report to the national association. The Head Start Outcomes Framework (U.S. Department of Health and Human Services, 2003c) divides emergent literacy into the following areas: book knowledge/appreciation, print awareness, phonological awareness, alphabet knowledge, and early writing.

A major flaw with this initiative is that ‘direct, age appropriate instruction’ is only a suggestion. There are no universal standards or curricula to facilitate successful instruction in teaching language and literacy. Regional Head Start offices disseminate the information to area Head Start Centers, within each district or county is left to select and implement its own curriculum. The problem with this approach is that each Head Start has the flexibility to choose when and how it wants to address the growing concerns with literacy. Furthermore, the amount of time required by each Head Start to research appropriate teaching strategies, design goals, and change current philosophy is time consuming. It appears that Head Start is spending a lot of time “reinventing the wheel”

when a standard curriculum, based on evidence-based research, could be adopted by National Head Start and provided to all Head Start centers. With the adoption of a “specific” curriculum, outcome measures on student performance would be more reliable.

The current curriculum of Wichita Head Start was reviewed by this investigator. Specific components to enhance emergent literacy skills, specifically instruction in phonological awareness skills, the alphabetic principle, and vocabulary were all present in the manual provided to each teacher. Based on this review, it appears that Head Start has the tools to implement a similar program within their classrooms for 4-year-olds. Further investigation and observation revealed that each teacher was implementing the language and literacy curriculum differently. The level of teacher preparedness and instruction differed among classrooms.

The premise upon which Head Start was founded was that given appropriate experiences, children from “deprived” backgrounds could be brought to educational levels equal to those of their “privileged” peers. Although this premise is valid in theory, the implementation has been lacking in details. Until Head Start relinquishes past practices (educational philosophy, teaching style) and embraces evidence-based research, it appears their children will continue to fall behind their better prepared peers. Results of this study support the use of an enriched, systematic, explicit instruction curriculum (teacher-directed) as opposed to indirect, incidental learning which has been the foundation of the Head Start philosophy. Incidental learning appears to be inadequate in preparing Head Start children for essential literacy skills necessary for learning to read.

## **Limitations of the Study**

A considerable amount of progress has been made in identifying the benefits of early intervention in the areas of language development and pre-reading skills (e.g., Adams, 1990; Anthony & Lonigan, 2004; Blachman et al., 1994; Whitehurst & Lonigan, 2001) and in developing evidenced-based research to support curriculum choices when teaching phonological awareness skills and the alphabetic principle to young children. The results of this study of 4-year-old children attending Head Start may not generalize to the entire Head Start population. The findings are most likely to generalize only to the initial stages of language-literacy learning. The skills taught in this study are considered to be the language underpinnings needed by young children to be successful in the acquisition of reading. Perhaps, if nothing else, this study helps to shed some light on what 4-year-old children with limited literacy experiences are capable of learning when instruction is presented in a systematic, explicit, developmentally appropriate manner.

The results of this study also pertained only to the specific types of primary literacy skills targeted during intervention. Children acquired the targeted skills at different rates. Those who were slower in gaining skills may have responded differently in a smaller group or one-on-one instruction. As per the verbal agreement with Head Start, 3-year-old children were allowed to participate in the large-group instruction activities. The larger group that included less mature 3-year-olds (vs. only 4-year-olds) may have added to the number of distractions and also interfered with specific feedback and teaching/correcting by the instructor.

### **Directions for Future Research**

Further research is needed on the developmental trajectory of pre-readers, especially those at-risk such as Head Start students, in learning the pre-requisite skills to support learning to read. More definitive research needs to be conducted with preschool children. The integration of two types of intervention programs in this study needs to be investigated further. It's likely that students in other settings will benefit from explicit, systematic instruction in phonological awareness and alphabet knowledge and learn valuable language skills from shared book readings. Longitudinal studies need to be conducted to determine long-term effects of intervention as children enter elementary school, learn to read, and ultimately read to learn.



## REFERENCES

## REFERENCES

- Aber, J.L., Pedersen, S., Brown, J., Jones, S., & Gershoff, E. (2003). *Changing children's trajectories of development*. National Center for Children and Poverty. Columbia University: Mailman School of Public Health.
- Adams, G.L., & Engelmann, S. (1996). *Research on Direct Instruction: 25 years beyond DISTAR*. Seattle, WA: Educational Achievement Systems.
- Adams, M.J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: The MIT Press
- Adams, M.J., Foorman, B., Lundberg, I., & Beeler, T. (1998). *Phonemic awareness in young children*. Baltimore, MD: Brookes Publishing Co., Inc.
- American Speech-Language-Hearing Association. (2001). Roles and responsibilities of speech-language pathologists with respect to reading and writing in children and adolescents. *ASHA Supplement, 21*, 17-27.
- Anthony, J., & Lonigan, C. (2004). The nature of phonological awareness: Converging evidence from four studies of preschool and early grade school children. *Journal of Educational Psychology, 96*(1), 43-55.
- Anthony, J., Lonigan, C., Burgess, S., Driscoll, K., Phillips, B., & Cantor, B. (2002). Structure of preschool phonological sensitivity: Overlapping sensitivity to rhyme, word, syllables, and phonemes. *Journal of Experimental Child Psychology, 82*, 65-92.
- Badian, N. (1998). A validation of the role of preschool phonological and orthographic skills in the prediction of reading. *Journal of Learning Disabilities, 31*, 472-481.
- Beck, I., Kucan, L. & McKeown, M. (2002). *Bringing words to life: Robust vocabulary instruction*. New York: NY: The Guilford Press.
- Belsky, J., & MacKinnon, C. (1994). Transition to school: Developmental trajectories and school experiences. *Early Education and Development, 5*(2), 106-119.
- Berry, K., & Berry, N. (1997). *The Developmental Test of Visual-Motor Integration*. Minneapolis, MN: NCS Pearson, Inc.
- Bird, J., Bishop, D.V.M., & Freeman, M.H. (1995). Phonological awareness and literacy development in children with expressive phonological awareness. *Journal of Speech and Hearing Research, 38*, 446-462.

- Bishop, D.V.M., & Adams, C. (1990). A prospective study of the relationship between specific language impairment, phonological disorders and reading retardation. *Journal of Child Psychology and Psychiatry*, 31, 1027-1050.
- Blachman, B. (1991). Early intervention for children's reading problems: Clinical applications of the research in phonological awareness. *Topics in Language Disorders*, 12, 51-65.
- Blachman, B., Ball, E. & Tangel, D. (2000). *Road to the code: A phonological awareness program for young children*. Baltimore, MD: Brookes Publishing Co.
- Blachman, B., Ball, E., Black, R., & Tangel, D. (1994). Kindergarten teachers develop phoneme awareness in low-income, inner-city classrooms: Does it make a difference? *Reading and Writing: An Interdisciplinary Journal*, 6, 1-18.
- Boudreau, D. (2005). Use of a parent questionnaire in emergent and early literacy assessment of preschool children. *Language, Speech, and Hearing Services in the Schools*, 36(1), 33-47.
- Bradley, L., & Bryant, P. (1978). Difficulties in auditory organization as possible cause of reading backwards. *Nature*, 271, 746-7.
- Bradley, L., & Bryant, P. (1983). Categorizing sounds and learning to read: A causal connection. *Nature*, 30, 419-421.
- Bredenkamp, S., & Copple, C. (1997). *Developmentally appropriate practice in early childhood programs*. Washington, DC: National Association for the Education of Young Children.
- Brigance, A. (1997). *The Brigance Preschool Screen*. North Billerica, MA: Curriculum Associates, Inc.
- Bryant, P. (1998). Sensitivity to onset and rhyme does predict young children's reading: A comment on Muter, Hulme, Snowling, and Taylor (1997). *Journal of Experimental Child Psychology*, 16, 407-428.
- Bryant, P., Bradley, L., MacLean, M., & Crossland, J. (1989). Nursery rhymes, phonological skills, and reading. *Journal of Child Language*, 16, 407-428.
- Burt, L., Holm, A., & Dodd, B. (1999). Phonological awareness skills of 4-year-old British children: An assessment and developmental data. *International Journal of Language and Communication Disorders*, 34, 311-335.
- Byrne, B., & Fielding-Barnsley, R. (1991a). Evaluation of a program to teach phonemic awareness to young children. *Journal of Educational Psychology*, 4, 451-455.

- Byrne, B., & Fielding-Barnsley, R. (1991b). *Sound Foundations*. Artarmon, New South Wales, Australia: Leyden Educational Publishers.
- Catts, H.W. (2005). Recent advancements in the identification and remediation of reading disabilities: The role of SLPs. Paper presented at the Florida Association of Speech-Language Pathologists and Audiologists Annual Convention: Sail to Success, May 27, 2005, Marco Island, FL.
- Catts, H.W., Fey, M.E., Zhang, X., & Tomblin, J.B. (2001). Estimating the risk of future reading difficulties in kindergarten children: A research-based model and its clinical implementation. *Language, Speech, and Hearing Services in the Schools*, 32, 38-50.
- Chall, J.S. (1983). *Stages of reading development*. New York: McGraw-Hill
- Children's Defense Fund. (2005). *Kansas: Early childhood development facts*. Washington, DC: Children's Defense Fund
- Clarke-Klein, S. & Hodson, B.W. (1995). Phonologically based analysis of misspellings by third graders with disordered-phonology histories. *Journal of Speech and Hearing Research*, 38, 839-849.
- Coats Human Services Reauthorization Act of 1998, Pub. L. No. 105-285, 102
- Cohen, J. (1998). *Statistical power analysis for the behavioral sciences* (2<sup>nd</sup> ed.). Hilldale, NJ: Lawrence Earlbaum Associates.
- Cunningham, A. (1990). Explicit vs. implicit instruction in phoneme awareness. *Journal of Experimental Child Psychology*, 50, 429-444.
- Dahl, K.L., & Scharer, P.L. (2000). Phonics teaching in whole language classrooms: New evidence from research. *Reading Teacher*, 53(7), 584-594.
- Dodd, B., & Carr, A. (2003). Young children's letter-sound knowledge. *Language, Speech, and Hearing Services in the Schools*, 34, 128-137.
- Donahue, P., Finnegan, R., Lutkus, A., Allen, N., & Campbell, J. (2001). *The Nation's report card: Fourth-grade reading 2000 (NCES 2001-499)*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.
- Dudley-Martin, C. (2006). The rich get rich and the poor get direct instruction. Paper presented at the Leading Best Practice in Language and Literacy 3<sup>rd</sup> Annual Conference, Portland, ME.

- Dunn, L.M., & Dunn, L.M. (1997). *The Peabody Picture Vocabulary Test-Third Edition*. Circle Pines, MN: American Guidance Service.
- Ehri, L. (1989). The development of spelling knowledge and its role in reading acquisition and reading disability. *Journal of Educational Psychology*, 68, 70-74.
- Elmore, R.F. (1990). Introduction: On changing the structure of public schools. In R.F. Elmore (Ed.), *Restructuring Schools* (pp. 1-28). San Francisco: Jossey-Bass.
- Fletcher, J.M., & Foorman, B. (1994). Issues in definition and measurement of learning disabilities: The need for early intervention. In G.R. Lyon (ED.), *Frames of reference for the assessment of learning disabilities* (pp. 185-200). Baltimore: Paul H. Brookes.
- Foy, J., & Mann, V. (2001). Does strength of phonological representations predict phonological awareness in preschool children? *Applied Linguistics*, 22(3), 301-325
- Foy, J., & Mann, V. (2003). Home literacy environment and phonological awareness: Differential effects for phoneme awareness and rhyme awareness. *Applied Linguistics*, 24, 59-88.
- Fuchs, D., Fuchs, L., Thompson, A., Otiaba, S., Yen, L., Braun, M., & O'Connor, R. (2002). Exploring the importance of reading programs for kindergarteners with disabilities in mainstream classrooms. *The Council for Exceptional Children*, 68(3), 295-311.
- Gillon, G. (2000). The efficacy of phonological awareness intervention for children with spoken language impairment. *Language, Speech, and Hearing Services in the Schools*, 31, 126-141.
- Gillon, G. (2002). Follow-up study investigating the benefits of phonological awareness intervention for children with spoken language impairments. *International Journal of Language and Communication Disorders*, 37(4), 381-400.
- Gillon, G. (2005). Facilitating phoneme awareness development in 3-and 4-year-old children with speech impairment. *Language, Speech, and Hearing Services in the Schools*, 36(4), 308-324.
- Goswami, U., & Bryant, P. (1990). *Phonological skills and learning to read*. East Sussex, UK: Erlbaum.
- Hart, B. & Risley, T.R. (1995). American parenting of language-learning children: Persisting differences in family-child interactions observed in natural home environments. *Developmental Psychology*, 28, 1090-1105.

- Hatcher, P., Hulme, C., & Snowling, M. (2004). Explicit phoneme training combined with phonic reading instruction helps young children at risk of reading failure. *Journal of Child Psychology and Psychiatry*, 45, 338-358.
- Hawken, L., Johnston, S., & McDonnell, A. (2005). Emerging literacy views and practices: Results from a National survey of Head Start Preschool Teachers. *Topics in Early Childhood Special Education*, 25(4), 232-243.
- Herndon, R. (1997). It's never too early: Thoughts on learning to read in Head Start. *Children and Families*, 8-9.
- Hodson, B. (1986). *The Assessment of Phonological Processes Screener-Revised*. ProEd.
- Hodson, B. (2002). *The Assessment of Primary Literacy Skills*. Unpublished manuscript. Wichita State University, Wichita, Kansas.
- Hogan, T., Catts, H., & Little, T. (2005). The relationship between phonological awareness and reading: Implications for the assessment of phonological awareness. *Language, Speech, and Hearing Services in the Schools*, 36(4), 285-293.
- Hulme, C. (2002). Phonemes, rimes, and the mechanisms of early reading development. *Journal of Exceptional Child Psychology*, 82, 58-64.
- Hulme, C., Hatcher, P., Nation, K., Brown, A.M., Adams, J.W., & Stuart, G. (2002). Phoneme awareness is a better predictor of early reading skills than onset-rime awareness. *Journal of Experimental Child Psychology*, 82(1), 2-28.
- Individuals with Disabilities Education Improvement Act of 2004 (IDEA). U.S. Department of Education: Special education and rehabilitative resources.
- Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through 4<sup>th</sup> grades. *Journal of Educational Psychology*, 80, 437-447.
- Justice, L., Meier, J., & Walpole, S. (2005). Learning new words from storybooks: An efficacy study with at-risk kindergartners. *Language, Speech, and hearing Services in the Schools*, 36, 17-32.
- Kaderavek, J., & Justice, L. (2002). Shared storybook reading as an intervention context: Promises and potential pitfalls. *American Journal of Speech-Language Pathology*, 11, 395-406.
- Lencher, O., & Podhajski, B. (1998). *The Sounds Abound Program*. East Moline, IL: LinguSystems, Inc.

- Lonigan, C., Burgess, S., & Anthony, J. (2000). Development of emergent literacy and early reading skills in preschool children: Evidence from a latent variable longitudinal study. *Developmental Psychology, 36*, 596-613.
- Lonigan, C., Burgess, S., Anthony, J., & Barker, T. (1998). Development of phonological sensitivity in 2- to 5-year-old children. *Journal of Educational Psychology, 90*(2), 394-311.
- Lowe, J. (1994). *Phonology: Assessment and intervention applications in speech pathology*. Baltimore: Williams & Wilkins.
- Lundberg, I., Frost, J., & Petersen, O. (1988). Effects of an extensive program for stimulating phonological awareness in preschool children. *Reading Research Quarterly, 23*, 263-284.
- Lutkus, A., & Weiner, A. (2003). *The Nation's report card: Trial urban district assessment, Reading highlights 2003*. Washington, DC: National Center for Educational Statistics.
- Lyon, R. (1999). Reading development, reading disorders, and reading instruction: Research-based findings. *Language, Learning, and Education, 8*-16.
- Lyon, R. (2003). Kids reading...Kids succeeding. Paper presented at the IDA Spring Conference April 18, 2003, Wichita, KS.
- Lyon, R., Shaywitz, S., & Shaywitz, B. (2003). A definition of dyslexia. *Annals of Dyslexia, 53*, 1-14.
- Mann, V., & Foy, J. (2003). Speech development, perception, and production; Components of reading: Phonological awareness, speech development, and letter knowledge in preschool children. *Annals of Dyslexia, 53*, 149-161
- McAllister, C., Wilson, P., Green, B., & Baldwin, J. (2005). "Come and take a walk": Listening to Early Head Start parents on school-readiness as a matter of child, family, and community health. *American Journal of Public Health, 95*(4), 617-626.
- Moats, L. (2001). Overcoming the language gap. *American Educator, 25*, 5, 8-9.
- Moats, L.C. & Lyon, G.R. (1993). Learning disabilities in the United States: Advocacy, science, and future of the field. *Journal of Learning Disabilities, 26*, 282-294.
- Muter, V., Hulme, C., Snowling, M., & Taylor, S. (1997). Segmentation, not rhyming, predicts early progress in learning to read. *Journal of Experimental Child Psychology, 65*, 370-396.

- Nathan, L., Stackhouse, J., Goulandris, N., & Snowling, M. (2004). The development of early literacy skills among children with speech difficulties: A test of the "critical age hypothesis." *Journal of Speech, Language, and Hearing Research*, 47, 377-391.
- Nancollis, A., Lawrie, B.A., & Dodd, B. (2005). Phonological awareness intervention and the acquisition of literacy skills in children from deprived social backgrounds. *Language, Speech, and Hearing Services in the Schools*, 36(4), 325-335.
- National Center for Educational Statistics. (2003). The Nation's Report Card, National Assessment for Educational Progress. Retrieved January 15, 2006 from <http://nces.ed.gov/nationsreportcard>.
- National Institute of Child Health and Human Development (2003). Retrieved June 1, 2006, from [http://www.scitechresources.gov/Results/show\\_results.php](http://www.scitechresources.gov/Results/show_results.php)
- National Institute for Direct Instruction. Retrieved August 4, 2006, from <http://www.nifdi.org>
- National Reading Council (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- National Reading Panel. (2000). Teaching children to read: An evidence-based assessment of the scientific research literature and its implications for reading instruction: Report of the subgroups. Washington, DC: National Institute of Child Health and Development.
- No Child Left Behind Act of 2001. (2001). Pub. L. No. 107-110  
web page <http://www.ncid.gov/start/facts/reading>
- Paulson, L., Kelly, K., Jepson, S., & van der Pol, R. (2004). The effects of an early reading curriculum on language and literacy development of Head Start children. *Journal of Research in Childhood Education*, 18(3), 169-179.
- Payne, R. (2003). *A framework for understanding poverty*. Highlands, TX:aha! Process, Inc.
- Penno, J., Wikinson, I., & Moore, D. (2002). Vocabulary acquisition from teacher explanation and repeated listening to stories: Do they overcome the Matthew effect? *Journal of Educational Psychology*, 94(1), 23-33.
- Petrill, S., Deater-Deckard, K., Thompson, L., DeThorne, L., & Schatschneider, C. (2006). Reading skills in early readers: Genetic and shared environmental influences. *Journal of Learning Disabilities*, 39(1), 48-56.



- Raitano, N., Pennington, B., Tunick, R., Boada, R., & Shriberg, M. (2004). Pre-literacy skills of subgroups of children with speech sound disorders. *Journal of Child Psychology and Psychiatry, 45*(4), 821-835.
- Roberts, J., Jurgens, J., & Burchinal, M. (2005). The role of home literacy practices in preschool children's language and emergent literacy skills. *Journal of Speech, Language, and Hearing Research, 48*(2), 345-360.
- Rvachew, S., Ohberg, A., Grawburg, M., & Heyding, J. (2003). Phonological awareness and phonemic perception in 4-year-old children with delayed expressive phonology skills. *American Journal of Speech-language Pathology, 12*, 463-471.
- Ryan, A. (2005). The effectiveness of the Manchester Even Start program in improving literacy outcomes for preschool Latino students. *Journal of Research in Childhood Education, 20*(1), 15-27.
- Scarborough, H.S. (1989). Prediction of reading disability from familial and individual differences. *Journal of Educational Psychology, 81*, 101-108.
- Scarborough, H.S. (1990). Very early language deficits in dyslexic children. *Child Development, 61*, 1728-1743.
- Scarborough, H.S. (1998). Early identification of children at risk for reading difficulties: Phonological awareness and some other promising predictors. In B.K. Shapiro, P.J. Accardo, & A.J. Capute (Eds.), *Specific reading disability: A view of the spectrum*. Timonium, MD: York Press.
- Scarborough, H.S. (2001). Connecting early language and literacy to later reading (dis)abilities. In S.B. Newman & D.K. Dickinson (Eds.), *Handbook for early literacy research* (pp. 97-110). New York: Guilford Press.
- Scarborough, H.S., & Dobrich, W. (1994). On the efficacy of reading to preschoolers. *Developmental Review, 14*, 245-302.
- Sexton, C.W. (2001). Effectiveness of the DISTAR Reading 1 Program in developing first graders' language skills. *Journal of Educational Research, 82*, 291-93.
- Shaughnessy, A., & Sanger, D. (2005). Kindergarten teachers' perceptions of language and literacy development, speech-language pathologists, and language interventions. *Communication Disorders Quarterly, 26*(2), 67-87.
- Shaywitz, S. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level*. Knopf Publishing.
- Snow, C., Burns, M., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.

- Snow, C., & Paez, M. (2004). The Head Start classroom as an oral language environment: What should the performance standards be? In E. Zigler & S.J. Styfco (Eds.), *The Head Start debates: Are we failing the most at risk?* (pp. 113-128). Baltimore: Brookes.
- Spelling, M. (2006). U.S. Department of Education: Press release. Retrieved May 1, 2006, from <http://www.ed.gov/new/pressreleases/2006.html>
- Sprinthall, R.C. (2003). *Basic statistical analysis: SPSS 11.5 for Windows*. Boston: Allyn and Bacon.
- Stanovich, K. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21, 360-407.
- Stanovich, K. (1999). What time may tell: Towards a new conceptualization of developmental dyslexia. *Annals of Dyslexia*, 38, 154-180.
- Stanovich, K. (2000). *Progress in understanding reading*. New York: Guilford Press.
- Stone, C., Silliman, E., Ehren, B., & Apel, K. (2004). *Handbook for language and literacy*. New York: Guilford Press
- Stone, J. (1995). *Animated literacy*. J. Stone Creations: La Mesa, CA.
- Sulzby, E. (1985). Children's emergent reading of favorite storybooks: A developmental study. *Reading Research Quarterly*, 20, 458-481.
- Sutherland, D., & Gillon, G. (2005). Assessment of phonological representations in children with speech impairments. *Language, Speech, and Hearing Services in the Schools*, 36(4), 294-307.
- Teale, W., & Sulzby, E. (1986). *Emergent literacy: Writing and reading*. Norwood, NJ: Ablex
- Tomblin, J., Zhang, X., Buckwater, P., & O'Brien, M. (2003). The stability of primary language disorders: Four years after kindergarten diagnosis. *Journal of Speech, Language, and Hearing Research*, 46, 1283-1296.
- Torgesen, J. (2005). The challenge of teaching all students to read proficiently: Lessons from the science of reading. Paper presented at the Reading First Seminar for Speech-language Pathologists, October 29, 2005, Tampa, FL.
- Torgesen, J., & Mathes, P. (2000). *A basic guide to understanding, assessing, and teaching phonological awareness*. Pro-Ed: Austin.

- Torgesen, J., Wagner, R., & Rashotte, C. (1994). Longitudinal studies of phonological processing and reading. *Journal of Learning Disabilities, 27*, 276-286.
- U.S. Census Bureau. (2005). Census of population and housing. Retrieved February 15, 2006, from [www.census.gov](http://www.census.gov).
- U.S. Department of Education. (2001). The longitudinal evaluation of school change and performance in Title 1 schools, Final Report (Vol. 1, Executive summary). Washington, DC: Planning and Evaluation Service.
- U.S. Department of Health and Human Services. (2001). Head Start FACES: Longitudinal findings on program performance-their progress report. Retrieved February 1, 2006, from [http://www.acf.hhs.gov/programs/opre/hs/faces/reports/perform\\_3rd\\_rpt/meas\\_99\\_title.html](http://www.acf.hhs.gov/programs/opre/hs/faces/reports/perform_3rd_rpt/meas_99_title.html)
- U.S. Department of Health and Human Services. (2003a). Head Start FACES 2000: A whole child perspective on program performance. Retrieved February 1, 2006, from [http://www.acf.hhs.gov/programs/opre/hs/faces/reports/faces00\\_4thprogress/faces00\\_title.html](http://www.acf.hhs.gov/programs/opre/hs/faces/reports/faces00_4thprogress/faces00_title.html)
- U.S. Department of Health and Human Services. (2003b). Head Start Bureau: Head Start Family Literacy Services Training. The National Center for Family Literacy, Louisville, KY.
- U.S. Department of Health and Human Services. (2003c). *Strengthening Head Start : A What the evidence shows*. Retrieved February 1, 2006, from <http://www.acf.hhs.gov/hsp/StrengthenHeadStart03/index.html>
- Vellutino, F. (1987). Dyslexia. *Scientific American, 256*(3), 34-42.
- Vellutino, F. (1991). Introduction to three studies on reading acquisition: Convergent findings on theoretical foundations of code-oriented versus whole language approaches to reading instruction. *Journal of Educational Psychology, 83*, 437-442.
- Vellutino, F., & Scanlon, D. (1987). Phonological coding, phonological awareness, and reading ability: Evidence from a longitudinal and experimental study. *Merrill-Palmer Quarterly, 33*, 321-363.
- Wagner, R., & Torgesen, J. (1987). The nature of phonological processing and its causal role in the acquisition of reading skills. *Psychological Bulletin, 101*, 192-212.

- Wagner, R., Torgesen, J., & Rashotte, C. (1994). Developmental of reading-related phonological processing abilities: New evidence of bidirectional causality from a latent variable longitudinal study. *Developmental Psychology, 30*, 73-87.
- Webster, P.E., & Plante, A.S. (1992). Effects of phonological impairment on word, syllable, and phoneme segmentation and reading. *Language, Speech, and Hearing Services in the Schools, 23*, 176-182.
- Wells, G. (1985). Preschool literacy-related activities and success in school. In D.R. Olson, N. Torrence, & A. Hildyard (Eds.), *Literacy, Language, and Learning: The Nature and consequences of Reading and Writing* (pp. 229-255). Cambridge, England: Cambridge University Press.
- Whitehurst, G., Falco, F., Lonigan, C., Fischel, J., DeBaryshe, S., Valdez-Menchaca, M., & Caulfield, M. (1988). Accelerating language development through picture book reading. *Developmental Psychology, 24*, 552-559.
- Whitehurst, G., & Lonigan, C. (1998). Child development and early literacy. *Child Development, 69*, 848-872.
- Whitehurst, G., & Lonigan, C. (2001). Emergent literacy: Development from prereaders to readers. In S.B. Neuman & D.K. (Eds.), *Handbook for early literacy research* (pp. 11-29). New York: Guilford.
- Whitehurst, G., & Masetti, G. (2004). How well does Head Start prepare children to learn to read? In E. Zigler & S.J. Styfco (Eds.), *The Head Start debates: Are we failing the most at risk?* (pp. 251-262). Baltimore: Brookes.
- Yopp, H.K. (1988). The validity and reliability of phonemic awareness tests. *Reading Research Quarterly, 23*, 159-177.
- Yopp, R., & Yopp, H. (2000). Sharing informational text with young children. *The Reading Teacher, 53*(5), 410-423.

## APPENDICES

## APPENDIX A

### Definitions

**Alphabetic Principle** – the systematic relationship between letters and sounds

**Effect Size** – the size of the relationship between variables and outcomes (large .8, medium .5, and small .2)

**Literacy** – includes listening, speaking, reading, and writing

**Literate** – reading to learn (comprehension)

**Metaphonology** - the conscious awareness of the phonological structure of a word

**Onset-Rime** – the onset of the word (sand) corresponds with the initial consonant /s-/; the rime corresponds with the vowel and final consonants, /-and/

**Phoneme** – small units of speech (sounds)

**Phonemic Awareness** – the awareness that language is composed of phonemes (small units of sound)

**Phonics** – the system by which symbols represent sounds in an alphabetic system

**Phonological Awareness** – the explicit awareness of, or sensitivity to, the sound structure of speech; the ability to attend to, reflect on, or manipulate the speech sounds in words (such as word, syllable, and rhyme awareness)

**Phonological Processing** – linguistic operation that makes use of the information involving the sounds of speech, including phonological awareness, phonemic awareness, and phonological memory

**Preliterate** – learning to read

**Print Awareness (orthographic)** – awareness of how print looks and works; made up of letters, the letters correspond to sounds and words, and text is read across from left to right

*References: Adams (1990); Adams, Foorman, Lundber, and Beeler (1998); ASHA (2001); Cohen (1998); Stanovich (2000); and Torgesen and Mathes (2000)*

APPENDIX B

Consent Letter: Intervention

Fall 2002

Dear Parent,

Your child’s Head Start classroom has been selected to participate in a literacy development project. This project will be initiated in October 2002, and completed in April, 2004, at which time your child will be in Kindergarten.

During the next few weeks, we are going to evaluate your child’s awareness of letters and sounds. Over the remainder of the school year, we are going to provide lessons in your child’s Head Start classroom to facilitate the development of pre-reading skills. These lessons, which are designed to help children prepare for kindergarten, will require approximately 60 minutes per week (two 30-minute sessions).

This project is part of a doctoral dissertation at Wichita State University. We will do occasional audio/video taping to help evaluate the lessons. The audio and video tapes will be used for the purposes of this study and will be disposed of upon its completion.

Confidentiality will be maintained. Your child’s name will not be used in any report. Participation in this project is voluntary. There are no penalties if your child does not participate, and you may withdraw at any time without affecting your relationship with Wichita State University or Head Start.

If you are willing for your child to participate in this pre-reading skill development project, please sign your name in the space provided on the back of this letter. One copy of the letter is for you to keep. If you have any questions about this project, you can reach us at 978-3240. If you have any questions pertaining to your rights as a research subject, you can contact the Office of Research at Wichita State University, telephone (316) 978-3285. We look forward to working with your child.

We appreciate your help with this study. At the completion of this project, your child will receive a gift for participating.

Sincerely,

\_\_\_\_\_  
Emily M. Whiting, MA, CCC-SLP  
Doctoral Student

\_\_\_\_\_  
Barbara W. Hodson, PhD, CCC-SLP  
Professor

My signature indicates that I have read this letter and that my child, \_\_\_\_\_  
\_\_\_\_\_, has my permission to participate in this project.

\_\_\_\_\_  
Signature of Parent or Legal Guardian

\_\_\_\_\_  
Date

Consent Letter: Non-intervention

Fall 2002

Dear Parent,

Your child's Head Start classroom has been selected to participate in a literacy development project. This project will be initiated in October 2002, and completed in April, 2004, at which time your child will be in Kindergarten.

During the next few weeks, we are going to evaluate your child's awareness of letters and sounds. Over the remainder of the school year, we are going to monitor the lessons in your child's Head Start classroom. These lessons are part of the Head Start classroom activities and designed to facilitate the development of pre-reading skills

This project is part of a doctoral dissertation at Wichita State University.

Confidentiality will be maintained. Your child's name will not be used in any report. Participation in this project is voluntary. There are no penalties if your child does not participate, and you may withdraw at any time without affecting your relationship with Wichita State University or Head Start.

If you are willing for your child to participate in this pre-reading skill development project, please sign your name in the space provided on the back of this letter. One copy of the letter is for you to keep. If you have any questions about this project, you can reach us at 978-3240. If you have any questions pertaining to your rights as a research subject, you can contact the Office of Research at Wichita State University, telephone (316) 978-3285. We look forward to working with your child.

We appreciate your help with this study. At the completion of this project, your child will receive a gift for participating.

Sincerely,

\_\_\_\_\_  
Emily M. Whiting, MA, CCC-SLP  
Doctoral Student

\_\_\_\_\_  
Barbara W. Hodson, PhD, CCC-SLP  
Professor

My signature indicates that I have read this letter and that my child, \_\_\_\_\_  
\_\_\_\_\_, has my permission to participate in this project.

\_\_\_\_\_  
Signature of Parent or Legal Guardian

\_\_\_\_\_  
Date



## APPENDIX C

### PPVT-III Directions

#### Training

You may spend a few minutes getting to know each child. You may want to establish rapport when walking from the classroom to the testing area. Then begin with the **Training Item A** (at the beginning of the *Testkit Form A*). Say: **I want to find out if you know the names of some pictures. See all the pictures on this page.** Point to each picture. **I will say something** (all the pictures aren't labeling); **then I want you to point to the picture of what I said. Let's try one. Point to *ball*.**

If correct, say: **Good. Let's try another one. Point to *dog*.**

\*If incorrect, say: **You tried, but this is ball. Now try again. Point to *ball*.** When correct, say: **Good. Let's try another. Point to *dog*.**

When correct continue to **Training Item B** on the next page. Say: **Look at all the pictures on this page. Point to *crying*.**

If correct, say: **Good, Let's try another one. Point to *sleeping*.**

\*If incorrect, respond as above.

#### Introducing the test items.

**Now I am going to show you some more pictures. On each page I will say something about a picture and you point to the best picture of it. If you are not sure which one to point to, I want you to look carefully at all the pictures and choose the one you think is right. From now on I can't tell you if you are right or not. Let's begin.**

#### Begin with set 2.

**Point to *digging*.**

You may say: **You are really working hard** or other encouraging words, but do not give contingencies for responding.

#### Scoring

Write the number of the picture the child points to, DK for don't know, or NR for no response

#### Basal and Ceiling

**Ceiling 8 or more correct in a Set.** Even if they miss 7 in a Set, you must reach the ceiling in another Set. Complete a Set even if you have reached 8 errors.

**Basal is 1 or no errors in a Set.** Go back to a previous set if they miss 2 or more in the first set.

## APPENDIX D

### Phonological Awareness Activities

#### **Set 1.**

1. Rhyme recognition and production
2. Rhyme recognition and production
3. Syllable segmentation
4. Initial sound recognition and identification
5. Phoneme blending

#### **Set 2.**

6. Syllable segmentation and blending
7. Initial sound identification and isolation
8. Phoneme blending – onset/rime
9. Phoneme segmentation and counting
10. Rhyme generation and supply

#### **Set 3.**

11. Initial sound categorization and identification
12. Phoneme blending, segmentation, and counting
13. Syllable and phoneme deletion
14. Phoneme substitution and manipulation
15. Final consonant categorization and identification

## APPENDIX E

### Animated Literacy Instruction

Activities adapted from *Animated Literacy* included: (a) character and story, (b) song, (c) letter name and sound, (d) coloring page, (e) writing and drawing component, and (f) songs for manipulation.

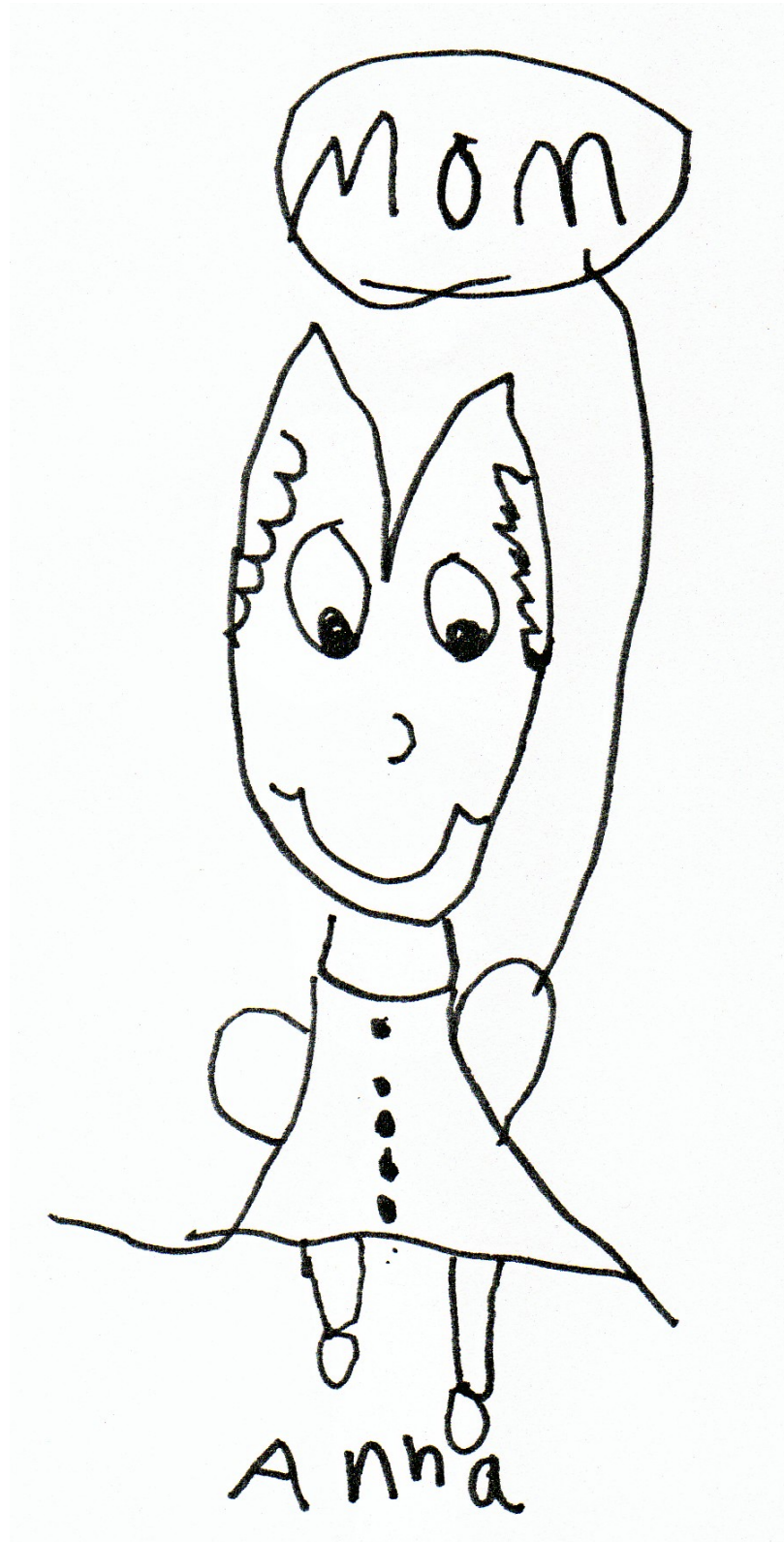
<b>Letter/Sound</b>	<b>Writing/Drawing Component</b>
P and U	Pup
O	Pop
M	Mom
A	Pam
D	Dad
B	Bob
S	Bus
C	Cap
T	Cat
G	Gum
I	Pig
E	Bed
N	Nan
F	Fan
R	Rat

APPENDIX F

Student Generated Example of Writing-Drawing Component (*Animated Literacy*)



Student Generated Example of Writing-Drawing Component (*Animated Literacy*)



## APPENDIX G

### Shared Book Reading List

- 1a. Geraldine's Big Snow
- 1b. The Biggest Best Snowman\*
- 2a. The Hat
- 2b. The Very Busy Spider
- 3a. If You Give a Moose a Muffin\*
- 3b. Just Me and My Dad
- 4a. Just Me and My Mom
- 4b. Just Me and My Puppy
- 5a. Just Me in the Tub
- 5b. Guess How Much I Love You\*
- 6a. My Big Dog
- 6b. No Matter What\*
- 7a. If You Give a Pig a Pancake
- 7b. Don't Laugh, Joe
- 8a. Pancakes, Pancakes!
- 8b. Never Babysit the Hippopotamuses\*
- 9a. I'm Sorry
- 9b. Mrs. Honey's Hat
- 10a. Make a Wish Honey Bear
- 10b. If You Give a Mouse a Cookie
- 11a. Arthur's Tooth
- 11b. Who Wakes Rooster\*
- 12a. The Roly Poly Spider\*
- 12b. More Bunny Trouble
- 13a. I Love You Stinky Face
- 13b. The Very Noisy Night\*
- 14a. Where's My Teddy?\*
- 14b. The Grouchy Ladybug
- 15a. Just One\*
- 15b. The Kissing Hand

\* denotes cassette recording of the book

## APPENDIX H

### Shared Book Reading Reference List

- Adams, P. (1980). *Mrs. Honey's hat*. Auburn, ME: Child's Play International Ltd.
- Alborough, J. (1992). *Where's my teddy?* New York: Scholastic.
- Brett, J. (1997). *The hat*. New York: Scholastic
- Brown, M. (1985). *Arthur's tooth*. New York: Scholastic
- Carle, E. (1990). *Pancakes, pancakes!* New York: Scholastic
- Carle, E. (1977). *The grouchy ladybug*. China: Harper-Collins Publishers.
- Carle, E. (1984). *The very busy spider*. New York: Philomel Books.
- Cuyler, M. (1998). *The biggest, best snowman*. New York: Scholastic.
- Gliori, D. (1999). *No matter what*. New York: Scholastic.
- Hendry, D. (1999). *The very noisy night*. New York: Scholastic
- Johnson, D. (1993). *Never babysit the hippopotamuses!* New York: Scholastic.
- Kasza, K. (1997). *Don't laugh, Joe!* New York: G.P. Putnam's Sons.
- Keller, H. (1988). *Geraldine's big snow*. New York: Scholastic.
- Mayer, G., & Mayer, M. (1995). *I'm sorry*. New York: Scholastic.
- Mayer, G., & Mayer, M. (1994). *Just me in the tub*. New York: A Golden Book.
- Mayer, M. (1977). *Just me and my dad*. New York: A Golden Book.
- Mayer, M. (1990). *Just me and my mom*. New York: A Golden Book.
- Mayer, M. (1985). *Just me and my puppy*. New York: A Golden Book.
- McBratney, S. (1994). *Guess how much I love you?* New York: Scholastic
- McBratney, S. (1996). *Just one!* New York: Scholastic.
- McCourt, L. (1997). *I love you stinky face*. New York: Bridge Water Paperback.

# APPENDIX I

## Raw Data

	age	gende	ethnic	group	ppv	total 1	pa 1	ak 1	total 2	pa 2	ak 2
1	51	2	2	1	92	17	9	8	43	28	15
2	58	1	2	1	99	8	6	2	23	18	5
3	55	2	2	1	99	14	10	4	55	39	16
4	61	2	1	1	104	27	19	8	76	45	31
5	55	1	1	1	92	7	5	2	35	21	14
6	58	1	3	1	64	3	2	1	22	16	6
7	62	1	3	1	95	20	18	2	59	43	16
8	55	1	2	1	95	0	0	0	47	39	8
9	61	1	2	1	94	9	8	1	18	18	0
10	58	1	2	1	74	5	4	1	19	19	0
11	60	1	2	1	90	23	17	6	45	34	11
12	52	2	2	1	99	16	8	8	66	29	37
13	54	2	2	1	75	8	7	1	37	26	11
14	62	2	2	1	99	23	17	6	69	47	22
15	52	2	1	1	116	10	4	6	60	34	26
16	57	1	2	1	90	4	1	3	38	25	13
17	56	2	2	1	114	22	18	4	.	.	.
18	61	1	3	1	66	13	12	1	19	16	3
19	59	2	2	1	97	8	5	3	52	37	15
20	60	1	2	1	87	14	12	2	46	35	11
21	55	2	2	1	86	11	11	0	40	28	12
22	54	2	2	1	85	4	4	0	28	28	0
23	60	1	2	1	100	8	6	2	57	44	13
24	58	1	3	1	97	15	13	2	41	30	11
25	57	2	2	1	84	3	1	2	39	31	7
26	54	1	1	1	81	4	4	0	25	25	0
27	54	1	2	1	89	8	6	2	27	23	4
28	60	2	2	1	87	18	15	3	.	.	.
29	52	2	2	3	91	1	1	0	16	11	5
30	61	1	2	3	100	11	9	2	.	.	.
31	60	1	2	3	83	1	1	0	22	14	8
32	61	2	3	3	100	40	20	20	.	.	.
33	55	1	2	3	82	4	2	2	30	22	8
34	52	2	2	3	97	5	4	1	46	20	26
35	59	2	3	3	103	11	9	2	48	28	20
36	52	1	2	3	89	9	8	1	39	33	6
37	58	2	2	3	59	4	1	3	31	15	16
38	58	1	1	3	92	20	12	8	50	20	30
39	56	2	1	3	99	10	9	1	36	26	10
40	60	2	2	3	83	5	3	2	38	17	21
41	54	1	3	3	92	4	3	1	36	27	9
42	57	1	2	3	103	1	0	1	28	22	6
43	54	2	1	3	107	28	18	10	57	50	7
44	51	2	2	3	95	3	2	1	16	9	7
45	53	1	2	3	72	3	2	1	18	10	8
46	51	1	2	3	83	9	9	0	13	12	1
47	62	1	1	3	103	10	7	3	33	19	14
48	53	1	2	3	76	0	0	0	15	13	2



	age	gende	ethnic	group	ppv	total 1	pa 1	ak 1	total 2	pa 2	ak 2
49	60	2	2	3	59	1	0	1	17	12	12
50	57	1	2	3	74	7	5	2	35	21	21
51	61	1	3	3	100	14	12	2	.	.	.
52	62	2	2	3	79	6	6	0	15	14	1
53	62	1	2	3	78	6	6	0	.	.	.
54	54	2	2	3	84	3	1	2	14	11	3
55	54	2	2	3	105	3	2	1	18	10	8
56	57	1	2	3	104	12	10	2	28	21	7
57	61	2	2	3	81	8	5	3	34	16	18
58	62	1	2	3	80	9	8	1	24	20	4
59	51	2	2	3	79	4	2	2	38	18	20
60	62	2	2	3	71	12	7	5	38	23	15
61	60	2	2	3	82	12	9	3	36	22	14
62	53	1	2	2	100	13	8	5	38	27	11
63	57	2	2	2	98	21	16	5	34	24	10
64	52	1	2	2	105	2	0	2	28	18	10
65	57	2	2	2	89	3	1	2	33	21	12
66	51	2	1	2	83	0	0	0	3	2	1
67	54	2	2	2	81	3	3	0	23	17	6
68	60	1	2	2	89	16	11	5	29	22	10
69	63	1	2	2	90	3	3	2	34	23	11
70	54	1	2	2	100	11	5	6	36	18	18
71	56	2	2	2	81	7	5	2	.	.	.
72	55	1	2	2	95	10	6	4	32	23	9
73	54	2	2	2	85	9	9	0	.	.	.
74	58	2	2	2	83	10	5	5	35	33	2
75	62	2	2	2	81	18	13	5	43	30	13
76	57	1	2	2	102	17	13	4	25	19	6
77	60	1	2	2	83	21	16	5	42	32	10
78	60	2	2	2	90	7	2	5	37	29	8
79	61	2	2	2	111	26	19	7	48	35	13
80	56	2	2	2	67	5	1	4	32	22	10
81	58	2	2	2	85	13	10	3	.	.	.
82	56	2	2	2	92	5	5	0	27	22	5
83	60	2	2	2	91	1	1	0	8	7	1
84	52	2	2	2	109	21	14	7	45	25	20
85	53	2	2	2	97	8	1	7	50	23	27
86	59	1	2	2	86	10	8	2	26	21	5
87	61	1	5	2	66	0	0	0	16	15	1
88	57	2	2	2	90	11	6	5	51	29	22
89	56	1	2	2	92	5	0	5	26	10	16