Evaluating and improving the quality of teacher’s language modeling in early childhood classrooms

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EVALUATING AND IMPROVING THE QUALITY
OF TEACHER’S LANGUAGE MODELING IN
EARLY CHILDHOOD CLASSROOMS

by

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ABSTRACT

Evaluating and Improving the Quality of Teacher’s Language Modeling
In Early Childhood Classrooms

By

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The relationship between pre-school teachers and the children in their classrooms directly influences the degree of success the children experience in school and in life. The emphasis on quality pre-K education in the U.S. has resulted in an increased need for highly qualified teachers who are capable of engaging in meaningful interactions with young children. An important component of high-level teacher-child interactions is the teacher’s ability to model language for children as they acquire vocabulary and language context.

This mixed-methods study was designed to examine the effectiveness of a professional development intervention designed to improve the quality of language modeling with pre-K teachers. Pre-kindergarten lead teachers were selected in three classrooms in each of two facilities. These teachers were surveyed on beliefs and intentions regarding their practice. They were given the opportunity to view and reflect on their use of language, then they were instructed on components of language modeling, followed by an opportunity to practice with further opportunities to review and reflect. Finally, they were interviewed on their perceptions of the intervention model.
The teachers were video-recorded based on the professional development guidelines outlined in the *Classroom Assessment Scoring System Pre-K Manual* (Pianta, La Paro, & Hamre, 2008a). Teachers were instructed regarding ways of improving language modeling in their classrooms. Teachers reviewed their video-recorded sessions and evaluated their performance.

Findings revealed improvements in the use of language modeling across all six participants. In two cases, teachers struggled with viewing themselves regarding language modeling and needed more coaching before they were able to view, reflect, and challenge themselves to improve their practice. In the interview portion of the study, all participants generally expressed positive impressions of the experience in the study and the need for including similar professional development in teacher preparation programs.
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I have been privileged throughout my life to have received confidence, encouragement, and support for many stages of my education. This dissertation is about relationships and the power they have to improve the quality of an individual’s success in life. As I complete my doctoral degree, I am grateful for many close relationships. I wish to thank my family, friends, and especially my teachers for their investment in time and support to help me make this journey possible.

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CHAPTER 1
INTRODUCTION

The quality of relationships among teachers and young children is identified as the single most important factor supporting children’s success in school (Mashburn, Pianta, Hamre et al., 2008). Moreover, children who experience nurturing and supportive educators are more likely to demonstrate growth in school readiness skills during the prekindergarten (pre-K) and kindergarten years (Howes, Burchinal, Pianta et al., 2008). Thus, high quality interpersonal relationships in early childhood education (ECE) classrooms can lead to improved cognition, more appropriate social behaviors, and greater self esteem (Kagan & Neuman, 2000). Therefore, measuring the quality of relationships among educators and children may be useful to improving those relationships.

Preschool and Kindergarten Programs

In the last half of the 20th century and the beginning of the 21st century, the number of children in early ECE settings in the United States (U.S.) has increased dramatically. The nature and type of these ECE programs includes full-day, part-day, full-week, and part-week placements. In 2005, there were 335,520 licensed child care programs with a licensed capacity to serve over 9 million children in the U.S. (National Child Care Information and Technical Assistance Center, 2008). Early learning environments can include family home care, nursery schools, private for profit child care, public not for profit child care, Head Start settings, public school classrooms, community Centers, and faith-based settings (Taylor, 2002). As early as 1999, 78% of 4-year-olds, and 84% of 5-year-olds in the U.S. were in public and private group care and learning environments.
influencing all aspects of their development (Peisner-Feinberg, Burchinal, Clifford et al., 1999). The increase in enrollment in these environments was directly related to expanded numbers of mothers in the workforce and by national and state support of early education intervention through Head Start and individual state public pre-K initiatives.

Differing levels of investment in facilities, supplies, and curricula, positively and adversely influence children’s development. Wide variation in training, experience, age, and cultural background of teachers and support staff can also affect children’s experiences in group settings. Outcomes for children’s development and learning vary widely depending on the nature of the program in which they are placed. Children attending ECE programs, in private and public settings, are the focus of the following discussion.

**Children in Private Programs**

The number of children aged three to five, in private nursery schools (pre-K) and kindergarten, as reported by the Digest of Education Statistics (2007), increased from 393,000 in 1965 to 2,165,000 in 2006. Further, in pre-K programs for 4-year-olds, enrollment increased from 213,000 in 1965 to 1,067,000 in 2006. At the same time, private kindergarten enrollment for 5-year olds decreased from 474,000 in 1965 to 353,000 in 2006, indicating a greater commitment in kindergarten education from the public sector.

**Children in Public Programs**

The number of children aged three to five enrolled in public pre-K, as reported by the Digest of Education Statistics (2007), increased from 217,000 in 1965 to 2,481,000
in 2006. At the same time, public pre-K enrollment for 4-year-olds, increased from 68,000 in 1965 to 1,401,000 in 2006, and kindergarten enrollment for 5-year-olds, in the public sector increased dramatically as well.

The growth in the number of children in the public sector was spawned by U.S. governmental initiatives supporting ECE, particularly for children living in poverty. While some small programs and test or pilot programs were in place, the ECE movement is considered to have originated in 1965 with the Head Start Administration (Mashburn et al., 2008). By the 2006-2007 school year, Head Start enrolled 753,205 preschoolers at a cost of $7,860 per child. The same year, 38 states across the U.S. offered public pre-K programs that served over 1 million children, with an annual cost of over $3.7 billion (Barnett, Hustedt, Friedman, Boyd, & Ainsworth, 2007).

The dramatic increase in the number of children attending both private and public programs in early learning environments outside the home, many of them supported by taxpayers, has prompted research into the nature and effectiveness of these programs. The impact and quality of these programs on the development, growth and school preparation of young children is of particular concern to the field of ECE, and is central to both private and public support of the programs.

**Quality of Pre-K and Kindergarten Programs**

Quality of early care and education programs has been studied extensively beginning in earnest in the early 1960s (Administration for Children and Families, 2006; Karoly, Kilburn, & Cannon, 2005; Lambert, Abbot-Shim & Sibley, 2006; Peisner-Feinberg et al, 1999; Schweinhart, 2005). Four dimensions of early childhood programs typically are reviewed for quality: (a) classroom environment, (b) personnel
characteristics, (c) support, and (d) classroom dynamics. Quality of the environment addresses space, classroom supplies, curriculum, ratios, group size, health, and safety. Quality of personnel may include teachers’ education, experience, on-going professional development, beliefs, attitudes, and cultural background. Quality of support includes administrative and parental support as well as community resources. Other indicators of support address overall climate and working conditions. Quality of classroom dynamics includes teacher strategies, interactions among children and adults, and interactions among children (Lambert et. al., 2006).

**Research Addressing Quality Measures**

Several longitudinal studies have addressed quality of classroom environments for young children. The High/Scope Perry Preschool Study (Schweinhart, 2005), Head Start Association’s Family and Child Experiences survey (FACES) Program (Administration for Children and Families, 2006), The Abecedarian Project (O’Brien & Saunders, 1972, Ryan, Fauth, & Brooks-Gunn, 2006), The Cost, Quality, and Outcomes Study (Peisner-Feinberg et al., 1999), and the National Center for Early Development and Learning Multi-State Pre-K Study (Bryant, Clifford, Early, & Little, 2005), are all considered to be landmark studies regarding the quality of the environment.

The High/Scope Perry Preschool Study measured lifetime outcomes for children in poverty attending quality preschool programs (Schweinhart, 2005). The High/Scope Perry Program was conducted in the Ypsilanti, Michigan school district from 1962 through 1967. One-hundred-twenty-three African-American preschoolers, who were at risk for school failure, randomly were divided into two groups. One group received a high quality preschool program and the other group received no preschool at all. The
children in these studies were followed for nearly 40 years and evaluated for success in school as well as quality of life effects. The most recent follow-up study was conducted when children in the original study reached age forty. The participants in the High/Scope Perry Preschool study, who attended preschool, were found to have completed higher levels of schooling, achieved higher levels of employment, earned higher salaries, were less likely to have been arrested, were more likely to own their own homes, and paid double the taxes over their lifetime as the group that did not attend preschool (Belfield, Nores, Barnett & Schweinhart, 2005).

The Head Start Association’s FACES program, begun in 1995, was designed to review process and outcome measures for children and their families, by examining and addressing issues of quality in Head Start programs (Administration for Children and Families, 2006). The FACES program was designed to review and improve child outcomes for school readiness upon graduation from Head Start. Data were collected on a nationally representative sample of Head Start programs to measure child cognition, social skills, and behavior. Classrooms were rated using the Early Childhood Environment Rating Scale – Revised (ECERS-R) (Harms, Clifford, & Cryer, 1998). Children, who attended Head Start, demonstrated gains in social skills, vocabulary, math skills, letter recognition, and continued to make gains in kindergarten (Administration of Children and Families, 2006). Comparison data were not available for children who had not attended Head Start.

The Abecedarian Project, conducted from 1972 to 1977, was a longitudinal scientific study with careful controls, designed to determine the effects of early childhood education on young children living in poverty. Mostly African American,
112 children born between 1972 and 1977, and who were at risk of delays in intellectual and social development randomly were assigned to a treatment or control condition (Barnett & Masse, 2007). Children entered the program as infants and were assessed every six months beginning at age three months. The children in the experimental group, who received intensive education during full-day child care, achieved higher levels of IQ and mental development by age four, and demonstrated higher social confidence, when compared to the control group who received no ECE services (Ramey & Campbell, 1979).

The results of the study demonstrated that early educational interventions, within the context of full-day care, for children at-risk for poor school performance produced significant economic benefits to society (Snow, Burns & Griffin, 1998). Benefits included increased maternal earnings, decreased K-12 educational costs, decreased costs related to smoking, and increased life-time earnings (Barnett & Masse, 2007). Follow-up studies were conducted when the children reached ages 12, 15, and 21. Findings demonstrated lasting improvement in IQ and language development for low-income children who participated in early educational interventions, compared to the control group with similar socio-economic profiles from the same neighborhoods (Barnett & Masse (2007)).

The Cost, Quality, and Outcomes Study (CQO) was conducted to examine child care and school settings for preschool age children and compared those experiences to the social, emotional and cognitive outcomes of the children. Data were collected on the quality of child care Centers, as determined by scores on the ECERS-R (1998), in four states (California, Colorado, Connecticut, and North Carolina). In the final year
before entering kindergarten, 826 children from 183 classrooms in 151 Centers became part of this research study and were followed for 5 years (Peisner-Feinberg et al., 1999). Developmental outcomes for children age four through second grade were assessed.

Results of the study indicated that children attending high quality preschools had better language and math skills from the pre-K years into elementary schools. Further, higher-quality child care was strongly related to improved math skills and fewer problem behaviors for children whose mothers had less education. Peisner-Feinberg et al. (1999) concluded that children with closer teacher-child relationships in child care had better classroom language ability, math skills, and social, and thinking skills from the preschool years into elementary school.

The National Center for Early Development and Learning Multi-State Pre-K Study begun in 2001 was conducted in 40 publicly funded pre-K classrooms in each participating state (Bryant, Clifford, Early, & Little, 2005). The study was conducted in Georgia, Illinois, Kentucky, and Ohio, as well as parts of California and New York. More than 900 children participated in the study representing 211,000 children in the geographic research areas.

The study focused on elements of quality within the pre-K classrooms as predictors of children’s opportunities for success in school. Classroom observation rating scales, direct measures of children’s performance, and teacher reports were used to measure classroom environments, classroom organization, and teacher-child interactions. Data from this study were used to answer questions regarding the relationship between child educational outcomes and classroom variables such as curriculum, teacher education, and family involvement. According to Bryant et al. (2005), the high level of structural
quality was not predictive of positive outcomes for children in these pre-K programs. Additionally, the authors concluded that for classrooms with mostly poor children, quality was found to be lower, teachers had less than Bachelor’s Degree, and teachers held more traditional beliefs about children and learning.

Meta-analyses have been conducted to review the outcomes for children and families across measures significant to improving chances for success in school and in life. Specifically, studies were conducted to examine the return on the investment for early intervention programs for children at-risk for failure in school. One such study was sponsored by the Rand Corporation (Karoly et al., 2005). The purpose of the study was to (a) determine the consequences of not investing resources in children’s lives, (b) review the range of early intervention programs that have been rigorously evaluated, (c) examine features associated with successful programs, and the demonstrated benefits of high-quality programs, and (d) determine the benefit to society resulting from investing in the lives of children with disadvantages.

The Rand study examined 20 programs with a rigorously researched evidence-base. The findings were statistically significant, and often sizeable, benefits in at least two-thirds of the programs regarding cognitive and academic achievement, educational progression and attainment, behavioral and emotional competencies, delinquency and crime, labor market success, and child maltreatment. The returns to society from each of these programs ranged from $1.26 to $17.07 for each dollar invested. The net positive life-time benefits ranged from $1,400 per child to $240,000 per child (Karoly, et al.).
Results from the aforementioned research studies support the concept that children who attend high quality preschool programs demonstrate life-time gains in quality of life and reduce their financial burden to society. These success measures include higher levels of educational achievement, and higher levels of lifetime earnings. Further, children who attend high quality preschool programs have reduced rates of incarceration, and become parents at a more mature age.

A variety of multi-state studies and longitudinal studies have determined indicators of quality in ECE. Moreover, valid instruments have been developed to measure quality of environments, classroom support, classroom dynamics, and teacher-child interaction. The current research base has identified and defined quality in ECE programs, environments, and personnel and demonstrated the economic benefit to society. However, there is limited or no research translating that knowledge to practice.

**Elements of Quality**

Global quality in ECE classrooms is defined as a collection of measureable components of quality that are common to most ECE programs (Lambert, et al., 2006). When classrooms receive high scores on many indicators of quality, they may be determined to be of high global quality. Likewise when classrooms receive a preponderance of low scores on these same indicators, they may be determined to be of low global quality.

Measures of global quality in ECE environments are derived from an examination of two broad classroom components identified as structure and process. The component of classroom structure may further be divided into the elements of environment and curriculum. Process elements involve child staff interactions and are further divided
into categories of emotional support, organizational elements, and instructional support (Howes et al., 2008). Assessment tools have been developed and validated to measure each of these areas of quality.

**Structural quality.** Research of structural elements is extensive. The classroom environment has been intensely studied as a measure of quality in early care and education settings. The environmental assessment tool most widely used is the ECERS-R (Harms et al., 1998). The standard observational measure for preschool classroom environments for more than 25 years has been ECERS (Mashburn et al., 2008). The current version is based on the original ECERS that was used extensively to support research on quality in early care and educational environments in the 1990s. The ECERS-R is used to measure seven areas of quality including, space and furnishings, personal care routines, language-reasoning, activities, interaction, program structure, and parents and staff. Each broad category includes between four and ten more specific quality indicators. These indicators are rated on a seven point scale (Harms et al.).

The second aspect of structure in early care and education is curricula. Recommended practices established by professional organizations such as the National Association for the Education of Young Children (NAEYC), and the Council for Exceptional Children (CEC) (Copple & Bredekamp, 2009; Sandall, Hemmeter, Smith, & McLean, 2005) are typically referenced in determining quality of curriculum. Developmentally Appropriate Practice (DAP), promoted by NAEYC and CEC, addressed the developmental levels of typically developing young children in their natural environments and is designed to meet the needs of those children across cognitive, physical, social, and emotional domains (Copple & Bredekamp).
Many states also have developed learning standards for preschool and kindergarten supporting structural quality. These standards are linked to curricula standards for elementary school and support readiness for success in school. The curricula standards address specific skills and concepts a child needs to master before entering first grade. Specific curricula used in ECE and kindergarten may be useful in monitoring structural quality. Several widely used curriculum packages contain internal assessment tools to measure child outcomes. In general, most widely adopted curricula integrate best practices as determined by NAEYC and CEC (Copple & Bredekamp, 2009, Sandall et al., 2005).

Examples of curricular packages, broadly adopted and containing internal child assessment processes include the High/Scope Perry Preschool Curriculum (Schweinhart, 2005) and the Creative Curriculum (Dodge, Colker, & Heroman, 2002). The High/Scope Perry Preschool Curriculum, adopted by personnel in many Head Start programs, offers hands-on and child-initiated activities to 3- and 4-year olds. The environment is arranged to encourage children’s exploration and learning (Karoly et al., 2005). The Creative Curriculum (Dodge, et al.), widely adopted by personnel in school districts, Head Start, and state-wide pre-K programs, offers child-directed, hands-on experiences for children in a predictably structured school day (Lambert, 2006). Quality of child-staff interactions, organizational structure, and developmentally appropriate classroom environments are emphasized features of the Creative Curriculum (Dodge, et al.). Both the High/Scope Perry Preschool Curriculum (Schweinhart) and the Creative Curriculum (Dodge, et al.) help to foster and monitor structural quality in the ECE classroom.
Other structural concerns as they relate to quality care and outcomes are often regulated by state licensing agencies (Barnett, Hustedt, Friedman, Boyd, & Ainsworth, 2007). Each state within the U.S and many municipalities adopt minimum standards for programs before they may receive a license to operate. Minimum standards have varied by state and historically were safeguards to protect children’s health and safety. As ECE programs developed, states adopted standards to regulate them.

Structural quality concerns have been included in accreditation requirements, and viewed as improving quality in the classroom. In addition to environmental quality outlined above, these concerns additionally include issues related to personnel and grouping of children. Class size and teacher/child ratios, teacher’s years of experience, education, and cultural background are also considered in an evaluation of quality (Mashburn et al., 2008).

**Process quality.** An ECE classroom may meet all of the structural elements of quality and still have weak outcomes for children’s educational progress (Pianta, 2007). This is a critical concern, as the nature of the children’s experience is significant to learning in any early childhood setting. Through an examination of nearly 4,000 classrooms in preschools and elementary schools across the country, Pianta found that teacher-child interactions, reflecting process quality created the greatest opportunity for learning. Pianta discovered that learning improved when a teacher developed learning experiences that stretched children to think beyond their current skill level and when the children were allowed to actively engage in the experience.

Pianta, La Paro, and Hamre (2008a) used an evaluation system, *Classroom Assessment Scoring System* that assessed three domains of teacher-child interaction:
emotional support, organizational management, and instructional support. The emotional support domain of CLASS (Pianta et al., 2008) was designed to evaluate four factors of teachers’ ability to promote greater social and emotional functioning in the classroom: (a) positive climate is the teacher’s ability to emotionally connect with each child, demonstrate respect and enjoyment among teachers and students; (b) negative climate measures negativity expressed through anger, hostility, or aggression by students and teachers; (c) teacher sensitivity is the teacher’s demonstrated awareness and responsiveness to children’s academic and emotional concerns; and (d) regard for student perspectives measures the degree to which teachers’ interactions with students considers students interests, motivations, and points of view (Pianta et al.).

Through the use of CLASS (Pianta et al., 2008) the productivity of the classroom is assessed through the quality of classroom organization component of the classroom. Productivity is defined as the amount and quality of instructional time versus waiting time (Pianta, et al. 2008a). The ECE teacher is assessed on ability to use behavior management strategies to prevent and redirect poor behavior. For example, if a teacher is ill-prepared to begin an activity, such as an art project and children have periods of inactivity in transition times, poor behaviors escalate. Instructional time is diminished as the teacher addresses the behavior. When the teacher is prepared and children move smoothly from one activity to another, poor behavior is reduced. Based on this area of assessment, La Paro, Pianta, and Stuhlman (2004) determined that classrooms with quality organization are more predictable and allow the child to focus on learning.

Instructional support is the third area of process quality in CLASS (Pianta et al., 2008). Quality measures in instructional support include the teacher’s ability to monitor
engagement and performance in activities and provide feedback to support the ideas of children (Pianta, et al. 2008a). Essentially, research indicates children remain engaged in the activity for longer periods of time and learn more (La Paro et al., 2004). Teachers use scaffolding and support to provide feedback to students, leading to continued engagement in activities. When children remain engaged with teachers in joint attention and joint action, they make connections that potentially lead to increased learning (La Paro et al.). A major emphasis of quality of feedback is the teacher’s ability to question in non-judgmental ways. Through questioning, teachers help to expand children’s thinking so they move beyond facts and recall (La Paro et al.).

A study of academic, language, and social skills was conducted in 671 classrooms representing 2,439 four-year old children attending publicly supported pre-schools. Structural quality was measured using ECERS-R (Harms et al., 1998) and process quality was measured using CLASS (Pianta et al., 2008). Results from the study indicated that teacher-child interactions, experienced directly by children in the classroom, were the most consistently and strongly related measures of classroom quality and children’s development (Mashburn et al., 2008).

Therefore, it is important to further examine the key components of instructional support provided to children through teacher-child interactions. Pianta et al. (2008a) identified and measured three areas of instructional support that lead to improved child learning outcomes in CLASS (Pianta et al., 2008): (a) concept development, (b) quality of teacher feedback, and (c) teacher language modeling. The application of instructional support measures of CLASS to preschool and kindergarten classrooms in
diverse settings supports an understanding of professional development as a means to improving instructional quality in ECE.

**Purpose**

The purpose of this study was to examine the effectiveness of performance feedback on teacher-child interactions, specifically language modeling, in early childhood classrooms. As previously discussed, teacher-child interactions have been determined to be the most important factor in supporting child learning (Pianta, et al., 2004). In addition, increasing numbers of children are entering pre-K classrooms each year. Key to this increase is the current movement toward universal pre-K. There is limited research regarding quality teacher-child interactions in pre-K and kindergarten classrooms. Further, there is limited research regarding professional development to improve teacher-child interactions in the wide variety of settings serving young children in early care and education. Therefore, research is needed to develop processes for improving quality of instructional support, specifically language modeling, of children in early childhood classrooms. Three broad research questions were addressed:

1. To what extent are teachers’ beliefs consistent with their intentions, in general, regarding teacher-child interactions?
2. Does a program of staff development improve the quality of teachers’ language modeling with young children in private preschool classrooms as measured by CLASS (Pianta et al., 2008) ?
3. To what extent are teacher participants satisfied with the CLASS (Pianta et al., 2008) training process?

**Significance**
The introduction of state-wide preschool programs, the expansion of Head Start, and the current political climate promoting universal pre-K (UPK) supports the belief that eventually most children will begin school at age three or four (Bryant, et al., 2005). As enrollment increases, the demand for professionally educated pre-K teachers will dramatically increase. Since education and development and lifelong learning patterns are at stake, it is important that ECE classrooms are of the highest quality and are staffed with high quality experienced teachers. To ensure future financial support in both the private and public sectors, positive child-outcomes need to be demonstrated through the provision of high-quality well-staffed ECE environments.

To reiterate, the quality of relationships in ECE classrooms has been identified as the single most important factor supporting children’s success in school (Mashburn, et al., 2008). Further, the quality of teacher-child interactions has been studied extensively in the past several decades (Harms et al., 1998, Pianta, 2007b, Bryant et al., 2005). According to Bryant et al., the quality of teacher-child interactions in the categories of emotional support, classroom organizational support, and instructional support in state-supported ECE classrooms was minimal, with high quality interactions occurring only 3% of the time. More specifically, the quality of instructional support through process-oriented feedback seldom occurred in pre-K and ECE (La Paro et al., 2004). Thus, while there is extensive recent literature on the quality of teacher-child interactions (Bryant et al., 2005, Howes et al., 2007, La Paro et al., Mashburn et al., and Pianta et al., 2008a), there is limited research on direct strategies applied to professional development of classroom teachers.
The CLASS PRE-K instrument, developed in 2008, was designed as an assessment and professional development tool (Pianta, et al., 2008a). An extensively-researched instrument, CLASS was used to measure teacher-child interaction in classrooms. However, few studies have been conducted, or are in the process of being conducted, regarding the use of CLASS with teachers in private ECE classrooms. Nor have studies been conducted to measure the effectiveness of CLASS professional development strategies in either private or public ECE classrooms, classrooms populated by children living in poverty, inclusive pre-K, and kindergarten classrooms for young children with and without developmental delays. Examining teacher-child interactions in ECE environments and developing effective methods to improve those interactions will significantly impact children’s success in school. Additionally, effective methods to scientifically measure improvement in teacher-child interactions may lead to increased respect and public support for ECE teachers.

**Definitions of Terms**

1. *Children with developmental delays* were defined as children who need special education and related services because of mental retardation, hearing impairments, speech or language impairments, serious emotional disturbances, orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities (Morrison, 2007). Part C of the 1997 reauthorized special education law PL 106-486 of the Individuals with Disabilities Education Act (IDEA) identifies infants and toddlers (birth to age three), who may have biological problems, or who were subject to poverty, abuse, and/or inner-city violence.
Part B of the 1997 reauthorized special education law PL 106-486 of the IDEA identifies preschoolers (ages 3 to 6) who may need early identification, assessment, and intervention to increase their chances to become healthy and productive members of society (Morrison). In 2004, the reauthorized IDEA was signed into law, and extended the age limit of developmental delay up to age 9 at the discretion of each state (Murdick, Gartin, & Crabtree, 2007).

2. *Children without Disabilities* is defined as a child between the ages of 3 and 5 who is not eligible to attend kindergarten and is not diagnosed with a disability under the categories as defined by IDEA (Allen & Cowdery, 2009).

3. *Classroom Assessment Scoring System-Pre-K* (Pianta et al., 2008a) is an observational assessment instrument designed to assess quality of teacher-child interactions in classrooms for 3-, 4-, and 5-year olds. Raters using *CLASS* measure ten areas of quality of teacher-child interactions, grouped under three domains. The emotional support domain assesses teachers’ ability to provide emotional and social support in the classroom through an analysis of positive climate, negative climate, teacher sensitivity, and regard for student perspectives. The classroom organization domain addresses teachers’ effectiveness at organizing and managing student’s behavior, time, and attention to the classroom through an assessment of behavior management, productivity, and instructional learning formats. The instructional support domain assesses the teacher’s effectiveness of concept development, quality of feedback, and language modeling. The instructional
support domain of CLASS focuses on how the teacher implements the curriculum to effectively support language and cognitive development (Pianta et al.). Three elements of instructional support are further identified as (a) concept development – the ways teachers use activities and instructional discussions to promote students’ higher order thinking skills in contrast to rote instruction, (b) quality of feedback – how teachers respond to students’ ideas, comments, and work to extend their learning, and (c) language modeling – the way teachers facilitate and encourage students’ language development (Pianta et al.).

4. *Kindergarten programs* serve children who are typically 5-to 6-years old and are attending a formal educational program designed to prepare them for first grade.

5. *Pre-K programs* serve children ages three to five who are not yet enrolled in kindergarten, and who are attending an ECE program.

6. *Private programs* are ECE programs financially supported with private sector funds. This study researched classrooms in a corporate child care facility and a not-for-profit university affiliated preschool.

**Summary**

Research related to instructional strategies for the improvement of teacher-child interactions in ECE classrooms is lacking. The key to success for all ECE teachers is the ability to provide high quality instructional support to young children. Further, as many more young children enter ECE classrooms, it is imperative that they are engaged
in high quality interactions, thereby improving their chances for success in school and in life. The intent of this study was to provide data on an instructional design of interventions using the CLASS (Pianta et al., 2008) assessment tool in a variety of ECE settings.
CHAPTER 2

REVIEW OF THE LITERATURE

The review of the literature served six purposes. First, to analyze and summarize the literature related to types and scope of ECE programs in the U.S. Second, to review and analyze the literature related to quality of ECE programs in the U.S. Third, to review and analyze the literature related to teacher-child relationships. Fourth, to review and analyze the literature related to teachers’ beliefs and intentions regarding quality interactions in ECE and early elementary education. Fifth, to review and analyze the literature related to successful professional development in ECE. Sixth, to review and analyze the literature related to \textit{CLASS} (Pianta et al., 2008) as an assessment and professional development tool. Review and analysis of these bodies of literature was needed to gain knowledge of the quality of language modeling in pre-K and kindergarten classrooms.

The following discussion begins with the literature review procedures, the selection criteria, and the criteria used to exclude studies from the review. Next, the analysis and review of the literature are presented relating to private and public ECE programs, and the quality of these programs. Literature regarding teacher-child interactions, teachers’ beliefs and intentions regarding these interactions, and the quality of instructional support in ECE Classrooms is subsequently discussed. A discussion of \textit{CLASS} (Pianta et al., 2008) as an assessment and professional development tool follows. Finally, a summary and synthesis of the literature is presented.
Literature Review Procedures

A systematic search was conducted through three databases: Educational Full Text, Educational Resources Information Center (ERIC), and Dissertations and Theses Full Text. Search descriptors related to global studies regarding early childhood education included early childhood, education statistics, private pre-K, private kindergarten, public pre-K, public kindergarten, curriculum and early childhood education, Creative Curriculum, and state-wide pre-K programs. Search indicators related to specific research studies included Abecedarian Project, Head Start, High/Scope Perry Preschool Program, Cost-Quality and Outcomes Study, and Creative Curriculum. Search indicators related to quality of ECE programs included classroom environment and quality and early childhood education, quality in early childhood education, quality in pre-K, quality in kindergarten, quality and instructional support and early childhood education, instructional quality and early childhood, instructional quality, teachers beliefs and instructional quality, professional development and instructional quality and young children, language modeling in ECE, and professional development and instructional quality. Finally, a search was conducted using CLASS (Pianta et al., 2008), and components within CLASS: emotional support, classroom organization, and instructional Support.

Next, a manual search of journals (2006-2009) was completed. The journals that were manually searched were the same journals frequently referenced from the computerized search (e.g., Applied Developmental Science, Child Development, Early Childhood Research Quarterly, Early Education and Development, and Journal of School Psychology.) The reference lists from the various articles obtained from the
literature search were also reviewed. Finally, the developers of CLASS (Pianta et al., 2008) maintained a website with current literature related to CLASS research.

Studies were included in the review if: (a) participants were in pre-K through second grade classrooms or included teachers who worked with children in pre-K through second grade classrooms; (b) the dependent variables were related to ECE classroom instructional quality, teachers’ beliefs about instructional quality of teacher-child interaction; effectiveness of CLASS (Pianta et al., 2008) and language modeling; (c) interdisciplinary curriculum observations of teacher-child interactions were included; (d) the methodology was single-subject, group design, or used data derived from a survey, and (e) studies were conducted in the U.S. Studies were not included if: (a) children were exclusively in classrooms in third grade or older; (b) the study involved a single educational discipline such as physical education or music, (c) the study was concerned solely with structural quality, (d) the study was a case study, or (e) the study was conducted outside the U.S.

Review and Analysis of Literature Related to Types and Scope of ECE Programs

Young children attend ECE programs in the U.S. in a variety of settings including public and private, secular and non-secular, corporate and family owned, community-based, Head Start, and public school (Bryant et al., 2005). Many of the children who have been studied have been determined to be at risk for school failure and early education has been seen as the intervention to reduce this risk. The bulk of the research related to the effectiveness of ECE has been conducted in public settings as a means of understanding the impact of ECE on outcomes effecting children, families, and society.
Large scale research projects have been conducted since the 1960s, providing evidence of the cost benefit of pre-K interventions for children who are at risk for school failure (Peisner-Feinberg et al., 1999; Schweinhart, 2005; Ramey & Campbell, 1979, Raver et al., 2008. Limited research has been conducted in ECE settings which served children who are not at risk for school failure.

High-quality ECE programs have been linked to continued public funding support across all ECE program settings including Title I, Head Start, and State-wide pre-K. The review of literature revealed the elements that constitute quality and how such quality in ECE was linked to academic and social child outcomes. Ultimately quality measures were established with ECERS-R (Harms, Clifford, & Cryer, 1998) as the primary measure of structural or environmental quality, and CLASS (Pianta et al., 2008) as the primary measure of teacher-child interactions as related to child outcomes. In many of the studies referenced in this review, quality was measured using both ECERS-R and CLASS. A major thread throughout the body of literature involved supporting and improving teacher-child interactions through professional development.

The majority of the research discussed throughout this review involves CLASS (Pianta et al., 2008) as a measurement of children’s experiences in pre-K classrooms. The majority of the reviewed literature involved CLASS, and its development, application, and contribution to supporting children’s learning. A discussion of the instructional support domain of CLASS, followed by a discussion of the language modeling dimension within instructional quality, is also presented.
Types and Scope of ECE Programs in the U.S.

The High/Scope Perry Preschool Study (Schweinhart, 2005) is one of the first and perhaps one of the better known studies to have demonstrated the effects of quality pre-K programming on children at risk for school failure. This study was conducted in the Ypsilanti, Michigan school district from 1962 to 1967 to determine if a quality pre-K program could help some children avoid school failure and related quality of life issues. The children who participated in the study were followed for more than 40 years and the effects of the study were well publicized.

The study involved 123 African American children who were randomly assigned to two groups. The first group of 58 children assessed to be at high risk of school failure received high quality pre-K experiences at ages three and four. These children received a Center-based pre-K program for 2.5 hours each week-day, with a teacher-child ratio of 5:1, a home visitation for 1.5 hours each weekday, and parental group meetings. A second group of 65 children comprised the control group. These children received no pre-K program and no auxiliary services (Belfield, Nores, Barnett, & Schweinhart, 2005). Data were collected on all children each year from age three through 11 and again at ages 14, 15, 19, 27, and 40. There was a missing data rate of 6% across all measures throughout the study.

On educational performance, children in the experimental group significantly out-performed the control group in greater high school graduation rates, lower rates of treatment for mental impairment, and lower rates of grade retention. The experimental group demonstrated higher school achievement test scores, and significantly better attitudes toward school. On economic performance, at age 40, the experimental group
had higher rates of employment, higher median family income, higher stability in housing, higher automobile ownership, and retained savings accounts. The experimental group had significantly fewer contacts with criminal justice, lower illicit drug use, and higher rates of parenting their own children. The total public benefit assigned as a result of attending preschool by the experimental group was $195,000, on total program costs of $15,166, or $12.90 per dollar invested (Schweinhart, 2005).

Belfield et al. (2006) raised some questions about external validity in the study. First, benefits to economically advantaged and non-African American families could not be predicted by these data. Second, the components of the High/Scope Perry preschool portion of the experience have not been solely or directly related to students’ success. Lastly, generalizations could not be drawn from this study regarding the benefits of just attending preschool compared to the gains made by the participants without the home visitation and parental group components, or for participation by children outside this demographic.

Another study, CQO (Peisner-Feinberg et al., 1999) significantly impacted public sentiment regarding quality programs in ECE. This study was conducted to examine the influence of typical child care on children’s development in the pre-K years and to relate this experience to educational outcomes in elementary school. The study was conducted partially in response to the large numbers of children enrolled in child care in the U.S. in the past several decades, which shifted responsibility for fostering child development from the family to child care providers. According to Peisner-Feinberg et al., 60% of all children under the age of six at the inception of the study received regular care outside the home. Moreover, older preschoolers were more likely to be
enrolled in child care, including 68% of 3-year-olds, 78% of 4-year olds, and 84% of 5-year olds (Peisner-Feinberg et al.).

Begun in 1993, the longitudinal Cost quality and Outcomes (CQO) study (Peisner-Feinberg et al., 1999) examined educational outcomes of 826 preschoolers from 183 classrooms in 151 Centers in four states (California, Colorado, Connecticut, and North Carolina), in their next-to-last year of child care. Children in the study attended community based Centers, approximately half of which were for profit Centers and half were not-for-profit. Data were gathered from children, parents, teachers, and independent observers over a period of five years. First, the data were gathered during children’s last two years in child care, then during kindergarten, and finally during second grade. Data were not collected in first grade.

Data in the CQO were gathered from five sources to examine the relationship between quality child care and children’s educational outcomes. Measures used included: (a) classroom observations as measured by ECERS (Harms et al., 1999), Caregiver Interaction Scale, Early Childhood Observation form, Adult Involvement Scale, and Peer Play Scale; (b) teacher reports of beliefs and practices (c) child assessment measures (Peabody-Picture Vocabulary Test, and Woodcock-Johnson III Tests of Achievement – Revised); (d) teacher ratings of children (Classroom Behavior Inventory, and Teacher Assessment of Social Behavior); and (e) parent survey results of child and family characteristics. Only teacher reports and parent surveys were gathered in second grade.

The CQO researchers identified four major findings. First, there was a direct relationship between high quality child care and children’s readiness for school.
Second, high quality child care had lasting effects on children’s cognitive and social skills well into elementary school. Next, the quality of child care experiences had greater effect for children determined to be at risk for poor school outcomes than for other children (Peisner-Feinberg et al., 1999). Finally, the closeness of the child care teacher-child relationship (process quality) influenced children’s social development through the early school years, while the quality of child care classrooms (structural quality) was more closely related to children’s cognitive development (Peisner-Feinberg et al.).

While the CQO study linked child care quality with child outcomes in school, the researchers recognized the diversity in child care settings and concluded that the level of quality recommended by child care professionals is not accessible to the majority of children in child care (Peisner-Feinberg, et al., 1999). The recommendations for policy and infrastructure change included strengthening state licensing standards, encouraging national accreditation, and expanding state-wide pre-K opportunities. The researchers cautioned that child care experiences alone would not level the playing field for children at-risk of school failure and that ecological factors that create the disadvantages that some children experience may not be mediated by high quality educational experiences.

In another investigation of the influence of child care on school readiness factors, Winsler et al. (2008) were specifically concerned with ethnically diverse children in poverty. Winsler et al. studied school readiness in children attending child care in Center-based and public school settings in the Miami area. The researchers were interested in determining if ethnically and linguistically diverse children from low-
income backgrounds, attending pre-K in Title I, community-based, or fee-supported settings made school readiness gains in cognitive, motor, and language skills during their pre-K years compared to national norms. Winsler et al. also investigated whether improvement in school readiness indicators in community-based settings were influenced by gender and ethnicity. The researchers compared readiness gains made by preschoolers across settings from the beginning of the school year to the end of the year. Finally, comparisons were made based on whether the children were assessed in English or in Spanish.

Child participants in this study were a sub-set of a larger study in the Miami School Readiness Project and included 3,838 four-year-old children, approximately half of whom were male, attending one of three program types (Winsler et al., 2008). The child care settings attended by the children chosen for participation in this study reflected the full range of non-Head Start care provided in the Miami community, including for-profit, not-for-profit, and faith-based programs, either licensed or license-exempt, representing 1,611 Title I participants, 1,478 children attending fee-supported community-based Centers, and 749 children attending fee-supported public school programs. Quality of care was reported to vary considerably with the average care determined to be between mediocre and fair quality, as reported by Winsler et al.

Cognitive, language, fine motor, and gross motor skills were measured through administration of the *Language Accomplishment Profile-Diagnostic (LAP-D)* for all children, in private settings, at the beginning and end of the school year. Bilingual, educated assessors who received multi-day trainings from developers of the instrument, performed individual hour-long assessments during the school day in a separate room
and in the language most comfortable for the child. A similar treatment was applied to children in public school who were assessed by their classroom teachers. All assessors received the same training.

Social and emotional skills, including initiated interactions, self-control, attachment/closeness with adults, and behavioral concerns were measured by the Devereaux Early childhood Assessment (DECA). Teachers and parents completed a Likert scale in the language of their choice reporting on behaviors exhibited by the children. Parent and teacher survey results were computed separately.

Analyses were completed among child gain scores (in cognition, language, and social/emotional skills), and relationships among program type (e.g., Head Start, and community-based). Children’s cognitive, language, and socio-emotional skills were analyzed using ANOVAs and mixed linear models. Children demonstrated significant gains in cognition and language in all programs. Little or no change was noted in any of the programs regarding behaviors. Though statistically significant for all programs, rates of cognitive improvement were lowest in the fee-supported Center-based programs and highest in the fee-supported public school pre-K programs.

Winsler et al. CLASS (Pianta et al., 2008) reported that regardless of program, girls significantly outperformed boys in all areas and variables. With respect to ethnicity, the single statistically significant finding was that Caucasian and Latino children in Center care had somewhat higher fine motor skills in pre-test and post-test measurements than did African American children. Children assessed in English had higher scores at the beginning and end of the year on cognition and language than did children assessed in Spanish.
Several limitations of the study were noted by Winsler et al. (2008). A control group of children who did not attend any type of pre-K program was not included as a comparison. Demographic data were collected on children in community-based pre-K settings only and were not available in public settings. Children in private settings were assessed by adults unfamiliar to them. Public school teachers performed the assessments on the children in their classrooms and may have been influenced by accountability measures of No Child Left Behind. Data were not collected before the start of the school year for pre-test or after instruction ended for post-test.

The previously discussed studies generally linked child care, outside of the child’s home to positive child educational outcomes and later success in school and in life. The following discussion is more specific to educational settings, designed to provide specific school-readiness instruction in academic and social skills, in public and private pre-K and kindergarten. Public funding for ECE programs for children at risk for school failure accounts for much of the impetus for these large studies.

**Private Pre-K and Kindergarten Settings**

A search was conducted related to specific pre-K settings in the private sector including college and university related ECE settings, private corporations, private religiously affiliated programs, private non-sectarian programs, and NAEYC accredited programs. While no studies were revealed that focused on each of these specific settings, programs from these categories were included in much more inclusive studies such as the Boston Early Education Quality Improvement Project (Marshall & Roberts, 2007), the CQO (Peisner-Feinberg et al., 1999), and the Georgia Early Childhood Study (Henry, et al., 2004). These studies are discussed elsewhere in this review.
A search was conducted related to specific kindergarten settings in the private sector including college and university related ECE settings, private corporations, private religiously affiliated programs, private non-sectarian programs, and NAEYC accredited programs. No studies were revealed that focused on each of these specific settings. Though studies specific to private settings were absent in the literature, private settings were included in many of the multiple-site studies throughout the remainder of this review.

**Public Pre-K Settings**

**Title I.** The decisions regarding the designation of funding streams for support of pre-K education have been poorly researched, often supported competing goals such as elementary and secondary education, and were limited in scope (Ewen, Mezey, & Matthews, 2005). Funds were often cut by legislators or flat funded which effectively reduces the number of children who were eligible for service. Title I funds were provided under the Elementary and Secondary Education Act (ESEA) and may be designated for support of pre-K instruction of children from birth to school age who are determined to be at risk of school failure. These funds were accessed for pre-K at the discretion of local school districts (Ewen et al.).

Benefits of use of Title I funds for pre-K education were cited by Ewen et al. (2005). First, children who were at risk but who resided in families who lived above the poverty line were eligible to receive services. Next, only high quality programs which met the Head Start educational standards could qualify for Title 1 funds. Comprehensive services beyond the classroom could be funded to reduce educational risk of failure to students. Funds could be used in community-based settings for pre-K.
education and for screening for risk factors and to provide supplementary services. Finally, professional development for teachers working with young children at risk of school failure could be funded.

Ewen et al. (2005) discussed the difficulty of tracing the use of Title I funds for pre-K as most states do not report the amount of funds spent on pre-K services. They were able to report that most children who were served under Title I were between the ages of three and five, with less than 1% below the age of three. Less than 20% of all school districts receiving Title I funds chose to support pre-K and of those that did, most used less than 10% of available funds. For fiscal year 2002, the Department of Education estimated that approximately $200 million, representing 2% to 3% of Title I funds was used to serve 300,000 pre-K children. Ewen et al. suggested that pressure to use Title I funds to meet the requirements of No Child Left Behind may limit the use of these funds for pre-K services.

Cook investigated the readiness skills of children who attended a Title I pre-K and who were entering kindergarten. The study addressed motor skills, mathematical concepts, language, and pre-reading skills as measured by the DIAL-3. Comparisons were made to children of similar socio-economic status who were on a waiting list for Title I services, but received no services. Cook reviewed data sets from 320 children, with 205 of the children participating in the Title I intervention classrooms, and 115 of the children on a waiting list but who received no interventions. Cook found that the Title I intervention had a strong effect on motor skills, concept development, and language skills compared to children who qualified for programs but did not attend. Further the researchers found a statistically significant difference between male children...
in the experimental group versus the control group, as well as between females in those respective groups. Males in the experimental group out-performed males in the control group. All children were separately evaluated and statistically significant differences were found between the control group and the experimental group, with the latter demonstrating higher achievement in motor skills, concept development and language skills.

There were several limitations of this quasi-experimental study. To begin, the only assessment instrument used was the DIAL-3, and since the researcher used archival data, collection was not monitored by the researcher. Next, selection of the children was based on parents request for them to attend the Title I pre-K program and the school district determined who received the intervention. Lastly, there was no control for the non-intervention group, and they may have received alternative services such as Head Start.

Title I is a significant source of funding for ECE programs for children at-risk for school failure. As a result of discretionary use of funds for pre-K through grade 12 for this demographic, most school districts choose not to allocate Title I funding for pre-K programs and most of those that do so, allocate very small percentages of available funds for ECE programs. Further, the pressure from No Child Left Behind might influence these funding decisions, resulting in fewer pre-K children receiving services to improve school readiness.

**Head Start.** Head Start is one of the oldest publicly funded programs in the U.S. providing educational services to children at risk for school failure (Morrison, 2007). Authorized in 1965, it was designed as a nationwide program to provide educational
and family support services related to health, literacy and parenting. Continued federal financing of Head Start required evidenced-based research demonstrating efficacy.

The Head Start Association conducted a congressionally-mandated impact study across 84 nationally representative grantee/delegate agencies, from 23 different states, beginning in the fall of 2002 and continuing through 2006 (U.S. Department of Health and Human Services (U.S. DHHS) 2005). The purpose of the study was to determine the impact of Head Start services on children through first grade. Approximately 5000 3- and 4-year-old children who applied to attend Head Start were randomly assigned to a Head Start group with access to Head Start Services or to a control group of children who enrolled in non-Head Start placements selected by their parents.

Baseline data were collected in the fall of 2002, with annual spring data collected through 2006 when the youngest children completed first grade (U.S. DHHS, 2005). The study design used mixed methods comprised of interviews with parents, direct child assessments, teacher surveys, and direct observation. Data were collected regarding cognitive and social-emotional development, health domains, and parenting practices. The data were quantified separately for groups of 3- and 4-year-olds.

In a report of preliminary findings after year one of the study, there was a statistically significant move toward closing the gap for both 3- and 4-year-old children toward the national norm in pre-reading skills, and pre-writing skills for children attending Head Start compared to non-Head Start placements as measured by the Woodcock-Johnson III Tests of Achievement (US DHHS, 2005). Children in the 3-year-old Head Start group demonstrated significant gains in vocabulary acquisition, however, their 4-year-old counterparts showed no significant effects in vocabulary gains.
Significant gains were shown by the Head Start group over the control group for 3-year-olds with problem behaviors. Some positive health gains were also noted for both groups (U.S. DHHS, 2005).

In comparison to the congressionally mandated study, entitled Research-based, Developmentally Informed (REDI), Bierman et al. (2008) conducted a study of Head Start children. The purpose of this study was to determine if a Head Start enrichment program improved children’s skills in vocabulary, emergent literacy, emotional understanding, social problem solving, social behavior, and learning engagement. A randomized controlled design with multi-informant, multi-method measurement was used. Outcomes were reported after one year of the study.

A total of 356 4-year-old children in 44 Head Start classrooms were randomly assigned to either the REDI program or to usual Head Start practice conditions. Children in both groups received instruction through either the High/Scope Curriculum or Creative Curriculum. Children in the REDI program received enrichment through brief lessons, hands-on enrichment activities, and specific teaching strategies linked to desired outcomes mentioned above. Parents were provided with take-home materials to enhance child learning in the home (Bierman et al., 2008). Teachers received supplementary materials and training to support children’s language and social-emotional development, based on the belief that improved vocabulary and language use supports a child’s social-emotional appropriateness.

Bierman et al. (2008) examined eleven measures of child language, emergent literacy, emotional understanding, and social problem-solving skills and found significant treatment effects for seven of the measures, while two other measures
showed marginally significant intervention effects. Only two measures demonstrated no effect. Analyses of twelve behavioral ratings demonstrated that three of the ratings showed significant intervention effects, five additional measures demonstrated non-significant trends favoring intervention, while four measures revealed no effect. Bierman et al. concluded that it was possible to integrate evidenced-based strategies for promoting these critical emergent literacy skills while remaining consistent with Head Start practices (Bierman et al.).

Research regarding Head Start programs demonstrated effectiveness in improving children’s readiness skills for kindergarten. Cognitive skills related to language and literacy were particularly important areas of needed improvement, as were improved social and behavioral skills. The previously discussed research demonstrated the effectiveness of the Head Start programs in preparing young children for formal school. The provision of enhanced services demonstrated that intentional direct services would further support children’s achievement while adhering to Head Start philosophical tenets.

**State-wide Pre-K.** State-wide pre-K programs were a response to the intervention research linking children’s brain development with early cognitive, physical, and social/emotional experiences (Shonkoff & Phillips, 2000; Shonkoff & Meisels, 2000). The national study was conducted annually since 2002 by The National Institute for Early Education Research (NIEER) with the most recent study completed for the 2006-2007 school year (Barnett et al., 2007). Each state reported information on child access to pre-K programs in terms of total enrollment, percentage of school districts offering a state program, income requirements, hours of operation, schedule, special education
enrollment, Head Start enrollment, and state-funded pre-K enrollment. A quality standards checklist included the following ten items: early learning standards, teacher degree, teacher specialized training, assistant teacher degree, teacher in-service, maximum class size, staff-child ratios for 3- and 4-year-olds (reported separately for each age group), screening/referral and support services, meals, and monitoring for adherence to state program standards. Additionally, financial resources were reported as total state pre-K spending, local match required, state Head Start spending, state spending per child enrolled, and all reported spending per child enrolled. Each state was included in the report separately and numbers were aggregated to a national report (Barnett et al.).

Findings from the study demonstrated wide disparities in programs (Barnett et al., 2007). The ten states with the highest access of 4-year-olds to public pre-K, served one-third of all 4-year-olds. Oklahoma placed first on this list, having provided services to nearly three-fourths of 4-year-olds in high quality programs, when children with special needs were considered. States financial contribution ranged from no investment in twelve states to more than $10,000 per child in New Jersey. Requirements for teachers ranged from no high school diploma in some states to a bachelors degree in others. Class sizes and ratios were not regulated in Texas and Kansas but were limited to 15 children with a teacher and full-time assistant in one New Jersey program.

Positive changes in trends were demonstrated to include per child spending increases to an average of $3,642 per year. Total appropriations by states exceeded $3.7 billion, with more than a million children in attendance. Thirty programs increased enrollment, up by 2% from the previous year. An increase in enrollment resulted in
22% of 4-year olds enrolled, while 3-year-old enrollment increased as well. Seven states improved on NIEER Quality Standards Checklist and NIEER estimated that 19 of the 38 states spent enough per pupil to meet all ten quality benchmarks (Barnett et al., 2007).

While Barnett et al. (2007) summarized data reported by states receiving federal funds for pre-K for the purpose of determining who was using the funds and for what purpose, Bryant et al. (2005) were more focused on the children who received services. The National Center for Early Development and Learning (NCDEL) conducted a multi-state study to determine who went to pre-K and how they were progressing, beginning in the fall of 2001. The study was conducted in four states and two regional geographic areas: Georgia, Illinois, Kentucky, and Ohio; as well as the areas of New York City and Albany New York State; and Los Angeles and the Central Valley in California. More than 900 children were randomly selected from more than 211,000 pre-K children in state-funded programs.

Data collectors conducted multiple days of classroom observations in the fall and in the spring (Bryant et al. 2005). Within each of 40 classrooms in each geographic entity, four randomly selected children participated in a one-on-one assessment of pre-academic skills. These assessments were performed in the spring and in the fall. The child-participants were later evaluated in the spring and fall of their kindergarten year. Questionnaires were completed by parents, administrators, principals, pre-K and kindergarten teachers about themselves and the children. Half of the families participated in a home-based interview study and were video-taped for recording of parent-child interactions.
Environmental quality was measured with ECERS-R (Harms et al., 1998), and quality of teacher-child interactions was measured with CLASS (Pianta et al., 2008). Children’s use of time was assessed with the Emerging Academic Snapshot (Snapshot). Direct assessment of children’s skills was conducted with the Peabody Picture Vocabulary Test; Oral and Written Language Scales; Woodcock-Johnson III Tests of Achievement; non-standard measures of children’s ability to identify letters and numbers, to count, and to write their name; and Color Bears, a non-standard measure to assess color identification and recognition. Teacher reports were conducted using the Teacher-Child Rating Scale, Language and Literacy Skills, Teacher Attitudes and Beliefs, and the Student Teacher Relationship Scale (Bryant et al., 2005).

Teachers in the study were found to be generally well-qualified and well-paid compared to ECE teachers in other settings, and represented the diversity within the U.S. but did not represent the diversity of the groups they served (Bryant et al., 2005). Salaries for these teachers ranged from $5.21 per hour to $58.25 per hour, with 19% earning less than $10.00 per hour. Approximately half of the classrooms were in public school settings and the other half were in community-based settings such as a child care setting. Public state-wide pre-K teachers held a higher percentage of bachelor’s degrees than did Head Start teachers or child care teachers.

Classrooms generally met the structural quality as recommended by NAEYC (Bryant et al., 2005). Class size and teacher-child ratios averages were lower than NAEYC recommendations. These measures of quality were surprisingly inconsistent from classroom to classroom on the ECERS-R developed by Harms et al. (1998). This instrument is based on a 7-point scale with a score of 1 being the lowest or poorest
quality and 7 being the highest or best quality. In the NCDEL study, scores averaged 3.86 on a 7 point scale, demonstrating minimal quality. A score of 5 is needed for a good rating, and a score of 7 is needed for an excellent quality rating (Harms et al.).

Pianta et al. (2008a) developed CLASS with a 7-point scale. A score of 1 indicated the lowest or poorest quality and 7 the highest or best quality (with one exception, a high score in negative classroom climate would be considered negative). As measured by CLASS, the average instructional support score was 2.47 on a 7-point scale, with emotional support scoring 5.22. Children were found to be engaged in teacher-child interactions less than 27% of the time. When they were engaged, the interactions were either routine or minimal. Results of child learning outcomes were not reported in this study.

The NCDEL (Bryant et al., 2005) study was expanded to include an additional five states and to collect data from state-funded classrooms in public schools as well as community-based programs. The purpose of the second study, State-Wide Early Education Programs (SWEEP) was to expand the data base to include a high percentage of children in state-wide programs (Early et al., 2005). The combined studies provided data from 11 states, which spend 83% of public state funds allocated for pre-K, and represent 79% of 4-year-olds attending state-wide pre-K.

In 2003-2004, the five states added by SWEEP were Massachusetts, New Jersey, Texas, Washington, and Wisconsin. These states were chosen to compliment the states selected for the NCDEL Multi-State Study of pre-K (Bryant et al., 2005) that was previously discussed. The criteria for selection included significantly different funding levels of modes of service delivery from sites selected for the multi-state study.
Additionally, participating classrooms were required to receive state-funds, and include at least five children who were eligible to participate based on the following criteria: (a) they were eligible for Kindergarten in the fall of 2004, (b) did not have an Individualized Education Plan (IEP), (c) spoke English or Spanish well enough to follow simple directions, and (d) the child had signed permission from parents to participate (Bryant et al.).

In the fall of 2003, 1,175 4-year old children from 465 classrooms participated in the study. In the spring of 2004, where possible, children who were disenrolled from their class were replaced with other children in the study. An additional 176 children were added to the study in the spring to meet the requirement of four study children in each classroom, bringing the total number of children in the study to 1,840.

As in the NCDEL Multi-State Study, researchers in the SWEEP study conducted pre-K classroom quality assessments, using ECERS-R (Harms et al., 1998), CLASS (Pianta et al., 2008) and Snapshot. These were conducted by separate trained raters. Children’s academic skills were assessed in the fall and spring of the pre-K year. Children with Spanish as a home language were screened for English proficiency, and where appropriate were assessed in Spanish. Children were assessed on the *Peabody Picture Vocabulary Test; Oral and Written Language Scales*, *Woodcock-Johnson III Tests of Achievement*, identifying letters, identifying numbers, and Color Bears. Teachers were surveyed regarding children’s social and behavioral skills. Parents completed a brief demographic questionnaire. Teachers completed questionnaires in the fall regarding teacher demographics and classroom demographics, and in the spring
regarding their assistant teacher, parent involvement, and student-teacher relationships (Early et al., 2005).

Key findings of the study were numerous. State-wide pre-K programs were implemented to reduce the achievement gap between children of low-income families and their economically advantaged peers. Teacher pay was well-above that received by child care teachers and below pay scales for elementary teachers with wide disparities in pay for similarly educated and experienced teachers. Most state-wide pre-K teachers had a Bachelors degree in ECE with state certification to teach 4-year-olds. Program hours varied widely from 6 ½ to 60 hours per week. The average class size was approximately 17 with a teacher-child ratio of just under 8:1 which was well within recommendations of NAEYC (Early, et al., 2005).

Additionally, a high percentage of time was spent in eating meals, and care routines; a small amount of time was used for constructive learning or play. Children had relatively few interactions with adults. Classroom quality was below what children need for the best learning outcomes, while instructional quality was especially problematic in terms of providing useful feedback and helping children learn new concepts (Early et al., 2005). Children made progress in literacy, language and number concepts; however this progress was not compared to a control group. Finally, pre-K teachers viewed the children as having few behavior problems and good social skills at the beginning of the year, and noted improvement in social skills during the year (Early et al.).

In contrast to the multi-state studies previously discussed, a study of a single state-supported pre-K program was conducted. The seventh annual statewide evaluation of
North Carolina’s More at Four Program was completed in 2008. More at Four was a state-wide pre-K program providing services to nearly 30,000 children who were at-risk or underserved, or who received no pre-K services or who were enrolled in programs receiving no subsidies or attended poor quality programs (Peisner-Feinberg & Schaaf, 2008). North Carolina funded pre-K services to at risk children in for-profit and not-for-profit community child care Centers, public schools, and Head Start Centers. Children qualified for state-wide pre-K services based on family income, and risk factors such as limited English proficiency, identified disability, chronic health issues, or developmental delay.

The purpose of the research for this report was four-fold: (a) to examine the characteristics of the local programs and determine the extent to which they have changed over time, (b) to determine the quality of the programs attended by the children, (c) to determine the outcomes for the children who attended, and (d) to determine which factors were associated with the best outcomes for children (Peisner-Feinberg & Schaff, 2008). Data were gathered through monthly service reports of program characteristics, information about the children, observations of classroom quality, and child assessments. Researchers conducting child assessments examined literacy skills, math skills, general knowledge, and behavioral skills throughout the program year.

Many of the program characteristics were found to have remained constant. The median class size remained below 18 children each year with 70% to 80 % of the children participating in More at Four. Half of the children were served in public school settings, with a third of the children being served in child care Centers, and the
The smallest number attending Head Start programs. North Carolina’s poorest children were served with 90% of them eligible for free or reduced price lunches. The characteristic demonstrating the greatest change was teacher qualifications, with numbers of teachers with bachelor’s degrees and licenses increasing and the number with no credential decreasing (Peisner-Feinberg & Schaaf, 2008).

Quality was measured in 50 randomly selected More at Four pre-K classrooms during the 2007-2008 school year. Data were collected using four instruments that measure quality ECERS-R (Harms et al., 1998), CLASS (Pianta et al., 2008), Early Language and Literacy Observation (ELLCO), and the Caregiver Interaction Scale (CIS). Quality of classroom practices was determined to be in the mid-range, not substantially different from previous years, but consistent given the increase in children served from 1,244 in 2001-2002 to nearly 30,000 in 2007-2008 (Peisner-Feinberg & Schaaf, 2008). Observations based on CLASS yielded a score of 5.8 (out of 7 points) in the upper end of mid-range on emotional support indicating that teachers were generally effective at recognizing and supporting children’s emotional needs. A mid-range score of 5.3 on organizational support demonstrated that teachers were generally prepared for the children and used classroom time effectively. A low-end of the mid-range score of 3.0 on instructional support indicated that teachers consistently provided poor support for children’s concept development, provided poor quality of feedback, and demonstrated weak language modeling.

In general, the sample assessed for child outcomes included 351 randomly-selected children from 50 programs including 81 Spanish-speaking, English language learners. Children demonstrated significant growth in factors related to better outcomes across
domains (Peisner-Feinberg & Schaff, 2008). Improvement was demonstrated in language and literacy skills, math skills, general knowledge (social awareness) and behavioral skills. No change was shown in problem behaviors which remained just below the average score. The effects of global classroom practices, language/literacy practices, and instructional practices were examined to determine effects on child outcomes. No effects were determined regarding structural quality of classroom practices. Children attending classrooms with higher quality language/literacy practices or higher quality instructional practices demonstrated improvement in some language and literacy skills (Peisner-Feinberg & Schaff).

The primary purpose of a Georgia Early Childhood Study (Henry et al., 2005) was to compare child outcomes across a variety of pre-K programs, throughout the state, from 2001 to 2004. The researchers wanted to discover the extent of positive child outcomes and whether achievements would remain constant through first grade. In the first year of the study, 630 children participated with 353 children enrolled in state-based pre-K, 134 in Head Start, and 143 children enrolled in private pre-K. In the second year of the study 225 children were added who did not attend pre-K. Researchers developed matched samples of children from pre-K and Head Start groups based on demographic and socio-economic indicators.

Six methods of data collection were used in this study. Direct assessments measured children’s language and literacy, math, and academic skills (Henry et al., 2005). These assessments were conducted at the beginning and end of the pre-K year, at the beginning of kindergarten and at the end of first grade. Ratings measured preschool and kindergarten teacher’s performance. Surveys were conducted of teacher...
attitudes and practices. Surveys were conducted of parent attitudes and school involvement. Classroom observations were conducted on quality of classroom activities. Child and family demographic and socio-economic data were collected.

Major findings of the study indicated the child-participants in the Georgia pre-K program started significantly behind the national norms in overall math skills, expressive language, phonemic awareness, and letter and word recognition. By the end of first grade, these children generally retained or improved their academic skills relative to national norms. However children who participated in the matched study sample, including those children who did not attend a formal preschool, showed similar improvements. The researchers predicted that these children might have enjoyed some home advantages with mothers who may have been less likely to work outside the home (Henry et al., 2005). Children from the lowest income families performed better in state pre-K as compared with Head Start or private pre-K. The variables with the greatest effect on child performance were reported to be family structure, income, race, and maternal education (Henry et al.).

State-wide pre-K programs typically received federal funding in conjunction with state financial support. The programs are similar in their requirements for funding from state to state. District–wide programs discussed in the following section were more locally dependent and more closely reflected local leadership. Several studies from diverse geographical areas in the U.S. represent the nature and kind of district wide programs discussed in this review.

**District-wide and County-Wide ECE Programs.** While the study of the Tulsa pre-K programs is part of the state-wide system in Oklahoma, and while data collected
in Tulsa classrooms were compared to state and national data, Phillips, Gormly, and Lowenstein (2007) were primarily interested in the effects of publicly funded pre-K in Tulsa. For this reason, the summary of the research is included in this section. The purpose of a study of the Tulsa pre-K programs was to determine the classroom quality and time spent on instruction in Tulsa’s publicly funded classrooms for 4-year olds. Additionally, the study investigated factors that predict higher quality education in these classrooms, and comparison of findings to prior literature on essential ingredients of quality ECE. The Oklahoma universal pre-K (UPK) reached more 4-year olds than any other state-wide pre-K and had some of the highest standards for classroom quality and teacher preparation (Phillips et al., 2007).

The study identified 80 state-supported pre-K classrooms and 29 Head Start classrooms, holding morning sessions, in the Tulsa area. A team of eight University of Tulsa students were trained and certified reliable on two observational instruments: CLASS (Pianta et al., 2008) and Snapshot. The students worked in pairs and observed “virtually the entire universe of state-funded morning classrooms for four-year-olds in Tulsa, Oklahoma” (Phillips et al., 2007, p. 11). In addition to classroom observations, a teacher survey was used to gather data on teacher characteristics.

Scores on CLASS (Pianta et al., 2008) and Snapshot were found to be positively correlated. Where CLASS scores were high, more time was found to be spent in Snapshot activities, such as reading and science. Where higher scores on negative climate were reported in CLASS, less time was spent in Snapshot activities. Neither the instructional support domain of CLASS nor any of the three dimensions of instructional support were significantly correlated with any of the Snapshot scores. The researchers
concluded while the two instruments were interrelated in meaningful ways, each captured distinct aspects of classroom quality (Phillips et al., 2007).

The quality of instructional support as measured by CLASS (Pianta et al., 2008) was higher than elsewhere in Oklahoma. Phillips et al. (2007) stated that Tulsa’s teachers were devoting more time to pre-reading and pre-math than in other programs elsewhere. The authors concluded that teacher factors (higher education, early childhood certification, and higher pay were associated with better child outcomes in Tulsa when compared with the rest of the nation. Additional factors of teacher experience, teacher curricular choices, and Spanish language ability may explain differences among programs in Tulsa.

In a different geographic area, Marshall and Robert (2007) conducted the Boston Early Education and Quality Improvement Project to address the educational achievement gap that exists for racially and ethnically different children from linguistic minorities and economically disadvantaged families in Boston. During the 2006-2007 school year, data were collected from 81 preschool classrooms representing public, private, for-profit, not-for-profit, secular, non-secular, Head Start, and multi-use community Centers such as the YMCA. These programs were randomly selected for observation by researchers from lists of licensed programs provided by the Office of Early Care and Education. Children in these classrooms ranged in age from birth to pre-K and did not include children in kindergarten or higher grades.

Data were collected in four categories (Marshall and Roberts, 2007): (a) classroom observers measured quality during a typical morning using ECERS (Harms et al., 1998), CLASS (Pianta et al., 2008), and Supports for Early Literacy (SELA), (b) teacher
interviews were conducted to obtain demographic information and to determine how teachers communicated with families (c) director surveys were collected to obtain information about program features, communication with parents, services offered, and director qualifications; directors were asked about assessment techniques used to monitor child developmental progression (d) finally, family surveys were distributed to solicit information about family’s decision-making process in choosing placement for their child; they were asked about their child’s experiences at home.

Five indicators of classroom quality were rated on benchmarks of inadequate, adequate, and good (Marshall & Roberts, 2007). Nearly half of the programs rated in the good range on curriculum with 10% of the programs deemed inadequate. Instructional supports and health and safety were scored in the good range in 25% of the programs, while a third of the programs scored in the inadequate range for these indicators. Literacy supports were rated good in 11% of the programs and inadequate in 44%. On the emotional support indicator, 88% of programs were rated adequate, with 14% scoring in the good range and six percent were deemed inadequate.

Several relationships emerged from the data in this study. The higher the cost of the program the more likely the program was able to meet adequate status on measured benchmarks. Programs where children in low-income families received services and accredited by NAEYC, were more likely to meet adequate status on measured benchmarks. Teachers’ education was positively correlated with higher program costs and with percent of quality indicators. Families were generally satisfied with the services they received, with only 1% percent of families reporting they were unhappy.
In contrast to the Boston study, that involved investigating the nature and kind of settings which served children prior to kindergarten, the Chicago Longitudinal study investigated the educational and social development of kindergarten children who attended publicly funded ECE programs in the Chicago area (Horton, 2007). The study followed 1,539 children who were low-income, 93% of whom were African American, enrolled in 1985-1986. The original study included 1,150 children who attended Chicago’s Child-Parent Centers for preschool and kindergarten from 1983 to 1986 (Horton). An additional 389 children of the same age and socio-economic status, who attended alternative full-day kindergarten programs from five randomly selected public schools, were added to the study in 1986 as a comparison group. All children were born in 1980.

Data were collected from multiple sources including teacher surveys, child surveys and interviews, school administrative records, parent surveys and interviews, and classroom observations. According to Horton (2007), the study was conducted in the 1980s and assessments used to measure children’s kindergarten achievement were inappropriate by today’s standards. The assessments were group-administered subtests of the *Iowa Test of Basic Skills*.

Children who participated in the Child-Parent Center program made statistically significant academic improvements over the control group. The children in the experimental group demonstrated a five month gain in reading and math achievement over the control group by age 15. More children in the control group received special education services, and had repeated a grade by age 18. By age 22, more children in the experimental group had completed high school, and fewer children were arrested as
juveniles. These findings represent the average effect of the students who participated. Children in the Chicago Child-Parent Center program could take advantage of services from age three through third grade. Children who participated in the Child-Parent Center Program (experimental group) showed significantly greater gains the longer they participated in the program (Horton, 2007). Gains were attributed to three factors: (a) the cognitive development from the preschool experience, (b) the lack of mobility provided by the quality of the post-preschool learning environment resulting in parents continuing to reside in the neighborhood, and (c) parent involvement in school (Horton, 2007).

District-wide ECE programs addressed a wide variety of local needs. These programs reflect local leadership strengths and commitments. Boston was concerned with child care settings for children prior to the start of formal school, with the intention of mediating the achievement gap between children who were at risk for school failure and those children who were more advantaged. Chicago was concerned with neighborhood support, while Tulsa focused on quality and academic outcomes in ECE programs. Each district-wide program supporting young children reflects local needs and areas of concern.

**Summary of Research Related to ECE Programs**

Publicly supported preschool programs in the U.S. have been generally designed to serve children who are at risk for school failure. The population of children who attend pre-K programs has grown rapidly as the result of a widely-held belief that high quality preschool programs mediate the academic and social gap between children who are at-risk and those who are advantaged at the start of kindergarten. Early childhood
education programs vary widely in type of service, settings, curricula, length of program, and program quality. Teachers’ qualifications and experience influence educational outcomes for children. ECE programs demonstrated improvement in children’s readiness for school. However, family characteristics, socio-economic demographics and mother’s education have been shown to be significant predictors of children’s school performance.

**Review and Analysis of the Literature Related to Quality of Early Childhood Education Programs**

In a review of two national studies conducted to address quality in existing early childhood classrooms, Pianta (2007b) discussed what is known about ECE from decades of research, what is known about current quality in ECE classrooms, and how it can best be measured. Most research prior to the current decade has focused on structural quality which included features of classrooms and schools, kind and content of curriculum, teacher qualifications, and class size and teacher-child ratios (Pianta). More recent research focuses on process quality, measuring teacher-child interactions, and much of it originated from Pianta’s research group at the Curry School of Education’s Center for Applied Study of Teaching and Learning at the University of Virginia.

Pianta (2007b) summarized current knowledge about ECE in five broad categories. First, prior to entering kindergarten more than 70% of 3- and 4-year-old children in the U.S. attend a wide variety of preschool settings with huge disparities in educational opportunities. Second, many students at greatest risk for school failure are enrolled in ECE, but few of these children experience high-quality programs, and those that do are
unlikely to receive them consistently. Third, demand for ECE teachers is growing rapidly. Pianta estimates that by the year 2020, 50,000 additional ECE teachers will be needed. Fourth, rapid enrollment growth intensified the need for evidence-based training and on-going support of teachers. Finally, nearly every publicly funded ECE and child care program included a stipulation that the program must be of high quality. Justification of public funding of ECE programs requires quality measures that are linked to child school and life outcomes.

Quality has been found to be best measured by what teachers do in the classroom. Teacher’s interactions with children through implementation of a curriculum are the best measure of children’s learning. Direct classroom observations of teacher’s interactions using an evidence-based instrument were shown to ensure accurate measurement of teacher’s performance that is directly related to the child’s experience (Pianta, 2007b). Exemplary process quality in the classroom has been shown to include explicit instruction in key areas, emotionally warm and sensitive interactions, responsive feedback, conversation and open-ended questions, and a classroom environment that allows for child input, choice, and mobility. Pianta maintains that current measures of structural quality are only proxies for the instructional and social interactions children have with teachers in the classroom. Yet these structural measures drive policy and program design. Most of the following studies incorporate measures of structural and process quality in the research design.

**Early Childhood Education**

The purpose of the study conducted by Howes et al. (2008) was to examine the data from two large multi-state studies (NCEDL Multi-State Study of Pre-Kindergarten and
SWEEP) discussed previously, and evaluate children’s growth in school-related learning and social skills during the pre-K year. The researchers’ goal was to determine indicators of quality that were related to children’s learning improvements in academic and social skills. The hypothesis of the study was that these improvements would be attributed to structural quality and classroom process dimensions.

Nearly 3,000 children from 700 state-wide pre-K classrooms in 11 states were participants in this study. Four children from each classroom were randomly selected to participate according to the requirements previously cited in the NCDEL and SWEEP studies. Most of the classrooms served 4-year-olds, though a minority of classrooms served 3- and 4-year-olds. Public school settings accounted for 63% of the classrooms. Children who were not described as Caucasian represented 58% of the participants, while 58% of children in a typical classroom population were below the poverty line for a family of their size (Howes et al., 2008).

Data collectors were all post-BA, community-based full time professionals. One group of raters collected data on the children while a separate group of raters observed the classrooms. Teachers completed surveys about their educational background and about the children in the study. Children were assessed in the spring and the fall for language, pre-literacy, and math skills as measured by Snapshot (Howes et al., 2008). Extensive classroom observations were conducted in the spring and fall using ECERS-R (Harms et al., 1998) and CLASS (Pianta et al., 2008) Teachers completed the STRC.

Conclusions of the study were that generally children made small academic gains in language and literacy and social domains, but not in mathematics, in state-funded pre-K programs. Children were reported to have performed similarly across family structures,
economic, racial, and ethnic classifications. Children in this study demonstrated smaller gains than in other similar studies. Howes et al. (2008) attributed these smaller gains in academic and social performance to the size of the study. Children’s limited improvement in academic and social skills might have resulted from relatively low scores in process quality throughout the study. Scores on ECERS- R (Harms et al.), and the CLASS (Pianta et al., 2008) emotional domain were generally in the mid-range, indicating average responsiveness to children’s emotional needs. Instructional domain scores were in the low range indicating poor quality of concept development, feedback, and language modeling.

Howes et al. (2008) claim that “this is the first study of pre-K programs to link variations in classroom process quality to children’s gains in academic and social skills” (p. 45). Some children’s improvement in literacy skills, receptive language, and pre-reading concepts, was linked to high instructional climate classrooms. Teachers in these classrooms engaged children in interactions that encouraged communication and reasoning while being sensitive and responsive in her/his interactions with children and these teachers constructed an atmosphere of respect, encouragement, and enthusiasm for learning (Howes et al.).

A parallel study was conducted to examine features of pre-K programs, classrooms, and teachers using data derived from the NCDEL study discussed above. The purpose of the study was to determine if these features were predictive of observed classroom quality and teacher-child interactions (Pianta et al., 2005). Pianta et al. expressed the belief that perceptions regarding characteristics of quality, by legislators who support publicly-funded ECE, might lead to legislation or some other form of regulation.
Therefore, an understanding of which characteristics lead to improved child outcomes was relevant to policy makers (Pianta et al., 2005).

In this study, data were collected from 238 classrooms in six states and were examined for quality characteristics at the global level and for specific teaching practices. As was noted in the previous discussion regarding the NCDEL study, observed classroom quality was measured using ECERS-R (Harms et al., 1998), CLASS (Pianta et al., 2008), and Snapshot. Descriptive statistics were gathered regarding child-teacher ratios, teachers’ years of experience, teacher’s depressive feelings, adult-Centered attitudes, teacher’s hourly wages, location of the classroom in the school building, numbers of classrooms with more than 60% of the children in poverty, length of program day, teacher’s credentials, and teacher’s ethnicity (Pianta et al., 2005).

Correlations were computed between and among continuous predictors (program, classroom, and teacher characteristics) and observed quality indicators from ECERS-R (Harms et al., 1998), CLASS (Pianta et al., 2008), and Snapshot. Several associations were reported to have demonstrated small statistical significance (Pianta et al., 2005). Teachers who reported higher depressive symptoms rated lower on the CLASS emotional quality scale. Teachers who expressed more traditional beliefs (teachers who believed children needed direct instruction vs. more developmentally appropriate methods) had lower scores on the emotional quality scale, ECERS-R and teaching and interactions scales. These teachers were less likely to offer activities for children in learning Centers. Teachers earning higher wages were more likely to engage children in whole group activities.
The highest predictor of quality was determined to be the state in which the program was located. This association was attributed to poor enforcement of state regulations, and lack of professional development supporting program’s compliance with state regulations. Other predictors of quality are summarized. As measured by ECERS-R (Harms et al., 1998) and CLASS (Pianta et al., 2008), global quality was lower when the service was provided to a majority of children below the poverty line, teachers did not have a Bachelors degree in ECE, and when teachers held more traditional beliefs about children. Teachers’ greater years of experience mildly affected global quality (Pianta et al., 2005). Finally, variance explained by the predictors as a set, aside from the State in which the program was located, was explained by the range in global quality attributable to program and teacher characteristics and ranged from 8% on CLASS instructional to 17% on ECERS-R (Pianta et al.).

Pianta et al. (2005) concluded that increments in quality associated with changes in licensing or certification, regulations such as teacher education were small, and that changes in location within the school building or length of program would result in no quality differences. Also noted, associations with the previously listed characteristics were generally insignificant (Pianta et al.). Finally, Pianta et al. recommended that quality changes would be most affected by professional development opportunities within the classroom, and focused on children’s actual experiences in that setting, as well as teachers’ expressed skills and knowledge.

In comparison to the study of state funded pre-K programs previously discussed, a study was conducted in California to establish the nature and quality of child care arrangements for children prior to public school attendance. A telephone survey of
California households representing over 2,000 children was conducted in the first half of 2007 to determine the nature and quality of children’s early learning experiences (Karoly, Ghosh-Dastidar, Zellman, Perlman, & Fernyhough, 2008). Two cohorts of children were studied. Those eligible for kindergarten in 2007 were labeled 4-year-olds and those eligible for kindergarten in 2008 were designated as 3-year-olds. The telephone interview was conducted with the focal child’s parent. Data were collected regarding the child’s ECE arrangements, background information on the child, the child’s co-resident parent(s), and information about the household, including income.

Phone calls were then conducted with the teacher and administrator at the child care Center providing the most weekly hours of care or with the home-based provider if the child did not attend a Center. Approximately 700 locations were contacted. A random sample of about 250 Center-based programs, representing care arrangements of the children in the study group, received on-site visits. Specially trained observers collected data regarding quality in the Centers. Structural quality data such as group sizes, child-staff ratios, and teacher qualifications were collected. Two subscales of ECERS-R (Harms et al., 1998) and the full set of CLASS (Pianta et al., 2008) was used. No on-site data were collected in home-based care arrangements (Karoly et al., 2008).

Center-based care arrangements were used by 59% of the children in the two cohorts in a mixture of public and private settings. Private pre-K, preschool, or nursery school accounted for 28% of placements, while public settings such as Head Start, California Title 5 programs, and public school accounted for 22% of placements (Karoly et al., 2008). An additional 9% of children attended a community-based Center or recreation-Center program such as the YMCA. Children who did not attend Center-
based care were cared for in either a relative or non-relative home-based program. Finally, one-fourth of the children had no care other than with their parents. Attendance in Centers was represented by 80% of 4-year olds and by 70% of 3-year olds in Pre-K settings.

Several conclusions were reached. First, children classified as disadvantaged were less likely to attend Center-based care. Next, quality in Center-based programs is variable. Centers more frequently met standards of structural quality, such as group sizes and ratios and they were more likely to score higher on classroom environment measures that focus on emotional support, classroom management, and student engagement. Additionally, areas of needed quality improvement included teachers’ facilitation of language development and higher-order thinking skills. Finally, areas with room for improvement included teacher education and training, use of research-based curricula, and basic health and safety measures (Karoly et al., 2008).

Implications for policy changes in California ECE, which were recommended to be addressed by policy makers, were outlined (Karoly et al., 2008). Children who most needed high quality ECE learning environments were found to be least likely to have access to them. An expansion of services for children in under-served groups (which include Latinos, children whose parents were linguistically isolated, children whose mothers have low levels of formal education, and children in families with low income) should be considered. Quality issues existed for children across the socioeconomic spectrum and in different demographic groups. Recommended quality initiatives should focus on elements that are significant to kindergarten readiness.
Quality in Inclusive Classroom Settings

Independent studies of children in inclusive and non-inclusive classrooms investigated structural and process quality in each classroom to determine if quality was related to the composition of students in the classrooms being served (Hestenes, Cassidy, Shim, & Hegde, 2008). Additionally, the investigators were concerned with the impact of the nature and severity of the identified disabilities on quality measures. Study 1 was conducted across 1,313 classrooms in programs trying to earn higher points on North Carolina’s rating scale for quality and consequently represented programs which demonstrated high quality. Program directors were asked by personnel from the North Carolina Licensed Assessment Project (NCRLAP) if they were interested in earning more stars on their rated license. Assessors were from the NCRLAP. On the day of the visit, one-third of the classrooms at each age level were assessed. In this study, 459 classrooms (35%) contained at least one child with an identified disability, with a total of 1,145 children participants with disabilities.

Study 2 involved 44 classrooms (24 were non-inclusive and 20 were inclusive) from three mid-sized cities in North Carolina and were more diverse than the classrooms in Study 1. Programs in this study were selected from a group of licensed child care Centers with a range of quality from one star to five stars. Directors received a phone call asking if they wanted to participate in the study. Interested directors were mailed letters of consent followed by a phone call. Teachers in the consenting Centers were then asked to participate. Effort was made to include equal numbers of inclusive and non-inclusive classrooms. A classroom was considered inclusive if one child with
an identified disability was enrolled. The average number of children with identified disabilities was 2.9, in the inclusive classrooms (Hestenes et al., 2008).

Quality in Study 1 was measured by ECERS-R (Harms et al., 1998). The classroom quality was scored by trained observers who were required to reach at least 85% interobserver reliability to be considered qualified to complete an assessment. Additional information was gathered on structural quality measures of teacher-child ratios and group size. Demographic information was collected on teachers, teachers’ perception of severity of children’s disabilities, as well as child demographic information (Hestenes et al., 2008). In Study 2, the Teacher Child Interaction Scale (TCIS) was added and correlated with the ECERS-R ratings.

The results of Study 1 indicated that inclusive toddler and preschool classrooms are of higher quality than non-inclusive classrooms. Assessments of inclusive classrooms revealed higher global quality with more experienced teachers who were educated in special education. Significant differences between the two groups focused on subscales of the ECERS-R (Harms et al., 1998) where teachers had more direct control such as language-reasoning, activities, interaction, and program structure (Hestenes et al., 2008). There were no significant differences noted between inclusive and non-inclusive classrooms on the subscales of personal care routines and space and furnishings. The severity of the child’s disability did not influence quality in this study. Causality was not assigned to results in this study. Three factors were suggested to influence the results. Classrooms in which services were provided to children with disabilities may have strived for higher quality, parents of children with disabilities may have chosen
higher quality placements for their children, and programs improved as individual children’s needs were met (Hestenes et al.).

Quality scores in Study 2 were, on average, below the ECERS-R (Harms et al., 1998) rating of good and were much lower in Study 2 than in Study 1 (Hestenes et al., 2008). Correlation coefficients were created between ECERS-R scores and TCIS scores. The average teacher’s education in Study 2 was slightly less than 2 years, with few teachers having completed special education coursework. The average experience was 7 1/2 years in the field of ECE. There were no demonstrated differences of structural quality between inclusive and non-inclusive classrooms. On the TCIS, teachers from inclusive classrooms were rated as displaying significantly more interactions with students. There were no demonstrated differences between inclusive and non-inclusive classrooms regarding teacher education, group size, ratios, credit hours in special education, or teacher experience (Hestenes et al.).

Education was shown to be linked to the quality and appropriateness of the interactions but not the frequency. Teachers with more education had higher quality of interactions and more appropriate interactions with the children. Group size and staff-child ratios in Study 2 were negatively related to classroom quality. Large group sizes and high staff-child ratios were inversely related to global quality and quality teacher-child interactions (Hestenes et al., 2008).

Hestenes et al., (2008) concluded the two reported studies provide continuing support for the critical role of the teacher in understanding classroom quality, particularly in inclusive and non-inclusive settings. Education of the teacher was considered to have accounted for the differences between classroom types. The level of
severity of children’s disabilities was not shown to have impacted quality in either study. The researchers recommended the inclusion of coursework and practicum experiences regarding high quality interactions in teacher preparation programs.

**Summary of the Literature Related to Quality of ECE Programs**

The need for evidenced-based research regarding quality in ECE programs is directly linked to the increase in funding for a wide variety of ECE programs designed to address the achievement gap between groups of children who are at risk for school failure and children who have more advantages. Historically, measures of quality have related to state licensing requirements of structural quality. Included among these measures are elements of health, safety, group size, teacher-child ratios, teacher education, years of staff experiences with children, equipment, supplies, and curriculum. Through much research conducted in large-scale studies, investigators have determined that there is very little relationship between structural quality and favorable child outcomes in academics and social development, in spite of the importance implied by licensing agencies and funding sources. Through the past decade, researchers have designed instruments to measure the quality of teacher-child interactions and their relationship to a variety of academic, social, emotional, and behavioral outcomes for children enrolled in ECE programs.

**Review and Analysis of the Literature Related to Teacher-Child Relationships**

A conclusion drawn from a review of the literature previously discussed is that quality teacher-child relationships support children’s academic and developmental improvement in ECE. Instruments have been developed and standardized to measure
quality of these relationships. ECE programs, dependent on continued financial support, rely on significant demonstration that the academic gap is being closed for children at risk for school failure.

Teacher-child relationships as reported in the literature have been most often measured using CLASS (Pianta et al., 2008). This standardized instrument categorizes relationships into three domains: emotional support, organizational support, and instructional support. The following research examines teacher-child relationships as they related to children’s performance gains in the classroom. One of the following studies measured teacher-child interactions with the STRC which was developed by Pianta and first published in 1992 (Birch & Ladd, 1997). Pianta et al. (2008a) first published CLASS after extensive research. Following is a review of three research studies. The first and second reviews investigate the importance of teacher child relationships as measured by the STRS, followed by a discussion regarding CLASS measurement of teacher-child interactions as they affected child outcomes in kindergarten.

**Literature Related to Teacher-Child Relationships**

One of the earliest studies that linked teacher-child relationships with academic performance was conducted by Birch and Ladd (1997). The purpose of the study was to examine children’s early adjustment to school as related to three dimensions of the teacher-child relationship: closeness, conflict, and dependency. Pianta’s early work on teacher-child relationships produced the STRS which identified these dimensions (Birch & Ladd).
A sample of 206 kindergarten children and their teachers, from eight public elementary schools located in three Midwestern communities, was drawn from a larger longitudinal research project. The communities represented a variety of demographic characteristics and ranged from rural towns to communities with populations of 100,000. The STRS measured teacher’s perceptions of their relationship to each student. The five-point Likert scale measured 28 items grouped into subscales of conflict, dependence, and closeness. The conflict subscale measured tension in the teacher-child relationship. Dependence measured the participant’s over-dependence on the teacher, and closeness measured warmth and cohesion in the teacher-child relationship (Palermo, Hanish, Martin, Fabes, & Reiser, 2007).

Higher visual and language scores on the Metropolitan Readiness Tests (MRT) were associated with children whose teachers reported closeness in their teacher-child relationships than with children with less close relationships with their teachers (Birch & Ladd, 1997). Children who were viewed as less dependent scored higher on the same indices. Children who were rated by their teachers as dependent reported feeling more lonely in school. Teachers reported teacher-child conflict. Lower conflict was correlated with higher levels of cooperation among children; conversely, higher conflict was correlated with lower cooperative participation.

In a similar study examining a different population, STRS was used to link teacher-child relationships to pro-social behavior and academic readiness. The purpose of a study conducted by Palermo et al., (2007) was to determine the influence of the quality of teacher-child interactions to child outcomes of pro-social behavior and aggression. Additionally, this study investigated whether children’s behavior and social status
would influence the teacher-child relationship and academic readiness. Further, the study examined the role of teacher-child relationships in mediating the children’s behavior and academic readiness.

Palermo et al., (2007) applied a convenience sampling approach to the selection of 95 children and their teachers from six classrooms in three preschools representing community-based, Head Start, and university sponsored preschools from a major metropolitan area in the southwest. Data were collected in two separate waves over a two-year period. Children (n = 27) who attended a program for both years were included in the data collection only in the first year. Children ranged in age from 35 to 61 months. Approximately half of the children were from non-Hispanic Caucasian backgrounds and the children were evenly divided by gender. The majority of participants was from two-parent households and represented a wide range of socio-economic backgrounds.

Data were collected in the spring of each pre-K year. Lead classroom teachers completed a questionnaire packet on each participant with questions relevant and irrelevant to the study. The quality of the teacher-child relationship (greater closeness score) was found to be significantly correlated with children’s readiness for kindergarten. Teacher-child dependence and conflict were negatively related to children’s readiness. When the teacher-child relationship was strong, participants tended to be more pro-social. When children were found to be more pro-social, less peer-exclusion was reported and children had greater academic readiness for kindergarten. Further, teacher’s close teacher-child relationships enhanced pro-social behavior and increased teacher-child closeness. Children with more negative behavior
or poor social adjustment tended to illicit more negative teacher-child relationships.

“The teacher-child relationship appears critical to promoting positive school experiences and maximizing the quality of the preschool classroom environment, which has been associated positively with children’s long term school adjustment” (Palermo et al., 2007, p. 420).

A similar study used CLASS (Pianta et al., 2008), and predicted child outcomes at the end of the pre-kindergarten year based on the quality of teacher-child interactions and instruction, by examining data collected in the NCEDL project (Burchinal, et al., 2008). States were selected for this study which served 15% or at least 15,000 of their 4-year-olds in state-funded pre-K programs. There were nineteen states eligible of which six were chosen for diversity in length of program day, geography, teacher credentialing requirements, and location of classrooms in public schools. A stratified random sample of 40 pre-K sites was selected from each of the six states: California, Georgia, Illinois, Kentucky, New York, and Ohio. Teachers selected four children from each of 227 classrooms to participate in the study. In all, 929 children (460 girls) participated; 878 of them were followed into kindergarten. Children were selected for participation based on the criteria outlined in the NCDEL study previously discussed (Burchinal et al., 2008).

Extensive classroom observations were conducted and direct assessments of children’s language, pre-literacy, and math skills were completed during the fall of the pre-K and kindergarten years. Teachers completed questionnaires regarding ratings of academic and social skills, parent-teacher relationships, and teacher-child relationships. Two measures of classroom quality were rated using CLASS (Pianta et al., 2008) and
ECERS-R (Harms et al., 1998). Both assessments were performed in the fall and spring of pre-K by different certified raters. Observations were conducted in the winter or spring of kindergarten for each of the assessments, ECERS-R and CLASS. Burchinal et al., (2008) concluded that instructional quality slightly influenced children’s academic and social performance up to one year after pre-K. When pre-K teachers encouraged children to communicate and use language to develop reasoning skills, provided clear and positive discipline and supervision, developed concepts coherently, interacted frequently with children, and provided feedback clearly and positively, children appeared to learn more and sustain their achievements.

Teachers in this study were rated toward the high-medium range on the ECERS-R (Harms et al., 1998) Interactions and Teaching Factors, which indicated frequent contact with the children and significant emotional support. The same teachers were rated very low on the CLASS (Pianta et al., 2008) instructional climate factor, which suggests they demonstrated poor concept development skills, poor quality of feedback, and minimal language modeling skills. This study supports previous findings that statewide pre-K classrooms demonstrate relatively high structural quality; however children generally do not experience either clear content-rich instruction or highly interactive and responsive teaching (Burchinal et al., 2008). Further, the researchers recommend paying careful attention to professional development programs that are successful in improving child outcomes and instructional styles, “especially if the training programs are focused and entail clear feedback such [as] occurs when teaching is videotaped or the caregiver works with a consultant” (Burchinal et al., p. 151).
Summary of the Literature Related to Teacher-Child Relationships

Quality teacher-child relationships have been shown to be critically related to positive outcomes for children in ECE programs. When the teacher-child relationship was rated high, participants tended to be more pro-social. When children were found to be more pro-social, less peer-exclusion was reported and children had greater academic readiness for kindergarten. Further, close teacher-child relationships enhanced children’s pro-social behavior and increased teacher-child closeness. Children with more negative behavior or poor social adjustment tended to elicit more negative teacher-child relationships.

Children in the NCDEL state-wide pre-K study generally demonstrated relatively high structural quality. However, as measured by CLASS (Pianta et al., 2008), children in this large study did not experience highly interactive or responsive teaching nor were they given clear, content-rich instruction. Consistent with many of the findings throughout the literature, children received adequate emotional support in positive climates. Instructional support, while considered to be the most significant indicator of positive child academic and social outcomes, was consistently rated at the low end of the seven-point CLASS (scale indicating a need for increased professional development in instructional interaction (Mashburn et al., 2008).

Review and Analysis of the Literature Related to Teachers Beliefs and Intentions Regarding Quality Interactions in Early Childhood Education

Teachers’ beliefs and intentions regarding their practice are central to a discussion of professional development. When teachers are able to examine their beliefs and align them with expectations for practice they may be more receptive to
implementing changes in curriculum and program design. Teachers often espouse the philosophy, such as developmentally appropriate practice (DAP), of the programs in which they are employed, while their practice reflects more traditional methods of whole group instruction.

A study was conducted in the Chicago Public Schools (CPS) Head Start Program to determine if pre-K teachers’ beliefs were reflected in their practice and to what extent classroom quality was influenced by these beliefs (Carradine, 2004). The study participants included 21 of 26 Head Start preschool teachers employed in full day/full year programs in CPS Head Start. Participants were female, English speaking and represented a range of experience from 1 to 38 years.

Teachers’ classroom quality was rated by trained observers using ECERS (Harms et al., 1998) and the Instructional Activity Scale (IAS). Interviews were then conducted with six participants, who each had fewer than five years of experience, regarding beliefs about their instructional practice. The Teachers Beliefs Scale (TBS) was administered to all teachers (Carradine, 2004). A descriptive analysis was conducted using t-tests to determine relationships between quality and practice from data collected from the IAS and ECERS. Results from the TBS were correlated with the IAS to determine relationships between beliefs and practice. No significant relationship was found between teachers’ beliefs and their instructional practices or classroom quality. A significant and positive correlation was found to exist between instructional practices and classroom quality. All Head Start teachers scored high on the TBS which meant that they believed in the philosophy of DAP. The teachers that also scored low on the IAS contradicted these stated beliefs.
A similar, but broader, study designed to measure teachers’ perceived beliefs and intentions regarding interaction with young children, was conducted in California (Wilcox-Herzog & Ward, 2004). The research included the development of the Beliefs and Intentions Questionnaire (see Appendix A). Four aspects of teacher-child interactions were measured using this instrument: sensitivity of interactions with children, non-verbal involvement, verbal involvement, and play style adopted when interacting with children.

Participating teachers were selected from a pool of 880 child care Centers, representing private, not-for-profit, child care ministries, Head Start and university based Centers in southern California. Letters were sent to directors asking permission to recruit teachers for the study; the response rate was 4% resulting in 38 directors agreeing to participate. Letters were then sent to the 364 teachers in the consenting Centers along with a form requesting demographic information, resulting in 71 participants. Of these participants, 48 were classroom teachers, 18 were classroom aides, and four held supervisory positions. Teachers represented a range of education and experience.

Participants were surveyed to collect demographic data, and were asked about consistency of ability to practice what they believed. They completed a 17 item questionnaire on a 5 point Likert scale regarding beliefs. A second Likert scale, composed of 20 questions, measured teaching intentions. An inter-correlation analysis was performed among the teachers’ beliefs and intention scores and a significant positive correlation was determined, concluding that beliefs were a modest predictor of intentions. Teachers with the most education and training were found to be most likely
to engage in developmentally appropriate ways with children (Wilcox-Herzog & Ward, 2004).

Teachers in ECE bring a wide range of experience and education to the classroom. Teachers with extensive education are more likely to have exposure to DAP, and to believe in its efficacy. Less educated teachers are more likely to teach the way they were taught. Most ECE programs integrate DAP into the curriculum and teachers are familiar with it. However, without extensive professional development, teachers may not be comfortable practicing the DAP curriculum which leads to a discrepancy between stated beliefs and observed practice.

Review and Analysis of the Literature Related to Successful Professional Development in Early Childhood Education

A discussion of the efficacy of professional development of pre-service and in-service teachers in ECE encompasses an understanding of the nature and variety of such professional development programs. Teachers who work with young children have a wide range of education and experience, from beginning teachers with no education beyond high school to seasoned teachers with advanced degrees. Professional development formats take place on-the-job, through the internet, in college classrooms, through conferences and workshops conducted at the work-place, in the community, or across the nation. According to Pianta (2007b) a system of training of early childhood professionals is loosely regulated and widely distributed.

Pianta (2007a) refers to ECE as compared with K-12 as a “fragile and vulnerable system that is increasingly being asked to ameliorate social, economic, and educational disparities” (p. 4). Teachers in ECE often see themselves as alienated from the K-12
system and reported feeling poorly supported. Additionally, the field of ECE is more poorly funded in general than is K-12 and is often housed in make-shift locations such as trailers or basements. Teachers are charged with making a difference for the children who are most at-risk.

**Review and Analysis of the Literature Related to Professional Development**

In a meta-analysis of published studies from 1980 to 2005, a positive effect of specialized training on the competency of ECE professionals was demonstrated (Fukkink & Lont, 2007). The areas that were positively affected included pedagogical competencies, listed as professional attitude, knowledge and skills. The effects of training on child outcomes were inconclusive. The effectiveness of interventions varied. Large scale programs designed for a wide variety of learners and to a variety of formats at multiple learning sites were not determined to be effective. Greatest improvements were demonstrated in teachers’ attitudes, with the explanation that attitudes have to be changed before teachers’ are willing to learn new skills. Fukkink and Lout linked caregiver training to caregiver competencies and finally to child behavior, advocating for the instruction related to teacher-child interactions to be included in the curriculum of vocational training for caregivers (Fukkink & Lout). The following studies address a variety of approaches to professional development and evaluate their effectiveness.

Cerabone (2007) conducted a study of 34 preschool teachers in a school district providing services to children at risk for school failure to determine the effects of a professional development program on the improvement of classroom quality. The Supports for Early Literacy study was conducted to determine classroom quality both
before and after the intervention. The teachers were randomly divided into Control Group I (n = 11), Control Group II (n = 12) and an Experimental Group (n = 11). All 34 teachers attended an initial professional development workshop on literacy.

Professionals in CI did not attend additional workshops on literacy instruction or meet in work groups. Participants in CII continued to attend traditional professional development workshops related to literacy, specifically the *Early Learning Assessment System (ELAS)*, designed to assess children’s growth in literacy. The experimental group attended work groups led by a teacher consultant on the *ELAS*. Participants in CII and the experimental group received the same number of hours of instruction. Classroom quality before the intervention was compared to classroom quality after the intervention. Though not statistically significant in this study, the most growth was demonstrated in the experimental group where the teachers received instruction in work groups and had opportunities to discuss their practice (Cerabone, 2007).

In a much broader study, Early et al. (2007) reviewed and analyzed data sets of seven major studies to determine the effectiveness of requiring advanced degrees of ECE teachers in pre-K classrooms by using the technique of replicated secondary data analysis. The studies contained similar information and were conducted similarly. All of the studies met three requirements: (a) they all contained data about teachers’ education, (b) all measured classroom quality, and (c) they all contained pre-test and post-test data on children’s academic skills. The data that were used were from Early Head Start Follow-up, Head Start FACES, Georgia Early Care Study, More at Four, NCEDL, The Study of Early Care and Yolk Development, and the Preschool Curriculum Evaluation Research Program.
Classroom quality was measured using *ECERS*-R (Harms et al., 1998) across all studies. Children’s academic skills were extensively measured. Receptive language was measured in six studies using the *Peabody Picture Vocabulary Test* and in one study using the *Preschool Language Survey*. All studies used some version of the *Woodcock-Johnson Tests of Achievement* for assessing letter recognition and early math skills (Early et al., 2007).

When comparing teachers’ years of education to classroom quality and children’s academic outcomes, Early et al. (2007) concluded that most of the analyses revealed null findings. Several hypotheses were presented for these conclusions: (a) teacher preparation systems may not be adequate or may be outdated, (b) teachers lack support to effectively implement what they have learned, especially entry level teachers, (c) market forces and greater demand for teachers in ECE, created by the rapid growth in numbers of children served, may have lured teachers’ without bachelor’s degrees to public ECE classrooms, at the same time luring seasoned teachers with bachelor’s degrees applied to teach at higher grade levels (Early et al.).

In contrast to the study conducted by Early et al. (2007) designed to measure instructional quality in the classroom, the Chicago Public Schools Readiness Project (CSRP) researched a method of professional development. The CRSP conducted a clustered randomized trial for purposes of improving teachers’ emotional support and classroom management in Head Start classrooms (Raver, Jones, & Li-Grining, 2008). The project included two cohorts of teachers, students, and classrooms. Cohort 1 participated from fall to spring in 2004-2005 and Cohort 2 participated from fall to spring in 2005-2006. The sites enrolled in Cohort 1 differed from those sites enrolled in
Cohort 2 with respect to demographic and program level characteristics. At baseline, 87 teachers in classrooms representing 543 children agreed to participate. Sites qualified for participation if they received Head Start funding, contained two or more full-day classrooms, and were located in one of seven high-poverty neighborhoods (Raver, et al.). Teachers were paired and randomly assigned to control or experimental conditions in each cohort.

All treatment-assigned teachers, including their lead and assistant teachers were paid to participate in five, six-hour trainings on Saturdays during the fall and winter of their cohort year. A Licensed Clinical Social Worker presented behaviorally and evidenced-based teacher training packets. Additionally, teachers in the experimental group received coaching from a mental health coordinator with a Master’s Degree in Social Work for nearly five hours a week for a total of more than 82 hours each. Observations were performed using ECERS-R (Harms et al., 1998) to determine structural quality. Four dimensions of CLASS (Pianta et al., 2008) were assessed at four points during the school year: positive climate, negative climate, teacher sensitivity, and behavior management were measured (Raver et al., 2008).

Results indicated that “Intervention classrooms experienced a substantial improvement over control classrooms in their emotional climate, with teachers demonstrating greater enthusiasm with their students, more responsiveness to the students’ needs, and lower use of harsh or emotionally negative practices” (Raver et al., 2008, p. 22). Raver et al., suggest that workforce development may complement state and national education standards in improving quality in ECE settings. Further, Raver reported that when a model emphasizing collaboration, shared commitment to children
experiencing high levels of disadvantage, and included a coaching component, coaching teachers responded positively. (Raver et al.).

Data from NDEDL were used to examine the association between teacher’s education level, major, and credentials and the level of classroom quality or teacher’s academic instruction (Early et al., 2006). The study examined teachers’ years of education, whether they held a bachelors degree and the highest degree achieved. Considerations were given to college major, whether the teachers held a state teaching certificate, or a Child Development Associate Credential (CDA).

Stratified sampling selection insured maximized diversity with respect to teacher’s education, program length, and program location. One teacher in each of 237 classrooms representing 800 4-year-old children was chosen for observation. In the fall of 2001, four eligible children from each classroom were chosen to participate in the study (Early et al., 2006). Each teacher was asked to complete a questionnaire regarding his/her educational background and certification. Classroom quality was measured in the fall using ECERS-R (Harms et al., 1998) and CLASS (Pianta et al., 2008). Children’s pre-academic skills were measured using a battery of assessment tools.

Results of the study indicated that higher education yielded only minor increases in classroom quality. With respect to academic gains for children, there was a higher positive correlation between teachers’ education and children’s math proficiency, but not for increased language skill. Teachers’ education major and credential were not related to improvements in math achievement. Children who were taught by teachers certified with a CDA demonstrated higher basic skill achievement, and children whose
programs had a longer school day benefited more from teachers with a CDA and showed higher levels of improvement in math and number naming than did children in programs with shorter days (Early et al., 2006).

Using a very different approach to professional development, Kinzie et al. (2006) discussed the implementation of a web-based professional development system for teachers of at-risk preschool children. My Teaching Partner (MTP) provided teachers with support from their own on-line consultant through an innovative, technology-assisted program. The consultant was a teaching expert who observed, de-briefed, and extended teachers’ educational practice bi-monthly (Kinzie et al.). The program provided additional web-based supports including video segments of appropriate teacher-child interaction.

Field trials were conducted to determine the efficacy of MTP with three treatment groups. All teachers in the study received a one-day workshop on MTP during the summer. All teachers were issued a laptop computer for capability of reviewing MTP teaching materials. The materials group included 66 teachers who received the language and literacy curriculum via a limited features version of the MTP website. The web group was comprised of 89 teachers who received access to the full-featured version of MTP, plus video demonstrations, sample lesson plans, and professional development activities. The consultancy group received all of the features included above as well as collaboration with an MTP consultant in on-line chats and reviews of submitted videos of their teaching practice (Kinzie et al., 2006). In each of the two intervention years, four children from each pre-K classroom were randomly selected.
and assessed on social-emotional and academic measures; and all were followed through kindergarten and first grade.

The effects of the web-based MTP were discussed in a subsequent paper comparing the teachers in the Consultancy Group with those in the WEB-based Group (Pianta, Mashburn, Downer, Hamre, & Justice, 2008). The research team reported that teachers showed greater gains when they were involved in a regular process of observation and feedback related to their interactions with students in their own classrooms compared to participants who only accessed examples of best practice through the web. Teachers in classrooms with the highest poverty, associated positive changes in their interactions with consultation support, while access only to the less-intensive non-individualized web-only resources had less effect (Pianta et al., 2008).

**Summary of the Literature Related to Professional Development**

Raising quality in ECE classrooms is best achieved by improving what teachers do with children in those settings (Pianta, 2007). By standardizing descriptions of teacher-child interactions, and by designing more effective professional development and training systems for teachers, quality of instruction may be improved. Direct training methods such as coaching, mentoring and direct-feedback can improve ECE practice and consequently, children’s performance (Pianta, 2007). According to Pianta et al. there is little evidence linking specific in-service training processes to classroom quality. The MTP study is one of the first studies of professional development interventions in pre-K classrooms to demonstrate the effectiveness of intensive individualized consultation with teachers on improved teacher-child interactions. Clearly, a more personally focused approach to professional development supporting
the implementation of evidenced-based practice measured against appropriate and intentional teacher-child interaction indicates the realization of improved child-outcomes.

**Review and Analysis of the Literature Related to Classroom Assessment Scoring System as an Assessment and Professional Development Tool**

Recent findings through brain research have supported ECE as a vehicle for closing the gap on school readiness among children who are recognized as at risk for school failure and those who are more privileged (Shonkoff & Phillips, 2000). As the numbers of children entering publicly funded pre-K programs have exploded over the past several decades, and as these funders have demanded that these programs are of high quality, the need for evidence-based measurements of quality has increased. Assessment instruments including the *ECERS-R* (Harms et al., 1998) were developed to measure structural quality within the classroom. However, research has not supported a relationship between high quality environments and positive child outcomes.

Supported in part from grants from the Foundation for Child Development and the Picower Foundation, *CLASS* (Pianta et al., 2008) was developed as a classroom assessment and professional development tool to understand and assess the relationship between process quality (quality of teacher-child interactions) and positive child academic and social-emotional outcomes (*CLASS Policy Brief*, 2009). Researchers and developers of *CLASS* have performed or been involved in several multi-state studies representing thousands of children’s experiences in pre-K through fifth grade. Children and teachers of varied backgrounds, family styles, and ECE settings were included in these studies.
The studies discussed here represent much of this research. Often used together, \textit{CLASS} (Pianta et al., 2008) and \textit{ECERS-R} (Harms et al., 1998) are assessments of structural and process quality effectively measuring direct effects of aspects of quality on child-outcomes. Further, \textit{CLASS} is further separated into three domains of emotional support, organization, and instructional support. These domains have been studied separately and together.

\textit{Classroom Assessment Scoring System}

In the development of \textit{CLASS} framework Hamre, Pianta, Mashburn, and Downer (2007) conducted a study of over 4,000 children attending pre-K through fifth grade from 1998 to 2005. Though the study goes beyond the scope of ECE, the aggregated research served to demonstrate the early research on which \textit{CLASS} was developed. The researchers examined data from four large-scale observational research projects: \textit{MTP}, NCEDL State-Wide, NCDEL-SWEEP, and the National Institute of Child Health and Human Development Study of Early Care and Youth Development.

The rational for the development of \textit{CLASS} (Pianta et al., 2008) to assess process quality from pre-K through high school; however pre-K through first grade was the focus of this study (Hamre et al., 2007). An early version of \textit{CLASS} (\textit{Classroom Observation System} or \textit{COS}) used in the NCEDL studies contained nine dimensions, while later versions of \textit{CLASS} contained ten. All observers were trained and rated at least 80\% reliable. Data were collected in the winter to early spring, collected at several points during the year, at different times of the day, and for varying lengths of time.
Development of CLASS (Pianta et al., 2008) involved agreement among four experts using the theoretical foundation of CLASS (Hamre et al., 2007). An empirical test of the theoretical CLASS framework was conducted through a three measurement model of observed classroom interactions, which used three-factor, two-factor, and one-factor models for each of the seven sets of classroom observations. Standardized regression weights for each item were reported along with indices of overall model fit. Internal consistency across data sets was stated to be acceptable (Hamre, 2007). The following studies were all conducted.

**Classroom Assessment Scoring System in Elementary Settings**

A study was conducted to determine if children who received instructional and emotional support in a first grade classroom would demonstrate greater academic, social, behavioral, and attention skills than similar children placed in less supportive classrooms (Hamre & Pianta, 2005). Data were collected in the National Institute of Child Health Study of Early Care (NICHD ECC) on over 5,000 mothers who gave birth in urban hospitals throughout the U.S. in the early 1990s. A randomly selected subgroup of 910 children from the NICHD ECC study who were followed from birth and who were enrolled in first grade were participants in this study. Children represented 827 classrooms across 747 schools in 295 school districts in 32 states (Hamre & Pianta).

Classroom observations were conducted in the children’s second year of school. Data regarding child outcomes and measures of classroom progress were collected in the spring of the child’s first grade year. Earlier assessments conducted in kindergarten provided measures of children’s risk status and prior functioning. Children were placed
in low and high risk groups based on assessments of five risk factors: sustained attention, externalizing behaviors, social skills and academic competence, and demographic risk. Children assessed with only one risk factor were placed in the low functional risk group, and those with multiple risk factors or those whose mothers had low levels of formal education were placed in the high functional risk group (Hamre & Pianta, 2005). Classroom process quality was measured using COS, by trained observers in the spring of the first grade year. Classrooms were then categorized into high, moderate, and low support.

Hamre and Pianta (2005) concluded that two important domains of child functioning in elementary school, the quality of everyday classroom interactions in the form of instructional and emotional support, as well as achievement and relationships with teachers, mediates the risk of early school failure. Children who were placed in supportive classrooms, and who were at high-risk for school failure, demonstrated levels of academic achievement and quality of student-teacher relationships equal to their low-risk peers. Children classified as high-risk placed in less supportive classrooms demonstrated more conflict with teachers and lower achievement.

In a similar study, Wilson, Pianta, and Stuhlman (2007) later explored data from the NICHD ECC to determine the relationship between children’s social competence and their first grade classroom environment. Classrooms were evaluated for quality of emotional and instructional supports with COS for first grade. Four types of classrooms were classified as: (a) overall high quality of both supports, including high quality evaluative feedback; (b) high quality emotional support and low quality evaluative feedback; (c) mediocre levels of both supports, and (d) low levels of both supports.
Participants in the study included 946 children from 820 classrooms which fit the profiles of the quality definitions (Wilson et al.).

Children’s social competence was assessed by classroom teachers using the Social Skills Rating Scale (SSRS). Children were observed and assessed through qualitative ratings of an unstructured peer interaction and classroom observation process. Children were grouped for functional risk similar to the process in the previously discussed study. Classroom placement for children with expected social adjustment problems in first grade, based on their kindergarten teacher’s assessment, was evaluated to determine the effects of the placement on their performance. In classrooms rated with high quality emotional supports and evaluative feedback, children evidenced significantly higher social competence than did similar children in other classrooms (Wilson et al., 2007).

Children in first grade at risk for school failure based on demographic factors and mothers’ limited formal education were shown to benefit from high quality teacher-child interactions, in the form of emotional and instructional supports. These children achieved levels of academic and social performance equal to their peers who were at low risk for school failure. Children who were at high risk for school failure and who were placed in classrooms with high levels of emotional support and evaluative feedback demonstrated higher levels of social competence as measured by the SSRS.

**Classroom Assessment Scoring System in Pre-K Settings**

La Paro, Pianta, and Stuhlman, (2004) described the process of developing, field testing and using CLASS (Pianta et al., 2008) in pre-K classrooms. Children in pre-K included in the NCDEL study from 40 classrooms in each of six states were selected.
through a stratified random sampling process for participation in this study. In each classroom, four children were selected. Snapshot, CLASS and ECERS-R (Harms et al., 1998) were used to measure classroom quality. Each classroom was visited for the entire morning on two days in the fall of 2001. Child assessments and ECERS-R data were collected by one CLASS trained observer, while the second trained observer collected data with and Snapshot.

La Paro et al. (2004) defined quality consistent with current CLASS (Pianta et al., 2008) definitions, used this perspective to describe an observational measure of classroom process, and observed teacher-child interactions and classroom characteristics as a measure of validity of the CLASS assessment. The findings indicate a high level of emotional support for children but a rather low level of instructional support with respect to concept development and quality of feedback. La Paro et al. concluded that ratings indicate that teachers provide brief general praise rather than feedback that extends children’s learning, and thinking performing. Teachers generally scored in the low to middle range of concept development, indicating that teachers do not encourage children to hypothesize, predict, and problem-solve through extended discussions. This study was conducted with public school pre-K teachers who were highly educated. Research was recommended to be conducted with teachers in more typical ECE settings.

In a study based on data from the NCEDL and the SWEEP research projects, researchers using CLASS investigated the relationship of three methods of measuring pre-K quality to academic, language, and social skills performance among 4-year-olds in publicly supported pre-K programs (Mashburn et al., 2008). The statistical
evaluation adjusted for prior skill levels, program characteristics, child and family characteristics, and the state in which the children resided. The selection of children and their teachers for participation was described in the previous discussions of studies using NCEDL and SWEEP. Participants were 2,439 children enrolled in 671 classrooms in 11 states from large state-funded programs which were operationally stable and mature.

Three measures of quality were correlated with children’s academic, language, and social skills based on assessments used in the NCEDL and SWEEP studies and previously described in this review. First, was a nine-item quality index of standards developed by the National Institute for Early Education and Research (NIEER) for pre-K programs based on recommendations from NAEYC, the American Public Health Association (APHA) and the American Academy of Pediatrics (AAP). Second, ECERS-R (Harms et al., 1998) was used to measure structural quality. Finally, CLASS (Pianta et al., 2008) was used to measure quality of teacher-child interactions (Mashburn, et al., 2008). None of the NIEER standards were consistently associated with academic, language, and social performance in pre-K. The results for ECERS-R (Harms et al., 1998) revealed only one link to positive child outcomes. A positive correlation with children’s development of expressive language skills, which is a subset of the Oral and Written Language Skills assessment and ECERS-R quality rating, was determined. Mashburn et al. (2008) stated that CLASS (Pianta et al., 2008) measurements revealed among pre-K children in state-supported public settings, “higher quality instructional interactions were positively associated with all five measures of academic or language
skills, and higher quality emotional interactions were associated with teachers’ ratings of higher social competence and lower problem behaviors” (p. 743). Mashburn et al. emphasized from CLASS findings, that the measure of pre-K quality that was most consistently and strongly associated with children’s development was CLASS dimensions of teacher-child interactions that children experienced directly was most consistently and strongly associated with children’s development. Further, teacher’s instructional interactions predicted performance in academic and language skills, and teacher’s emotional support predicted teacher-reported social skills.

The review of the literature regarding the use of CLASS (Pianta et al., 2008) in pre-K indicates that aside from the NCEDL and SWEEP, there is a lack of research investigating the use of CLASS with children in pre-K. Since other measures of quality were traditionally linked to predictions of positive academic and social performance in children in ECE settings, they have been relied on by policy makers, program developers, and leaders in higher education to establish policy and practice for ECE programs. The results of these state-wide pre-K studies, representing a majority of 4-year-olds attending publicly supported pre-K programs, indicate that the greatest predictor of child academic and social readiness for kindergarten and first grade is quality teacher-child interactions. It is recommended that the quality of teacher-child interactions become a major consideration in continued public funding of pre-K programs. A general conclusion of the researchers of previously discussed research is that instruction in teacher-child interaction should become a major component of professional development for ECE personnel.
**Instructional Support.** The instructional support domain in CLASS (Pianta et al., 2008) includes the dimensions of concept development, quality of feedback, and language modeling. Instructional support in CLASS "assesses the degree to which the teacher provides feedback that expands learning and understanding and encourages continued participation" (LaParo et al., 2004, p. 69). It is the most significant factor in children’s academic achievement in ECE.

A large scale study was conducted in 135 publicly funded pre-K classrooms, where personnel provide services to at-risk students, in a mid-Atlantic state. Teachers were selected from 40 school districts throughout the state, and participation in the study was voluntary. The purpose of the study was to determine the quality of delivery of language and literacy instruction as it relates to fidelity of instruction across classrooms implementing the same language and literacy curriculum (Justice, Mashburn, Hamre, & Pianta, 2007).

Teachers received professional development focusing on high quality delivery of the language and literacy program My Teaching Partner-Language and Literacy (MTP-LL) curriculum. Teachers attended a two-day workshop at the beginning of the year. Teachers were asked to supplement the regular classroom curriculum with six lessons per week from MTP-LL over 36 weeks. Curriculum fidelity was monitored using 30 minute video taped segments; teachers taped themselves teaching every two weeks and submitted the tapes to the researchers (Justice et al., 2008). Teachers completed three questionnaires: a demographic questionnaire, an abbreviated Ideas about Raising Children Scale, and an abbreviated Teacher Self-Efficacy Scale. Trained coders viewed the video segments and coded them using MTP-LL Implementation Checklist designed
for this study. The video segments were all rated using the language modeling and literacy focus scales of CLASS (2004) (revised in CLASS Pre-K, Pianta et al. 2008)).

Major findings of the study revealed that the quality of language and literacy instruction was low across the 135 classrooms. Few teachers provided language instruction using evidence-based practices. Though not causally linked, two predictors of the quality of teachers’ language and literacy instruction were discovered. Holding an advanced degree was a negative predictor of quality, and frequency of attendance at language and literacy workshops was a positive predictor (Justice et al., 2004).

Teachers demonstrated a high level of procedural fidelity (following adherence to curriculum plans and general guidelines), though “curriculum fidelity was not generally related to quality of instruction” (Justice et al., 2004, p. 64). Findings were deemed to have important implications for professional development of teachers “by suggesting a need for sustained and coherent focus on the process of instruction to elevate instructional quality in language and literacy” (Justice et al., 2004, p. 51).

**Instructional Support and Literacy in Pre-K.** Acquisition of pre-literacy skills and reading readiness in ECE are strong indicators of later academic success. Few indicators measuring quality in ECE programs have been linked to children’s improvement of literacy skills. The indicators that have been associated with improved academic skills, including literacy and language, are quality of instructional support in CLASS (Pianta et al., 2008) The following studies specifically investigated the literacy intervention in ECE.

Two studies discussed by Faran, Aydrogan, Kang, and Lipsey (2006) separately addressed classroom literacy environments and literacy behaviors, as well as language
interactions in preschool classrooms. The first study investigated whether the presence of literacy materials or intentional instruction of the teacher was more closely related to children’s literacy behaviors in the classroom. The second study examined the language characteristics of teachers in the preschools. Both studies used *Classroom Observation in Preschools (COP)* to measure the quality of literacy materials and literacy instruction. The studies are relevant to a discussion of teacher-child interaction in ECE as it relates to children’s development of literacy skills.

The researchers selected 34 classrooms from a larger study investigating early childhood curricula. Faran et al., (2006), then extracted 133 literacy items from a combined version of the *Curriculum Implementation Checklist* derived from Bright Beginnings. The items were then separated into two categories: 65 items that were included in the literacy-related physical environments, and 68 items that were included in the literacy-related instructional environments. Each classroom was given a separate score for each category.

The study measured the degree of literacy emphasis in the classroom environment and the degree to which the teacher provided literacy instruction. Measurements were taken on the number of times children interacted with literacy materials, and the level of involvement or the degree of engagement children showed in that material or activity. Results indicated that when the environment and the instruction were literacy-rich, children maintained a high interest and involvement. Additionally, when teachers cared about the materials, children were more apt to be actively involved with them (Faran et al., 2006).
In a similar study, Faran et al. (2006) investigated teachers’ emotional warmth, small group and individual instruction, and responsive language. The combined version of the *Curriculum Implementation Checklist*, as previously described, was the source of the selected items relevant to this study. Sixty-three items were divided in to the four categories. Emotional warmth contained 17 items, 8 items represented small and individual instruction, and 38 items related to responsive language. Children were observed for the frequency of speaking and listening and to whom they were responding.

Faran et al. (2006) reported the following results:

When teachers were rated as warmer and using more responsive language that also included the introduction of new vocabulary, children were more likely to be observed listening and talking to them, with the strongest effects observed on the intensity of the children’s interactions. Positive language environments promoted more intense linguistic involvement on the part of the children (p. 265).

In a study with a smaller sample of classrooms, conducted in low-income neighborhoods in northern Minneapolis, a different conclusion was reached. This study included 84 children, 57 to 68 months of age, who were enrolled in the *Minneapolis Early Reading First (MERF)* program (Wagner, 2008). Children were selected from six classrooms in Head Start programs in a variety of settings, based on a convenience sample of identified teachers who were willing to participate in the research. Literacy achievement was measured using the *Preschool Individual Growth and Development*
Indicators (IGDI). Teacher-child interactions were measured by CLASS (Pianta et al., 2008) emotional and instructional supports.

Consistent with CLASS (Pianta et al., 2008) recommendations, trained observers coded through direct observation during four 20-minute observation cycles within the same day, each coding period was immediately followed by ten-minutes of scoring. The observation-coding process took place on two consecutive mornings. The researchers demonstrated an IO of 84%. Measurements were taken at the beginning and end of the school year (Wagner, 2008).

Literacy achievement, as measured by the IGDI, was compared to CLASS (Pianta et al., 2008) instructional and emotional support scores across classrooms. Significant differences in mean scores were identified for both Emotional and Instructional Support. With one exception, classrooms with higher emotional support scores also demonstrated higher instructional support scores. Children demonstrated minimal achievement in measures on the IGDI related to rhyming, and alliteration, with declining scores in picture naming. Neither emotional support nor instructional support predicted improvement in the subsets of IGDI when taken separately. Instructional support was a strong indicator of improvement in rhyming in this study.

Wagner CLASS (Pianta et al., 2008) reported that the results of this study are not consistent with current research. Hypotheses for this discrepancy were presented as follows: (a) all children in the study live in poverty, (b) the disparity between home and school environments, and (c) “just getting ‘something’ in terms of education may be enough to bolster growth for these children” Wagner, 2008, p. 88). Perhaps a greater
understanding of teachers’ intentional instructional strategies might have illuminated these results.

**Language Modeling in Pre-K Settings**

Though the review of the literature failed to reveal specific studies concerned with language modeling and children’s academic and social achievement, many of the previously discussed more broadly based studies involved research related to language modeling as a component of CLASS (Pianta et al., 2008). One such study, researched by Massey (2004) explored conversations between teachers and children at critical times during the day such as book reading, playtime, and meal times. Though not a formal research study, Massey investigated types of conversations preschool teachers could engage in with their children to improve their language skills.

In a discussion of cognitive complexity which aligns with dimensions of the instructional quality domain in CLASS (Pianta et al. 2008, Massey (2004) discussed four levels of complexity of abstract language. Level I involved labeling and locating objects and characters and was the lowest level. Children responded to “what is this?” questions. Level II focused on describing and recall. Level III asked children to reorder, summarize, define, compare, contrast, and provide judgments. Level IV involved predictions, problem-solving, and concept explanation. According to Massey and consistent with the findings of Pianta’s research group, conversations in the preschool classroom frequently focus on lower levels of cognitive complexity.

One suggestion for improved conversation was for teachers to remain stationary in the classroom during small-group instruction. According to Massey (2004), when teachers were stationed in one location rather than moving around the classroom during
small group time, they were two to three times more likely to engage in cognitively challenging conversation with children. Further, Massey stated that teacher-child interactions during playtime provided opportunities to initiate conversation, to model language use, and facilitate pretend talk. Massey presented an important model for teacher’s to reflect on their practice and to begin to scaffold language interactions with children as a means of improving their language proficiency.

**Summary of the Literature Related to Classroom Assessment Scoring System**

Extensive research has been conducted using the *CLASS* (Pianta et al., 2008) in combination with other measures of classroom quality such as the *ECERS-R* (Harms et al., 1998) and *ELLCO*, since the mid-1990s. Pianta et al. (2008) created *CLASS* as a classroom assessment and professional development tool to understand and assess the relationship between process quality and positive child academic and social outcomes. This measure of teacher-child interaction has been used in research studies representing thousands of children’s experiences in pre-K through fifth grade throughout the United States from varying ethnic, economic, and cultural backgrounds.

Through research conducted in elementary settings, it was revealed that classrooms rated with high quality teacher-child interactions as measured by *CLASS* (Pianta et al., 2008) benefited children at-risk for school failure. Social and academic achievements for these children in kindergarten were shown to be predictive of performance in elementary school. Especially encouraging were the findings that children whose mothers had limited formal education and who were from low socio-economic backgrounds, when placed in high process quality classrooms, achieved academic and social performance equal to their peers who were at low risk for school failure.
The review of the literature regarding the use of CLASS (Pianta et al., 2008) in pre-K settings revealed limited research other than that conducted in NCDEL and SWEEP studies. Somewhat alarming, are the research findings of studies involving CLASS that show no relationship between structural quality and positive child social and academic outcomes. Yet, policy makers, program developers, and leaders in higher education rely on elements of structural quality to establish policy and practice for ECE programs. Certainly, much more research is needed to fully investigate the effects of process quality and intentional teaching on child academic and social outcomes.

Further, very few studies have investigated the influence of instructional support in ECE classrooms. Few studies outside of CLASS (Pianta et al., 2008) have investigated the relationship between instructional support and literacy instruction. The literature review revealed no specific research conducted specifically with the language modeling dimension of CLASS. Research using CLASS has demonstrated that instructional support is the weakest area of teacher-child interactions, with few teachers providing language instruction using evidenced-based practices. These findings have strong implications for pre-service and in-service teacher education programs and demonstrated a strong need for further research.

**Summary of the Literature Review**

Publicly funded ECE environments should demonstrate, through rigorous evidence-based assessments, their effectiveness at preparing young children for success in school. This review included literature related to the nature and kind of ECE environments, as well as of the quality of those environments. Clearly, the paramount factor in positive
child academic and social outcomes is the quality of the teacher-child interactions in the classroom, coupled with intentional implementation of a curriculum.

The body of literature related to the efficacy of ECE programs spans nearly 50 years of targeted research, involving many types of settings and including hundreds of thousands of children attending those programs. Many of these studies are multi-state and longitudinal: CQO (Peisner-Feinberg et al., 1999), Head Start Impact Study (US DHHS, 2005), NIEER (Barnett et al., 2007), NCDEL (Bryant et al., 2005), and SWEEP (Early, et al., 2005). Others involved only one state, were longitudinal, and addressed specific local concerns: High/Scope Perry Preschool Study in Michigan (Schweinhart, 2005), North Carolina’s More at Four (Peisner-Feinberg & Schaaf, 2008), and the Georgia Early Childhood Study (Henry et al., 2005). Comprehensive district-wide/county-wide programs included Tulsa’s pre-K program (Phillips et al., 2007), the Boston Early Care and Quality Improvement Program (2007), and the Chicago Longitudinal Study (Horton, 2007). The studies included various types of ECE classroom (e.g. home-based child care, publicly supported pre-K in public schools). Wide variation existed in type of service, settings, curricula, length of program, teacher preparation, and program quality.

General agreement among the researchers from this vast body of research supports Pianta’s (2006) conclusions that ECE supports children’s academic and social readiness for school, and that teachers’ qualifications and experience influence educational outcomes for children. However, family characteristics, socio-economic demographics, and mothers’ education were significant predictors of children’s school performance.
Further, the global quality of ECE programs was a factor in most of the studies reviewed. These studies used ECERS-R (Harms et al., 1998) to measure structural quality in the classroom and CLASS (Pianta et al., 2008) to measure process quality (Bryant et al., 2005, Early et al., 2005, Howes et al., 2008, Karoly et al., 2008, Pianta et al. 2005). These measures of quality were typically paired with child assessments to measure a variety of developmental and academic characteristics of the child participants. Additionally, demographic characteristics of children and teachers were typically recorded.

The need for evidenced-based research regarding quality in ECE Programs is directly linked to the increase in funding for a wide variety of ECE programs designed to address the achievement gap between groups of children who are at risk for school failure. Historically, measures of quality have related to state licensing requirements of structural quality. Included among these measures are elements of health, safety, group size, teacher-child ratios, teacher education, years of staff experiences with children, equipment, supplies, and curriculum. Through much research conducted in large-scale studies, investigators have determined that there is very little relationship between structural quality and favorable child outcomes in academics and social development, in spite of the importance implied by licensing agencies and funding sources. The quality of teacher-child interactions has been consistently associated with positive child academic and social outcomes as they relate to readiness for kindergarten. Through the past decade, researchers have designed instruments to measure the quality of teacher-child interactions and their relationship to a variety of academic, social, emotional, and behavioral outcomes for children enrolled in ECE programs.
The nature of teacher-child relationships emerged as a significant factor in preparing young children for success in school through many of the multi-state longitudinal studies conducted in the past two decades (Bryant et al., 2005; Early et al., 2005; Peisner-Feinberg et al., 1999). Research conducted by Birch and Ladd (1997), Palermo et al. (2007), and Burchinal et al. (2008) revealed that quality teacher child relationships were shown to be critically related to positive academic and social outcomes for children in ECE programs. As measured by CLASS (Pianta et al., 2008) children in the NCDEL study did not experience highly interactive or responsive teaching nor were they given clear, content-rich instruction. Children generally received adequate emotional support in positive climates. Instructional support, while considered to be the most significant indicator of positive academic and social outcomes for children, was consistently rated at the low end of the CLASS scale, indicating a need for increased professional development regarding instructional interaction.

Teachers’ intentions are not always aligned with their stated beliefs (Carradine, 2004, & Wilcox-Herzog & Ward, 2004). Teachers in programs that have adopted the DAP philosophy generally report their belief in DAP. However, their classroom practices do not always reflect their stated beliefs. Teachers with extensive education are more likely to have exposure to DAP and report that they believe in its efficacy. Less educated teachers are more likely to exercise direct instruction. Without extensive professional development, teachers may not be comfortable practicing the DAP curriculum which leads to a discrepancy between stated beliefs and observed practice.

Research findings regarding professional development yielded mixed results. Early et al., (2007) related teacher professional development to outcomes for children, and
found no relationship. Fukkink and Lont (2007) determined that the effects of training on child outcomes were inconclusive, and that the effectiveness of interventions varied. Cerabone (2007), Raver, Jones and Li-grinning (2008), Kinzie et al. (2006), and Pianta et al. (2008), concluded that when professional development models included a personal coach, who observed and reviewed the practice of individual professionals, their practice improved. The only successful interventions with teaching professionals shown to affect children’s academic and social outcomes were those interventions that included coaching, mentoring, and direct feedback.

Recently applied to pre-K classrooms, CLASS (Pianta et al., 2008) was developed to measure process quality in ECE classrooms (Pianta, et al., 2008), and was used to determine process quality in hundreds of classrooms across the U.S. throughout the past decade. This instrument was developed and field tested to identify meaningful measures of teachers’ practice regarding emotional support, organizational support, and instructional support in ECE classrooms. The review of the literature regarding the use of CLASS in ECE indicates that aside from the NCEDL and SWEEP studies, there is a lack of research investigating the use of CLASS with children in ECE programs.

Moreover, teacher-child interactions through instructional support (concept development, quality of feedback, and language modeling) are the most important factors in influencing children’s improvement in readiness skills for elementary school. Further, teachers typically and consistently score at the low end of the CLASS (Pianta et al., 2008) scale in instructional support, indicating their use of poor communication skills (Justice et al., 2007). Research findings were deemed to have important
implications for professional development interventions to improve the quality of
teacher-child interactions regarding instructional support.

Language and literacy instruction is the academic skill considered most crucial to
children’s readiness in elementary school. Faran et al. (2006) and CLASS (Pianta et al.,
2008) researchers, using separate scales of indicators, reached similar conclusions.
When teachers provided warm and emotionally supportive environments to children,
introduced new vocabulary to children and were more responsive to them, children
were engaged with the activity and the teacher for longer periods of time. These
findings support Pianta’s (2007) conclusions that teachers need to provide high quality
teacher-child interactions coupled with an intentional curriculum. Finally, the review of
the literature failed to reveal specific studies concerned with language modeling as a
separate dimension of CLASS.

General conclusions of the literature review were revealed. The perception that
structural quality improves child outcomes drives policy and funding streams, when the
evidence suggests that process quality is singularly related to children’s academic and
social achievement. Research-based evidence indicated a need for professional
development interventions to improve teacher-child relationships, by providing
coaching, mentoring, and direct feedback. Teachers’ instructional quality ratings were
consistently low. There was a disconnect between teachers’ beliefs and teachers’
intentions in classroom practice.

This study was different from the existing body of literature in several ways. First,
this study was conducted in private pre-K settings. Second, this study involved
measurement of teachers’ beliefs and intentions. Third, it provided a model of a
professional development intervention based on CLASS (Pianta et al., 2008) language modeling that included both video recording of teachers’ language modeling and personal mentoring, coaching and direct feedback. Fourth, the quality of language modeling and the effects of the intervention on this dimension were measured. Fifth, this study involved teacher interviews regarding the value and effectiveness of the intervention model as it affected their practice.
CHAPTER 3

METHODOLOGY

The quality of teacher-child interactions has been identified as the most important factor supporting young children’s cognitive and language development (Pianta, Belsky, Vandergrift, Houts, & Morrison, 2008). A child’s ability to develop high level thinking skills is directly related to opportunities provided by adults to demonstrate existing skills and to scaffold more complex thinking processes (Howes et al., 2007). Three areas of instructional support are defined and assessed in CLASS (Pianta et al., 2008). Concept development is the set of methods teachers use to promote children’s higher level thinking skills. Quality of feedback refers to teachers’ ability to extend students’ learning through their responses to students’ work, comments, and ideas. Language modeling assesses teachers’ ability to facilitate and encourage students’ language development (Pianta et al.).

Process quality, (e.g. the quality of teacher-child interactions), has been determined to be of much lower quality than structural quality of classroom environments (e.g. the quality of materials, supplies, curriculum, classroom arrangement) (Bryant et al., 2005; La Paro et al., 2004). Since teacher-child interactions are central to optimal child cognitive development, enhancing the quality of such interactions improves opportunities for positive child learning outcomes. This study was conducted to determine whether the implementation of a professional development intervention would increase the quality of teachers’ language modeling as measured by CLASS (Pianta et al., 2008). Through a teacher survey, single-subject multiple-baseline design, and teacher interviews, a mixed-methods study was conducted.
Research Questions

The purpose of the study was three-fold. First, the relationship between teacher-participants’ stated beliefs and intentions regarding teacher-child interactions was investigated. Second, a professional development intervention was examined to determine the impact on teachers’ language modeling performance in private pre-K classrooms. Third, participant attitudes toward the professional development intervention were examined. Research questions were:

1. To what extent are teachers’ beliefs consistent with their intentions, in general, regarding teacher-child interactions?
2. Does a program of staff development improve the quality of teachers’ language modeling with young children in private preschool classrooms as measured by CLASS (Pianta et al., 2008)
3. To what extent are teacher participants satisfied with the CLASS (Pianta et al., 2008) training process?

Participants

Participants in this study were lead teachers in six classrooms from two ECE sites located in Las Vegas, Nevada. Center 1 was affiliated with a major university and housed on campus. Center 2 was a private ECE facility located off campus. Though children were present in each classroom, teachers were the focus of the study. Children were not directly included in data collection or analysis.

The two early childhood facilities were both NAEYC accredited and both provided services for children who were similar in age, were from the community at large, and included children with a wide variety of abilities and disabilities. Center 1 was housed
on a university campus and personnel employed at this facility generally provided services for children whose parents were affiliated with the university (e.g. students, staff and faculty). However, Center 1 was a community-based facility whose management was under contract with the school district to reserve 15% of enrollment to children with identified special needs by the school district. In contrast, Center 2 was a facility whose management was under contract with the county airport administration to provide services to children whose parents were employed with the airport. Additionally, each Center provided services to the community at large including children with special needs as well as children receiving state subsidized child care.

Center 1 was a private not-for-profit fully inclusive preschool with eleven classrooms. Personnel at Center 1 provided services to children from 6 weeks of age through 72 months of age. Center 1 was accredited by NAEYC. Center 2 was a private for-profit ECE Center, accredited by NAEYC. Personnel at Center 2 cared for and educated young children from 6 weeks of age through kindergarten (generally 60 to 72 months of age). Lead teachers in six pre-K classrooms were identified as participants in this study.

Three classrooms participated from Center 1. The CA classroom was multi-age and provided services to children from 41 months through 64 months of age. The CB classroom was considered single-age and represented children from 50 months through 64 months, and the CC classroom, was also considered single-age, and included children from 53 months through 64 months.

Three classrooms were represented at Center 2. Personnel in the first classroom, CD, provided services to children from 38 months through 51 months of age. Personnel
in the second classroom, CE, provided services to children who were 50 to 60 months of age. Children in the third classroom, CF, were 54 to 60 months of age.

Teacher Participants

**Center 1.** Lead teachers at Center 1 participated in the study. There were two types of teacher participants. Those identified as teacher participants single subject (TPSS), if they participated in the CLASS (Pianta et al., 2008) professional development portion of the study and teacher participants survey-only (TPSO) (see table 1). Teacher participants single-subject were lead teachers in each of three identified classrooms from Center 1. An informed consent letter (Appendix A) and a survey regarding demographic information and beliefs about teacher-child interactions (Appendix A) were provided to all TPSS during September, 2009.

In addition to the survey, TPSS participated in a multiple baseline single-subject study of their language modeling in the classroom, with daily review of video-recordings of their practice and instruction supporting improvement of their teacher-child interactions. Teacher-child interactions were video-recorded during the intervention portion of the study, across baseline, intervention and follow-up. After data collection was completed for all participants in the single-subject phase of the study, interviews were conducted with each TPSS. The teacher participants who participated in the survey only portion of the study were identified as TPSO (see table 1). Lead teachers from all classrooms, who were not otherwise TPSS, participated in this portion of the study. An informed consent letter

Table 1

*Teacher Demographics*
<table>
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<tr>
<th></th>
<th>Participant</th>
<th>Program</th>
<th>Gender</th>
<th>Age</th>
<th>Experience</th>
<th>Education</th>
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<td>26-35</td>
<td>2-5</td>
<td>M. Ed.</td>
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<td>P2</td>
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<td>6-10</td>
<td>Some College</td>
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<tr>
<td>3</td>
<td>P3</td>
<td>pre-K</td>
<td>Female</td>
<td>26-35</td>
<td>6-10</td>
<td>M. Ed.</td>
</tr>
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<td>P4</td>
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<td>36-45</td>
<td>11-15</td>
<td>M. Ed.</td>
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<td>P5</td>
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<td>36-45</td>
<td>11-15</td>
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<td>P6</td>
<td>pre-K</td>
<td>Female</td>
<td>26-35</td>
<td>6-10</td>
<td>B. Ed.</td>
</tr>
<tr>
<td>7</td>
<td>P7</td>
<td>pre-K</td>
<td>Female</td>
<td>36-45</td>
<td>6-10</td>
<td>B. Ed.</td>
</tr>
<tr>
<td>8</td>
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<tr>
<td>9</td>
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<tr>
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<td>Female</td>
<td>18-25</td>
<td>2-5</td>
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<tr>
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<td>12</td>
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<td>18-25</td>
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<td>Some Masters</td>
</tr>
<tr>
<td>13</td>
<td>P13</td>
<td>pre-K</td>
<td>Female</td>
<td>36-45</td>
<td>15+</td>
<td>Some College</td>
</tr>
<tr>
<td>14</td>
<td>P14</td>
<td>pre-K</td>
<td>Female</td>
<td>26-35</td>
<td>2-5</td>
<td>Some College</td>
</tr>
<tr>
<td>15</td>
<td>P15</td>
<td>pre-K</td>
<td>Female</td>
<td>36-45</td>
<td>11-15</td>
<td>High School</td>
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<tr>
<td>16</td>
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<td>11-15</td>
<td>CDA</td>
</tr>
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<td>17</td>
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<td>Female</td>
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<td>6-10</td>
<td>Some College</td>
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<tr>
<td>18</td>
<td>P18</td>
<td>pre-K</td>
<td>Female</td>
<td>46-55</td>
<td>15+</td>
<td>Associates</td>
</tr>
</tbody>
</table>
(Appendix B) a demographics questionnaire and a survey (Appendix B) regarding beliefs about teacher-child interactions were provided to all TPSS during November, 2009 at Center 1.

Center 2. Lead teachers at Center 2 participated in the study. There were two types of teacher participants. Those identified as teacher participants single subject (TPSS), if they participated in the CLASS (Pianta et al., 2008) professional development portion of the study, and teacher participants survey-only (TPSO). Demographic information was collected as part of the survey which revealed variation in teacher’s experience and educational background. The demographics of teacher participants are listed in Table 1. Teacher participants single-subject were lead teachers in each of three identified classrooms from Center 2. An informed consent letter (Appendix A) and a survey regarding demographic information and beliefs about teacher-child interactions (Appendix A) were provided to all TPSS during January, 2010. In addition to the survey, TPSS participated in a multiple base line single subject study of their language modeling in the classroom, with daily review of video-recordings of their practice and instruction supporting improvement of their teacher-child interactions. Upon completion of the single-subject portion of the study, TPSS then participated in an interview regarding their experience in the study. Teacher-child interactions were video-taped during the intervention portion of the study.

The teacher participants who participated in the survey only portion of the study were identified as TPSO. Demographic information was collected as part of the survey which revealed variation in teacher’s experience and educational background. The demographics of teacher participants are listed in the table below (see Table 1). Lead
teachers from all classrooms who were not otherwise TPSS, participated in this portion of the study. An informed consent letter (Appendix B) a demographics questionnaire and a survey (Appendix B) regarding beliefs about teacher-child interactions were provided to all TPSS during January, 2010 at Center2.

Child Participants

Data were not collected on children. Children participated as members of the classroom in which the teacher was a participant in the single-subject portion of the study. Parents received an instructional letter explaining the study (Appendix C). Parent permission forms for video-recording (Appendix C) were completed by all families with children in the target classrooms. Children were video-recorded only if they had a signed permission form. All children in each location had signed permission forms.

Interobserver

The observer (IO) in this study was a child care professional who held a masters degree in early childhood special education and had over 25 years of experience teaching and directing child development facilities. The IO held a position as an Assistant Director of Educational Development at a local facility. Additionally, the IO attended formal training on the CLASS (Pianta et al., 2008) instrument and became a certified rater.

Setting

This study was conducted in two early childhood education settings located in Las Vegas, Nevada. Center 1 was affiliated with a major university and housed on campus. Center 2 was a private ECE facility located off campus.
Center 1

Personnel at Center 1 provided ECE services to children six weeks to not more than 72-months years of age and who are not eligible for kindergarten. The preschool administration met state licensing requirements and recently was reaccredited by NAEYC. The philosophy of the preschool was fully inclusive, reserving 15% of enrollment capacity for children with recognized special physical needs or developmental delays. Each child was celebrated as a unique individual with respect to diverse needs, interests, abilities, and culture.

The preschool staff consisted of eleven general education teachers, two special education teachers from the local school district, an occupational therapist (OT), a speech pathologist (SP), and approximately 125 teacher assistants. The lead teaching staff included two teachers with Master’s Degrees in special education, two teachers with Bachelor’s Degrees in Early childhood Education, one teacher with a Bachelor’s Degree in elementary education, and six teachers who did not hold bachelor’s degrees.

Center 1 followed the university academic calendar, with the first day of preschool on August 24, 2009. The center was open from 7:30 AM to 5:30 PM. The curriculum provided age-appropriate and individually-appropriate activities, materials, and equipment. Children had many opportunities to experience hands-on learning activities. The curriculum promoted the development of the whole child (e.g. cognitively, socially, emotionally, and physically) through individual and small group activities embedded in a balanced daily schedule.

Center 1 was designed as a fully enclosed campus within the university campus containing six buildings arranged around outdoor play spaces. Children were grouped
in six-months age increments, with the exception of children in the multi-age classroom and the two classrooms serving 4- and 5-year-old children. The age range in the multi-age classroom was 42 months to 64 months. Many of the children were enrolled in the preschool year after year and were familiar with the preschool setting, staff, and routines.

Security was of paramount concern. Parents and staff used a fingerprint identification system or security code to gain access to the campus. Additionally, state licensing required a signature sign-in and sign-out in each classroom.

Pre-kindergarten classrooms at Center 1 had similar layouts and organization. Each classroom was self-contained, in close proximity to outdoor play spaces, and except for the CA classroom, included courtyard spaces, surrounded by low block walls, where children could plant gardens. Each classroom, with the exception of the CA classroom, had a roll-up glass garage door that allowed easy access to the courtyard and to the outdoor play spaces. The CB and CC classrooms were housed together in a separate building, separated by a foyer with personal cubbies for belongings, and display space for parent information. The CA were housed in their own building containing two classrooms separated by a room that contained computers for videotaping behind one-way reflective glass. This building was designed for research. The CA had personal cubby space in a foyer with a display space for parent information.

Each classroom was well lit and contained bathrooms and a small kitchen area for preparing snacks. Parents had access to the kitchen area to store lunches for their children. The kitchen was secured behind a gate which denied children access. A first aid kit, snack items, and cleaning materials were placed in locked cabinets. Cots were
stored in the bathroom area, and were sanitized before and after nap time. The classrooms were organized in interest Centers, divided by book shelves, including literacy, manipulatives, dramatic play, blocks, music, computers, art, and science. A large rug area provided opportunities for whole group time. Tables and chairs were child height, and soft materials were available for relaxing with a book. A calendar of events was posted, as was a schedule of the day. Children’s work was displayed along with a variety of printed material.

Typical schedules for all children began with arrival time which allowed children to transition from home to school. Circle time initiated the instructional day. Children sat in a circle for stories, finger plays, music, movement, and shared conversation. After circle, children worked in learning Centers where teachers interacted with them individually and in small groups. Circle time and interest Center time provided opportunities for videotaping teacher-child interactions. Children were free to make choices about the Centers they wanted to work in, and were expected to clean up after their work before choosing a different Center. After Center time, teachers closed the morning with a circle time, inviting the children to share their experiences. Children then transitioned to the outdoor classroom where they could choose to play on equipment, or engage in activities at the water table, painting Center, swings, balls, sandbox, or bike path.

Children attending half-day were released to their parents from the playground. Full day students returned to their classrooms to eat lunches they brought from home. After lunch, children prepared for rest time. Some children did not nap and were released to the multi-purpose room for activities while the remainder of the children
rested. After nap, both children who napped and children who did not nap shared a snack in their home classrooms and alternately worked in Centers in the classroom or returned to the playground. Individual classroom characteristics are listed in the table below (see Table 2).

**Classroom A.** Children in the CA classroom used two small classrooms divided by a room equipped with research videotaping capability. Though the videotaping equipment in this room was not used in this study, a brief description follows. The research room had one-way viewing windows for observation of classroom activities. The classrooms had eye-ball cameras mounted on the ceiling. The research room was equipped with computers that could track classroom activities and teacher’s and children’s behavior as recorded through the cameras. Editing equipment and software were available to the researcher and these were used in this study.

The CA classrooms were connected behind the research room with a bathroom accessible from both small rooms. The bathroom had one sink and two toilets and housed the children’s cots. A fire extinguisher was mounted on the wall in the bathroom.

The room to the right of the research room contained a small kitchen for snack preparation and was separated from children’s access by a mesh gate. Cleaning items and first aid supplies were stored in the kitchen. In this room children had access to several interest Centers including writing, dramatic play, music, blocks, library, and art. The carpet area where children grouped for circle time had taped lines marking the children’s sitting spaces.
Table 2

*Participating Classrooms at Center 1*

<table>
<thead>
<tr>
<th>Classroom</th>
<th># of Children</th>
<th>Ages of Children</th>
<th># of Staff</th>
<th>Unique Curriculum Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>12</td>
<td>42 to 64 months</td>
<td>1 teacher</td>
<td>Theme based with emergent components</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 aides</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 – 4 Special Education Personnel</td>
<td></td>
</tr>
<tr>
<td>CB</td>
<td>24</td>
<td>50 to 64 months</td>
<td>1 teacher</td>
<td>Theme based</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 aides</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 – 4 Special Education Personnel</td>
<td></td>
</tr>
<tr>
<td>CC</td>
<td>24</td>
<td>58 to 64 months</td>
<td>1 teacher</td>
<td>Theme based with regard for children’s interests</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 aides</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 – 4 Special Education Personnel</td>
<td></td>
</tr>
</tbody>
</table>

This classroom was equipped with child sized round and square tables, as well as a kidney-shaped table for teacher-child small group instruction, and chairs that were child height. Posters on the wall featured safety signs and emotions. A medium sized aquarium with large goldfish was available for children’s viewing. Two locked cabinets for classroom supplies were available to teachers. In the corner of the room was a large walk-in closet for storage. Mounted on the wall was a white board for posting the daily schedule. Low shelves contained manipulatives, puzzles, and small toys.
The classroom to the left of the research area had one large kidney-shaped table, an art easel, exercise mat, a computer station, and a large group area with soft pillows and stuffed toys. A water cooler with a large water bottle was accessible to children. There were handmade small quilts on the wall for decoration. This room appeared equipped for whole group music and dance. This classroom had a white board for posting the daily schedule. Low shelves contained manipulatives, puzzles, and small toys.

**Classroom B.** The CB was arranged with interest centers and a large group area. The classroom had a large bathroom in the back of the room with cot storage and bins for children’s clothing. A small kitchen for snack preparation, first aid station, and space for cleaning supplies was gated off from the rest of the classroom with a mesh gate. The classroom was equipped with a large kidney shaped table for small group instruction, one round and one square table for interest centers, a sensory table, and low shelves for toys. Chairs were child height. The classroom had a telephone, a fire extinguisher, and a clock. A white board was mounted outside the kitchen with the daily schedule posted on it. The classroom contained two cabinets for storage of teacher materials.

On the wall at the end of the room was a large paper airplane with pictures of the children peaking out of the windows. There was a schedule of the day posted in the whole group area for the children to review. Interest centers were well equipped and included art, dramatic play, writing, library, manipulatives, blocks and computer station. The dramatic play area contained baskets with props for pretending. There was a small aquarium with goldfish for viewing.
**Classroom C.** The CC classroom contained a gated kitchen, a large bathroom with cot storage, and bins for children’s clothes. Two water fountains were mounted on the walls. Stools were available for children to use to reach the water fountains. In the bathroom, mounted on the outside of the stall wall, was a colorful collage which appeared to have been made by the children. A poster instructed children about how to wash their hands. There was a large kidney-shaped table, and small square tables for center activities. A sensory table, an easel for chalk drawing, and low shelves for toy storage were available to children. A white board with the daily schedule was mounted above the drinking fountain, and a bulletin board was in the kitchen for staff communication. There were two cabinets for storage of teacher materials. The classroom was equipped with a telephone, a fire extinguisher, and a clock.

The CC classroom had carefully labeled interest centers which included computers, writing, manipulatives, blocks, art, library and dramatic play. Each center was equipped with a variety of activities for children. The whole group area contained a large blue round rug. The dramatic play area has see-through plastic bins containing props for pretending and each bin was labeled with the contents. On the wall, there was a bulletin board for children to display their journal pages.

**Center 2**

Personnel at Center 2 provided ECE services to children from six weeks of age through 72 months of age or eligibility for first grade. Families were affiliated with the international airport or were from the surrounding community. Administration at Center 2 met county licensing requirements and was accredited by NAEYC. This ECE program operated under a private school license from the state. The philosophy of the
preschool was to fully meet the care and educational needs of young children, in
developmentally appropriate environments that support children’s learning potential.

Staff at Center2 included teachers with Bachelor’s Degrees, Associate of Arts
degrees, Child Development Associate credentials and teachers who did not hold
degrees. Center 2 is affiliated with an on-line in-house training program that met state
training criteria. Teachers had access and time to complete training during work hours.

Center 2 is a year-round ECE program. The center was open from 7:45 AM until
6:30 PM. The curriculum was an emergent curriculum, in which teachers listened to
students for cues regarding their interests. The teachers then built activities related to
the children’s interests to help them meet curriculum standards. Child assessment was
accomplished through documentation and portfolios. Families were an integral part of
the educational experience and school community.

Center 2 is a self-contained campus with one large building serving children from 6
weeks through 84 months or eligibility for first grade. Parents, staff, and visitors
entered through a secure door with a code or pushed a button for permission to gain
access. Children were signed in on computers in the lobby area, as well as signed in to
and signed out of their classrooms with a physical parental signature. Classrooms were
arranged off hallways and grouped according to the ages of the children enrolled. The
outdoor classroom was divided into age-appropriate spaces. Each classroom was well-
lit and well equipped. Each classroom was equipped with children’s cubby space,
teacher preparation areas, children’s bathroom area, sleeping mat storage, and locked
cabinets for cleaning and emergency supplies.
Classrooms were organized into interest Centers separated by low shelving. All furniture was of child height and was age appropriate. Children’s work was displayed in the hallways and in the classrooms. Each classroom had areas for small and whole group activities. Parent information was posted and children’s work was evident throughout the rooms.

Typical schedules for all children began with arrival time allowing children to transition to school. From 8:30 to 9:00 children were served a family style breakfast, provided by the Center, followed by tooth brushing. Children sat in circle for story time, songs, movement, and conversation. Children were invited to participate in prepared activities in Center time, had a choice about which activities to engage in, and had rights of refusal. Classrooms were specifically scheduled to use outdoor classroom time, which allowed varying lengths of Center time interrupted by breaks for outside classroom time.

After outside time, children transitioned to a family style lunch, provided by the Center followed by nap preparation and a nap time. After nap, children participated in Center time with free choice activities, outside time, and transition to home. Individual classroom characteristics are listed in Table 3.

**Classroom D.** The CD personnel provided services to children 38 to 51 months of age. Children’s belongings were stored in cubby spaces near the front door. A bathroom was located near the outside door. A hand-washing sink was located in the classroom where children could wash their hands and brush their teeth. The water cooler was located near the children’s cubbies under a window to the adjoining classroom. The classroom was equipped with child height tables and chairs.
Table 3

*Participating Classrooms at Center2*

<table>
<thead>
<tr>
<th>Classroom</th>
<th># of Children</th>
<th>Ages of Children</th>
<th># of Staff</th>
<th>Curriculum</th>
<th>Unique Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD</td>
<td>18</td>
<td>38 to 51 months</td>
<td>1 teacher 1 aide</td>
<td>Play-based with intentional teaching</td>
<td></td>
</tr>
<tr>
<td>CE</td>
<td>11</td>
<td>50 to 60 months</td>
<td>1 teacher</td>
<td>Themes based on children’s interest</td>
<td></td>
</tr>
<tr>
<td>CF</td>
<td>24</td>
<td>54 to 60 months</td>
<td>1 teacher 1 aide</td>
<td>Emergent</td>
<td></td>
</tr>
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</table>

There was a variety of table sizes allowing for the teacher to provide activities for varying numbers of children. Low shelves contained materials appropriate for each interest area and were arranged to divide the room into appropriate spaces for children to work alone or in small groups. A large easel was placed where children could choose to contribute to a large group painting.

The interest Centers contained a rich variety of materials for children’s independent play and exploration. The block Center contained blocks, block props, and some dress up props related to blocks. The art Center contained a large variety of materials allowing children to explore a wide variety of art media. The science Center contained an aquarium and many materials for weighing, measuring, and investigating.
The dramatic play area was fully stocked with dress up materials, and items related to home and office. The large group area rug allowed for group time. Tape was placed on the rug in a grid for children to bring cars and trucks and drive them along a pattern.

The walls contained several bulletin boards designed to feature the children and their families and to educate families about the value of the Centers. One bulletin board displayed candid pictures of the children in the room, while another featured children with their families. Another board contained a picture of each child with a caption that described the child in his or her own words. A large poster described each Center and explained to the parent how that Center contributed to the children’s learning and development.

**Classroom E.** The CE classroom personnel provided ECE services to children from 50 to 60 months of age. Children’s belongings were stored in plastic bins in a built-in cabinet. A bathroom was located at the back of the room and was shared with the CF classroom. The hand-washing sink and towels were in the classroom, as was a water cooler with bottled water. The CF classroom was equipped with child-height natural wood furniture arranged in interest Centers. The walls were decorated with artifacts about current topics of study. Bulletin boards displayed pictures of the children’s families and interviews with the children.

Long tables provided opportunities for small group activities. Small round or square tables were located in the writing Center and dramatic play. There was a sensory table, a woodworking table, a computer station, an art easel and art Center, a science table and a library with group area for circle time. A block area with soft and hard blocks was available to the children.
In this classroom, a teacher’s area with sink and storage for additional classroom materials was located beneath a bulletin board with parent information containing health alerts, policies, a mission statement, calendar, and menu. A white board was posted with activities of the week. A cardio-pulmonary resuscitation poster and first aid poster were prominently displayed.

CF. The CF classroom provided ECE services to children who were 54 months to 60 months of age. Children’s belongings were stored in plastic bins in a built-in cabinet. A bathroom was located at the back of the room and was shared with children in the CE. The hand-washing sink and towels were in the classroom, as was a water cooler with bottled water. The classroom was equipped with child-height natural wood furniture arranged in interest Centers. Displays of children’s emergent curriculum hung from the ceiling. A rainforest canopy made of craft paper covered a large area. A spider and web covered another area. Planets and a space theme hung from another corner. A Batman outline was taped to the floor.

Long tables provided opportunities for small group activities. Small round or square tables were located in the writing Center and dramatic play which contained a large mirror at child-height. There was a sensory table, a woodworking table, a computer station, an art easel and art Center, a science table and a library with group area for circle time. A block area with soft and hard blocks was available to the children.

In this classroom, a teacher’s area with sink and storage for additional classroom materials was located beneath a window where many photos of children were posted. A bulletin board was posted with parent information containing health alerts, policies, a
mission statement, calendar, fire drill procedures, hot weather guidelines, and menu. A sculpted ear was displayed in a box as the tattle ear, where children could report their tattles.

**Materials and Equipment**

Materials included in this study were related to the *CLASS* (Pianta et al., 2008). A *CLASS Pre-K Manual* (Pianta et al., 2008a), Observation Sheet (see Appendix D), and Dimensions Overview (Pianta et al., 2008b) rubric for language modeling were used (see appendix D). A *CLASS Dimensions Guide – Language Modeling* for pre-K language modeling was used (Teachstone, 2010). Additionally, a scoring sheet containing only the elements of language modeling was used to document examples of participants’ use of language modeling while scoring the video-recordings.

Technology included a Hewlett, Packard HDX Notebook computer, an Olympus digital voice recorder, digital *WAVE* program software, a Panasonic digital video camera recorder and tripod, and blank digital mini-video cassettes. Software included *Windows Movie Maker* software, and *imac* movie software. An Epson video projector, extension cords, a timer, a small white board, notepads, clipboards, pens and pencils were used. The video recorder was used to record teacher-child interactions, and the voice recorder was used to record teacher interviews.

**Meetings**

Teacher surveys were used to gain insight into teacher experience, attitudes, and beliefs about teacher-child interactions (see Appendix A). A short meeting was held with all of the teachers in each program to briefly introduce the research study. At this meeting, participating teachers were given a consent form. All of the lead teachers in
both programs were given the survey. The survey was printed on colored paper. Light and dark blue paper was used to identify teachers participating in the single subject portion of the study (TPSS) from both sites.

The surveys were used in the data analysis portion of the study and were therefore coded with the TPSS identification number that was labeled on the video recordings and on the interview transcript. Green paper was used to identify teachers participating in the survey only portion of the study (TPSO) from CENTER1. White paper was used to identify TPSO from Center2.

**Classroom Assessment Scoring System Rater Certification**

The *Classroom Assessment Scoring System* (2008) was designed to measure the quality of interactions between teachers and students in classrooms. It was not used to evaluate materials, physical environment, safety, or recommend a specific curriculum. Since this was a single-subject study with replication. It is important to note this distinction as this study was conducted in two separate environments, each with its own philosophy, goals, objectives, and learning environment.

Rater certification, conducted by the Center for Advanced Study of Teaching and Learning (CASTL) at the University of Virginia, was required by authors of *CLASS* (Pianta et al., 2008) to obtain permission for use in this study. The researcher and the observer (IO) participated in a three-day training program in Charlottesville, Virginia in May, 2009. Day one and day two of the training focused on rater certification that was obtained by passing a computer generated test. Day three of the training concerned the use of *CLASS* as a professional development tool.
The researcher and the IO watched videos in the training program and worked alone and in groups to understand the scoring system. After the training was completed, they were instructed to access the CLASS (Pianta et al., 2008) website (www.CLASS (2008) observation.com) and view and score five separate 20-minute video recordings of teacher-child interaction. The researcher and the IO watched the same five videos independently on their home computers. The five videos that were viewed were titled: *The Very Busy Spider; Seeds and Salon; Mice Squeak, We Speak; Cars and Letter Stamping; and Walking Down the Road.*

Each recording was independently rated by a master rater, the researcher, and the IO. The ratings were measured on a seven-point scale, numbered from one to seven, with seven being the highest rating. There were ten domains scored in each of the five recordings. In order to earn a score of reliable, the rater was required to match or be within one point of the master rater’s score for 80% of the total items scored. Both the researcher and the IO achieved mastery in the training program and were certified to use CLASS (Pianta et al., 2008).

The reliability score of the researcher was 94 % and the reliability scores of the IO were 84% the first trial and 92% on the second trial (see Appendix E). Additionally the researcher and the IO reviewed tapes together, produced from this study, and discussed ratings based on descriptions in the CLASS PRE-K Manual (Pianta et al. 2008a). The tapes reviewed for practice were not included in the percentage used for reliability. Interobserver agreement for quality of language modeling was defined as

\[\frac{\text{agreements}}{\text{disagreements} + \text{agreements}} \times 100 = \text{agreement}\]
Response Definitions

General definitions are included in Chapter 1, and provides a discussion of the CLASS (Pianta et al., 2008) domains and dimensions. Language modeling is the dimension that is the focus of the professional development strategy engaged in by the TPSS. To provide a more complete understanding of language modeling, each of the five strategies within language modeling is defined.

Language Modeling

Language modeling was defined as “The extent to which teachers facilitate and encourage students’ language” (Pianta et al., 2008a, p. 5). Sub-categories were described as frequent conversations, open-ended questions, repetition and extension, self- and parallel talk, and advanced language. Scoring was similar to that described in the content development section above.

Frequent conversations were rated positively when the teacher demonstrated conversational exchanges with most of the students in the classroom. Many teacher-child and peer-to-peer conversations should be evident, demonstrating a natural flow of conversation. The teacher who scores high in this dimension “actively listens, contributes relevant responses, and asks related questions” (Pianta et al., 2008a, p. 79).

Teachers scored high on the open-ended question criterion when they asked questions “that require students to put together language to communicate more complex ideas” (Pianta et al. 2008a, p. 79). Examples of open-ended question starters include “Tell me about…”, “Share your story…”, “Why do you think…”. Open-ended questioning provides an opportunity for children to have multiple turns to speak in a
conversation with their teacher as he/she models more complex language for children to emulate and practice.

When a teacher repeats a child’s comment and then extends the concept with additional information, children have an opportunity to build their own language skills. For example, if a child says that he knows it is carnival because of the big wheel, the teacher might say “yes, the big wheel, that is a Ferris Wheel”. A teacher who demonstrates frequent use of repetition and extension would score high on this criterion.

Self and parallel talk allows the teacher to model language use through words, concepts, and language constructs. The teacher simply says what she is doing, or links words to actions. For example, a teacher might say, “I am giving each of you one piece of red construction paper and a bottle of glue.” For parallel talk, she might say “Look Johnny, you are balancing ten blocks in a tall tower”.

The advanced language criterion is demonstrated when teachers use a variety of words that the children might not know or understand, and when they link these words to concepts the children do know. For example, a child might name all of the colors in her t-shirt; the teacher might rename the colors and then say “you have a multi-colored shirt.” The teacher might connect the new word to an everyday object with which the children are familiar. “A rainbow is multi-colored”.

**Design and Procedures**

There were three components to this mixed-methods research design. First, a survey was conducted with all lead teachers in the Teacher Participant Single-subject (TPSS) condition and teacher Participant Survey Only (TPSO) from center1 and Center2 regarding beliefs and intentions of teacher-child interaction. Second, a professional
Teacher surveys were conducted prior to the start of baseline video recording for the first participant. Baseline data collected for 30 minutes, Monday through Thursday mornings, beginning in January. Intervention recording was conducted during each of four mornings in the week following baseline. Follow-up recording took place on the eighth school day following intervention. Participant interviews were all conducted the same week following the final follow-up. Coding and data analysis were on-going beginning with the close of baseline for the first participant.
development intervention was conducted to measure and support improvement of language modeling through a single-subject multiple-base line with one replication research design using direct observation and video recorded sessions with six TPSS. Third, one lead teacher in each of six classrooms participated in interviews regarding the research process (see Figure 1).

Teacher Survey

In January, 2010, a short meeting was held with all of the TPSS and TPSO at Center 1 and Center 2 programs to briefly introduce the research study. At these meetings, the contents of a consent form were explained by the researcher. All participants completed the form, and TPSS and TPSO were instructed to complete a survey. Teacher surveys served two purposes: (a) to collect demographic information regarding education and experience relevant to the study, and (b) to gain insight into teacher attitudes and beliefs about teacher-child interactions (see Appendix A). The survey was printed on colored paper. Light and dark blue was used to identify TPSS from both sites. The surveys were correlated with the CLASS (Pianta et al., 2008) language modeling scores in the data analysis portion of the study and were coded with the TPSS identification number that was labeled on the video recordings and on the interview transcript. Green paper was used to identify TPSO from Center 1; white was used to identify TPSO from Center 2.

Single Subject Design

This study employed a single-subject multiple baseline with one replication design across participants. This design is appropriate when there are multiple participants exposed to similar environmental conditions with similar responses (Gast & Tawney,
In this multiple baseline design, subjects were measured sequentially, with the participant receiving baseline measurement, intervention treatment, maintenance, and follow-up measurement.

**Baseline Procedures.** The determination of a successful intervention in applied research necessitates the collection of sufficient baseline data (Tawney & Gast, 1984). The baseline quality of teacher-child language-modeling interactions was examined before the intervention was applied. After the intervention was introduced, any positive change in the quality of teacher-child interactions could then be assigned to the effects of the intervention. For example, after a TPSS viewed video recordings of her language modeling with children in her classroom from the baseline phase of the data collection, the TPSS received instruction supporting improvement of the quality of the language modeling interactions. Any measured improvement during intervention and follow-up would then be assigned to the effects of the intervention (see Figure 1, and schedules in Appendix D).

Baseline data in this study were collected to determine each participant’s scores on criteria within the language modeling dimension in CLASS (Pianta et al., 2008). Baseline data were collected concurrently for three participants in each Center. While participant A entered intervention, baseline data were collected for participants Band C. When participant B entered intervention, data were collected in baseline for participant C. this procedure was repeated in Center 2.

As recommended by the authors of CLASS (Pianta et al., 2008) before baseline taping began, the teacher or the researcher held a discussion with the children regarding the videotaping. The children received an explanation about the study and were
allowed to ask questions and alleviate concerns. As recommended by the authors of CLASS data were collected, for each participant, in four 30-minute segments within the same week. Following CLASS recommendations (Pianta et al., 2008a), the video camera was set-up and turned on before the start of the lesson. The headings of the CLASS observation sheet for pre-K were completed for each participant during videotaping. The video recordings were later viewed, rated on the Language Modeling Video Observation Sheet (see Appendix D) and scored on the Observation Sheet (see Appendix D) by the researcher. The IO viewed and scored 32% of the recordings following the same procedure.

Several recommendations of CLASS (Pianta et al., 2008) regarding the use of videotaping were followed (Pianta et al., 2008a). The video recorder captured sound, teachers did not wear microphones. The videotape was started prior to the lesson and allowed to run during transitions. A tripod was used and placed to the side so that facial expressions of children and teachers could be seen. While the video-recorder captured the teacher’s interactions with a specific group of children, the video recorder was occasionally panned to the whole classroom to capture the experiences of other students for several minutes at a time.

Videotaping procedures were systematically followed for each of the six participants. The video recorder was mounted to a tripod, positioned according to CLASS (Pianta et al., 2008) instructions and tested prior to the baseline session. The participant’s code, baseline, or intervention number and date were entered on a white board and on a label affixed to the mini-tape. The white board was video-taped prior to the taping session. The recorder was turned on at transition before instructional time,
and turned off after at least thirty minutes of classroom instructional time. The researcher entered the teacher code, start time, number of children, and number of adults, and observer, on the CLASS Observation Sheet (Appendix D). As the session progressed, the researcher entered the content information and format on the CLASS (Pianta et al., 2008) observation sheet. At the close of the session, the researcher entered the end time. This procedure was conducted for four consecutive days (see schedules in Appendix D).

**Intervention Procedures.** After baseline data were collected for each TPSS where stability of baseline was evident, and before Monday of the following week, the researcher introduced the intervention phase of the study to the participant. This pattern was repeated for each TPSS. Each TPSS and the researcher discussed the five items on the Dimensions Overview (Pianta et al., 2008b) (Appendix D) for the levels of quality of language modeling. The researcher and the participant watched selected interactions from the baseline video recordings together. As recommended by CLASS (Pianta et al., 2008) teachers were not told their scores.

After baseline recordings were reviewed the researcher introduced the instructional process to the TPSS. The researcher engaged the participant in a critique of the video recordings based on the criterion in the CLASS rubric. The researcher explained the structured question and answer procedure using scripts developed from the video observations in baseline. Three types of scripts were developed that asked the participant to: (a) see their teacher-child interactions in the video, (b) reflect on their observations, and (c) challenge the participant to recognize steps for improvement (see Appendix D).
The following Monday, the TPSS was video-recorded for a 30 minute period during instructional time. Video-recording procedures were systematically followed for each of the six participants. The video recorder was mounted to a tripod, positioned according to instructions by the authors of CLASS (Pianta et al., 2008), and tested prior to the baseline session. The participant’s code, baseline or intervention number, and date were entered on a white board and on a label affixed to the mini-tape. The white board was video-taped prior to the taping session. The recorder was turned on at trans before instructional time, and turned off after at least thirty minutes of classroom instructional time. The researcher entered the teacher code, start time, number of children, and number of adults, and observer, on the CLASS Observation Sheet as the session progressed the researcher entered the content information that was being presented to the children and format (e.g., whole group, small group, Centers) on the CLASS Observation sheet. At the close of the session, the researcher entered the end time.

The video recording was scored and the TPSS and researcher met each day. During the professional development portion of the single subject intervention, scripts were again used in a structured question and answer process to discuss the current video recording. This process was repeated four times during intervention. A maintenance period of eight school days was observed. A final video recording session was conducted the second Wednesday following the last day of intervention. Participant interviews were held within seven days of the follow-up video recording session.

Baseline, intervention, maintenance, and follow-up occurred for each participant. When the first participant reached the maintenance phase, the second participant entered
baseline. This cycle was repeated until all six participants completed the full cycle of baseline, intervention, maintenance, and follow-up. See flow chart in Figure 1, p 132.

**Interobserver Agreement.** Reliability of data interpretation was measured to determine IO agreement. The IO held a Master’s Degree in Special Education and the position of Education Director for a local preschool. The IO and the researcher attended the three-day CLASS rater certification training at the University of Virginia, Charlottesville in May 2009.

Data were checked for reliability between the researcher and the IO over 32% of the video recordings. The IO watched randomly chosen video-recordings representative of all six participants. IO agreement for quality of language modeling was defined as 

$$\text{IO agreement} = \left(\frac{\text{agreements} - \text{disagreements}}{\text{agreements}}\right) \times 100$$

**Participant Interviews**

Interviews with TPSS were the final form of data collection. According to Wilcox-Herzog and Ward (2004), the depth of training influences intentions about the importance of teacher-child interactions. Interviews were conducted within one week of the follow-up video recording session for each TPSS. The purpose of the interviews was to investigate the education and experiences teachers had with instructional support techniques, their view of the intervention process as supportive of developing higher quality teacher-child interactions, and personal reflections on the experience. Teachers’ beliefs and intentions regarding teacher-child interactions were further examined.

Teacher participant single-subject interviews were conducted in a private quiet space in each of the ECE settings. Teacher participant single-subject permission to be interviewed was given as part of the process of participation in the study. Interviews
with TPSS were labeled with the same TPSS identification number that was assigned to the survey and the video recordings. They were dated and recorded on an Olympus digital recorder and transcribed on a computer equipped with WAVE software. This allowed the sound recording to be manipulated from the computer keyboard. Field notes were taken during the interview session. Each participant was asked a series of non-biased and non-directional questions about their experience (see Appendix F). The interview was designed to represent an informative understanding of the participant’s experience through all phases of the study.

Open ended questions were asked to avoid bias in participants answers, such as “Tell me about how your education prepared you to interact with children.” Examples of prompts which were needed for clarification, or to encourage more discussion, included “Tell me more”, “Why do you believe that to be true”, “Go on…”. The interviews were transcribed (see Appendix E) and were marked up as suggested by Seidman (2006) and aligned with Rubin and Rubin’s (2005) approach, (e.g. to mark individual passages and to group these into categories). Then the categories were studied for related themes both within and among them. As recommended by Marshall and Rossman (2006) and Seale (2001), the data were coded using computer software, designed for the management and analysis of qualitative data.

According to Marshall and Rossman (2006) “Coding data is the formal representation of analytical thinking.” (p.160). Types of codes include process, activity, event, strategy, narrative, and relationship and social structure codes (Bogdan & Biklen, 2007). All six transcripts were open-coded to break down the data into categories, patterns, and themes. Axial coding was used to put the data back together through
network building within the software program. Further, a written report represents the inquiry.

**Social Validity**

Social validity measures included the teacher surveys conducted at the beginning of the study and the interviews at the conclusion of the study. These measures were used to determine the usefulness of the instructional quality interaction intervention. Specifically, surveys were conducted to determine if teacher beliefs about their practice were consistent with their intentions. Each TPSS was asked to complete a 5-point Likart scale (as were the TPSO) addressing attitudes and beliefs about teacher-child interactions. Interviews were conducted to determine if teacher participants found the intervention useful and if they would make recommendations for improvement of the professional development model. Through structured interviews of all six TPSS, information was revealed regarding TPSS perceptions of the CLASS intervention experience and the degree of effectiveness at improving instructional quality of teacher-child interactions.

**Treatment of Data**

Data collected from the CLASS observation sheets, as coded from direct observation and analysis of video recordings, were used to answer the following research questions:

Research Question 1: To what extent are teacher beliefs consistent with their intentions, in general, regarding teacher-child interactions?

Analysis: A Pearson correlation between teachers’ beliefs and intentions was used to determine if their beliefs were consistent with their intentions.
Research Question 2: Does a program of staff development improve the quality of teachers’ language modeling with young children in private preschool classrooms as measured by CLASS (Pianta et al., 2008)?

Analysis: A substantial difference between baseline and intervention phases, when examining teacher-child interactions in private pre-K classrooms, would provide evidence for implementing a professional development program for ECE teachers. To determine if there was a substantial difference, data were collected based on the CLASS (2008) 7-point-scale for each teacher. Data were collected for the language modeling criterion of the CLASS observation form for each video-taped session from baseline and intervention phases. Data were entered into an Excel spreadsheet and a line graph was generated. The researcher was able to determine level, stability, and trend by viewing the line graph. Visual representation of baseline and intervention data via a graph allowed for communication, efficient use of time, and point-by-point comparison of data (Gast & Tawney, 1984). Further, it is the most common analysis in applied research (Gast & Tawney).

Research Question 3: To what extent are teacher participants satisfied with the CLASS (Pianta et al., 2008) training process?

Analysis: To determine teacher satisfaction with the professional development intervention used in this study, a phenomenological interviewing process, as recommended by Seidman, (2006) was used. Teachers were asked a series of structured interview questions regarding their experience during the videotaping and discussion about the videotapes. Seideman (2006) recommends three parts to an interview: (a) focused experiential history, (b) details of the experience, and (c) reflection on the
meaning of the experience. The interviews were recorded on an Olympus digital voice recorder, transcribed using a computerized wave program, reviewed by participants for accuracy, and coded for common meaning.
CHAPTER 4

RESULTS

The purpose of this chapter is to describe the results of this mixed-methods study. First, data from the intentions and beliefs survey that was distributed to lead teachers at Center 1 and Center 2 are presented. Second, the results from the multiple baseline across participants with one replication design are outlined. Third, the interviews with single-subject participants are discussed. Last, treatment integrity data are discussed.

**Intentions and Beliefs Survey Data**

A survey was conducted to measure teachers’ beliefs regarding their instructional practice and to determine if their beliefs about what they ought to do in the classroom were consistent with their intentions for their practice. Eleven lead teachers at Center 1 and seven lead teachers at Center 2 participated in the survey. The data were used to analyze research question one:

1. To what extent are teachers’ beliefs consistent with their intentions regarding teacher-child interactions?

The survey developed by Wilcox-Herzog and Ward (2004) contained 17 questions regarding beliefs and 20 questions regarding intentions (see Appendix A). The questions were scored on a 5-point Likert scale. In the beliefs section, participants scored each of the questions by responding to the directive “Please circle your answers to the following questions using the scale on the right: Teachers should do this with children: 1) All of the time, 2) Most of the time, 3) Some of the time, 4) Seldom, and 5) Never”. In the intentions section, the participants responded to the directive “Please circle your answers to the following questions using the scale on the right, I do this with
children: 1) All of the time, 2) Most of the time, 3) Some of the time, 4) Seldom, and 5) Never”.

The data were analyzed using the Pearson r. The output from SPSS 16.0 (2007) initially indicated no significant correlation (r=.39, p=.056). However an outlier with a total score of more than 3 standard deviations from the mean was removed. A second SPSS output indicated a significant positive relationship between participants’ beliefs and their stated intentions (r = .60, p = .006). The positive correlation indicated that participants’ stated beliefs generally agree with their intentions regarding their practice in the classroom (see Figure 2).

*Figure 2. The Relationship between Participant Beliefs and Intentions*
Multiple Baseline Results from Teacher Participants

Data from the multiple baseline study across participants one with replication were used to determine if a professional development intervention had an effect on improved teacher language modeling as measured by CLASS (Pianta et al., 2008). The data were used to analyze research question two:

2. Does a program of staff development improve the quality of teachers’ language modeling with young children in preschool classrooms as measured by CLASS (Pianta et al., 2008).

Teacher Participants

Participants in this study were lead teachers in six classrooms from two ECE sites, located in a major southwestern city. Center 1 was affiliated with a university and housed on campus. Center 1 was designed to accommodate children of staff, students and faculty as well as from the community at large. Center 2 was a private ECE facility located off campus and affiliated with an international airport.

Teacher Participants at Center 1

Teacher participant one (PA). Teacher participant one was located Center 1 in the CA classroom. Children in this multi-aged classroom ranged in age from 42 to 64 months. Baseline data were collected for four days to determine participant baseline rating on the CLASS (Pianta et al., 2008) scale for language modeling. Data from four baseline data points indicated that participant one scored in the mid-range on the CLASS scale for language modeling. Visual inspection generally revealed stability in baseline, with trends in intervention ascending to stability in the high range. The results of the data are displayed in Figure 3.
On day five after baseline data were collected, the participant was given instruction regarding language modeling as presented in the *CLASS Dimensions Guide – Language Modeling* (Teachstone, 2010). A copy of the guide was given to the participant. The participant was then asked to view segments of the video-recording from the baseline data which highlighted examples of language modeling that represented the concepts within the dimension as defined by the response definitions.

The intervention took place over the next four days, with video-recording in the morning and viewing of video segments and discussion in the afternoon of the same day. Video-recording and discussion were then suspended for the following eight class days. Finally, a follow-up video was recorded on class day eight after the intervention, without discussion with the participant. A marked increase between the baseline and intervention phases was seen, via visual inspection. Upon visual inspection, participant one achieved stability in the *CLASS* (Pianta et al., 2008) rating. Intervention scores were consistently in the high-range, and her follow-up score was in the high range. The baseline mean for this participant was 3.25, the intervention mean was 5.75, with a follow-up data point of 7 (See Table 5).

**Teacher participant two (PB).** Teacher participant two was located in Center 1 in the CB classroom. Children were enrolled in pre-K and ranged in age from 50 to 64 months. Baseline data were collected for eight days to determine participant baseline rating on the *CLASS* (Pianta et al., 2008) scale for language modeling. Data from eight baseline data points indicated that participant two scored in the low to low mid-range on the *CLASS* (Pianta et al., 2008) scale for language modeling. Visual inspection generally revealed stability in baseline. Five of the eight data points were the lowest
score possible with only one score in the low-mid range. The results of the data are displayed in Figure 3.

On day nine, after baseline data were collected, the participant was given instruction regarding language modeling as presented in the CLASS Dimensions Guide – Language Modeling (Teachstone, 2010). A copy of the guide was given to the participant. The participant was then asked to view segments of the video-recording from the baseline data which highlighted examples of language modeling that represented the concepts within the dimension as defined by the response definitions.

The intervention took place over the next four days, with video-recording in the morning and viewing of video segments and discussion in the afternoon of the same day. Video-recording and discussion was then suspended for the following eight class days. Finally, a follow-up video were recorded on class day nine after the intervention, without discussion with the participant. A marked increase between the baseline and intervention phases was seen, via visual inspection. Upon visual inspection participant two achieved stability in the CLASS rating. Intervention scores were consistently in the high mid-range to high-range with some variability, and the participant’s follow-up score was in the high mid-range. The baseline mean for this participant was 1.5, the intervention mean was 5.5, with a follow-up data point of 5 (See Table 5).

Teacher participant three (PC). Teacher participant three was located in the Center 1 in the CC classroom. Children were enrolled in pre-K and ranged in age from 58 months to 64 months. Baseline data were collected for twelve days to determine participant baseline rating on the CLASS (2008) scale for language modeling. Data from twelve baseline data points indicated that participant three consistently scored in
the low range with only one data point in the low mid-range on the CLASS (Pianta et al., 2008) scale for language modeling. Visual inspection generally revealed stability in baseline. The results of the data are displayed in Figure 3.

On day thirteen, after baseline data were collected, the participant was given instruction regarding language modeling as presented in a CLASS Dimensions Guide – Language Modeling (Teachstone, 2010). A copy of the guide was given to the participant. The participant was then asked to view segments of the video-recording from the baseline data which highlighted examples of language modeling that represented the concepts within the dimension as defined by the response definitions. The intervention took place over the next four days, with video-recording in the morning and viewing of video segments and discussion in the afternoon of the same day. Video-recording and discussion was then suspended for the following eight class days. Finally, a follow-up video was recorded on class day nine after the intervention, without discussion with the participant. A marked increase between the baseline and intervention phases was seen, via visual inspection. Upon visual inspection participant three did not achieve stability in the CLASS rating. However, intervention scores trended upward. Intervention scores were consistently in the high mid-range to high-range and her follow-up score was in the mid-range. The baseline mean score for this participant was 1.75, the intervention score mean was 4.75, with a follow-up data point of 4 (See Table 5).

**Teacher Participants at Center 2**

Center 2 was a private ECE facility located off campus. Personnel at Center 2 provided services for children whose parents are affiliated with the county airport.
Figure 3. Participant Performance on the Language-Modeling Dimension of Classroom Assessment Scoring System- Center 1
Figure 4. Participant Performance on the Language-Modeling Dimension of Classroom Assessment Scoring System - Center 2
Participants in this study were lead teachers from 3 pre-K classrooms.

**Teacher participant four (PD).** The single-subject design was replicated at the second site. Teacher participant four was located in at the Center 2 in the CD classroom. Children in this classroom were younger, were enrolled in pre-K, and ranged in age from 38 to 51 months. Baseline data were collected for four days to determine participant baseline rating on the CLASS (Pianta et al., 2008) scale for language modeling. Data from four baseline data points indicated that participant four scored in the low to low-mid range on the CLASS scale for language modeling. The results of the data are displayed in Figure 4.

On day five of the study, after baseline data were collected, the participant was given instruction regarding language modeling as presented in the *CLASS Dimensions Guide – Language Modeling* (Teachstone, 2010). A copy of the guide was given to the participant. The participant was then asked to view segments of the video-recording
from the baseline data which highlighted examples of language modeling that represented the concepts within the dimension as defined by the response definitions. The intervention took place over the next four days, with video-recording in the morning and viewing of video segments and discussion in the afternoon of the same day. Video-recording and discussion were then suspended for the following seven days. Finally, a follow-up video was recorded on class day eight, without discussion with the participant. A slight increase between the baseline and intervention phases was seen, via visual inspection. Upon visual inspection, participant four did not achieve stability on the CLASS rating, however one of the participant’s intervention scores was elevated to a high mid-range and the participant’s follow-up score was in the high range. This participants scores ascended with the exception of the final treatment point. Examples of low, mid, and high range scoring are in Appendix D. The baseline mean score for this participant was 3.25, the intervention mean score was 3.75, with a follow-up score of 6 (See Table 5).

**Teacher participant five (PE).** Teacher participant five was located at Center 2 in the CE classroom. Children in this classroom were enrolled in pre-K and ranged in age from 50 months to 60 months. Baseline data were collected for five days to determine participant baseline rating on the CLASS (Pianta et al., 2008) scale for language modeling. Participant five was on vacation for three days during baseline. Data from five baseline data points indicated that participant five scored in the low to low mid-range on the CLASS scale for language modeling. The results of the data are displayed in Figure 4. On day nine of the study, after baseline data were collected, the participant was given instruction regarding language modeling as presented in the CLASS
Dimensions Guide – Language Modeling (Teachstone, 2010). A copy of the guide was given to the participant. The participant was then asked to view segments of the video-recording from the baseline data which highlighted examples of language modeling that represented the concepts within the dimension as defined by the response definitions.

The intervention took place over the next four days, with video-recording in the morning and viewing of video segments and discussion in the afternoon of the same day. Video-recording and discussion were then suspended for the following eight class days. Finally, a follow-up video was recorded on class day nine after the intervention, without discussion with the participant. A marked increase between the baseline and intervention phases was seen, via visual inspection. Upon visual inspection participant five achieved stability in the CLASS (Pianta et al., 2008) rating with the exception of day three. Intervention scores were elevated to a high mid-range to high range, and her follow-up score was in the high range. The baseline mean score for this participant was 2.2, the intervention mean was 4.25, with a follow-up data point of 5 (See Table 5).

Teacher participant six (PF). Teacher participant six was located in at the Center 2 in the CF. Baseline data were collected for twelve days to determine participant baseline rating on the CLASS (Pianta et al., 2008) scale for language modeling. Data from twelve baseline data points indicated that participant six scored in the low to low-mid range on the CLASS (Pianta et al., 2008) scale for language modeling. Visual inspection revealed stability in baseline. The results are displayed in Figure 4. On day thirteen of the study, after baseline data were collected, the participant was given instruction regarding language modeling as presented in the CLASS Dimensions Guide – Language Modeling (Teachstone, 2010). A copy of the guide was given to the
participant. The participant was then asked to view segments of the video-recording from the baseline data which highlighted examples of language modeling that represented the concepts within the dimension as defined by the response definitions.

The intervention took place over the next four days, with video-recording in the morning and viewing of video segments and discussion in the afternoon of the same day. Video-recording and discussion were then suspended for the following eight class days. Finally, a follow-up video was recorded on class day nine after the intervention, without discussion with the participant. A marked increase between the baseline and intervention phases was seen, via visual inspection. Upon visual inspection, participant six never achieved stability in the CLASS (Pianta et al., 2008) rating. However, intervention scores were consistently higher than baseline scores. Intervention scores were elevated to a high mid score to high range, and the participant follow-up score was in the high range. The baseline mean score for this participant was 2.17, the intervention mean score was 4.35, with a follow-up data point of 5 (See Table 5).

**Interviews**

Each participant in the multiple baseline single-subject section of the study also participated in a follow-up interview. Responses to interview questions were used to determine participant’s satisfaction with the language modeling development intervention. The responses were used to analyze research question three:

3. To what extent are teacher participants satisfied with the CLASS (Pianta et al., 2008) training process?

The interview process was conducted during the two weeks after all six teacher participants completed the single-subject phase of the study. Appointments were
established for each participant, and each was held on a separate day during classroom preparation time. The interviews were conducted in the order in which teachers entered the intervention phase. Participant PA was the first participant to enter intervention and was the first participant to be interviewed. The order was maintained until teacher six in intervention was the last to be interviewed. Likewise, all participants at Center 1 were interviewed before participants at Center 2 were interviewed.

Interviews were conducted at each facility location where only the interviewer and the participant were present in the room. At Center 1, participants were interviewed in the research room in the multi-age building. At Center 2, two of the interviews were conducted in the conference room. The remaining interview was conducted in an unused classroom because of a scheduling conflict. Interviews ranged in length from 10 minutes to approximately 30 minutes as participants were encouraged to speak as long as they wanted to on each question.

The interviews were structured with each participant responding to the same questions (see Appendix F). Questions were phrased broadly to allow participants to reflect their views and experiences with the intervention. In some cases prompts were given for further clarification or explanation. The interviews were voice-recorded and transcribed (see Appendix F).

Themes emerged around each question see Table 5. Question 1(a) asked the interviewee to tell about the most helpful components of the experience. The most common responses involved the video-recording experience and the value of seeing themselves, as well as one-on-one instruction with the researcher. Question 1(b) asked the participants to talk about the least helpful components and these responses also
involved video-recording. The participants generally discussed their dislike of being video-recorded especially for the length of time they were on camera.

Question 2: “How do you think your participation influenced your awareness of your role in language modeling in the classroom?” Participants generally discussed their improved understanding of language modeling. They discussed the value of specific components such as self talk.

Question 3: “Would you recommend this process of professional development to a colleague? Why or why not?” Responses indicated general favorable agreement, specifically for new teachers. Some participants were already introducing the concepts to their staff, while others made changes to instructional formats in their classroom.

Question 4: “Do you believe the topic of child-staff interactions should be a formal part of coursework in higher education? How would you integrate it?” Responses to both parts of the question were answered together by all participants. There was general agreement that specific instruction should be included in higher education courses with attention to hands on instructional formats.

Question 5: “Is there anything I could have done to make the study more comfortable?” Few suggestions were offered other than those related to camera size and length of the recording sessions. Generally participants indicated that the study was conducted with respect to participants and children.

Question 6: “Is there anything else you would like to share?” Participants reiterated their discomfort with the camera. They generally discussed the value to the children and their own personal gain. For a more complete discussion see Chapter Five.
Table 5. *Emergent Themes from Interview Phase*

<table>
<thead>
<tr>
<th>Question</th>
<th>Language Modeling (LM) Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tell me about your experience</td>
<td>Seeing themselves on video&lt;br&gt;The influence of LM on child development&lt;br&gt;Improving the value of story time&lt;br&gt;One-on-one instruction with researcher</td>
</tr>
<tr>
<td>a. Most helpful components</td>
<td>Dislike of being video-taped&lt;br&gt;Length of time of video-recording</td>
</tr>
<tr>
<td>b. Least helpful components</td>
<td></td>
</tr>
<tr>
<td>2. How do you think your participation influenced your awareness of your role in LM in the classroom?</td>
<td>Improved understanding of concepts of LM&lt;br&gt;Importance of self-talk&lt;br&gt;Effectiveness of LM for children with delay&lt;br&gt;Participants continued to self-reflect&lt;br&gt;General improvement of teaching skills&lt;br&gt;Increase in classroom conversation&lt;br&gt;Importance of peer conversations</td>
</tr>
<tr>
<td>3. Would you recommend this process of professional development to a colleague? Why or why not?</td>
<td>General favorable agreement&lt;br&gt;Important for new teachers&lt;br&gt;Some participants introduced LM to Classroom staff&lt;br&gt;Influenced change to child journaling Protocol&lt;br&gt;Participant initial participation anxiety</td>
</tr>
<tr>
<td>4. Do you believe the topic of child-staff interactions should be a formal part of coursework in higher education? How would it be integrated?</td>
<td>Answers to A and B blended&lt;br&gt;General agreement&lt;br&gt;Suggestions include hands-on formats: video-recording and review, classroom observation and practice, demonstration to collegiate peers</td>
</tr>
<tr>
<td>5. Is there anything I could have done to make the study more comfortable?</td>
<td>Camera size, length of video-recording, and frequency&lt;br&gt;Believed study conducted with respect Effective introduction staff, parents, children</td>
</tr>
<tr>
<td>6. Is there anything else you would like to share?</td>
<td>Reiterated discomfort with camera&lt;br&gt;Value to children in classroom&lt;br&gt;Personal gain to participants</td>
</tr>
</tbody>
</table>
Treatment Integrity

Individual meetings were held at each facility to explain the study and to collect survey data. All lead teachers in each facility answered survey questions on color coded paper indicating the facility. The color code additionally indicated whether the participant was responding to the survey only, or whether they were also a participant in the multiple baseline single subject and interview sections of the study.

During the multiple-baseline section of the study, video-recordings were coded and dated. The code was affixed to the tape, the tape case, and was written on a white board and filmed at the beginning of each recording session. Additionally, the code was placed on a checklist of procedures, as well as on the CLASS scoring sheet. The video-recordings were conducted and scored according to the specific procedures (see Appendix D) indicated in the CLASS PRE-K Manual (Pianta, La Paro, and Hamre, 2008).

Discussions with the participants were conducted behind closed doors. During the interview phase of the study, the participant responded to a structured interview and the interview was voice recorded with permission from the participant. These interviews were conducted in a private space within each facility. Each participant was invited to speak as long as they wanted on any question

Interobserver Agreement

All participants were included the IO sample. The observer viewed the video-recordings according to the procedures described in the Class pre-K Manual (Pianta et al., 2008a). Interobserver agreement data were collected by one research assistant viewing 31% of a random selection of all recordings in the study.
Interobserver agreement according to Pinata et al., (2008) was reached when the IO scored the same or within one point of the researcher’s score on the seven-point scale over 80% of the scores. Interobserver agreement for quality of language modeling was defined as \((\text{agreements}/\text{agreements} + \text{disagreements}) \times 100 = \text{agreement}\). Interobserver agreement in this study was 84.2%.

**Summary**

This study used a mixed-methods design to evaluate teacher-child interactions regarding language-modeling in pre-K classrooms. First, a survey was conducted to measure teacher’s stated beliefs regarding their classroom practice, with respect to teacher-child interactions, to determine if beliefs were consistent with their intentions.

Second, a single-subject design with one replication was used to determine if a professional development model was effective in improving language-modeling in the classroom. Interobserver agreement data were collected throughout the study and after the video-recording data were completed. Third, interviews were conducted with all six participants to determine if the professional development model had social validity. Analysis of the data determined: (a) participants’ beliefs were generally consistent with their intentions, (b) all teachers improved their language modeling skills as measured against the CLASS scale for language modeling, and (c) interviews revealed satisfaction with the professional development model as it was presented. Chapter Five includes a discussion of the findings presented with this chapter.
CHAPTER 5

DISCUSSION

The purpose of this chapter is to discuss the results of the study examining the effects of a system of professional development on the improvement of language modeling by teacher participants in pre-K classrooms. First, results related to the relationship between teacher beliefs and intentions regarding teaching practice are reviewed. Second, participants’ reception of the professional development model and suggestions for change in future applications are discussed. Third, the potential impact of the study on educational preparation of professionals in pre-K programs with respect to improved language modeling is addressed. Fourth, limitations of the study are discussed. Finally, future directions for research related to the study are presented.

Overview of the Study

Extensive research in the U.S. throughout the past decade revealed a strong relationship between effective teacher-child interactions and positive child outcomes in pre-K classroom education. Additionally, these academic and social outcome gains have been shown to continue into elementary years. However, there appears to be little emphasis on teaching professionals in ECE how to engage in positive teacher-child interactions. Professional development programs for teachers of young children should provide instruction in the importance of and implementation of strong teacher-child interactions, particularly in the area of language modeling. Effective language modeling in pre-K classrooms lends strong support to closing the gap between groups of children who start school with limited knowledge of vocabulary and language context and those groups of children with strong language competency (Mashburn et al., 2008).
Therefore, teachers of young children must engage in research-based strategies to improve their language-modeling skills. Teachers need to be able to assist children in effective conversations, understanding language in context, and in building stronger vocabularies.

An extensive review of the literature revealed little research on professional development as it relates to teacher-child interactions in pre-K classrooms in general, and language modeling specifically. One major professional development system designed as an on-line mentoring project was created by the developers of CLASS (Pianta et al., 2008). My Teaching Partner (Kinzie et al., 2006) was designed to be a longitudinal project with a research component to assist Classroom teachers in reviewing and improving their practice on the dimensions of CLASS. My Teaching Partner was administered on-line through a chat format, whereas participants in the study discussed in this dissertation received face-to-face observation and feedback. Additionally, My Teaching Partner was concerned with all ten dimensions of CLASS as compared to a single-dimension focus.

The purpose of the study was to examine the effects of a professional development model on the improvement of participants’ language modeling in pre-K classrooms. The study contributed to the current literature by developing and evaluating an observation and feedback model for use with pre-K teachers. Components of the study included a Beliefs and Intentions Survey (Wilcox-Herzog & Ward, 2004), a single-subject intervention model, and an interview process designed to address social validity.

The study was conducted among six lead teachers in pre-K classrooms, within three classrooms in each of two preschools. A multiple baseline single-subject design
with one replication was conducted. Baseline data were collected until a relatively stable set of participant responses was evident upon visual inspection. It should be noted that with teacher participant MCIA, it was determined that the classroom activities selected for the day influenced the quality of interactions in the room, and it was decided to begin intervention after day four of video-recording in baseline. Intervention followed the baseline phase of the study. The intervention phase of the study was staggered so that this phase was completed for participant one before starting intervention with participant two and so on. The participants in one facility were finished with the entire video-recording phase of the study before that phase was repeated in the second facility. It was predicted that teachers of children in pre-K classrooms would improve their language modeling after specific instruction, observation, and feedback.

**Relationship between Teacher’s Beliefs and Intentions Regarding Teacher-child Interactions**

Question one examined the relationship between participants recorded beliefs and their intentions regarding their interactions with children. It was anticipated that teachers of pre-K children would demonstrate consistency between their stated beliefs and their intentions. A significant positive correlation ($r=.60, P = .006$) was realized indicating that teachers generally intend to practice what they believe (see Figure 3).

These findings were consistent with the findings of Wilcox-Herzog and Ward (2004), who found teachers’ beliefs to be a positive predictor of their intentions in their practice. When participants state their beliefs they are more likely to act on them through their practice and adapt their practice to be more consistent with their beliefs.
(Wilcox-Herzog and Ward). This information is beneficial in a professional development program for teachers. The introduction of a professional development process to teachers does not guarantee there will be a commitment on their part to embrace the model or to commit to changing their behavior with respect to their teaching practice. A survey that measures consistency between beliefs and intentions is useful information. Demonstrating a positive correlation in this study is consistent with positive results from the single-subject phase of the intervention.

**Effects of a Professional Development Intervention on Teacher’s Improvement of Language Modeling**

**General Findings**

Question two involved the examination the effects of a professional development intervention on teachers’ improvement of language modeling as measured by CLASS (Pianta et al., 2008). It was anticipated that pre-K teachers would increase the use of language modeling after an explanation of the concept definitions of language modeling in CLASS, and after viewing examples of their own appropriate language modeling in video-recordings in the baseline segment of the single subject portion of the study. Generally, all teachers demonstrated an increase in their use of language modeling. Data points for all participants in the follow-up portion of the study were above those in baseline (see Figure 3, and Figure 4).

Teacher participant PA demonstrated the highest scores in baseline and greatest stability in intervention. Teacher participants PC, PF, PB, and PE, had low scores in baseline however all improved their language modeling skills in intervention and held their scores in follow-up. Teacher participants PB and PE demonstrated the greatest
improvement with the largest consistent gain in scores, while participant PC showed the greatest gradual trend upward. Teacher participant PD had erratic scores in baseline and in intervention, though generally intervention scores were higher overall than in baseline. Participant PD had a follow-up score higher than any previous score.

Throughout the intervention with the participants, the discussion focused on five concepts within the dimension of language modeling: (a) frequent conversations between teacher and child and among peers, (b) the use of open-ended questions, (c) repetition of children’s language and extension of meaning, (d) self talk regarding participants’ actions and parallel talk where the participant was describing what the children were doing, and (e) the use of advanced language. All classrooms were in facilities accredited by the National Association for the Education of Young children, all were based on the concept of DAP, all allowed children freedom of movement. Children were encouraged to socialize, speak, and play with each other. Consequently, peer conversations were frequent and rich across classroom settings, and all phases of the single subject portion of the study.

The strategies of improving language-modeling according to CLASS (Pianta et al., 2008), is a process whereby teachers are able to see their practice through video-recording and review, and then understand their use of the components of language-modeling. This is referred to as awareness. Secondly, teachers graduate to the reflection phase, during which they recognize areas where they are accomplished and where they have need for improvement. Finally, they enter the challenge phase where they develop ways to improve their skills on the CLASS dimension. Teacher-child conversations varied from participant to participant.
Participants Performance on Dimensions of Language Modeling

In baseline, participants PA, PD, and PF had frequent conversations with children. However their conversations included a lot of teacher conversation and did not include examples of extended turn-taking where the participant built on the child’s concepts and ideas. Nor did they demonstrate the other components of language modeling such as open-ended questions, repetition and extension, self and parallel talk, or advanced language.

Participants PB, PC, and PE engaged in little conversation with children in baseline. Participant PE generally presented information to children in group time. Participant PC appeared focused on a journaling exercise where the discussion was formulaic with each child having a turn, where the goal seemed to be concerned with getting every child through the exercise. Participant LB spent lots of time with housekeeping duties, often not engaged with children in the baseline segment, and when the participant was engaged, engagement involved in a journaling exercise where each child had a one-on-one turn at the table to draw and tell the contents of his drawing while the teacher recorded the comments.

Within the dimension of language modeling, the easiest concepts for teachers to grasp appeared to be increased conversation with children and greater numbers of turns within the conversation. Teachers generally improved their frequency of asking more open-ended questions. The number of attempts at self and parallel talk increased as well, particularly when teachers were recording children’s dialogue about their work. They took time to repeat the word’s back and in many cases spelled out the words as they were writing.
The two areas where improvement seemed difficult were in repetition and extension as well as advanced language. Repeating what a child was saying and extending the conversation to give added meaning did not seem natural to the participants and though several improved in this area, gains were minimal. Advanced language is a concept that is more child-specific. Some children have large vocabularies and a greater understanding than children with more limited language. Words that would be advanced for some children would not be for others. Advanced language may be more easily detected and recorded when it is coupled with repetition and extension.

**Effects of Teacher’s Planned Activities on Language Modeling**

It is interesting to note that participants’ use of language modeling was greatly affected by the planned activities in the classroom. After the intervention began, participants’ were apprised of the components of language modeling. After they had an opportunity to view their own examples of the components of language modeling, they generally planned activities that provided opportunities for greater language practice.

In the intervention phase of the study, two of the participants, PB and PF, had difficulty viewing their practice on the video-recording. It seemed that they were unable to recognize the elements of language modeling such as open-ended questions or self talk. They appeared to need further coaching to be able to view their practice in order to reflect on it. In each of these instances, the participants were presented with a blank scoring sheet and were instructed to watch the whole video-recording and write down every phrase that they said that matched the categories within language modeling. In each case the participant was subsequently able to talk about what they wrote with understanding. At this point they were ready to move on to reflection.
Participant PA moved easily from awareness, to reflection, to challenge and began immediately to provide activities that encouraged language modeling. Examples of activities included each child making ice cream in small portions, and exploring a fish tank. This participant’s scores in baseline were in the low-mid range and moved to the high-mid and high range in intervention. After maintenance, this participant’s follow-up score was the highest possible.

Participant PB produced the highest scores in intervention when an open-ended activity in journaling was presented. In one instance books about insects were available and the children explored the books for ideas to draw and write about. Likewise, the participant designed a group time activity that was followed up in center time where the children discussed restaurants and developed their own menus. This participant was reluctant to engage in the study and vocalized her dislike of being filmed. Participant PB stated that the language modeling information was not new, and that the staff at this facility was instructed to do it all the time.

This participant demonstrated reluctance to view video-recorded segments of classroom practice, and to openly reflect on performance and expressed fearfulness of being criticized. Her comments in her interview confirmed this observation (see Appendix F). However this participant’s scores in baseline were markedly lower than scores after the invention began, indicating that the information integrated and applied instruction, demonstrating a willingness to self-challenge. The follow-up score was consistent with intervention scores and was in the high-mid range.

Participant PB was not very engaged with children in baseline. A large portion of time in video-recording was spent on classroom tasks, walking out of the room for up to
50% of the session, and otherwise seeming to avoid the camera. After the intervention phase of the study was introduced, this participant was able to view and reflect classroom practice and to self-challenge. Structured activities were presented during intervention where there was greater involvement with the children, and which provided opportunities for language-modeling. Seeds were planted with the children on the patio, and this activity created an opportunity for children to paint a still-life of a fruit tree in bloom in the courtyard, which produced opportunities for conversations rich in language. The follow-up score for this participant was in the high-mid range and was consistent with intervention scores.

Participant PD presented as a sensitive teacher who was very involved with the children. This participant produced the highest scores in baseline and the least gain in intervention based on the activities provided for the children. Providing many opportunities for children to play and then to interact with them in their play was the teaching style used with younger pre-K children in this classroom. This participant demonstrated some sense of awareness and reflection however, it was not apparent that this participant was engaged in self-challenge to provide richer language opportunities for children. Her one-on-one style with the children indicated that she believed she was providing all that the children could master. For example, at one point during a discussion of advanced language, the concept of shades of color was introduced. She stated that she believed that this age group was only to be introduced to basic colors. Such a belief could negate the need for introducing advanced language to children who could master it. Interestingly, the follow-up score after intervention was higher than any score in baseline and intervention.
Through her participation with the children, participant PD intentionally introduced academic concepts such as counting, color-recognition, and identification of letters of the alphabet. When the activity allowed for open-ended questions, this participant produced higher scores. Additionally, the recent enrollment of a child who was being assessed for developmental delay, and who demanded substantial attention, was a deterrent from focusing on language modeling. When this child was present, language modeling scores were lower.

Participant PE carefully planned and controlled activities. She was quiet, demonstrated sensitivity to the children, and was fully engaged with them. Though the children generally were given choice about when they wanted to participate, most children were expected to participate in all activities. During baseline, daily video-recording was partially of group time and partially of Center-based activities. Typically, she demonstrated a lesson and then encouraged children to work independently with the activity. During baseline, she provided information and asked many closed-ended questions. She had few extended conversations with children.

During intervention, this participant moved quickly from awareness, to reflection, to challenge improving her conversations and language modeling skills. She focused on science experiments that were geared to children’s interests and allowed for many open-ended questions, repetition and extension, and advanced language. In this facility, children are transitioned from class to class to maintain ratios, and participant MCCC was responsible for managing the schedule within the pre-K program while teaching. On one occasion in the intervention phase of the study a large number of younger children transitioned into her room and an equal number of older children transitioned
out. This process appeared to interrupt her schedule and negatively influenced her participation in the language modeling intervention.

Participant PF was consistently involved with children in small groups within the classroom. During baseline, she spoke frequently and continuously with children, her conversations offered few opportunities for turn-taking with individual children. Her questions were closed-ended and prompted short replies.

This participant was very positive about the study and moved quickly through awareness, to reflection, to challenge in the intervention phase. Her scores in intervention reflected activities that revolved around a parent-night where children’s art from classrooms throughout the school was featured. These preplanned activities designed to showcase children’s work prevented more spontaneous conversation which might have provided greater opportunities for language-modeling. Though the data points representing the intervention phase for this participant varied in stability and trend, they were generally higher than were data points in baseline.

When participants engaged in the baseline phase of the multiple-baseline study, they had knowledge that the study was measuring teacher-child interactions. However, they had no knowledge of CLASS (Pianta et al., 2008) or of the dimensions of CLASS, specifically language modeling. During baseline, they were generally interacting with the children in close proximity and engaging in activities such as floor puzzles, painting, journaling and dramatic play. Conversations were often infrequent with few turn-taking opportunities for the children. Scores on CLASS in baseline were generally in the low to low-mid range.
The participants viewed video-recordings of the aspects of their practice demonstrating approximations of open-ended questions, self-and parallel-talk, repetition and extension, peer-to-peer and teacher-child conversations, as well as advanced language. They received information about the studies demonstrating the value of teacher-child interactions regarding language modeling. Additionally, they were given specific instruction and a hand out outlining approaches to improving language modeling in the classroom. During intervention, scores on language modeling were elevated for all participants to the high-mid and high range. These scores were maintained in follow-up.

The review of percentage of non-overlapping data (PND) revealed an effect size of 67%. This statistic was derived by identifying the highest baseline probe among all participants. The number of treatment probes that exceeded this data point, from all six participants, was then calculated. Finally, PND was derived by dividing the number of treatment probes greater than the highest baseline probe by the treatment probes and multiplying this number by 100.

The results from this study represent a high effect size. Participants demonstrated improved language modeling in intervention with scores generally higher than in baseline. These results indicated general efficacy of the professional development model.

**Summary of Discussion of Question Two**

In summary, question two involved the examination of the effects of a professional development intervention on teacher’s improvement of language modeling as measured by CLASS. Three lead teachers from each of two facilities participated in the single-
subject phase of the study. It was anticipated that pre-k teachers would improve their language modeling skills after they were introduced to the concepts of language modeling, were able to view their practice on video, and were coached to understand how their practice influenced children’s language development.

Generally, all teachers demonstrated an increase in their use of language modeling. Some teachers were easily aware of their practice from viewing themselves on video and easily reflected on areas of skill as well as areas where they could improve. Some went on to challenge themselves to further improvement. Two of the participants demonstrated difficulty viewing themselves on video and needed assistance through additional exercises to become aware of their practice in order to be open to self-reflection.

Individual classroom situations affected participant outcomes. In some cases teaching style affected participant’s ability to fully engage in the intervention. Where participants were activity dependent, that is, the activity in the classroom determined their level and quantity of interaction, results were more sporadic. Where teachers planned activities that allowed for more open-ended questions and richer conversation, demonstrated greater gains (participants A and C). For these teachers trends ascended and maintained stability. In other cases, the schedule and demands of the facility influenced teachers’ participation in the intervention. Where children were transitioned to meet teacher-child ratios, activity plans were interrupted and teachers’ spent more time in classroom organization than with conversations with children.

Generally, all participants demonstrated at least minimal trend across baseline, improvement during intervention, and sustained levels in follow-up portions of the
study. Teachers generally expressed a need to be viewed as having warm and sensitive interactions with children. Once participants recognized the need to improve those interactions by viewing examples of their own work, receiving instruction on the components of language modeling, and having an opportunity to practice, they were willing to evaluate their classrooms to create greater opportunities for positive interactions with their children.

Finally, the mentoring component of the intervention was significant. Participants demonstrated reluctance to be video-recorded. They responded well to viewing only positive examples of aspects of language modeling with children. When they understood what they were doing well, they seemed to want to increase their levels of interactions with children.

**Perceptions and Social Validity**

The purpose of the interview portion of this study was to obtain input from the participants regarding the value of the professional development model in increasing the quantity and quality of language modeling in the classroom. For full transcripts of the interviews, please see Appendix F. In the following discussion, answers to each broad question were reviewed. Similarities and differences in responses with respect to relevance for future professional development were of particular interest.

**Question One**

Question 1A: Tell me about your experience with the language modeling professional development study. What parts were the most helpful to you? Several themes emerged through answers to this question. Most participants reported that seeing themselves on video was helpful in affirming teaching styles as well as
evaluating areas to improve. Responses such as the following indicated this self
reflection. For example, “I think just watching myself and actually realizing that I was
doing what I needed to be doing”, and “I think the best part was just watching myself,
because you never get to watch yourself and how you do things and even when you are
doing everything right there are still things you are going to judge yourself on”.
Another participant responded with both positive and negative reflection. “I think it
was a little helpful watching myself and seeing “oh that’s what I’m doing right or oh
that’s not what I’m doing.”

Participants focused on the children in this question. Understanding the value of
language modeling helped some participants to be more aware of their relationships
with the children. One participant reported the importance of individualizing
conversations in order to better understand developmental levels. “Once you have a
daily interaction you get to know them better and you know what are the things you
need to work on with different kids.”

Another participant reported that the study was helpful in changing the value of
story time. Before the study, the participant reported reading the story without stopping
to focus on new words or helping children to understand meaning. After the study the
children came to expect reading to be halted and explanations given. “I’ll read a story
now and my kids will say “Ms. K what does that mean? Whereas before, they weren’t
really picking out words and stuff”.

Several participants mentioned how the instruction about language modeling
coupled with watching the video of themselves was helpful, particularly the
individualized conversation. One participant specifically mentioned the one-on-one
instruction: “I guess when we met and you would you know go over different things with me.” Another said, “I think the most helpful thing was the time when I got to review the tape, and after the different types of language modeling was explained to me I found it very easy to pick out the kinds of things that I was doing.”

Question 1B: What part of the study would you change and why? Sometimes this question was phrased as what was the hardest part of the study? The purpose of this question was to illuminate causes of resistance to the study that might be modified in future professional development sessions, as well as changes to the model that might improve participants’ understanding of language modeling. Two general responses emerged from answers to this question. Participants reflected on disliking being on camera. Several participants focused on the length of time they were being video-recorded. Additionally, one participant suggested focusing on all of the staff in the classroom so that the team could see how they could improve together.

One participant reported feeling very uncomfortable with the video-recording (interestingly, this participant also stated that it was the most helpful part of the process). “I think the hardest part was just knowing there was a camera on me and watching me.” Another participant said “I’ve never liked having a camera on me.” Two of the participants spoke only positively about being on camera.

Discussions around length of time included lengthening, shortening, and varying the time participants were video-recorded. Several participants noted that 30 minutes was too long to be recorded. One participant discussed adding more sessions at different times of the day so that a variety of settings were recorded.
“I would change the length of time that I was taped. I would probably extend it to more than one session to more than one time frame …I would like to see how it varies and if I use a certain type of language modeling more than others.”

A summary of question one revealed that participants generally reported value in a professional development model that was personalized and involved video-recording. Each was able to articulate areas of professional growth and indicated improvement in their use of language modeling in the classroom. The recommendation to alter the taping schedule to view a greater variety of activities and teaching opportunities might strengthen the professional development model in future use.

**Question Two**

Question 2: How do you think your participation has influenced your awareness of your role in language modeling in the classroom? Responses to this question varied greatly in length and content. Several themes emerged through the discussion. Participants generally were able to reflect on specific content they learned and application of the content of language modeling to their classroom. One participant was able to articulate the importance of self-talk in increasing children’s vocabulary. Another participant reflected on the influence of language modeling in helping students who were enrolled in speech therapy.

Two of the participants discussed their awareness of the importance of language modeling and how they practiced it. “I think about it all the time now when I’m reading a book … when I’m pointing out words …I try to structure my questions and stuff using more open-ended questions and keep the conversation going.” Another participant
focused on the importance of open-ended questions. She stated “I stop myself to rephrase what I was going to say so that it would be an open-ended question.”

The influence of the study in more global terms was mentioned by two of the participants. One reported “I think it made me a better teacher and I think it will in the future” and she went on to say “I think that getting this opportunity to look at myself and to really be aware of what I am saying … and incorporate it in the way that I teach … really helped me.” Another stated, “it’s (language modeling) is a great tool for me to see myself and how the kids are relating.”

Another theme that emerged was the influence of peer conversations on vocabulary development within the classroom. One participant used the example of how a teacher’s involvement with children in an activity improves the likelihood of peer conversations. She reported, “We just have to talk about what we are doing and everything came out and all of a sudden there’s so much conversation interactions and language development in that area.” Another reported that encouraging children to talk more made her classroom the loudest, a distinction she was proud of. Finally, one teacher reported that the opportunity for children with speech difficulties to verbalize what they need to say was supported by getting “the pronunciation right and learning from their peer models so …me modeling to other friends helps them model better to the children that actually need it.”

Several participants identified common themes not necessarily reflected by all of the participants. Two of the participants discussed how language modeling influenced the child in the home setting. One participant discussed how she was using language modeling with her own child at home. Another talked about how the parent’s reported
noticing their child’s increased vocabulary. On participant reported parent’s conversations with her, “my child came home and said what’s ‘infinity’ Dad or I’m shocked that my kid knew some of the words they were using.”

Two of the participants discussed how they would influence other staff in their classrooms as a result of the language modeling intervention. One participant actively engaged her staff by assigning areas for each to work on. Another participant reflected on how she would pass on what she had learned by explaining the concepts and pointing out examples of their engagement in aspects of language modeling.

In summary, all participants reported increased awareness of their use of language modeling in the classroom. Some reported global influence; others were specific about certain concepts within the dimension of language modeling. Several participants reflected on the influence of peer conversations as more frequent as well as supportive to children with limited vocabularies and speech delays. Generalization of language modeling skills to the child’s home was noted. Finally, a result of the language modeling intervention created a need for some participants to inform their classroom staff about the study and influence their language modeling skills.

**Question Three**

Question 3: Would you recommend this process of language development to a colleague? Why or why not? The purpose of this question was to explain the value of the professional development intervention. In some cases, participants’ responses were more indicative of their personal reflection of the experience rather than explaining their perceived value to colleagues. All of the participants admitted that co-workers and other staff members would benefit from experiencing this professional development
model. Examples of responses included “My co-teacher, I think she would benefit from this”, and “Ya, totally, I think it would also it could help with is like new teachers, first year teachers.” Finally, “I would because I think it so effective.”

Some said that new teachers particularly should have this opportunity, as it would provide needed mentoring support. Others discussed the process of the intervention being self-corrective instead of judgmental, for example “I said it was really cool because we actually see yourself in motion…instead of somebody just coming in and saying you need to do this and this is what you need to work on.” One participant said that all teachers could benefit, “I think it would help everyone become a better teacher.”

One participant spoke at length about how she had already involved her classroom staff in developing language modeling skills. She explained the process to her staff from the handout she was given during the intervention. Then she assigned skills for each staff to work on. She went into depth about how she modified her curriculum and schedule to accommodate more opportunities for aspects of language modeling such as repetition and extension, open-ended questions, and peer conversations. Based on her experience with the professional development intervention she persuaded the whole preschool staff to change their approach to journaling. She presented elaborate examples of how the children became more engaged, attended longer to an activity, and supported one another. She offered, “They’re talking with their friends…the little groups get together and they maybe talk for ten minutes on what they are drawing…that’s promoted a lot of language in the classroom.”

Interestingly, responses to this question revealed anxiety about participation. Some answers revealed self-reflection about hesitancy to participate. One participant stated
“when you are watched like that even though it is intrusive.” Another reflected, “It’s just like the first time like you don’t know what’s going to happen…it was the first experience for me to be videotaped while you’re interacting with children.” One participant gave only a few short positive answers, which made it clear that she wanted to move quickly through this question.

Recognition of this anxiety prompted the question to one of the participants “So do you think other teachers would find it uncomfortable?” This participant stated “probably, yea probably most of them because it is kind of stressful too if you don’t know what you are doing, you’re not sure about yourself”. She went on to explain “you’re kind of scared that you’re going to make a mistake.”

Question three revealed three major themes. The participants agreed that the intervention would be useful to fellow staff, particularly to new teachers. Some participants had already discussed the process with their classroom staff members and in some cases they were coaching their staff members in language modeling. Additionally, several of the participants revealed anxiety about participating in the intervention and felt that other staff might experience anxiety as well.

**Question Four**

Question 4: Do you believe the topic of child-staff interactions should be a formal part of coursework in higher education in preparation to teach? Why or why not? If you believe teacher-child interactions should be a part of higher-education what ways might it be incorporated? Though the parts to this question were asked separately, the answers tended to be blended and inter-twined making the discussion difficult to separate into the two parts of the question. The rationale for this question was to
explore teacher’s experience with preparation in teacher-child interactions in general and more specifically in language modeling interactions. Additionally, participants were encouraged to think beyond the professional development intervention used in this study and explore ways to prepare professionals in teacher-child interactions.

Generally, participants all had some experience with courses in higher education. Educational achievement among participants ranged from some college to Master’s degrees. Interestingly, most participants had difficulty understanding the question and required greater elaboration in order to offer suggestions about curriculum or methods to implement language modeling in higher education coursework.

All participants stated that preparation for teacher-child interactions should be a part of formal coursework in higher education. Each participant demonstrated a unique understanding and perspective on how this preparation should be accomplished. The following discussion focuses on each participant in turn to gain insight into individual thinking regarding teacher preparation in language modeling.

The first participant reflected that formal education was important in language modeling because she didn’t realize how important it was until the study. She discussed her experience with observing her own staff and discussing the topic with other staff. She revealed that interactions were important to her and she had used her ability to talk naturally to engage with her students. She observed that other teachers had more difficulty talking with children. The participant suggested hands on techniques as a means of teaching language modeling. She stated “for me, the most helpful is doing it instead of you know sitting in a lecture, listening to lecture.” She offered that she would show video and critique it, then model for the teachers. She would have them practice
with each other. Finally, she would take them into the classroom so that they could practice with the children.

The second participant was less clear about her vision for professional development. Self-reflection about her own experience threaded through her responses to this question. Her primary theme was that she was self-taught and that her higher education experience was less valuable than her experience in the classroom. The general conclusion from this portion of the interview with this participant was that hands-on professional development regarding language modeling using videos would be more beneficial to a practicing teacher than to a student earning an education degree.

The third participant discussed her impression of language modeling as something that has to be learned through practice. She indicated that it was something that could not be mandated for a teacher to do. She was able to articulate that conversations with children have different levels of connection and meaning and that talking about course content does not always provide opportunity to “get deep”. She stated that you (the higher education teacher) can only prompt to ask questions…it doesn’t get deep if you (the classroom teacher) don’t really care.” Her only suggestion was that using video “was better than someone telling me what to do” and “I take it better than someone coming in and saying you know you’re not doing this.”

The fourth participant stated that language modeling should be a part of higher education but had difficulty articulating specifically what would be helpful approaches. This participant’s response to the question mainly focused on examples with conversations with the children. “You need to be on their level talking to them and making sure you are understanding what you are saying in a very simplified form.” This
participant offered that role-modeling and observations were the most helpful approaches to professional development.

The fifth participant focused on classroom activities that helped her provide opportunities for language modeling. She used examples such as “well I know my science experiments … you are asking question ‘What do you think will happen and the children are answering that way.” She further offered “I know the big books that I used, that’s a good way um to get them um learning about books.” This participant’s suggestions for inclusion of language modeling instruction in higher education were to provide experiences for undergraduate students to actually give lessons and practice the skills.

The last participant spoke at length about the value of instruction in child-staff interactions. She had recently graduated with a bachelors degree in early childhood education. This participant explained the multitude of concerns new teachers have about curriculum, discipline, and logistics of their programs and that often relationships with children are not of primary concern. She offered:

“I think that if they had more knowledge and were more comfortable with and did more role playing maybe even came in and sat with classes before student teaching and before pre-student teaching that their language modeling would be different and they would be more comfortable and relaxed.”

This participant went on to say how important language modeling is and how much experience it takes to do it well. She offered an example regarding a child who had been enrolled in her facility since birth and had a reputation as being unmanageable. He was five years old and would be entering kindergarten. She made an intentional effort
to engage in meaningful conversation with him and to honestly discuss with him the areas where he was doing well. He turned his need for attention into positive approaches in just four days of the language modeling intervention with his teacher. She offered:

“I did (see a great transformation with this child) and even his parents are just happier, they noticed it and they just noticed that he’s the kind of child that he’s become and he’s open and he wants to share and he’s so happy… he feels like his opinion matters, he feels smart, he just really helped his self-esteem.”

To summarize, all participants agreed that language-modeling techniques should be taught in higher education courses. Most participants suggested that hands-on approaches to instruction would be most helpful, such as video-recording, role-playing, practicing in pre-school classrooms, and giving lessons to children designed to increase opportunities for language. Several participants reflected on how the professional development study helped them realize the value of language-modeling and that it should be incorporated in instruction in higher education.

**Question 5**

Question 5: Is there anything I could have done to make the study more comfortable? The purpose of this question was to determine if procedural changes might be needed in future applications of this language modeling intervention. Most of the suggestions for change involved the camera use. These comments were discussed at length in question 1b. Generally, participants believed they were prepared and supported and their comfort was taken into consideration. The specific actions that made the study more comfortable are summarized from interviews with all six
participants. They all expressed that they had administrative support to help them understand the need for the study, to have flexibility in scheduling, and to be paid for the time they invested in the discussions. They confirmed the importance of the staff meeting where the study was presented and they had opportunity for questions. Participants considered it important that they were instructed to prepare the students ahead of time for the study. 

With respect to the intervention itself, several participants mentioned that it was helpful to focus on examples of language modeling that they were doing and to keep the conversation positive. “I liked seeing myself and at the same time being affirmed.” Another participant offered, “I was comfortable, you didn’t put me in a position where I felt uncomfortable.” She went on to say, “You explained the study really well from what I wanted to know and I walked away with something.” Procedurally, participants felt like their classroom space and routines were respected. An example suggests, “You just came in kinda quietly…so there was no disruption when you came in.”

Final comments included “I wouldn’t change a thing,” “for me…it wasn’t stressful or anything … I enjoyed it,” “I was expecting to help you out in the study … I was not expecting to learn something that I could take with me.” With the exception of being less intrusive with the camera no changes to the protocol were offered. Participant’s general agreement was that the professional development intervention was respectful, informative, and as comfortable as it was practical.
Question 6

Question 6: Is there anything else you would like to share about the experience?

This question provided the participants with an opportunity to complete the interview. Generally, no new information was gained from answers to this question. Two of the participants had nothing further to add to the conversation except to say they appreciated the opportunity. Three of the participants reiterated their discomfort with the camera as well as how helpful it was to see themselves on camera. One participant discussed how she dealt with the camera by pretending it was not there.

Three of the participants reflected on the value of the intervention to the children in their classrooms. Examples include, “I think it helped my children too because it made me more aware.” and “but did point out…things that I was doing that I didn’t realize you know that was important for the children.” Two of the participants spoke at length about their personal gain from the study and how they saw themselves and their role in conversation in the classroom differently after having completed the study.

Summary of Perceptions and Social Validity

In summary, the interview portion of the mixed methods study provided valuable insight into the participants’ experience with the study. Generally the participants found the study valuable in strengthening their practice with language modeling. The participants reported satisfaction with the protocol through which the study was conducted. All participants reported that their video-recording experience was both uncomfortable as well as the most valuable part of the study.

All participants expressed the value of language modeling education to their colleagues. They supported the inclusion of content related to teacher-child interactions...
in general and language modeling in particular within the requirements of a higher education degree in early childhood education. Each participant recommended some form of hands-on instruction using modes of instruction such as role-play, classroom observation and practice, video-recording, and conducting lessons in pre-K classrooms. At some point in each interview the participants discussed the value of the professional development intervention in language modeling to children and families in their programs.

**Limitations**

There were several limitations to this study:

1. The number of observed participants was limited to six preschool classroom lead teachers.
2. Using only two preschool sites was a limitation.
3. Though the two preschool facilities were nationally accredited and were similar in philosophy and environment, the participants presented instruction in dissimilar approaches. Teachers in CENTER1 had teacher assistants and university student staff which decreased teacher-child ratio, and allowed classroom staff to share the teaching load. Whereas teachers in Center2 were responsible for the teaching load with support from only one other staff member. The baseline, intervention, and follow-up data may have been impacted by these Center differences. Additionally, students at Center2 were occasionally moved from classroom to classroom to maintain teacher-child ratios which may have contributed to teacher distraction.
4. The levels of education among staff varied. Some teachers were in the final stages of earning a bachelor’s degree and had limited experience, while other teachers held master’s degrees and had many years of experience.

5. Some teachers were hesitant to participate in the study. At Center 1, teachers were required to participate in research as a condition of employment. At Center 2 teachers were required to participate as preparation of NAEYC accreditation.

6. This was a single-subject, multiple baseline research design with replication which may limit generalization to the broader population. Both facilities enrolled children from the broader population. Center2 maintained a policy of enrolling children on childcare subsidy tuition programs which broadened the economic demographics of their student population. They likewise enrolled children with established IEPs. The university affiliated preschool maintained a community partnership with the school district, reserving 15% of enrollment to children with disabilities in the greater community.

7. A limitation involved the duration of the study. Results may be more conclusive with longer maintenance times between the intervention and follow-up phases of the study. Participants generally held strong follow-up scores and a longer maintenance period might influence the strength of these scores.
Recommendations for Future Research

Past research has demonstrated the relationship between quality teacher-child interactions in pre-K classrooms and child outcomes on formal and informal assessments of academic and social-emotional skills. A review of the literature has revealed a dearth of research regarding professional development regarding quality teacher-child interactions. Therefore, research studies need to be conducted to determine the effectiveness of aspects of a professional development model designed to improve language modeling.

1. *The Beliefs and Intentions Survey* (Herzog & Ward, 2004) should be conducted with a larger population including 5 to 10 fully inclusive centers accredited by NAEYC.

2. The professional development intervention should be replicated and extended across multiple Centers that include children with and without disabilities.

3. Studies need to be conducted to determine if raising the quality of language modeling within the *c(2008)* framework impacts participants’ improvement on other domains and dimensions of *CLASS*.

4. Studies need to be conducted to investigate the relationship between participants’ improved language modeling skills and improved child classroom behavior particularly in inclusive pre-K classrooms.
5. An investigation of the use of focus groups instead of direct interviews should be conducted to allow for opportunities to examine the discussion and interaction among participants.

Conclusions

This study is unique to the literature related to effective professional development regarding language modeling for pre-K teachers. Limited research has been conducted on effective professional development, particularly with respect to teacher-child interactions, specifically language-modeling in pre-K classrooms. The finding that teachers’ beliefs were positively correlated to their intentions regarding their instructional practice was consistent with the findings of Wilcox-Herzog and Ward (2004). When teachers state their beliefs they generally intend to follow through in their practice. A second finding from this study which is consistent with research reports tended to support instruction using video-recordings of participants’ practice to greater gains in attitude, knowledge and skills accompanied by personal mentoring (Fukkink & Lout, 2007, Cerrabone, 2007).

Another finding of this study concluded that teachers who engaged in observation and feedback demonstrated improvement in interactions. These findings were consistent with a longitudinal study conducted using a web-based program of professional development, where teachers who received such interventions demonstrated greater improvement in interactions than did those who merely observed appropriate interactions (Mashburn et al., 2008). My Teaching Partner, specifically designed to improve teacher-child interaction as measured by CLASS (Pianta et al., 2008) is one of the first studies to examine professional development interventions to
demonstrate the effectiveness of intensive consultation with teachers on improved teacher-child interactions (Mashburn).

It was anticipated that teachers would demonstrate a positive relationship between stated beliefs and intentions through results form a survey. Further it was predicted that a professional development model would improve the quality of participant language modeling in pre-K classrooms. Finally, interviews with research participants were believed to contribute to the social validity of the study.

Results from the survey generated a significant positive relationship between teachers’ beliefs and intentions regarding their instructional practice in the classroom. The video-recording segment of the study demonstrated the effectiveness of a personalized model for improving teacher language modeling through a process of awareness, reflection, and challenge. Finally, the interview process affirmed the effectiveness of the professional development model.

The study contributes to research in professional development efficacy. The singular evaluation of a program designed to improve language modeling is believed to be unique to the literature. Since teacher-child interactions, coupled with intentional teaching, is believed to generate the greatest advances in child academic and social outcomes, evidenced-based research supports professional development models.
INFORMED CONSENT
Teacher Participants Survey-Only and Single-Subject Consent
Department of Special Education

TITLE OF STUDY: Evaluating and Improving the Quality of Language Modeling in Early Childhood Classrooms

CONTACT PHONE NUMBER: (702) 895-3205

Purpose of the Study
You are invited to participate in a research study. The purpose of this study is to determine the effectiveness of a professional development intervention on the quality of language modeling by teachers in early childhood education settings. Training teachers to implement more effective language modeling may improve child outcomes in language and literacy achievement and in improved social skills. Specifically, when teachers engage in frequent conversations with children, use open-ended questions, repeat and extend children's responses, use self and parallel talk, and connect advanced language to children's language, children will develop higher literacy achievement and problem-solving skills and apply these competencies in social situations.

Participants
You are being asked to participate in the study because you are a preschool teacher of children age 3 to 6 years old.

Procedures
If you volunteer to participate in this study, you will be asked to do the following:

Part I: You will be asked to devote approximately 20 minutes to complete the Teacher Demographic Survey and the Teacher Beliefs and Intentions survey.

Part II: (a) devote approximately 20 minutes to complete the Teacher Demographic Survey and the Teacher Beliefs and Intentions survey, (b) participate in a professional development study, comprised of nine 30-minute video recording sessions in your classroom over a five-week period, designed to examine the effectiveness of a video recorded intervention of language modeling practices, and (c) participate in an interview regarding your experiences as a participant in the study.

Four baseline video recordings will be conducted in the first week of your participation. These will take place in the morning during instructional time in 30 minute segments on each of four days, Monday through Thursday. Lillian England will then meet with you on Friday for one hour.

Participant Initials
TITLE OF STUDY: Evaluating and Improving the Quality of Teachers' Language Modeling in Early Childhood Classrooms


to review the video segments and to provide instruction. The following week you will be video recorded for 30 minutes each morning during instructional time Monday through Thursday, and these videos will be reviewed with you each afternoon. A week of maintenance of the intervention will require no video recording. A follow-up video recording session will be conducted on Wednesday following the week of maintenance. Finally within a week of the follow-up video recording you will participate in an audio recorded interview regarding the intervention process.

Lillian Englund will enter the classroom and record 30 minutes of classroom behavior each of nine days. The purpose of the video recording is to document teacher-child interactions, use the recordings to demonstrate live examples of language modeling, and to ensure the observation data collection is reliable. Only trained observers for this study will view the video tape. Interruptions to the daily routine are not anticipated. All paper data collection sheets and video recordings will be kept confidential and secure by Nancy Sileo and Lillian Englund.

Benefits of Participation
There may not be direct benefits to you as a participant in this study. However, we hope to learn that when teachers view their language modeling skills via video recording and participate in an intervention of professional development, they may in turn improve these skills. Teachers' improvement of language modeling skills may lead to greater outcomes for children's improved cognitive and social skills.

Risks of Participation

Part I: There are risks involved in all research studies. This study may include only minimal risks. Some of the risks to you might include time to complete the Teacher Demographic Survey and Teacher Beliefs and Intentions Survey.

Part II: There are risks involved in all research studies. This study may include only minimal risks. Some of the risks to you might include time to complete the Teacher Demographic Survey and Teacher Beliefs and Intentions Survey. You may have an increased awareness of quality teacher-child interactions. You may decrease your lunch or break times during trainings.

Cost/Compensation

There will not be financial cost to you to participate in this study.

Part I: The study will take approximately twenty minutes of your time. You will not be compensated for your time.
TITLE OF STUDY: Evaluating and Improving the Quality of Teachers' Language Modeling in Early Childhood Classrooms


Part II:

The estimated amount of time that you will be involved in the study encompasses approximately 15 to 20 hours over the course of the study. You will not be compensated for your time.

Contact Information

If you have any questions or concerns about the study, you may contact Nancy Sileo or Lillian Englund at (702) 895-3205. For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact the UNLV Office for the Protection of Research Subjects at 702-895-2794.

Voluntary Participation

Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with the university or the center where you are employed. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Confidentiality

All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for at least three years after completion of the study. After the storage time the information gathered will be shredded, broken, or destroyed.

Participant Consent:

Part I:

I have read the aforementioned information and agree to participation in the survey only portion of this study. I am at least 18 years of age. A copy of this form has been given to me.

Signature of Participant ____________________________ Date ____________________________

Participant Name (Please Print) ____________________________

Participant Initials ______
TITLE OF STUDY: Evaluating and Improving the Quality of Teachers' Language Modeling in Early Childhood Classrooms

Part II
I have read the aforementioned information and agree to participate in the survey and single subject design portions of this study. I am at least 18 years of age. A copy of this form has been given to me.

Signature of Participant ___________________________ Date ________

Participant Name (Please Print) ___________________________

I agree to be videotaped during normal classroom routines.

Signature of Participant ___________________________ Date ________

Participant Name (Please Print) ___________________________

I agree to be audio recorded during the interview.

Participant Signature ___________________________ Date ________

Participant Name (Please Print) ___________________________

Participant Note: Please do not sign this document if the Approval Stamp is missing or is expired.

Participant Initials ______
4025 Montoya Avenue
Las Vegas, NV 89120

April 30, 2010

Dr. Amanda Wilcox-Herzog
Department of Psychology
5500 University Parkway
San Bernardino, CA 92407

Dear Dr. Wilcox-Herzog:


The excerpts to be reproduced are “Teachers’ Beliefs and Intentions Survey”.

The requested permission extends to any future revisions and editions of my dissertation, including non-exclusive world rights in all languages, and to the prospective publication of my dissertation by ProQuest through its UMI Dissertation Publishing business. ProQuest may produce and sell copies of my dissertation on demand and may make my dissertation available for free internet download at my request. These rights will in no way restrict republication of the material in any other form by you or by others authorized by you. Your signing of this letter will also confirm that you own (or your company owns) the copyright to the above described material.

If these arrangements meet with your approval, please sign this letter where indicated below and return it to me in the enclosed return envelope. Thank you very much.

Sincerely,

Lillian England, M.Ed.

PERMISSION GRANTED FOR THE USE REQUESTED ABOVE:

Amanda Wilcox-Herzog, Ph.D.

Date: 5/3/10
Teacher Demographic Survey

Please answer the following questions: (Please check)

1) What age children do you teach? Pre-K _____ Kindergarten _____
2) What is the highest level of education you have completed?
   GED _____ High School _____ Some College _____ Associates Degree _____ CDA _____
   Bachelors _____ some master’s coursework _____ Master’s _____ Other _____
3) What is your gender? M _____ F _____
4) What is your age category? 18 to 25 _____ 26-35 _____ 36 to 45 _____ 46 to 55 _____
   56 or older _____
5) How many years of experience do you have working with young children?
   Less than 1 _____ 2 - 5 _____ 6 – 10 _____ 11-15 _____ more than 15 _____

Teachers Beliefs and Intentions Survey

Please circle your answers to the following questions using the scale on the right.

<table>
<thead>
<tr>
<th>Teachers should do this with children</th>
<th>1. All the time</th>
<th>2. Most of the time</th>
<th>3. Some of the time</th>
<th>4. Seldom</th>
<th>5. Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When children hit each other, teachers should help them to understand each other’s feelings.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. During group time, teachers should encourage children to sit and listen most of the time.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Teachers should plan some novel activities that will challenge children to try new experiences (sometimes with adult assistance).</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Teachers should encourage children to pick up their toys (with adult help) during clean-up time.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. When a child takes a toy from another child, teachers should observe and see what happens.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Teachers should speak to children at their own level (e.g., use language familiar to young children, make eye contact).</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Teachers should talk to children like adults (e.g. use long sentences and words unfamiliar to children).</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Teachers should encourage children to use good manners (even if children don’t always use them).</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. When a child throws playdough one time, teachers should tell her to leave the playdough area.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Teachers should put a variety of interesting activities out during free choice time and then let children make their own activity choices.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. When children play, teachers should sit down sometimes and talk with them about what they are doing.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Teachers should make children pick up all of their toys (without adult help) during clean-up time.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13. When a child throws playdough one time, teachers should remind her that playdough is for rolling.  
14. When children hit each other, teachers should make them apologize (say sorry) to each other.  
15. When many children in the class lose interest during story time, teachers should stop and go on to something else.  
16. When many children in the class lose interest during story time teachers should make them sit on their bottoms until the story is finished.  
17. When a child takes a toy from another child, teachers should intervene quickly.  

<table>
<thead>
<tr>
<th>Please circle your answers to the following questions using the scale on the right.</th>
<th>I do this with children</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I get down on the floor and play with children.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>2. I speak warmly to the children when I interact with them.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>3. I watch children play.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>4. I ask open-ended questions rather than yes-no answers.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>5. I engage children in two-way conversations about their play.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>6. I am enthusiastic about children’s activities and efforts (e.g. I congratulate them when they do a good job).</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>7. I help children use play materials.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>8. I talk with children about their play.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>9. I make suggestions for how to use materials.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>10. I listen attentively when children speak to me.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>11. I help children remember to clean up as they finish activities.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>12. I hug and hold children.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>13. I get involved in children’s dramatic play.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>14. I am firm with children when it is necessary.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>15. I talk with children in order to enhance their play.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>16. When children talk to me, I restate their comments.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>17. When I describe what children are doing, I give extra information (e.g. Your red car is going fast).</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>18. I help children find activities to play with.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>19. I enjoy being with children.</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>20. I show children the appropriate way to use materials.</td>
<td>1  2  3  4  5</td>
</tr>
</tbody>
</table>

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APPENDIX B

TPSS FORMS
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Teacher Participants Survey-Only and Single-Subject Consent
Department of Special Education

TITLE OF STUDY: Evaluating and Improving the Quality of Language Modeling in Early Childhood Classrooms


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TITLE OF STUDY: Evaluating and Improving the Quality of Teachers' Language Modeling in Early Childhood Classrooms


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Cost/Compensation

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Part I: The study will take approximately twenty minutes of your time. You will not be compensated for your time.

Participant Initials _____
TITLE OF STUDY: Evaluating and Improving the Quality of Teachers’ Language Modeling in Early Childhood Classrooms


Part II:

The estimated amount of time that you will be involved in the study encompasses approximately 15 to 20 hours over the course of the study. You will not be compensated for your time.

Contact Information
If you have any questions or concerns about the study, you may contact Nancy Silco or Lillian Englund at (702) 895-3205. For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact the UNLV Office for the Protection of Research Subjects at 702-895-2794.

Voluntary Participation
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with the university or the center where you are employed. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Confidentiality
All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for at least three years after completion of the study. After the storage time the information gathered will be shredded, broken, or destroyed.

Participant Consent:

Part I:
I have read the aforementioned information and agree to participation in the survey only portion of this study. I am at least 18 years of age. A copy of this form has been given to me.

____________________  ____________________
Signature of Participant  Date

Participant Name (Please Print)

Participant Initials
TITLE OF STUDY: Evaluating and Improving the Quality of Teachers' Language Modeling in Early Childhood Classrooms

Part I
I have read the aforementioned information and agree to participate in the survey and single subject design portions of this study. I am at least 18 years of age. A copy of this form has been given to me.

Signature of Participant ___________________________ Date __________________

Participant Name (Please Print) ___________________________

I agree to be videotaped during normal classroom routines.

Signature of Participant ___________________________ Date __________________

Participant Name (Please Print) ___________________________

I agree to be audio recorded during the interview.

Participant Signature ___________________________ Date __________________

Participant Name (Please Print) ___________________________ Date __________________

Participant Note: Please do not sign this document if the Approval Stamp is missing or is expired.

Participant Initials _____
Teacher Demographic Survey

Please answer the following questions: (Please check)

1) What is the highest level of education you have completed?
   - GED __ High School __ Some College __ Associates Degree __ CDA __
   - Bachelors __ some master’s coursework __ Master’s __ Other __

2) What is your gender? M ____ F ____

3) What is your age category? 18 to 25 ____ 26-35 ____ 36 to 45 ____ 46 to 55 or older ____

4) How many years of experience do you have working with young children?
   - Less than 1 ____ 2 - 5 ____ 6 – 10 ____ 11-15 ____ more than 15 ____

Teachers Beliefs and Intentions Survey

Please circle your answers to the following questions using the scale on the right.

<table>
<thead>
<tr>
<th>Teachers should do this with children</th>
<th>1. All the time</th>
<th>2. Most of the time</th>
<th>3. Some of the time</th>
<th>4. Seldom</th>
<th>5. Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When children hit each other, teachers should help them to understand each other’s feelings.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. During group time, teachers should encourage children to sit and listen most of the time.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Teachers should plan some novel activities that will challenge children to try new experiences (sometimes with adult assistance).</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Teachers should encourage children to pick up their toys (with adult help) during clean-up time.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. When a child takes a toy from another child, teachers should observe and see what happens.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Teachers should speak to children at their own level (e.g., use language familiar to young children, make eye contact).</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Teachers should talk to children like adults (e.g. use long sentences and words unfamiliar to children.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Teachers should encourage children to use good manners (even if children don’t always use them.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. When a child throws playdough one time, teachers should tell her to leave the playdough area.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Teachers should put a variety of interesting activities out during free choice time and then let children make their own activity choices.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. When children play, teachers should sit down sometimes and talk with them about what they are doing.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Teachers should make children pick up all of their toys (without adult help) during clean-up time.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13. When a child throws playdough one time, teachers should remind her that playdough is for rolling.

14. When children hit each other, teachers should make them apologize (say sorry) to each other.

15. When many children in the class lose interest during story time, teachers should stop and go on to something else.

16. When many children in the class lose interest during story time teachers should make them sit on their bottoms until the story is finished.

17. When a child takes a toy from another child, teachers should intervene quickly.

<table>
<thead>
<tr>
<th>Please circle your answers to the following questions using the scale on the right.</th>
<th>I do this with children</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I get down on the floor and play with children.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2. I speak warmly to the children when I interact with them.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3. I watch children play.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4. I ask open-ended questions rather than yes-no answers.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5. I engage children in two-way conversations about their play.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6. I am enthusiastic about children’s activities and efforts (e.g. I congratulate them when they do a good job).</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>7. I help children use play materials.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>8. I talk with children about their play.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>9. I make suggestions for how to use materials.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>10. I listen attentively when children speak to me.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>11. I help children remember to clean up as they finish activities.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>12. I hug and hold children.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>13. I get involved in children’s dramatic play.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>14. I am firm with children when it is necessary.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>15. I talk with children in order to enhance their play.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>16. When children talk to me, I restate their comments.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>17. When I describe what children are doing, I give extra information (e.g. Your red car is going fast).</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>18. I help children find activities to play with.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>19. I enjoy being with children.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>20. I show children the appropriate way to use materials.</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>
APPENDIX C

CHILDREN
September 15, 2009
To Whom it May Concern:
We are providing training to your child’s preschool teachers. We anticipate this training will improve the quality of language modeling to the children in your child’s preschool or Kindergarten Classroom. If you would like your child to participate, please read and sign the parent permission form. Please return all forms to your child’s preschool Center. A staff member, at the Center your child attends, will ensure your informed consent will be securely placed in an envelope.
Thank you for your participation.

________________________________________________
Nancy Sileo, Ed.D.

________________________________________________
Lillian Englund, M.Ed.

College of Education
Department of Special Education
Box 453014 • 4505 S. Maryland Parkway
Las Vegas, NV 89154-3014
(702) 895-3205 • Fax (702) 895-0984
PARENT PERMISSION FORM

Department of Special Education

TITLE OF STUDY: Evaluating and Improving the Quality of Language Modeling in Early Childhood Classrooms
CONTACT PHONE NUMBER: (702) 895-3205

Purpose of the Study
Your child is invited to participate in a research study. The purpose of this study is to determine the effectiveness of a professional development intervention on the quality of language modeling by teachers in early childhood education settings. Training teachers to implement more effective language modeling may improve child outcomes in language and literacy achievement and in improved social skills. Specifically, when teachers engage in frequent conversations with children, use open-ended questions, repeat and extend children’s responses, use self and parallel talk, and connect advanced language to children’s language, children will develop higher literacy achievement and problem-solving skills and apply these competencies in social situations.

Participants
Your child is being asked to participate in the study because your child’s teacher has agreed to participate and you are a parent of a pre-school or Kindergarten age child enrolled in the Sea Turtles, the Bumble Bees, or the Rainbows classroom at the UNLV LBECDC, or the Creative Corner, Challenger Zone, or Kindergarten classroom at McCarran.

Procedures
If you allow your child to volunteer to participate in this study, your child will be asked to do the following: be present in the classroom while your child’s teacher is being video recorded.
Your child will not participate individually. Rather your child will participate in the classroom routine as usual and general observation data regarding teacher-child interactions will be collected via video-recording that includes audio. Approximately nine 30-minute observations will be conducted over 5 weeks. Lillian England will enter the classroom and record 30 minutes of classroom behavior each of nine days. The observations will be video recorded and later reviewed by the researcher and an interobserver who reviews and codes 25 percent of the video recordings to make sure the codes are correct. The purpose of the video recording is to document teacher-child interactions, use the recordings to demonstrate live examples of language modeling, and to ensure the observation data collection is reliable. Only trained observers for this study will view the video recordings. Interruptions to the daily routine are not anticipated. All paper data collection sheets and video recordings will be kept confidential and secure by Nancy Sileo and Lillian England.

Benefits of Participation
There may not be direct benefits to your child as a participant in this study. However, we hope to learn that when teachers view their language modeling skills via video recording and participate in an intervention of professional development, they may in turn improve these skills. Teachers’ improvement of language modeling skills may lead to greater outcomes for children’s improved cognitive and social skills.

Risks of Participation
There are risks involved in all research studies. This study may include only minimal risks. Potential risks for your child may include an increase in classroom distractions (e.g., new adults in the classroom, video camera).

Cost / Compensation
There will not be a financial cost to you to participate in this study. The study will take approximately ten minutes of your time to complete the form. You will not be compensated for your time.

Contact Information
If you or your child have any questions or concerns about the study, you may contact Nancy Sileo or Lillian England at (702) 895-3205. For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study
is being conducted you may contact the UNLV Office for the Protection of Research Subjects at 702-895-2794.

**Voluntary Participation**

Your child's participation in this study is voluntary. Your child may refuse to participate in this study or in any part of this study. Your child may withdraw at any time without prejudice to your relations with the university or with the center that your child attends. You or your child is encouraged to ask questions about this study at the beginning or any time during the research study. Children who do not have signed permission forms will be redirected to activities off camera by classroom aids. In the event a child enters the filming process, the camera will be turned off until the child may be redirected to another area of the room. Only those teachers who signed the teacher consent form will participate in the study.

**Confidentiality**

All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link your child to this study. All records will be stored in a locked facility at UNLV for three years after completion of the study. After the storage time the information gathered will be shredded, broken, or destroyed.

**Participant Permission:**

I have read the above information and I agree to allow my child to participate in this study. I am at least 18 years of age. A copy of this form has been given to me.

__________________________  __________________________
Signature of Parent (print)   Child’s Name (Please print)

__________________________  __________________________
Parent Name (Please Print)   Date
I agree to allow my child to be video and audio taped for the sole purpose of training teachers to review and improve their language modeling skills.

__________________________    __________________________
Signature of Parent     Child's Name (Please
print)                     

__________________________    ____________
Parent Name (Please Print)     Date

Participant Note: Please do not sign this document if the Approval Stamp is missing or is expired.
APPENDIX D

CLASSROOM ASSESSMENT SCORING SYSTEM

FORMS AND DOCUMENTS
Permission to Use Copyrighted Material

University of Nevada, Las Vegas

I, Melissa Bohm, on behalf of Brookes Publishing Co., holder of copyrighted material entitled and originally published with Classroom Assessment Scoring System Manual PRE-K: CLASS Observation Sheet and Classroom Assessment Scoring System: Rubric for the Dimension of Language Modeling,

hereby give permission for the author to use the above described material in total or in part for inclusion in a master's thesis/dissertation at the University of Nevada, Las Vegas.

I also agree that the author may execute the standard contract with University Microfilms, Inc. for microform reproduction of the completed dissertation, including the materials to which I hold copyright.

Melissa A. Bohm, Executive Vice President

Brookes Publishing Co., P.O. Box 10629, Baltimore, MD 21203

Representing

Signature Date
6/05/10
## Observation Sheet

**Teacher:** ___________________________  **Observer:** ___________________________

**Start time:** ___________________________  **End time:** ___________________________

**Number of adults:** ___________________________  **Number of children:** ___________________________

### CONTENT (circle all; check majority):
- **L/L (Language Arts)**
- **Math**
- **Social Studies**
- **Science**
- **Other:** ___________________________

### FORMAT (circle all; check majority):
- **Routine**
- **Whole Group**
- **Small Group**
- **Free Choice/Centers**

---

### Positive Climate (PC)
- Relationships
- Positive Affect
- Positive Communication
- Respect

**Notes:**

![Score Options](image)

### Negative Climate (NC)
- Negative Affect
- Punitive Control
- Sarcasm/Disrespect
- Severe Negativity

**Notes:**

![Score Options](image)

### Teacher Sensitivity (TS)
- Awareness
- Responsiveness
- Addressing Problems
- Student Comfort

**Notes:**

![Score Options](image)

### Regard for Student Perspectives (RSP)
- Flexibility and Student Focus
- Support for Autonomy and Leadership
- Student Expression
- Restriction of Movement

**Notes:**

![Score Options](image)

### Behavior Management (BM)
- Clear Behavior Expectations
- Proactive
- Reduction of Misbehavior
- Student Behavior

**Notes:**

![Score Options](image)

### Productivity (PD)
- Maximizing Learning Time
- Routines
- Transitions
- Preparation

**Notes:**

![Score Options](image)

### Instructional Learning Format (ILF)
- Effective Facilitation
- Variety of Modalities and Materials
- Student Interest
- Clarity of Learning Objectives

**Notes:**

![Score Options](image)

### Concept Development (CD)
- Analysis and Reasoning
- Creating
- Integration
- Connections to the Real World

**Notes:**

![Score Options](image)

### Quality of Feedback (QF)
- Scaffolded
- Feedback Loops
- Prompting Thought Processes
- Providing Information
- Encouragement and Affirmation

**Notes:**

![Score Options](image)

### Language Modeling (LM)
- Frequent Conversation
- Open-Ended Questions
- Repetition and Extension
- Self- and Peer Talk
- Advanced Language

**Notes:**

![Score Options](image)

---

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## Language Modeling

<table>
<thead>
<tr>
<th></th>
<th>Low (1, 2)</th>
<th>Middle (3, 4, 5)</th>
<th>High (6, 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequent Conversations</strong></td>
<td>There are few if any conversations in the classroom.</td>
<td>There are limited conversations in the classroom.</td>
<td>There are frequent conversations in the classroom.</td>
</tr>
<tr>
<td></td>
<td>The majority of the teacher’s questions are closed-ended.</td>
<td>The teacher asks a mix of closed-ended and open-ended questions.</td>
<td>The teacher asks many open-ended questions.</td>
</tr>
<tr>
<td><strong>Open-Ended Questions</strong></td>
<td>The teacher rarely repeats or extends the students’ responses.</td>
<td>The teacher sometimes repeats or extends the students’ responses.</td>
<td>The teacher often repeats or extends the students’ responses.</td>
</tr>
<tr>
<td><strong>Repetition and Extension</strong></td>
<td>The teacher rarely maps his or her own actions and the students’ actions through language and description.</td>
<td>The teacher occasionally maps his or her own actions and the students’ actions through language and description.</td>
<td>The teacher consistently maps his or her own actions and the students’ actions through language and description.</td>
</tr>
<tr>
<td><strong>Self- and Parallel Talk</strong></td>
<td>The teacher does not use advanced language with students.</td>
<td>The teacher sometimes uses advanced language with students.</td>
<td>The teacher often uses advanced language with students.</td>
</tr>
<tr>
<td><strong>Advanced Language</strong></td>
<td>Variety of words</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Connected to familiar words and ideas</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Language Modeling Coding Log

Code ____________________

Date ____________________

Frequent conversations

Open-ended questions

Repetition and extension

Self and parallel talk

Advanced Language
## Language Modeling Study

**Video-recording procedures**

<table>
<thead>
<tr>
<th>Step</th>
<th>Check</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Prior to session: Set up tri-pod, attach video recorder with inserted recharged battery (from electrical outlet in Mardene’s office).</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Check mini-video tape label for correct code and date. Write this code and date on the top of the CLASS observation sheet.</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Using wipe-off marker, write the same code and date on the white board included with the materials.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Insert mini-video tape into camera.</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Position camera so that the teacher and most of the students can be seen clearly.</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Note which children do not have permission to be video-recorded and ask for support from staff to redirect them away from the camera.</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Turn on the camera.</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Video record the white board.</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Turn off the camera.</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Rewind and view the brief recording of the white board to make sure everything is operational.</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Fill in the heading on the CLASS observation sheet (Teacher, Start Time, Number of Adults, Number of Children)</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Begin video-recording prior to the lesson, allow it to run during transitions. We are interested in conversation and teachers expressions. Capture teacher’s interactions with children individually and in small groups. Occasionally pan to the whole classroom to capture the experiences of other children for several minutes at a time. <strong>Record for 30 minutes.</strong></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Check for children not allowed to be video-recorded and stop the camera to have them redirected. Restart the camera.</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Turn off the camera after 30 minutes.</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Fill in the CLASS observation sheet (Stop Time, Content, and Format)</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>Remove mini-tape from camera and store in cabinet (labeled Englund) in research room.</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>Remove battery from camera.</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>Return materials to Mardene’s office. Plug battery into outlet.</td>
</tr>
</tbody>
</table>
Samples of Scripts Used in Intervention Phase

Teacher’s Observation of Their Practice

We have been talking about language modeling which encourages children to practice their own language skills, and increases children’s understanding of more complex language. I noticed in this video clip that you asked a lot of questions and the children responded to your questions.

R. What observations can you make about your conversation in this video segment?

SS. The children really liked talking about going to the park. They were very eager to talk about it.

R. Did you notice your posture and position when you were talking to J.

SS. Yes, I was down on one knee, and she came right up to me and put her face really close to mine. She was so enthusiastic it was fun to talk to her.

Teacher’s Reflection on Their Practice

Language modeling allows children opportunities to learn new words and make connections between the new words and words they typically use. In this video segment, you were telling the story of Curious George. When you got to the part of the man with the yellow hat, you stopped and talked about different words for “yellow”. You told the children that they would have an opportunity to explore yellow in the art Center.
R. Tell me, what was your intention in using the story Curious George to connect to “yellow”?

SS. Well, Curious George is a favorite story in our classroom. The children want to read it all the time. I guess, I just kind of remembered about the hat, so I wanted to use it to get the children to give me more words for yellow. The children even had fun making up silly words for yellow like “banana head”. The point is, the art Center activity was about mixing paint and getting different shades of yellow, and naming them.

R. Which conversation, would you say was the exchange that was the most satisfying between you and one child?

SS. I guess I liked the one where J. talked how her Mom’s favorite color was yellow. So when I asked her what kinds of things her Mom had that were yellow, she talked about the striped cat, and the polka dot curtains, and the fuzzy slippers. She used a lot of words and it was easy to ask her to think about shades of yellow.

Challenging the Teacher to Improve Practice

In language modeling, open-ended questions require students to answer with more than a one-word response and they allow students to practice their vocabulary and context skills. In this video segment, you were in the dramatic play Center with several children. One of the children was talking on the phone. You asked the child who he was talking to. You followed up with: “Is your Mom at home?” “Is she baking cookies?” “Do you like her cookies?”
R. While conversation allows children to think and practice their vocabulary, what questions might you have asked that would give this child an opportunity to give you a longer response? How might those longer responses help children to think about their answers more deeply and to make connections?

SS. This is the hard part… I guess I could have asked, “where is your mom?” D. might have told me she was at home. He would have to use more words than just “yes”? I have a hard time with these kinds of questions.

R. Most teacher’s do. One trick is to think about how you can get the child to talk. Try using phrases like “what do you think?”, “How do you know?”, and “What did you see that made you think that?” What questions might you have asked D. about cookies that would have encouraged him to use more words and longer sentences?

SS. I might have asked D. to “Tell me about the cookies your mom makes for you”. “How does she make them?” “What does she put in them? What is your favorite thing about your mom’s cookies?”
Low Score Range

Language Modeling Coding Log

Code

Date 2-9-2010

Frequent conversations

Open-ended questions

Repetition and extension

Self and parallel talk

Advanced Language
Mid-Score Range

Language Modeling Coding Log

Code
Date 4-15-2010

Frequent conversations
Peer conversations

Open-ended questions
what does he say?
what else are you going to put on?
where are you going?
how do you know it's the daddy?
that's beautiful, where are you going?

Repetition and extension

Self and parallel talk
I will take this and put it ...
I'll give you a paper towel
you have the big bear
you have four bears

Advanced Language
huge bear
balance
heavy/light

Dot painting
Playing with animals

Conversation about sleeping
about getting a dog
Conversation about towers of blocks
Place
Conversation about race world

You have on high heels
High Score Range

Language Modeling Coding Log

Frequent conversations
- Continuous Conversation - peer to peer conversation

Open-ended questions
- Are you going on a trip this week-end?
- What are you using it for?
- Why are you cutting that?
- Can you tell me why
- What are you making

Repetition and extension
- You have a w like the one we have at home. What line are you cutting today?
- We don't want to step and fall, regret.
- My daddy helped me cut a piece of paper.
- ah the blue tool...
- What else do you need

Self and parallel talk
- I have the paper right here in front of me. I forgot to cut a piece.
- You can see it upside down. It is like a beast...
- I have no idea when my dramatic play stuff is

Advanced Language
- familiar
- tissue paper is hard to cut isn't it
- I'll hold it tight
- is all hope clear
- yarn
- same length
- tight
APPENDIX E

INTEROBSERVER AGREEMENT
Congratulations! You passed the reliability test.

The criteria for achieving reliability are:

- To score 80% of all codes within one of the master codes
- To score at least 2 out of 5 codes within one of the master codes within each dimension.

You met both of these goals. Following, you will find a description of your performance at the domain and dimension level. Please take some time to review your manual in places where you had discrepancies with master codes in order to further bolster your CLASS coding skills.

Your Performance Report for: Pre-K Recertification I

Your Overall Score: 84%

Reliability Overview Per Segment

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<th>Segment</th>
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Reliability Feedback per Domain and Dimension

Emotional Support: You scored 16 of 20 reliably for the emotional support dimensions. Overall, you demonstrated a solid understanding of the dimensions that fall under the Emotional Support domain. Below you will find dimension-specific feedback to further bolster your coding skills for this domain.

Positive Climate: You scored 5 of 5 reliably on this dimension.
- You scored this dimension exceptionally well.

Negative Climate: You scored 4 of 5 reliably on this dimension.
- You occasionally assigned scores that were higher than the master codes.

Teacher Sensitivity: You scored 5 of 5 reliably on this dimension.
- You scored this dimension exceptionally well.

http://class.teachstone.org/video_library/final_score_prek_print.php 10/18/2010
Hi Mardene,
I did send you feedback on 5/15 (see below). It may have been filtered into your spam account. There is no need to do anymore tests, you are already reliable. Just to satisfy your curiosity, you received 90% this round.
Best wishes,
Laura

Name: Mardene Wright
Email: mardene.wright@unlv.edu

Pre-K Reliability 2

Segments

(Scores Marked with * are OFF by two or more.)

**I Spy and Memory Game**

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**10 Dots and a Prize**

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**The Letter Hunt**

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Laura L. Brock, Ph.D
Research Scientist
Center for Advanced Study of Teaching and Learning
University of Virginia
llb3w@virginia.edu
Congratulations! You passed the Reliability test. Your overall score is 84%. Below you’ll find a table with your scores and master codes for each segment. I’m attaching the justifications so you can read them over, compare master codes with your own scores, and further bolster your CLASS coding skills. Please feel free to contact me with any questions or concerns.
Best wishes on your CLASS-related work!
Laura

Name: Mardene Wright
Email: mardene.wright@unlv.edu

**Pre-K Reliability 1**

**Segments**

(Scores Marked with * are OFF by two or more.)

**The Very Busy Spider**

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**Mice Squeak, We Speak**

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**Cars and Letter Stamping**

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**Walking Down the Road**

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Interview Questions – Single-Subject Participants

1. Tell me about your experience with the language modeling professional development study.
   
   1a. What parts were the most helpful to you?
   
   1b. What part would you change and why?

2. How do you think your participation has influenced your awareness of your role in language modeling in your Classroom?

3. Would you recommend this process of professional development to a colleague?
   
   Why or why not?

4. Do you believe the topic of child-staff interactions should be a formal part of course work in higher education in preparation to teach?
   
   4a. Why or why not?
   
   4b. If you believe teacher-child interactions should be a part of higher education, what ways might it be incorporated?

5. Was there anything that I could have done to make the process more comfortable?

6. Is there anything else you would like to say or add to the experience?

Examples of Prompts

1. How do you think that would be helpful?

2. Do you have an example?

3. And what would it look like?

4. What would you tell them?
Interview with K.
May 10, 2010

This interview was conducted in the research room between the two Sea Turtle Classrooms at CENTER1. K. is a pre-K lead teacher.

Note: The use of “… indicates a pause.

L. I’m here with K. and we’re going to talk about the language modeling project that we did a month or two ago. So tell me about your experience with the language modeling professional development study. What parts were the most helpful to you?

K. I think it was a little helpful watching myself, and seeing “oh that’s what I’m doing or oh that’s not what I’m doing.” You think you’re doing some things and you’re not and having the handout that you gave me, you know so I can keep referring to it and looking at the different types of modeling, um and I even shared that with my staff after it was over with and I highlighted the ones I wanted them to work on, and the ones I wanted them to work on, and I noticed them and it was very helpful for them changing the way they’re using the language with the children.

L. They were pretty receptive to it?

K. They were, they were like really cool, and the part that was really fun was um the extended language like using the bigger vocabulary words and stuff, they had fun with that. So did the children.

L. It’s one of the hardest parts to do but it’s also one of the most impressive to families. K. I’ve had some families come back and say Ms. K. my child came home and said what’s infinity Dad (laughter) or I’m shocked that my kid knew some of the words they were using and since the language modeling study, I’ll read a story now and my kids
will say “Ms. K. what does that mean? Where as before they weren’t really picking out words and stuff so it’s been really neat for me and “oh, great question, glad you asked you know, and we talk about it, and it’s been really neat. And for me too, to stop and think about when I’m reading a story if I read “excited” or just words that I know that I take for granted, I look a little more critically at the books that I am reading and I’ll ask “do you know what that means? What do you think that means? So it’s generated a lot more conversation.

L. Some of the words we grew up using aren’t words these children know.

K. Right!

L. Okay, so what part would you change about the study, and why would you change it?

K. Um, I would change that it just dealt with me. I would like it to have all my assistants to be videotaped. I know it would be very intense but so they could see themselves the way I saw myself, ‘oh wow’. Even though they sit there uh huh, uh huh, uh huh, like I did “oh yuh” you think you’re using it in the classroom but until you really see yourself.

L. so that’s a possibility for an extension to the study maybe.

K. Yuh, have the assistants go through everything I went through.

L. So how do you think your participation has influenced awareness of your role in language modeling in your classroom and I think you just talked a lot about that.

K. yuh, it really has um… I think about it all the time now when I’m reading a book, when I’m singing a song, when I’m pointing out words you know I’m thinking, How can I extend it, how can I keep going, you know when I’m talking with the children,
you know, I try to structure my questions and stuff using more open-ended questions and keep the conversation going longer with them, I am more aware of that now.

L. Would you recommend this process of professional development to other colleagues?

K. mm hmm, I would, I would, um, I even plan, I started planning some of my activities you know around this. What, what could…when I plan activities for the children I’m looking at what could promote more language, instead of, like um… I use more group activities, I use more small group where they are talking to each other and stuff and I even switched up how I use journaling, which they absolutely love it now, and it promotes how you know they are talking to each other more and my little boys who hated journaling do three or four pages now.

L. Have you shared that?

K. Mm hmm. It’s fun.

L. It’s easy for those activities to become ritualized.

K. Right, and that was what it was becoming and we’ve switched up kind of how they were doing, and um and the whole preschool, we wanted to make it just a free choice where they the kids could come and get it as they wanted but I found that my kids weren’t getting it, what I did was I made it a whole group journaling time and they all get their journal they go to wherever they want to in the classroom with their marker and they journal however they want you know they how long, how short and they have a teacher help them write their words down and they’re talking with their friends and it’s really cute the little groups get together and they maybe talk for ten minutes on what they’re drawing and um I let them share them if they want to at the end of the class and
stuff and like I say my little boys they did want to do journaling at all, they the first day I did it one of them did five pages and I was blown away. And then I have a date stamper so they can put the date on it at the end and they love doing that too. That’s promoted a lot of language in the classroom.

L. You should do a workshop,

K. oooh!

L. That would really help a lot of people.

K. That would be interesting.

L. How it lead up to it and how it benefited the classroom.

K. Well then they’re watching the other children model, like I have one little guy that doesn’t write very well, he… he gets distracted and if it’s just him and I at the table he wants to go play he’s all over the place and he doesn’t want to do it but when he’s with a peer he’s watching the other little one draw and he’s trying to draw and make more elaborate pictures like that one and they’re back and forth and they’re into Star Wars right now so they are drawing all the Star Wars, or How to Train Your Dragon the new movie that’s out, (laughter) they are drawing their dragons and all of these scribbles are starting to take shape now and it’s really exciting to see that I can pick it out now.

L. How’s that influencing their vocabulary?

K. Oh my gosh, How to Train Your Dragon, we were talking, they were using that vocabulary and then we were talking, what is dragon, and what does train mean you know train, and the language has just flourished. It’s exciting.

L. Ok, um… do you believe the topic of child-staff interactions should be a formal part of coursework in higher ed?
K. I do.

L. And why?

K. Because, I didn’t realize how important it was until the study. I didn’t realize that it’s not a natural thing. I’m such a talker anyway it comes natural for me and I didn’t realize it until, until the study when I stopped and I was taking a step back and looking at my staff and their interactions and some of the stuff that I just did naturally just because they weren’t doing it and um and I was just looking, you know talking to other teachers and staff and stuff it really hit me that this doesn’t happen all the time where I just kind of thought it did, You know, it happens a lot, it’s not a, it’s not a, I guess it’s not taught, and I think it should be because it’s such an important part. The language is so critical. My little, some of my little kids, they’re starting to read now whereas before the language, you know I did all this they weren’t interested in the words and stuff, now it’s more of a focus, and a fun focus, that they’re just so loving it, so I really think it’s something that the teachers need to be trained in and um I think it will benefit the kids too.

L. Well, think about how if you were taking a class in higher ed, and the teacher was trying to implement it, what ways would that happen in a classroom?

K. Implementing the…?

L. For example, if I were the professor in the classroom, and I am teaching any course in early childhood education, what ways could I implement, specifically language modeling within that class of higher ed for teachers who are becoming teachers?

K. Oh, model it for ‘em, I’d set up my um, how I want, the stuff I want to teach them, I’d teach it like I would in a preschool classroom and hopefully get in some videotapes
and some clips and maybe even, um, take them into the classroom. In this classroom with the observation room that were sitting in! I’ve often about that because I often thought the ideal thing for me in the future would be to teach, um to teach in a university part time, but then to be able to have a half day class somewhere so I could bring my students you know they could see um. I’d have them practice with each other too, to give them a topic, you know bring in activities that I would do with them in the classroom and set them up and have them do the activity, you know ask them to think how would you do and how would you do, you know do the exchanges for more than one or two … I’d have them write up open-ended questions to ask, how would you, you know, um what vocabulary would you be using you could extend, cause for me the most helpful doing it instead of you know sitting in a lecture, listening to lecture, you know. I think you could teach it just like you know,

L. Hands on?

K. Hands on like it was a, I’d be frustrated like my preschool students, you know, kind of teach it that way. I would think, I don’t know, maybe.

L. Is there anything else you’d like to share about the experience?

K. I’m glad…I hated watching myself, like oh my but, I’m really glad that I was excited to do it and I got a lot from it you know, it was one of those, it wasn’t a waste of time you know, it wasn’t like “oh I have to do this again” I really gained a lot from it and um, it’s really, I think it helped my children too because it made me more aware of… I mean I still have a lot to work on, I’m not by anywhere, I’m not anywhere close to being where I should be yet but it, it’s been beneficial for me and my staff some of ‘em wouldn’t talk too much or they’re starting to think oh how can I use different words
and and language and I heard one of them the other day ask a child an open-ended question and I had never heard that staff use an open-ended question before and I was very excited. And it’s for me shutting up too and letting them … ‘cause I facilitate a lot of it and I have to pull the reins in and let them do it but

L. They have a lot of opportunity in small group.

K. Mm hmm, I was really glad to be part of this, I think it was really neat.

L. I’m glad you were too.

K. And we gained, you know, I feel like I gained and my classroom gained so much from it.

L. Is there anything I could have done to make it more comfortable?

K. I, no, I except for making me watch myself on that big screen (laughter). That wasn’t my best side, you should have shot the other side. No for me it was all pretty much, it wasn’t stressful or anything, I just, run of the mill, here we go. I enjoyed it.

L. Well thank you.

K. You’re welcome.
Interview with Y.
May 11, 2010
This interview was conducted in the research room between the two Sea Turtle classrooms at CENTER1. Y. is a pre-K lead teacher.

Note: the use of “…” indicates a pause.

L. What I would like to know about the study Y. is the most helpful part of it for you?
Y. I think the best part about it was just watching myself, because you never get to watch yourself and how you do things and even when you are doing everything right there are still things you’re going to judge yourself on or you know that you could do better and I did notice that my body language didn’t, I think I mentioned that to you a couple of times, I didn’t like my body language, and I’ve been really trying to work on that these past couple of weeks and after the study and everything, I liked that I liked seeing myself and also at the same time being affirmed that I was doing everything I should be doing and I was communicating really effectively with the kids.
L. do you have some examples?
Y. Um, I think like when some of the projects like the planting activities and things that I was doing, when I was really going over the steps and kinda’ like, a lot of the self talk, I know I self talk but I didn’t know I self talked that much and I hope that I do it in a really appropriate amount of self talk not to the point where it sounds really almost redundant so I think I did pretty good and I think I liked seeing how I was able to do that and it helped in the learning process with the children to hear me and then their questions were answered you know when they asked them or before they even asked them so I gave them a lot of information and of the … the negative I noticed like that
the journal table I would lean on the table a lot and I kinda put my chin on my hands a lot and kinda it almost looked like I was bored so I’ve been trying to change that a lot so its hard when the table’s so low and you’re so high and you want to get down to the children’s level. I’m going to try to sit on the floor more just to be head-level with them that works.

L. So were you feeling bored?

Y. No, no I don’t feel at all but I know that my body position sometimes looks that way and the past the director when I first started here C. said the same thing about me, so I remember she said that about me and I tried to fix it and she said I did so I must have gone back to it. So

L. What was the hardest part about the study?

Y. Probably the video-taping, being video-taped, ya, I think the hardest part was just uh knowing that there was a camera on and watching me. I tried really hard to not act differently, to not say differently or not to kinda act up for the camera and I don’t think I did but I think the hardest part was knowing that someone was watching me the whole time that I was doing it even though it was only a half an hour a day. It still seemed like a long time, I think that was it.

L. Thirty minutes can be a long time.

Y. It seems like it, yea, I didn’t realize it but yea.

L. Would you recommend this study to a colleague, the process?

Y. To other teachers?

L. Mm hmm.
Y. Ya, ya, totally, cause it just, I think it would also it could help with is like new teachers, first year teachers, here I haven’t a really hard problem being a first year teacher, because there’s a lot of support at this preschool with teachers but out in the school district when I did my student teaching especially I felt that I wasn’t supported a lot in terms of like knowing what I did right or wrong. So I think that when you are watched like that even though it is intrusive it really shows you what you’re doing and then with someone who’s not, who’s very subjective you know and can tell you yes and no in appropriate ways I think it can be a really good learning tool for someone. And just even for teachers who have been there for a long time, I’ve been here 10 full years now and I to hear myself and to watch myself it was good because I don’t ever want to be that teacher who gets stuck in a rut and does the same thing every single year just because it’s easy.

L. Mm hmm.

Y. I want to constantly being doing new things. And so that’s another good reason why it’s good tool, teaching tool.

L. Um, you have a master’s degree so you’ve had a lot of higher ed experience. Did you have any of this kind of training in your higher ed program?

Y. Like a filming kind of training?

L. No, the language modeling kind.

Y. No, uh, uh…I don’t want to put the education department down or anything but I do feel that a lot of the classes were really repetitious, you know, like a lot of them were just the same things over, and over, and over again. If there was a class that was based on how to communicate to kids that would be fantastic. Or a class on why play-based
learning is so important, that would be fantastic, or a class on what else like uh like different language models like uh those are the kind of classes that you’re not taught and I think a lot of times you just kinda learn that while you are in the classroom. So that would be a great part of the curriculum.

L. So what kinds of techniques would you use if you were teaching such a class?

Y. Communication?

L. Language modeling

Y. Probably a lot of videos, watching videos, the right and the wrong. Do a lot of scenarios. I honestly, it’s really hard to say because I find a lot of the things that I’ve learned in my classroom have been through experience not through a class. You know it’s because I guess ‘cause every child is different and every family’s different you learn different ways so I know that this child is this way works with and this way doesn’t work with that child and so there may be ten different ways that I use in the classroom and it’s all because I have different children so and If I have three that don’t talk each one has their own individual way of communicating to me

L. Right

Y. Or me communicating to them so I didn’t really learn that from anyone else, I kinda learned it from trial and error with the kids. It’s really hard to say I guess.

L. So you’re saying that you would learn best by doing it rather than by listening?

Y. Ya, I think so, I wonder if maybe more type of like field work is better in this type of situations than class work, because you learn so much more from being in the classroom and the experience of it?

L. So you think this process has application in field work in
Y. I think so, I think it could, I think getting over the fact that you’re being video-taped is hard, but once you do, it’s really beneficial to see from it and to learn from it.

L. I think a lot of things are hard the first time.

Y. Ya, of course, ya, but once you do you notice the benefit of it, you see it, you see how it could work, and how it could benefit you and if it’s used even with like student teachers, used in the classroom with a student teacher, so they could see themselves, and that would cut a lot of the uh, uh, well “you said, I said, he said, she said” kind of conversation. I mean maybe a student teacher on one hand, I’m now being the supervisor of two student teachers in my classroom, I see both ends of it and you see how one person says one thing and another person says another thing and video could stop, could kinda put that more into perspective.

L. Um, do you think that you would see different things in a videotape about yourself than I would see?

Y. If it’s about me personally that’s one thing, but if it’s about an interaction with a child it’s another thing. Because that’s actually one of the things I was kinda of worried about, knowing that I was going to be videotaped for only half an hour a day I figured if there was an interaction between me and a child that someone else would think that was either inappropriate or would think that was not positive or just done differently I thought well maybe there was something prior to that interaction that they didn’t see that would, that would give answers to why I said that or why I would communicate this way, maybe I already said it before and then this was just my last warning or something or maybe this is just the way I communicate with that child, so that’s the
only part of it that I think that was, yea that I thought maybe it wouldn’t be seen, because a whole interaction is better than just parts of it.

L. Well and every child comes with a history too.

Y. And, that too, exactly.

L. Is there anything that I could have done to have made it more comfortable?

Y. The camera could have been smaller, the stand. That’s about it, I think the classrooms already, they’re pretty big but there’s a lot of kids in the classroom sometimes and I think the stand was a little bit big I know it was positioned in one spot but there were times I felt like maybe some of the children were walking over it, so I think that was the only part of it that could have been different, but that was something that you probably couldn’t have helped.

L. My reason for using that camera was for the sound, there was a lot of background noise and that’s pretty accurate in terms of picking up voices, and you saw it was hard to hear you sometimes too.

Y. So it picked up pretty well. What about a microphone, like the teacher wore a little microphone.

L. It’s the recommendation of the people who do the CLASS, the instrument itself, they don’t recommend that you don’t wear a mic. I don’t know the reasoning about that.

Y. It might change the children’s attitude toward you or something if you wore a microphone.

L. So we were trying to follow their directions as closely as we could.. Is there anything else you would like to add?
Y. No, that’s good.

L. So you feel like you’re using the program now?

Y. I know that some of the things that I was doing differently I’ve been trying to change about that, so ya.

L. Have you involved your staff?

Y. Ah, you know, I have great staff right now, there are moments when they don’t follow certain communications, so we change it up and I talk to them about changing it. But for the most part my staff is really, really great at communication with the children and that’s one of the reasons I try to keep them in my room as much as I can because they are really good at communicating to the children.

L. Thank you so much.

Y. Ya, no problem.
Interview with R.

May 17, 2010

This interview was conducted in the research room between the two Sea Turtle classrooms at CENTER1. R. is a pre-K lead teacher.

Note: The use of “…“ indicates a pause.

L. All of the questions, R., are about the study we did a month or so ago. And I would like you to tell me about your experience with the process. What part was the most helpful to you?

R. Um, I think just watching myself and actually realizing that I was doing what I needed to be doing, you know, how much I do talk to the kids and stuff. It’s good to reassure myself I guess.

L. Do you have some examples?

R. Um, no I guess just the amount of talking we do and when you pointed out how I was getting to their level and explaining how I was just kind of personalizing everybody, you know, instead of talking the same towards it which I did like in group time and stuff like that but individually I take care of the kids, I mean, that was cool.

L. That was good to see, so what part of the training would you change?

R. Um, I didn’t really feel like it was a study, technically, you said that I was doing what we needed to do so I didn’t feel like I was having to change anything that I had to do. I wouldn’t change it, it was cool.

L. After seeing yourself on film and seeing the parts of language modeling that we did, the open-ended questions, repetition and extension, and those kinds of things, did you find that you were paying more attention to that?
R. Afterwards? Um…

L. After we talked about it?

R. Not more than usual, I don’t think, ‘cause that, I mean that’s something we talk about all the time here. How to talk to the kids, especially with journaling, which most of it you got was during journaling. I mean that’s how we do journaling anyway. When you came in with the camera it kind of cued me, okay, um talk louder, stuff like that with the kids, but not more than usual I don’t think.

L. It’s also a busy room.

R. The classroom’s really noisy.

L. Do you think your participation has influenced your awareness of your role in language modeling in the classroom?

R. My participation with me?

L. How, how language modeling influences children’s vocabulary?

R. Ya, it did, it influences it a great deal.

L. Do you have any specific examples?

R. Um, well I mean, techni, I have four children in my class right now that have speech and we’re pretty much exiting them, so I know that it’s important, you know for them to verbalize what they need to say and get their (um, um, I can’t even talk) just the pronunciation right and learning from their peer models so I mean me modeling it to the other friends helps them model better to the children that actually need it.

L. So when you say exiting speech that means that they met their goals?

R. They met all their goals and things like that so it’s a great deal. I’ve been told that my classroom’s the loudest but the whole language though, I’m okay with it.
L. Yes there’s a lot of really good peer conversation in that classroom. Would you recommend this process of professional development to your peers?

R. Yup.

L. Um, what would you tell them?

R. I would say, like I told them when it was all done, I said that it’s really cool because we actually see yourself in motion, you see what you are doing right and you see maybe I could set this up a little bit, instead of someone telling you, you need to do this and you need to do that, you see yourself and you actually… you know, it’s better form of exercise for the child. Um, I told them, I would do it again just to see how much more I talk now, and it’s kind of a reminder.

L. So it’s more self-motivating?

R. Uh huh, I think so. Instead of somebody just coming in and saying you need to do this and this is what you need to work on but when you look back you say I am doing all this stuff but I need to push this up more when you actually see it. So I liked the way that study was done.

L. Good. Do you believe the topic of child-staff interaction should be a formal part of course work in higher education?

R. Mm hmm.

L. And what would it look like?

R. Gosh, I don’t think you can teach it I mean you’d have to get them in there with the kids and talk and not be afraid to talk with the kids and don’t put strain on ‘em just conversation and let them know and you teach them the open-ended questions and how you ask those and specific ways to ask it but whether or not a person can carry on a
conversation I don’t think it can be taught really I mean you can only prompt to ask questions, keep asking questions, to keep the conversation going, but I don’t think it gives any feeling, it doesn’t get deep if you don’t really care about what you are talking with or you don’t care who you’re talking to or your just doing it just for fluff, you know.

But when I do it, I’m really actually not talking more, not talking about school work or anything like that, it’s more how are you feeling, it’s kind of just…I don’t know a deeper level of conversation I think that really matters, and I think if they can get into then that they’ll be able to incorporate that school aspect of it into the daily life.

L. Would you use videotape in higher ed?

R. Mmm, I would, I think it’s better than someone telling me what to do, like you can pinpoint, like you did, you pinpointed what we did and how we did it, what our strong parts were and what we needed to work on and it’s right there it shows you. You know, I think it’s better than … I take it better than someone coming in and saying you know you’re not doing this.

L. Mm hmm.

R. Because, you know, there’s always a different side of everything so, if you see it right in front of you then you know you need to work on it.

L. It’s your personal impression of yourself and not somebody’s criticism?

R. Right.

L. Okay, anything else you want to say?

R. No I thought the study was very cool. I enjoyed it.

L. Good. I really appreciate your doing it, really a lot.
R. It was really cool, I enjoyed... I hate watching myself on camera but it was cool.

L. Thank you R.

R. You’re welcome.
Interview with R.

May 3, 2010

The interview was conducted in the conference room at Center2. R. is a pre-K lead teacher.

Note: The use of “…“ indicates a pause.

L. I am here with R. and we are going to talk about the language modeling study that we did a few weeks ago. So what I’d like you to do r. is tell me about your experience with the language modeling professional development study. What parts were the most helpful to you?

R. Uh, during, we’re talking just about during the study?

L. Right, from the beginning of the taping until we came back a couple weeks ago

R. Um, spending time one on one and the smaller group of kids you know and having the direct interactions with them even if it’s for other kids like just a few applying time was really a very great experience for both on my side and with the kids. Plus you get to learn more about how their level of development where they are at at this given time and uh plus it’s hard just to kind of like concentrate on different kids but once you have a daily interaction you get to know them better and you know what are the things that you need to work on with different kids.

L. So what you’re telling me is the smaller group helped you practice the skills of language modeling?

R. Yes, yes

L. So what was the hardest part for you?
R. If uh, when we have a children who are like um not understanding what you ah are saying and you have to repeat yourself over and over. We have children who have like speech delays that you need to kind of like “what did you say?” or it’s not clear what they’re saying. And if you have disruptions from other children whose kind of like are out of control behavior you have to stop what you’re doing and you have to deal with that kid.

L. So you’re like if you can’t understand them then it’s hard to support them.

R. It’s not that it’s hard to support but you have to put more effort to work with them…one on one.

L. OK, how do you think your participation in the study, participation being you were observed with the camera and then we watched with the camera and then we looked for examples of repetition and open-ended questions and different aspects of language modeling, so how do think that that participation …

R. For me, uh, it was a great learning experience seeing yourself in the video and how you interact with the children because you’ll see, it’s seldom that you’ll see yourself when your interacting and how effective the interactions are and what are the areas you need improvement…seeing yourself and how the children respond and what other ways you can enhance your…your teaching style too, you know it’s a…it’s a great tool for me to see myself and how the kids are relating … a reacting to what you are saying or responding.

L. Can you give me an example of one time that was uh particularly…

R. Uh, one of them was I didn’t believe the sticker activity, it was just spontaneous, I just set up everything all of sudden we stayed there for a long time and have markers
and all I want them to do was put the stickers and we just have to talk about what we are
doing and everything came out and all of a sudden there’s so much conversation
interactions and language development in that area and we stayed more than probably
twenty, thirty minutes and we had a large group of kids.
L. You were there for the whole time.
R. Yea, yea
L. It really provided some opportunities
R. Right, right
L. So do you think that the activity that you do matters…
R. Yea, yea… the activities does matter plus if they are not really into it then you’ll just
get limited interactions with the children, but if they enjoy the things that you set up
they’ll stay there and there’s more language coming out.
L. mm hmm, um, would you recommend this process for other teachers in the field?
R. Yes, definitely
L. and why?
R. Uh, because uh…they will learn from this experience and seeing yourself in the
video, how you interact with the children you’ll learn what areas what are your
strengths, what are your weaknesses, what are your things that you need to improve and
how would you interact with different types of children with their different learning
ways.
L. Yuh, right… was any part of the study uncomfortable for you?
R. I think the whole experience is really great uh I plus I look at it as a positive learning
uh experience for me that’s why I didn’t even hesitate. It’s just like the first time like
you don’t know what’s going to happen but when you explained everything and you read the whole thing you know it was the first experience for me to be videotaped while you’re interacting with the children.

L. So do you think other teachers would find it uncomfortable?

R. Probably, yea probably most of them because it is kind of stressful to if you don’t know what you are doing you’re not sure about yourself … how you’re going to interact, you’re kind of scared that you’re going to make a mistake … what are the things that you say.

L. Is there something that I could do or someone doing the study could do to make it more comfortable.

R. I think if other administrators would be involved with this just like S. and you know they support you and the way that we meet too is support us too and they give us time to be out of the classroom to talk and you know…

L. So it was important that…

R. Oh yea

L….that time get scheduled.

R. Oh yea, and during our Center wide meeting they talk about it and you were there when we had our team meeting and we were given a heads up that this was the study that was going to come to our Center.

L. So you think enough was done to make it comfortable.

R. Yes.

L. Thanks. Do you believe the topic of child staff interactions should be a formal part of course work in higher education? In preparing teachers to teach?
R. Yes.

L. And what do you think that would look like?

R. And because you know what every time you come to the classroom you need to spend time, you interact with the children but when you deal with the … like you have to be like more sincere when you interact…like the general “Hi, how are you?” You need to be on their level talking to them and making sure you are understanding what they are saying and they are understanding what you are saying in a very simplified form.

L. So how could we be … integrate that in to a classroom in higher ed for teachers who are learning to become teachers?

R. For a higher … oh you’re talking about higher ed?

L. If you were going to become a teacher, if you were taking the courses to become one, at that point in your career, what … how could we help prepare teachers to be better at language and conversation with children? What could we put in the classes and the courses that would help them?

R. Uh…like positive interactions uh with children, you know how we most of the time teachers will see if … maybe talk to kids when they want children to stop their negative behavior it’s always negative. I think it’s appropriate way how to say it, instead of saying “no” you have to explain why you’re not allowed to do such things please stop or whatever it is.

L. So what kinds of mechanisms would you use in order to help teachers learn that?

R. Uh, appropriate ways to interact with children and giving them words to use.

L. Like role modeling>
R. Role modeling, yea. Yea role modeling and uh and observing other mainly do observations.

L. Of people who know how to do it?

R. Yea, yea. I think we learn from direct observations.

L. OK. Thanks. Is there anything you’d like to say or add to the experience?

R. I think the whole process is a for instance just kind of like you’re not sure of what you’re doing kind of like nervous, as the process goes along you know you get to like there’s no video in there you just have to be natural and just do what you’re doing every single day and if you know what you’re doing it’s not going to be a problem or you’re not going to think about being stressed as long as you’re prepared in every day that you come to school dealing with whatever happens on that day just dealing with one day at a time and be in the classroom and ready for the children. I think that’s all.

L. OK, thank you.
Interview with J.
May 5, 2010

The interview was conducted in the Kindergarten room at Center 2. J. is a pre-K lead teacher.

Note: The use of “…” indicates a pause.

L. So tell me about your experience with the study. What parts were the most helpful to you?

J. Um, I guess when we met and you would you know go over different things with me. Uh, I would realize, or I realized more, you know about using language in the classroom, that, cuz I really didn’t think about it that much before. And I, like today I said something to the kids “you know remember when we did” and I thought now Lillian, she has a name for what that is and I um I catch myself so many times if I’m going to say something, now wait a minute, I need to phrase it differently so that it’s an open-ended question.

L. so you’re telling me that some of this work was helpful.

J. em-hmm.

L. Good. And then what part would you change and why?

J. Um, probably the length of being video-taped. Um, I’ve never liked having a camera on me. And Um, it seemed very long.

L. So you’d like it to be shorter?

J. Yeah, for me personally.

L. How do you think your participation has influenced your awareness of your role in language modeling in the classroom? I think you answered that a little bit, but maybe you could give me some examples.
J. Um, (pause) I would say I’m using more open-ended questions. Um, like I said before I stop myself so many times now, when I’m talking to the children like at group time or this morning when we were making the salsa, um, I stop myself to rephrase what I was going to say so that it would be an open-ended question. Where before, you know, we did this I didn’t know, and I, well I knew I was supposed to be using open-ended questions but it wasn’t always in the back of my mind and now it is.

L. It is a hard skill to practice… it really is. Um, would you recommend this process of professional development to a colleague?

J. Ya, I’d say uh like my co-teacher, I think she would benefit from something like this.

L. What would you tell them to encourage them to participate?

J. that it not only helps them but it helps the children.

L. and, do you believe that child staff interactions should be a formal part of course work in higher education? If you were to get your teaching degree today, would you recommend this as part of the coursework that you would take?

J. Yes, I know how much it helped me and I think it would help others too.

L. Okay, and um so can you think of some ways that the teacher in the classroom, some ways that we could include it with the coursework? What would it look like.

J. Hmm? I’< not sure…

L. Not all of the students in a curriculum class in early childhood education are practitioners, or have practiced. They might be just young students, so how could we implement the language modeling skills in a classroom like that? What, what kinds of activities might we do?
J. Well I know my science experiments, uh, that really get, uh, you know you are
asking questions “What do you think will happen? And the children are answering that
way. That’s one way, um, just doing different experiments with them. I know the big
books that I used, that’s a good way um to get them um learning about books, you know
you’re asking them parts of the book and um is that…

L. ya, so would you have the adult students practice those kinds of skills in a class with
their peers?

J. Yah

L. so they are actually giving the lesson and practicing the skills.

J. mmhmm

L. so what else would you like to say about the study at this point>

J. Um, I enjoyed it. I didn’t really enjoy the part about listening or seeing myself on
video (laughter). Like I said before, I don’t like being videotaped. Uh, but did point
out, you know, things that I was doing that I didn’t realize you know that was important
for the children.

L. Was there anything I could have done to make it more comfortable?

J. Um, (pause) no, because you, you told me to talk to the children first before you
came in and I told them we had just learned about photography the week before and uh
so they, they understood about the tripod and what it was for and I told them they had to
stay away from the camera and uh so, when you did come in, you just came in kinda
quietly. It didn’t upset the classroom or anything cause they knew you were coming.
You know a few of them might have said something you know about the camera telling
their friends you know that they needed to stay away from it because they couldn’t
knock it over and the tripod, one of them said “the tripod is to keep the camera steady”. (laughter) So there was no disruption you know when you came in, and the kids were expecting you so they weren’t you know like interrupting me, what I was saying at group you know like “what were you doing there” it was like a smooth transition. I don’t think that, I wouldn’t change anything.

L. You had good support from your administrators too with the project.

J. Yea, oh yea

L. OK great, that’s all the questions I had unless you have something to add

J. No, can’t think of anything
Interview with T.
May 5, 2010

This interview was conducted in the conference room at Center2. T. is a pre-K lead teacher.

Note: the use of “…” indicates a pause.

L. I am here with T. and we’re talking about the language modeling study that we did in her pre-K classroom. Tell me about your experience with the language modeling professional development study. Tell me about what was the most helpful to you.

T. I think that the most helpful thing was the time when I got to review the tape and after the different types of modeling language modeling was explained to me I found it very easy to pick out the kinds of things that I was doing and I didn’t notice how much language modeling I was doing until then. Now it’s made me a lot more conscious of it.

L. Okay. What part would you change and why?

T. I would change … the length of time that I was taped. I would probably extend it to more than one Center to more than one time frame, maybe in the morning and then in the evening or during recess or at a certain activity outside or during some kind of group interaction.

L. How do you think that would be helpful?

T. I think it would be helpful because during the times that I was taped I was doing a lot of small group work and I would like to see what kind of language modeling I did with the entire group and I would like to see how it varies and if I use a certain type of language modeling more than others more than the type that I would use with the small group.
L. Okay that’s interesting, um, how do you think your participation has influenced your awareness of your role in language modeling in the classroom?

T. I think it made me a better teacher and I think it will in the future. And I may pass it on to some other teachers, I think that getting this opportunity to look at myself and to really be aware of what I’m saying, and how I’m saying it and incorporate it in the way that I teach I think that really helped me. I wasn’t…I didn’t really even realize what I was doing, but now that I know it has a name and I see how it really affects the children I think that it was a conscious effort in more than one realm to do and use it and even with my own child at home I think I would do it.

L. Wow, um, how would you pass it on?

T. I would just explain the study, that’s the first think I would, that I was part of the study, and then I would explain the concepts of self-talk, the peer conversations, and just tell other teachers about it and kind of and if I was in the classroom with another teacher which I am quite often I would point out the things that they are doing just so they would know.

L. Cool, okay, what would you recommend this process of professional development to a colleague?

T. I would because I think it is so effective. You don’t see yourself daily and as a teacher you may make take for granted the things that you do and it becomes natural to you however if you get a chance to back and look at the things that you’ve actually done you first of all you have a sense of accomplishment because you can see it, you can hear it and it is so easy to identify it later. Now I may have missed a lot of things if I was just marking it down. I missed some things when we were you know when we
were kind of tallying the different language modeling but I recognize some of the things
that I was doing with more tapes that I saw of myself. I just think it’s really a good idea
and it helps everybody I think it would help everyone become a better teacher.

L. Great, thanks, um, do you believe the process of child-staff interactions should
become a formal part of course work in higher ed?

T. I do, because I … in my experience I’ve found that teachers, or students that become
teachers, who don’t have the application and have not actually experienced the
interaction with the children besides from textbook work are scared and they don’t
know what to do with classroom management and they don’t know how to react with
children besides from the little window that they do student teaching. I think that if
they had more knowledge and were more comfortable with and did more role playing
maybe even came in and sat with classes before student teaching before pre-student
teaching that their language modeling would be different and they would be more
comfortable and relaxed. A lot of times I find that new teachers have a hard time
they’re so focused on teaching the curriculum and making sure that they get the
logistics down of what they’re supposed to be doing and they don’t really well it is hard
for them to …to spread themselves out evenly and having that language modeling and
the action between you and the child is so important, you need a good mix but it takes
experience to learn how to balance all of those things. You know you are praying when
you come in I need to teach this and I need to make sure it’s structured and this, that,
and the other however you need to speak with the children and you need to have
conversations you need to build a rapport and then you need to feel comfortable and
you need to understand how important that is. I’ve never realized how important it is
except after I started this study I was reflecting about my childhood and my interactions with my teachers when I was in pre-K. I don’t … I don’t recall having any side conversations with them taking a real interest in my the things that I did over the weekend and or the things that I liked to do that wasn’t classroom based. So I think it is important and I think that as a part of staff development that the teachers would really benefit from it. Yea, I just had no idea that how important language modeling was and I do it naturally but I didn’t realize what an effect it could have or what or lack of it.

L. Did you see effects in the classes throughout the process?

T. Oh yes, I um, I have a student that I … he kind of got a bad rep I think and I think that he just needed a little attention. And once he got that positive attention his whole attitude changed and he looked for the positive attention and he wanted to do the right thing and he just wanted somebody to listen to him and as simple as that is it has been overlooked I think. And I know that sometimes when you have a history with a child you kind of get stuck in a box. And sometimes it takes a fresh face or a new person to or that has no bias for no issues or history with a child to come in and see the child in a new light and give him a fresh chance and the child sees the new person as a fresh chance. Because they don’t have the history or the other memories or the chips they had before.

L. I saw a great transformation with that child.

T. I did, and even his parents are just happier, they noticed it and they just noticed that he’s the kind of child that he’s become and he’s open and he wants to share and he’s so happy! Anytime you see a child that cares about school… he was more, I think before he was here more for the social interaction, but now I think he really likes to learn and
he feels a part of the class and he feels like his opinion matters, he feels smart, he just really helped his self-esteem.

L. That’s a really great observation.

T. Yea, I that’s something that I’ll take with me.

L. If you believe teacher-child interactions should be part of higher education, what ways might it be incorporated.

T. Could you repeat that?

L. If you were to design a program where you embedded teacher-child interactions including language modeling what …how would you do that in a program, what would it look like?

T. It would look like fun. I think that children are in more of a relaxed setting like cooking or an activity something hands on where the teacher looks like a human to the child not like a teacher or some figure and they see that you have opinions that you have likes and dislikes and you can be silly. I think children relax the teacher relaxes and I think that the kind of activities I would have would be cooking or an art activity that the teacher participated in or a dance or a movement thing that the teacher participated in not just turning on press and play on the music and watching the children but interacting, getting in there, being silly you know doing with the children playing with them, I think that’s what I would do.

L. So if you were the master teacher and you had a student teacher with you that’s what you would do.

T. Mmhmm, I would…I would tell the student teacher although it is important to make sure that you get all the curriculum in you need to have some time to be personable with
the student. You just get a better reaction out of the children and they respect you at the same time they also know that you’re human and that you were once a kid and that you have a Mom and you have a Dad and when they can see that they really want to open up to you.

L. Mm, how would you see it in course work?

T. Well, in a CLASS (2008) of teaching teachers?

L. Mm hmm.

T. I think I would have them write they’re …a game, I would have them make a game and make an activity and maybe involving, involving, an item. I think a really good activity would be just putting a whole bunch of random things like little sponge balls and paint and paper just a montage of different items, put them in a box and just have a student teacher pick it out, pick something out of the box and say I want you to create something, create an interactive activity with your student. And they would have to write up a lesson plan and they would have to …maybe try it if they were like in an early childhood type of setting. Experiment and record it or record their observations or try to apply it with the actual children and maybe incorporate some methods like you need to during the activity give me examples of peer talk, and give me examples of conversations between peers where they could actually see tangible written things where they see the language modeling. That’s what I would do.

L. Well, that’s really interesting.

T. Because if you’re forced to … I know that a lot of times students, we’re so used to formats and structured things that we can kind of fill in the blanks where were supposed to and write this in a certain format and do things we’re supposed to but when we’re
told to think out of the box and we’re just given some items and said now go do
something with it, it takes imagination and creativity. You have to think outside the
box and you don’t know what kind of reaction the children might have. The children
might like the activity they might turn it into something else, you may begin with a plan
of how you might want an activity to go and they might take it and turn it into
something totally different and that’s the magic of being a teacher and working with
children especially in early childhood because they take things out of the box and they
might put the box on their head and leave the contents of the box over to the side. You
never know.

L. How do you think the videotape influenced the whole process?

T. (Laughter). The children loved the videotape and I don’t think that ever got old.
Um, there were times when they ignored it and they got into the activity, but I think
video-taping it is necessary because if they weren’t being tape-recorded you wouldn’t
be able to see the expressions on the children’s face. You wouldn’t really get a grasp of
the effect that it has on the children. You just see their faces besides hearing their voice
and, and their pictures and their body language. Those are all the things you need to see
in order to truly understand how effective certain language modeling is.

L. How easy do you think it is for teachers to be videotaped?

T. It depends on who they are. I think that some teachers feel uncomfortable with it,
but I think that as an adult you have things that you are uncomfortable with and you
sometimes you need to just try it. It’s not going to kill you. And I think that it wasn’t
inconvenient for me, just because you’re still doing your job and you know you
can’t…you have to let go of the control. You can’t control all situations. There was a
lot of times I was being taped recall we heard complete other things going on, monumental events that were fighting, arguing, crying, laughing you know.

L. And sometimes we saw things in the background that we didn’t know were there.

T. Yea, we had no idea of stuff behind our heads that were going on.

L. Is there anything I could have done to have made it more comfortable?

T. No, I think that you were as least invasive as you could be. The cam..I mean there’s nothing you could do. Wear a hidden camera I guess and go to the spy shop and get one of those and inconspicuously videotape the children without them knowing but otherwise I think that it was fine.

L. Is there anything I could have done to make the conversations afterward more comfortable?

T. No, I didn’t have a problem with that either but I’m probably not the one to ask? You’d probably have to ask another teacher. I was comfortable, you didn’t put me in a position to where I felt uncomfortable, or I felt like I didn’t have enough knowledge, you asked the right questions, you explained the study very well from what I needed to know, and I felt like I knew what I was supposed to know and I walked away with something. I was not expecting that I was not expecting to walk away with something. I was expecting to help you out in your study and that’s all I expected to happen. I was not expecting to learn something that I could take with me. I can take this with me and I can share it. So

L. Thank you.

T. It worked out.
L. You had good support from your administration?

T. Oh yes, I did. They’re good here. Yea, they’re very supportive and they wanted to know and other teachers wanted to know. And I think it should be incorporated somehow in a curriculum for teachers because it’s so important. You don’t even, I did not realize how important it was, I didn’t realize I was doing it either but I didn’t realize how important it is until I reflected back on my childhood and I thought I don’t remember them ever asking me my favorite color or what I did this weekend or why or asking any details or if they did ask me something, they didn’t ask me details. They didn’t really want to know, I don’t think, if they did they didn’t seem very interested, you know. These children, they now I think now they are really lucky, because, they get input from their parents, they’re allowed to give their opinion and they’re really allowed to speak and their parents hear them. Whereas I think that my teachers really didn’t listen to me. My mother and my father listened to me and they let me just go on tangents and you know and say things and share my thoughts but I don’t feel like my teachers did. And I see how important that is. I think that builds…that builds the child’s self-esteem, when they can be heard and they’re not just considered the child without an opinion. Cuz they’re little people, they have moods, they have opinions, they have feelings and sometimes they don’t want to be bothered and that’s just something that adults need to know you know and maybe keep into consideration that they’re little people also.

L. Is there anything else you’d like to share about the study?

T. I just want to thank you for giving me the opportunity because I did not realize that I
Was walking away with something new and I plan on sharing it. I just think first of all it will take down a wall between the children and the teacher, because being conscious of the language that you use or how you use it or what you’re saying to children, not just curricular based but on a personal level. I just think it’s so much more effective if you’re conscious of it. And I don’t so much alter what I say; I just enhance the things that I say.

And I add more questions to the conversation to give them a chance to speak and I listen and let them know that I am listening. And when they know that and they feel like you’re not just talking at them and you’re talking to them children react. And it affects later, and later if you ask them to do something they do it because they… they feel like they’re respected just like everybody else. And I thank that sometimes we think when they are four and five that they don’t have a lot of confidence but I believe that they do. I see the difference.

L. Mmhmm.

T. And we should give them a chance to talk to one another. There are times where they should be quiet and listen or there are times where they should be able to speak to each other and interact and have conversations and share whatever it is that they need to get out, they need to get it out just let ‘em get it out ‘till the end. Just so they can share it and sometimes that’s all they want to do and sometimes it’s longer than you expected, but that’s just how it goes. And sometimes is has something to do with what you ask and sometimes it doesn’t. So they wanted to say that and they wanted to share that and you want them to feel open and have enough confidence to speak in a group or to the teacher or to an adult or look them in the face and look at their eyes and see their
expression. and those are the things that I think children in this generation are lucky. You know they’re lucky that they’re able to do that. Where before children were seen and not heard and they were only spoken to if adults...were only allowed to look straight and not move and do something the teacher said and they weren’t allowed to share, sharing I guess would go on after school. I think this was a really good opportunity for me.

L. Really.

T. Yah, it exceeded my expectations.

L. Thank you for sharing that with me.

T. Oh you’re welcome.
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