# AN ANALYSIS OF PARENTING CONSTRUCTS IN THE NATIONAL CLIO STUDY

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ABSTRACT

FELICIA ANNE ELIZABETH GIBSON: An Analysis of Parenting Constructs in the National CLIO Study
(Under the direction of Barbara H. Wasik)

This study was designed to identify the specific aspects of parenting that underlie family literacy programs by using 87 parenting items from the Even Start Classroom Literacy Interventions and Outcomes (CLIO) study. An exploratory factor analysis was conducted using data from the first year of data collection ($N$ = 1300) to determine the underlying structure and number of latent constructs. An initial confirmatory factor analysis was then conducted using data from the same sample in order to improve model fit, through examination of improvement statistics and modification indices. Finally, a confirmatory factor analysis was conducted using the data from the second year of data collection with the purpose of verifying the constructs identified through the exploratory factor analysis. It was hypothesized based on previous research that nurturance, teaching, and language would emerge as important constructs. Results of the final confirmatory factor analysis found five parenting constructs underlying the CLIO data set, including scaffolding and supportiveness; parent-child interaction and opportunity to read; home learning environment, particularly access to materials; explicit teaching; and rules and routines in the home.

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# CHAPTER I

# INTRODUCTION

Research conducted in the last 50 years has shown that the period of early childhood between birth and age five is especially important because children's experiences during this time form the foundation for later academic success, particularly language and literacy. The overall goal of early childhood intervention is to strengthen this foundation and increase the likelihood of success for each child and their family (Committee on Integrating the Science of Early Childhood Development, Board on Children Youth and Families, National Research Council, & Institute of Medicine, 2000; Meisels & Shonkoff, 2000).

## Early Childhood Intervention

Interest in early childhood interventions in the 1960s was prompted by the plight of children growing up in poverty and the increased likelihood of school failure for these children, leading to the implementation of public policies and programs designed to support children from birth to age five and their families. These early childhood intervention services were based on three central ideas: (1) society is partially responsible for the well-being and healthy development of young children; (2) certain children are particularly vulnerable to delays due to biological or environmental risk factors such as a chronic disability or poverty; and (3) prevention and earlier intervention is more effective than is treatment or remediation (Meisels & Shonkoff, 2000; Richmond & Ayoub, 1993). Much of the early research investigating the source of these inequities focused on the debate over nature versus nurture.

Research findings supported the influence of both nature and nurture on child development and stressed the importance and complexity of the interactions between children and their environment. Sameroff and Chandler (1975) proposed a transactional model of development in which "biological insults could be modified by environmental factors and that developmental vulnerabilities could have social and environmental etiologies" (in Meisels & Shonkoff, 2000, p. 11). Similarly, Bronfenbrenner's (1979) ecological model of development emphasized the importance of the family environment as well as the broader socio-cultural environment in influencing children's development.

With the push for prevention as well as mounting evidence supporting the transactional and ecological models of child development, early childhood interventions began targeting children at-risk for academic difficulties as well as their parents. Project Head Start, a federally funded, comprehensive public preschool program for at-risk children and families, began in 1965 as a summer program and quickly expanded to a year round program. It was one of the first programs to model how these interventions services could extend beyond the child to include parent involvement (Edmiaston & Fitzgerald, 2003; Mesiels & Shonkoff, 2000; Ramey & Ramey, 1998).

Head Start is an example of the larger movement towards a focus on the family and, more important, a focus on school readiness and the improvement of school outcomes. The main goal of the Head Start program is to "…promote the school readiness of low-income children by enhancing their cognitive, social, and emotional development….through the provision to low-income children and their families of health, educational, nutritional, social, and other services that are determined, based on family needs assessments, to be necessary" ("Improving Head Start for School Readiness Act of 2007," 2007, pp. 1-2).

Public laws also had a tremendous impact on both the role of early intervention within a family system and the improvement of school readiness and school outcomes. The most noteworthy of these laws related to early intervention include the Individuals with Disabilities Education (IDEA) Improvement Act: Parts B and C (2004) and the Goals 2000: Educate America Act (Public Law 103-227) (1994). IDEA: Part B, Sec. 619 (2004), provides those preschool (ages 3-5) children with disabilities the same rights as school-age children and supplies grants to provide special education and related services to preschool children and their families. IDEA: Part C (2004) provides funding for services for infants and toddlers, ages 0-2. IDEA: Part C (2004) is relevant to preschool children and their families because individual states can choose to allow children already receiving services under Part C to continue with those same services until the time they enter kindergarten. According to Section 635(c)(1) of IDEA: Part C, if services are continued for children turning three, "an educational component that promotes school readiness and incorporates pre-literacy, language and numeracy skills" must be included ("Individuals with Disabilities Education Improvement Act (IDEA) of 2004," 2004). Additionally, states can choose to allow services under IDEA: Part B (2004) to be provided to two-year-old children who will turn three years old during the school year.

In addition to IDEA (2004), the Goals 2000: Educate America Act (1994) also played an important role in the provision of early childhood intervention. Goals 2000 was signed into law in 1994 with the objective of providing resources to ensure that by the year 2000, students could meet eight specific goals. The first of these goals asserted that "…all children in America will start school ready to learn" ("Goals 2000: Educate America Act," 1994). As a result of research and public law, early intervention programs began focusing considerable

attention on the facilitation and measurement of concrete pre-academic skills, particularly language and literacy.

This period of early childhood between birth and age 5 is particularly important with regard to the development of appropriate and effective language, literacy, and social-emotional skills (Committee on Integrating the Science of Early Childhood Development et al., 2000; Meisels & Shonkoff, 2000; Ramey & Ramey, 1998; Reynolds, 1994; Shore, 2003; Springate, Atkinson, Straw, Lamont, & Grayson, 2008). The first three years of a child's life are significant because almost everything a child sees, hears, and experiences depends on and is mediated by other people (Hart & Risley, 1995). As a result, early intervention programs address not only a lack or delay of knowledge and skill but also a lack of experience, which is why the acquisition of language and literacy skills and parent education are important components of successful early intervention programs (Hart & Risley, 1995; Osofsky & Thompson, 2000).

Parenting encompasses the activities that parents engage in either with or for their children (Brooks-Gunn & Markman, 2005). As their children's first teachers, parents play a crucial role in the academic and social development of their children. More and more research has shown the important role parenting plays in children's development and school readiness, particularly in the area of children's literacy (De Wolff & van Ijzendoorn, 1997; Fish, Amerikaner, & Lucas, 2007; Pianta, 2004; Snow, Burns, & Griffin, 1998). The study reported here focuses on parenting with the goal of understanding and identifying the specific aspects of parenting that underlie family literacy programs, and contribute to the acquisition of language and literacy skills. In order to look more closely at this research, the following topics will be reviewed: (1) parenting style, (2) parenting practices, (3) parent education, (4)

risk and resilience in early childhood, (5) school readiness, (6) social-emotional development, (7) language and literacy development, and (8) family literacy.

# CHAPTER II

# LITERATURE REVIEW

## Parenting Style

Parenting style has been defined as encompassing two important elements: parental responsiveness (warmth and noncoerciveness) and parental demandingness (control and restrictiveness), and these elements have been used to create four types of parenting styles: authoritarian, authoritative, indulgent and uninvolved (Baumrind, 1971; Maccoby & Martin, 1983). Each of these four types of parenting style have been defined as reflecting "patterns of parental values, practices, and behaviors, along with a distinct balance of responsiveness and demandingness" (Hines & Holcomb-McCoy, 2013, p. 68-69). Authoritarian parents are highly demanding and directive, but not responsive or warm. Authoritative parents have a balance of high expectations as well as support and warmth. Indulgent (permissive or nondirective) parents are more responsive than they are demanding and typically place few restraints on their children. Uninvolved parents are low on both supportiveness and demandingness. Parental style has been shown to predict child social competence, academic performance, psychosocial development, and problem behavior (Baumrind, 1991; Miller, Cowan, Cowan, & Hetherington, 1993; Weiss & Schwarz, 1996).

## Parenting Practices

Parenting practices, according to Barbarin and Aikens (2009), fall into two categories: child-focused and environment-focused. Child-focused parenting practices target

the child via parental interventions such as joint book-reading, activities designed to stimulate language, intentional teaching, and enrichment activities. Joint book-reading is recommended by Snow, Burns, and Griffin (1998), and has been shown to encourage verbal interaction and improve language development as well as knowledge about print concepts (Powell, 2004). Research, however, has also shown that book-reading alone does not contribute to children's skill development, but rather the explicit "referencing of or teaching about print" is essential for children to gain early reading skills (Ezell & Justice, 2000; Justice & Piasta, 2011, p. 204; Justice, Pullen, & Pence, 2008; Mol, Bus, & de Jong, 2009; Wasik & Sparling, 2012).

Environment-focused parenting practices are more indirect and focus instead on efforts to promote and encourage children to learn in both the home and school environments. Examples of environment-focused parenting practices include creating an environment that encourages learning (such as having books in the home), parental involvement in the child's school, and development of a supportive and collaborative relationship (Barbarin & Aikens, 2009). Both child-focused and environment-focused parenting practices constitute individual parent behaviors that are important to the successful development of children's language and literacy skills.

A plethora of research has been conducted regarding the importance of parenting practices for the development of children's readiness for school as well as for children's language and literacy skills. Table 1 lists several empirical studies and theoretical articles, indicating which parenting practice those studies and articles highlight as important. The most comprehensive and well-known studies will be discussed further. Brooks-Gunn and Markman (2005) identified seven categories of parenting behaviors that contribute to school

readiness, including nurturance, discipline, teaching, language, monitoring, management, and materials, based upon a review of the existing literature and their own work, but they did not subject the categories to empirical validation. Other researchers have documented the effects of some of these individual parent behaviors, particularly aspects of nurturance such as parent supportiveness, sensitivity, positive regard, detachment, negative regard, and intrusiveness (Dishion & McMahon, 1998; Ryan, Martin, & Brooks-Gunn, 2006).

Table 1.

*List of Theoretically and Empirically Based Parenting Practices.*

| **Study** | **Emotional Involvement** | **Control** | **Communication** | **Cognitive Stimulation** | **Home Learning Environment** | **Shared Book Reading** | **Parent Education** |
|---|---|---|---|---|---|---|---|
| Caldwell & Bradley (1984) | ● | | ● | ● | ● | | |
| Estrada, Arsenio, Hess, & Holloway (1987) | ● | | | | | | |
| Beckwith & Cohen (1989) | ● | | | | | | |
| Bornstein & Tamis-LeMonda (1989) | ● | | | | | | |
| Payne, Whitehurst, Angell (1994) | | | | | ● | ◊ | |
| Bus, van Ijzendoorn, & Pellegrini (1995) | | | | | | ● | |
| Hart & Risley (1995) | | | ● | | | | |
| Purcell-Gates (1996) | | | | ● | | | |
| Baumwell, Tamis-LeMonda, & Bornstein (1997) | ● | | | | | | |
| Griffin & Morrison (1997) | | | ● | | ● | ◊ | ● |
| Landry, Smith, Miller-Loncar, & Swank (1997) | | ● | | ● | | | |
| Saxon (1997) | ● | | | | | | |
| Senechal, LeFevre, Thomas, & Daley (1998) | | | | ● | ● | ● | |
| Black, Dubowitz, & Starr (1999) | ● | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Parker, Boak, Griffin, Ripple, & Peay (1999) | ● | ● | | | | | ● |
| Rush (1999) | | | ● | ● | ● | ◊ | |
| Culp, Hubbs-Tait, Culp, & Starost (2000) | ● | | | | ● | | |
| Smith, Landry, & Swank (2000) | | | ● | | | | |
| Hill (2001) | | | | | ● | | |
| Landry, Smith, Swank, Assel, & Vellet (2001) | ● | | | | | | |
| Tamis-LeMonda, Bornstein, & Baumwell (2001) | ● | | | | | | |
| Bennett, Weigel, & Martin (2002) | | | ● | ● | | | |
| Burgess, Hecht, & Lonigan (2002) | | | | ● | ● | ● | |
| Connell & Prinz (2002) | ● | ● | | ● | | | |
| Henderson, Many, Wellborn, & Ward (2002) | | | ● | | | | |
| Hubbs-Tait, Culp, Culp, & Miller (2002) | ● | | ● | ● | | | |
| Morrison & Cooney (2002) | ● | ● | ● | | ● | | |
| Rosenkoetter & Barton (2002) | | | | | ● | | |
| Senechal & LeFevre (2002) | | | | ● | ● | ● | |
| Dodici, Draper, & Peterson (2003) | ● | ● | ● | | | | |
| Haney & Hill (2004) | | | | ● | | | |
| Fuligni, Han, & Brooks-Gunn (2004) | ● | | | ● | | | |
| Leventhal, Martin, & Brooks-Gunn (2004) | ● | | | ● | ● | | |
| Leventhal, Selner-O'Hagen, Brooks-Gunn, Bingenheimer, & Earls (2004) | ● | | ● | ● | ● | | |
| Linver, Martin, & Brooks-Gunn (2004) | ● | | | ● | | | |
| Raviv, Kessenich & Morrison (2004) | ● | | | ● | ● | | ● |
| Tamis-LeMonda, Shannon, Cabrera, & Lamb (2004) | ● | | | ● | | | |
| Brooks-Gunn & Markman (2005) | ● | ● | ● | ● | ● | | |
| Foster, Lambert, Abbott-Shim, McCarty, & Franze (2005) | | | | ● | ● | ◊ | |
| Roopnarine, Krishnakumar, Metindogan, & Evans (2006) | | ● | | ● | | | |
| Ryan, Martin & Brooks-Gunn (2006) | ● | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Zaslow, Weinfield, Gallagher, Hair, Ogawa, Egeland, Tabors, DeTemple (2006) | ● | ● | | ● | | ● | |
| Martin, Ryan, & Brooks-Gunn (2007) | ● | | | | | | |
| Bracken & Fischel (2008) | | | | | ● | ◊ | |
| Duursma, Pan, & Raikes (2008) | | | | | | ● | |
| Hindman, Connor, Jewkes, & Morrison (2008) | | | | | | ● | |
| Lugo-Gil & Tamis-LeMonda (2008) | ● | | ● | | ● | | |
| Lunkenheimer, Dishion, Shaw, Connell, Gardner, Wilson, & Skuban (2008) | ● | ● | ● | | | | |
| Mistry, Biesanz, Chien, Howes, & Benner (2008) | ● | | | ● | | | |
| Chazan-Cohen, Raikes, Brooks-Gunn, Ayoub, Pan, Kisker, Roggman, & Fuligni (2009) | ● | | | ● | | | |
| Forget-Dubois, Lemelin, Perusse, Tremblay, & Boivin (2009) | | | | | ● | | |
| Joe & Davis (2009) | | | | ● | ● | | |
| Pungello, Iruka, Dotterer, Mills-Koonce, & Reznick (2009) | ● | | | | | | |
| Areepattamannil (2010) | ● | ● | | | ● | | |
| Glascoe & Leew (2010) | ● | | ● | ● | | ● | |
| Lindsay (2010) | | | | | ● | | |
| Martin, Ryan, Brooks-Gunn (2010) | ● | | | | | | |
| Son & Morrison (2010) | | | | ● | ● | | |
| Newland, Gapp, Jacobs, Reisetter, Syed, & Wu (2011) | | | | | | ● | |
| Weigel, Martin, & Bennett (2010) | | | | | ● | | |
| Schmitt, Simpson, & Friend (2011) | | | ● | ● | | ● | |
| Walker & MacPhee (2011) | ● | ● | | | | | |
| Dotterer, Iruka, & Pungello (2012) | ● | | | ● | ● | | |
| Hindman & Morrison (2012) | | | | | ● | ◊ | |
| Iruka, LaForett, & Odum (2012) | ● | | | | | | |
| Martini & Senechal (2012) | | | | ● | ● | | |
| Wasik & Sparling (2012) | ● | ● | ● | ● | | ● | ● |
| Watkins-Lewis & Hamre (2012) | ● | | | | | | |

*Note*: ◊ designates that shared book-reading was studied under a broad category and not individually.

Studies have also examined various instruments that examine parent behaviors, in particular the Home Observation for Measurement of the Environment (HOME) Inventory. The HOME Inventory was designed by Caldwell and Bradley (1984) to assess the instruction and emotional support children receive from family in the home environment. Caldwell and Bradley (1984) derived eight subscales from the Early Childhood HOME, for children ages 4 to 5: learning stimulation, language stimulation, physical environment, warmth and acceptance, academic stimulation, modeling, variety in experience, and acceptance (as cited in Linver, Brooks-Gunn, & Cabrera, 2004). Many of these areas are similar to Brooks-Gunn and Markman's (2005) seven categories of parenting behavior, albeit named differently.

Leventhal, Martin, and Brooks-Gunn (2004a) have conducted research on the predictive validity of an alternative set of categories based on the Early Childhood HOME Inventory. In their study, Leventhal et al. (2004a) used factor analysis to "develop conceptually based alternatives to the original subscales" of the EC-HOME and then assessed the validity of these new scales by examining data across five national datasets: the Infant Health and Development Project (IHDP), the NICHD Study of Early Child Care (NICHD-SECC), the National Longitudinal Survey of Youth-Child Supplement (NLSY-CS), the Panel Study of Income Dynamics- Child Development Supplement (PSID-CDS), and the Project on Human Development in Chicago Neighborhoods (PHDCN) (p. 161). The validity of the subscales was assessed via bivariate analyses to determine the association of the subscales to children's cognitive and behavioral outcomes and partial correlations between the subscales and children's outcomes. Of the eight a priori subscales, five were found to have sufficient reliability and validity: parental warmth, learning stimulation, interior of home, parental lack of hostility, and access to reading.

In another study, Leventhal, Selner-O'Hagen, Brooks-Gunn, Bingenheimer, and Earls (2004b) utilized data from the PHDCN Study (one of the five data sets used in Leventhal et al. (2004a). Leventhal et al. (2004b) developed the Homelife Interview using the HOME Inventory "as a map from which to develop an expanded assessment of parenting and the home" (p. 215). The Homelife interview was designed to measure six domains which the HOME was not designed to measure: (1) parental warmth and responsivity, (2) provision of learning activities, (3) parental supervision and monitoring, (4) parental communication skills, (5) routines, and (6) quality of physical environment,. A combination of assessment for internal consistency and item response models was used to analyze the psychometric properties of the Homelife Interview. Results indicated eight scales reflecting four of the six study domains including parental warmth and responsivity, parental communication, quality of the physical environment, and provision of learning activities.

A study by Glascoe and Leew (2010) examined which specific parenting behaviors were associated with average versus delayed development of language, using data from the national study of the Brigance Infant and Toddler Screens. Results indicated that parents who endorsed talking to and showing their child new things and talking during everyday activities such as feeding or eating, as well as enjoyment and interest in being with and talking to their child, were more likely to have average language skills (Glascoe & Leew, 2010).

Morrison and Cooney (2002) developed a parenting questionnaire to measure five dimensions of parenting: the quality of the learning environment; parental warmth and responsiveness; parental control and discipline strategies; parental beliefs about childrearing and qualities in children necessary for success; and parental organization and traditions.

Using principal components analysis (PCA), Morrison and Cooney (2002) analyzed responses from 198 families on 119 items. The PCA revealed four underlying dimensions: the quality of the family learning environment, parental responsiveness and warmth, parental beliefs about childrearing and desirable qualities of children, and parental control. Morrison and Cooney (2002) also conducted a path analysis to examine the relationships of the parenting dimensions to children's academic and social skills. Results indicated that family learning environment, parental warmth and responsiveness, and parental beliefs are most predictive of child outcomes.

**Parent Education**

Parent education is a learning activity designed to impart "specific knowledge and child-rearing skills to parents and other caregivers with the objective of enhancing a child's health and development" (Zepeda, Varela, & Morales, 2004, p. 10). The concept of providing services to the family can be dated to the last part of the nineteenth century, although the importance of family and the home environment was not formally acknowledged in the United States until 1909, when President Roosevelt called the first White House Conference on the Care of Dependent Children (www.homevisiting.org, 2013). In the 1960s, because of growing concerns regarding poverty, health education, and child abuse and neglect, both parenting and early childhood education became priorities as each provided a way to reach children, either directly through early childhood education or indirectly through their parents. With the enhanced focus on parents as well as children, home visiting became one means of providing parent education services. For example, in 1961 Susan Gray and Rupert Klaus implemented the Early Training Project, a preschool intervention and home-visiting program designed for low-income children and their families (Gray, 1971; www.homevisiting.org,

2013). Gray (1971) acknowledged that the home-visiting component, which focused on teaching the mother how to use various materials effectively with the child, was the most important step of the program.

In 1962, the High/Scope Perry Preschool Project was implemented in Ypsilanti, Michigan, with the goal of identifying the cause of poor performance as well as ways to improve performance among high-risk African American children. Results of the 27 year longitudinal study found that the 123 children who participated in the High/Scope Perry Preschool Project had completed a higher level of schooling, had higher levels of general literacy at age 19, had higher school achievement (reading, language, and math) at age 14, had higher levels of income, and had additional economic benefits, such as lower usage of welfare assistance and less involvement in the judicial system, when compared to the control group (Schweinhart, 2003; Schweinhart et al., 2005).

The Mother-Child Home Program (MCHP) was founded by the Verbal Interaction Project in 1965. The program was literacy-focused, using home visitors to model positive verbal communication with children, encouraged parent-child interactions, and also provided materials for the families to use (Levenstein, Levenstein, Shiminski, & Stolzberg, 1998; Madden, O'Hara, & Levenstein, 1984).

Other programs also focused on helping parents learn the skills to teach their children. For example, the Parent Education Program (PEP) was developed by Ira Gordon in 1966 with the goal of helping mothers become more competent teachers. In 1967, Gordon initiated the Parent Education Follow Through Program, which provided additional support for children after Head Start. More specifically, home visits were used to encourage parental involvement in their child's education. Another example of a parent-focused intervention is

the Parents as Teachers (PAT) program, an evidence-based program started in 1981 aimed at improving parenting practices, preventing child abuse and neglect, and increasing children's readiness for school (www.homevisiting.org, 2013). The Home Instruction for Parents of Preschool Youngsters (HIPPY) was introduced in the U.S. in 1994, providing a developmentally appropriate curriculum with a focus on teaching through role play (www.hippyaustralia.org).

**Risk and Resilience in Early Childhood**

The term "at-risk" is a statistical concept that can apply to a particular child, a family, or even a community and refers to circumstances, either biological or environmental, that indicate one has a higher likelihood of experiencing negative outcomes (Moore, 2006). Children at-risk for school failure, in particular, have been the focus of many early childhood interventions because research has shown that exposure to risk factors increases the likelihood that children will experience negative outcomes (Fraser, Kirby, & Smokowski, 2004). More specifically, children who are at-risk because of social and/or biological risk factors, and especially those with multiple risk factors, are more likely to experience negative outcomes (Fraser et al., 2004). Research has demonstrated significant variability, however, with regard to children's reactions to adversity, despite exposure to one or more risk factors. Some children do not develop any significant problems. Referred to as resilient children, they are successful in achieving positive outcomes in spite of risk (Fraser et al., 2004).

Many types of risks can affect children. One type of risk is biological – what Rutter et al. (1997) referred to as a risk trait. A risk trait is a genetic predisposition to a specific problem. According to Rutter et al. (1997), genetic influences are actively and passively affected by both environmental and interpersonal factors of the individual. The idea that

genetic predisposition can be affected by environmental factors is known as the gene-environment interaction, which implies that some children with genetic risk factors can be helped through social intervention (Fraser et al., 2004). Research has also shown that the environment can have a major impact on the development of a child (Campbell & Ramey, 1989).

This second type of risk, known as contextual effects, indicates that specific environmental circumstances can make children more susceptible to negative outcomes (Fraser et al., 2004). Contextual effects also incorporate multiple family and school factors, which are significant components of a young child's life. As family and school factors tend to be nested (i.e., students/parents within classrooms, within schools, within states), individuals are then further influenced by the broader contexts of their neighborhood and community (Fraser et al., 2004). Consequently, the child can be negatively impacted by family, school, neighborhood, and community factors at the same time. Contextual effects provide the "three R's: rules (local expressions of expectations), resources (human and concrete assets for problem solving), and routines (behavioral patterns for sustained social interaction)" (Fraser et al., 2004, p. 17). This formulation is particularly relevant to children because rules, resources, and routines are essential to positive outcomes. An example of a contextual effect is poverty. Poverty itself is a risk factor, but children living in poverty are also likely to experience other risk factors, such as decreased quality or amount of food, decreased parental supervision, and decreased sense of safety.

A third type of risk comes in the form of stressful or traumatic events. This type of risk can make individuals more vulnerable because it can lead to their "…altering their personal perceptions" and render their coping skills ineffective (Fraser et al., 2004, p. 18).

This type of risk can have an accumulating effect, whereby repeated stressors or daily struggles can affect development. An example of this type of risk is bullying. Although bullying is more prevalent among older children, it is also common among preschool-aged children. Name calling, saying callous or malicious statements, and leaving children out of activities are a few examples of bullying that occurs in preschool (Fraser et al., 2004).

These three types of risk – risk traits, contextual effects, and stressful or traumatic events – are important because they can affect children at the individual, family, school, neighborhood, and community level. Research has shown that risk factors often occur together in clusters. Children with multiple risk factors in multiple domains are at an even higher risk for negative outcomes. In fact, research has shown that "as the number of factors increases, the cumulation exerts an increasingly strong influence on children" (Fraser et al., 2004, p. 20; see also Greenberg, Speltz, DeKlyen, & Jones, 2001). As a result, intervention programs that target more than one of these domains are likely to be more effective than are those that target just one. In addition, targeting more than one area may result in more positive outcomes (Olds & Kitzman, 1993; Ramey & Ramey, 1993).

One of the most significant risk factors with regard to school success is low socioeconomic status (SES). Previous research indicates that "(a) school success is partially a function of variables that covary with social class, (b) social class differences in performance are present from the very beginning of school, and (c) these differences are likely to remain present from kindergarten to high school" (Lonigan & Whitehurst, 1998). Some other major risk factors include race, single-parent home, maternal education, culture, psychological well-being of the parent, substance abuse, violence, and teen mothers (Campbell & Ramey, 1994; Osofsky & Thompson, 2000).

Conversely, there are several protective factors that can serve to help children cope and handle stress more effectively and thus become more likely to be successful. Some of these protective factors include positive relationships and communication between parent and child, reciprocal relationships, adequate support networks, and resilience (Osofsky & Thompson, 2000). Appropriate and effective communication between children and their parents can serve as a model for other relationships, helping children to begin understanding the nuances of reciprocity. Involving parents in parenting interventions can help children improve these skills and increase their likelihood of success.

**School Readiness**

Risk factors play a crucial role in early childhood education and, more specifically, school readiness. Now at the forefront of current research in the field of education, school readiness emerged as a major national policy issue in the 1990s as a result of concerns about the academic performance of American children (Meisels & Shonkoff, 2000). Boyer (1991) noted that 35% of American children are not ready for academic learning (Shore, 2003). These concerns eventually led to the acceptance of eight National Education Goals, formally adopted in 1994 via the Goals 2000: Educate America Act (Public Law 103-227) (Meisels & Shonkoff, 2000). As part of the first goal, declaring that "all children in America will start school ready to learn," the National Education Goals Panel (NEGP) acknowledged five components of school readiness: "health and physical development; emotional well-being and social competence; approaches to learning; communicative skills; and cognition and general knowledge" (1997).

In addition to Goals 2000, even more emphasis was placed upon children's need to be ready for school by the enactment of the No Child Left Behind (NCLB) legislation, which

required students to meet or exceed individual state academic standards and increased accountability on the part of the schools and teachers (NCLB, 2001). Although social skills are generally recognized as an important component of early development and of early school readiness (Fantuzzo et al., 2007; Hyson, 2004), academic preparedness, primarily the development of literacy skills, has been the major focus of much of the research in this area.

This NCLB-driven emphasis on accountability increased recently with the Department of Education's proposal for reauthorizing the Elementary and Secondary Education Act. President Barack Obama (as cited in U.S. Department of Education, 2010) stated that the goal is "to ensure that every child has access to a complete and competitive education—from the day they are born to the day they begin a career ... because we know that the most formative learning comes in those first years of life" (p. 1).

In short, school readiness is not just about children. Successful school readiness initiatives involve families, early environments, schools, and communities as well as children (National Association of State Boards of Education (NASBE, 1991).

**Development of Social-Emotional Skills**

Research on the topic of social development, like that on other aspects of child development, has progressed from its earlier focus on the individual to its current focus on the interactions and relationships between people as well the context in which those interactions occur. Context is important because children's behavior "is given meaning by the relationships in which the child is embedded, that these relationships in turn are embedded in systems such as families, and that these too can only be fully understood within the context of the society of which they form a part" (Schaffer, 1996, p. 12). This shift can be seen through the viewpoints of many of the major psychological theorists dating back to

the 1950s. For example, Erik Erikson expanded upon Freud's psychoanalytic theory in basing his stages of psychosocial development on a succession of social conflicts, emphasizing the importance of one's interactions within their social environment (Schaffer, 1996). Sullivan (1953) stressed the importance of patterns of interpersonal relationships in his stages of social development, and Bandura's (1977) social learning theory also reflects the importance of interactions between people as it emphasizes observational learning and imitation of others (Saracho & Spodek, 2007; Schaffer, 1996).

One influential approach to current knowledge regarding child development and learning is Vygotsky's sociocultural theory (Stetsenko & Vianna, 2009). More specifically, Vygotsky's theory notes one's culture and shared collaborative experiences with others as two key components of development and learning. Vygotsky's concept of a "general law of development" posits that "the psychological processes of cognition, emotion, self-regulation, and motivation emerge out of social, collective activity" (Stetsenko & Vianna, 2009, p. 45). In addition, his concept of the zone of proximal development, which is described as the difference between what a person can do independently (i.e., without help) and what a person can accomplish with help, implies the need for interactions with people in order for people to reach their potential.

Children's interpersonal relationships and collaborative experiences require the help of another person. Initially, children need help with the development of appropriate social skills, skills which need to be taught either directly or indirectly and practiced. As a result, social development begins in early childhood. Although the major focus of school readiness programs is academic functioning, the social-emotional aspects of development are equally important. Social skills are an essential factor of success upon school entry because

"learning takes place within social settings, including homes, schools, neighborhoods, and communities" (Wasik, 2009). Farran (as cited in Committee on Integrating the Science of Early Childhood Development, Board on Children Youth and Families, National Research Council, & Institute of Medicine, 2000) stated that during "interviews with kindergarten teachers about what they thought was important for success, they did not mention many of the skills that are measured by readiness tests…" but rather "they talked about work-oriented skills and social skills" (p. 8). In addition, Rimm-Kaufman, Pianta, and Cox (2000) found that the primary concern of teachers is that children are not entering kindergarten with the basic social skills needed to function in a formal learning environment.

Table 2

*Social Skills Essential for Success in Early Childhood and in School.*

| Essential Social Skills in Early Childhood | Social Skills Critical to Academic Success |
|---|---|
| • understand and identify one's feelings and behaviors,<br>• manage and express one's feelings appropriately,<br>• resolve conflict successfully,<br>• develop and maintain meaningful relationships<br>• control one's behavior,<br>• correctly read social cues | • understand and identify one's feelings and behaviors,<br>• manage and express one's feeling appropriately,<br>• resolve conflict successfully,<br>• getting along with others and engaging in social conversations and cooperative play,<br>• following directions,<br>• persisting on task,<br>• correctly interpreting other's behaviors and emotions, and<br>• feeling good about oneself and others |

*Note.* Table created by author from information from the National Scientific Council on the Developing Child (2004) and Smith (n.d.).

Some of the skills that are essential to learn in early childhood include the ability to understand and identify one's feelings, manage and express one's feelings appropriately, control one's behavior, resolve conflict successfully, correctly read social cues, and develop and maintain meaningful relationships (National Scientific Council on the Developing Child,

2004). These skills are similar to the social skills considered to be necessary for academic success by the Center for Evidence-Based Practice, including "getting along with others, following directions, identifying and regulating one's emotions and behavior, thinking of appropriate solutions to conflict, persisting on task, engaging in social conversations and cooperative play, correctly interpreting other's behaviors and emotions, and feeling good about oneself and others" (Smith, n.d., pp. 1-2). A child's mastery of these skills forms the foundation for future learning and acquisition of knowledge and leads to social competence (Committee on Integrating the Science of Early Childhood Development et al., 2000). The ability to acquire these skills is highly dependent upon children's opportunities to participate with others. Prior to a child's beginning school, establishing positive relationships with parents and other family members is essential. Later, when a child enters school, the ability to form positive relationships with peers and teachers becomes important. Research has shown that the ability to establish and maintain these relationships with others to be a predictor of later social and academic success (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Morrison, Rimm-Kauffman, & Pianta, 2003; NICHD Early Child Care Research Network., 2005; Pianta, Nimetz, & Bennett, 1997). As a result, the social and emotional climate of children's environment– including parents, other family members, and the community – plays an important role in the development of children's social competence.

Children's development of such crucial social and emotional skills is aided by the role that parents play. Children who develop positive relationships with parents, family members, and/or caregivers during early childhood are more likely to sustain attention and get along with others, but even more important they are likely to be confident in their ability to explore and learn from their environment (Klein, 2002; Thompson, 2000).

**Social Competence**

Social competence "refers to the social, emotional, and cognitive skills and behaviors that children need for successful social adaptation," although it is an "…elusive concept [as] behaviors [e.g., aggression, shyness] have different implications for social adaptation depending upon the age of the child and the particulars of the social context" (Davidson, Welsh, & Bierman, 2006). When children are successful in learning these essential social skills, they have the "ability to take another's perspective…and learn from past experiences and apply that learning" to later social situations (Semrud-Clikeman, 2007).

According to Davidson et al. (2006), a child's social competence depends upon three critical factors: the child's social skills, social awareness, and self-confidence. Social skills describe a child's knowledge of and ability to use a variety of appropriate and acceptable social behaviors in a wide range of interpersonal circumstances; the term also indicates that their ability "to inhibit egocentric, impulsive, or negative social behavior is also a reflection of a child's social skills" (Davidson et al., 2006, p. 1). Another important term with regard to social competence is emotional intelligence – the child's ability to understand the emotions of others, perceive subtle social cues, navigate complex social situations, and demonstrate insight regarding the motivations and goals of others. Children who possess these skills and "who are socially aware and perceptive are likely to be socially competent," according to researchers (Davidson et al., 2006, p. 1).

Factors such as children's self-confidence or social anxiety can affect their social competence. Additionally, social competence can also be affected by social context. A young child's ability to understand emotion and its effects depends on the child's observations of interactions among others, particularly between parents (Thompson, 2000).

A substantial amount of literature supports the notion that development is influenced by one's environment; however, according to Wells (2009), young children's social development is influenced not only by their observations of interactions between individuals, but also by their participation and engagement with the people in their environment, particularly parents and family members. Parent-child interactions are vital to the development of children's social competence, and research shows that children with strong parent-child relationships are more likely to exhibit positive social and emotional outcomes (Clark & Ladd, 2000; Kerns, Klepac, & Cole, 1996). Similarly, Denham and Weissberg (2004) found that children with more secure attachments with adults were more capable of social-emotional learning (Sheridan, Knoche, Edwards, Bovaird, & Kupzyk, 2010).

**Social Skills and Academic Success**

Although the major focus of school readiness initiatives is on academic functioning, the social-emotional aspects of development – including the ability to manage one's own emotions and behaviors and to engage in appropriate and meaningful social relationships – are equally important skills for young children to learn (Bredekamp & Copple, 1997; Ladd & Troop-Gordon, 2003; Odum & McLean, 1996; Shonkoff & Phillips, 2000; Zins, Bloodworth, Weissberg, & Walberg, 2004). Research has shown that socially competent children who engage in meaningful relationships are more likely to have a smooth transition to school and to attain academic success (Birch & Ladd, 1997; Kemple & Ellis, 2009; Ladd & Coleman, 1997; Raver, 2002; Raver & Zigler, 1997).

**Development of Language and Literacy**

Language and literacy are key constructs within child development. Language is the ability to communicate by combining words in meaningful ways, whereas literacy is the

ability to read and write. The development of language and literacy skills has been conceptualized as either cognitive or sociocultural in nature. Each differs in how it conceptualizes the process of learning, but they both attempt to explain "what it means to know something, how one comes to know something, and how best to teach something to someone" (Stone, Silliman, Ehren, & Apel, 2004, p. 5). The cognitive perspective, which emphasizes the individual's ability to process information effectively and build upon lower level skills to accomplish higher order tasks, was initially favored (Stone, 2004). The sociocultural perspective, however, is currently favored and, because of its particular importance to this study, will be elaborated upon in detail.

The development of early language and literacy skills occurs in a variety of settings including home, school, and the community and is contingent upon children's access to and participation in social and cultural experiences. This sociocultural view emphasizes patterns of performance, cultural practices, and – with young children in particular – the role of the parent and family in children's acquisition of language and literacy skills (Stone et al., 2004). Parents need to be actively involved in literacy learning by providing a supportive environment with literacy-focused activities and modeling appropriate literacy behaviors, for example, by scaffolding and demonstrating desired strategies (Lonigan & Whitehurst, 1998; Morrow, 2009; Whitehurst et al., 1994).

**The Role of the Family**. A child's early literacy experiences in the home and with family play a crucial role in the development of their emergent literacy and language skills (Wasik, 2004). Emergent literacy refers to the developmental precursors to language and literacy, including skills, knowledge and attitudes (Sulzby & Teale, 1991; Wasik & Herrmann, 2004). Early literacy experiences in the home and with family are particularly

important for children at-risk – including those from minority backgrounds, low-income families, and families with minimal education – whose early home literacy experiences have been shown to correlate to early school performance (Snow, Burns, & Griffin, 1998; Vernon-Feagans, 1996; Whitehurst, 1996).

The research conducted by Hart and Risley (1995) that examined children's exposure to language and vocabulary in the home environment was instrumental in providing more evidence supporting the involvement of the family. Hart and Risley (1995) sought to understand why some children develop language faster than others and found that all children, regardless of socioeconomic status, have the same types of everyday language experiences. Their results indicated that "children who learn fewer words also have fewer experiences with words [and fewer] interactions with others" (Hart & Risley, 1995). Dickinson and Tabors (1991) also found conversational language to support the development of language and literacy skills.

The parent-child relationship is critical to the development of language and literacy skills. Many studies have examined the role of parent-child interactions and found that early social interactions are important predictors of later social and academic success (e.g., Morrison et al., 2003; Pianta & Harbers, 1996). Additionally, many studies have documented the importance of the home environment (e.g., Bennett, Weigel, & Martin, 2002; Burgess, 1997; Burgess, Hecht, & Lonigan, 2002; Dickinson & Tabors, 1991). In addition to research, legislation such as IDEA 2004 and Goals 2000 played an important role in highlighting the role of the family in early intervention.

Wasik and Hendrickson (2004) developed a model of family influences on children's literacy development including: (a) parental characteristics, (b) child characteristics, (c) the

home environment, and (d) parent-child relationships (p. 157). These influences are further divided by Wasik and Hendrickson (2004), highlighting specific aspects of each domain that are influential in the development of literacy skills. (See Table 3).

**Family literacy**. Family literacy is the "literacy beliefs and practices among family members" (Wasik & Herrmann, 2004, p. 3) which "encompasses the ways parents, children, and extended family members use literacy at home and in their community" (Morrow, 1995, p. 378). As research began providing further evidence to support the involvement of the family in the development of language and literacy skills, interventions that focused on the family unit rather than only on the child became more prevalent. Family literacy interventions were developed in response to children's and parents' being ill prepared for success either in school or in the workplace and operate under the principle that "literacy development is not limited to children" (Wasik & Herrmann, 2004, p. 5) and thus strive to enhance the literacy skills of child and the parents simultaneously (Wasik & Hendrickson, 2004).

Table 3

*Family Influences on Children's Literacy Development.*

| Parental Characteristics | Child Characteristics | Home Environment | Parent-Child Relationships |
|---|---|---|---|
| • Culture and Ethnicity<br>• Parental Beliefs<br>• Socioeconomic Status | • Engagement<br>• Language Proficiency<br>• Cognitive and Developmental Levels<br>• Social Behavior<br>• Motivation<br>• Health Conditions | • Shared Book Reading<br>• Reading Aloud to Children<br>• Availability of Print Materials<br>• Positive Attitude Toward Literacy | • Quality of the Relationship<br>  • Nurturing<br>  • Supportive |

*Note.* Table created by author from information found in Wasik and Hendrickson (2004).

**The Family Literacy Model**

Family literacy programs provide families with opportunities to improve family functioning and prepare both children and parents for success in either school or work settings (Lonigan, 2004; Wasik & Herrmann, 2004). Comprehensive family literacy programs address the needs of both the child and parents through the provision of early childhood education, parent education, parent-child interactions, and adult education.

Within the family literacy model, early childhood education (ECE) constitutes direct methods of improving children's language and literacy skills. The provision of ECE services as part of a comprehensive family literacy program stems from the research showing its effectiveness in improving cognitive and academic functioning for children from low-income households (e.g., Campbell & Ramey, 1994; Fuligni & Brooks-Gunn, 2004). ECE services are provided either by the family literacy program or by other community agencies. The Even Start Family Literacy Program, which will be discussed in detail below, sometimes

utilizes Head Start, local public schools, or other preschool or childcare programs in addition to its own program to provide ECE services (Fuligni & Brooks-Gunn, 2004).

The family literacy model places emphasis upon the role of parents as their child's first teachers (Enz, 2003; NCFL, 2000). Through parenting education (PE) sessions and parent-child literacy interactions, parents learn new ways of interacting and come to understand their role in helping their child to read and supporting their child's literacy development through everyday interactions (Jacobs, 2004). The parent-child interaction component of family literacy programs is consistent with Vygotskian theory that children's higher-order cognitive skills are developed "through mediated activities with an adult or more competent peer" (Sparling, 2004, p. 47). In this method, known as scaffolding, the adult "guides the child's learning via focused questions and positive interactions"(Balaban, 1995, p. 52). Following Vygotsky's theory of the zone of proximal development, scaffolding suggests that, as the child becomes more comfortable with the task, support from the adult be gradually tapered until the child can accomplish the task independently.

Oral language is a particularly important skill for the adult within parent-child literacy interactions because many of the activities, such as shared book reading, require the adult to ask questions about what was read, converse about the topic, and provide feedback as needed. Shared book-reading is one of the most commonly used activities for the promotion of emergent literacy skills, and both shared book-reading and exposure to print have been shown to improve the vocabulary skills of children in preschool (e.g., Sénéchal & Cornell, 1993; Sénéchal, LeFevre, Hudson, & Lawson, 1996; Sénéchal, Thomas, & Monker, 1995).

Children at-risk often lack access to such activities and have lower emergent literacy skills. With respect to the contextual effect of poverty, research has shown that children

from low-income households have fewer children's books or other literacy materials, fewer alphabet books, experience less child-directed speech by their parents, and participate less often in shared book reading than do children not living in poverty (Lonigan, 2004, p. 67). This lack of access becomes more significant when one considers that, according to Hart and Risley (1995), child-directed speech was the single best predictor of academic performance.

In addition to the direct and indirect methods for improving child literacy outcomes, comprehensive family literacy programs also offer adult education, which includes direct services for the parents so that they can improve their own literacy skills and complete their formal education (Goodling as cited in Edmiaston & Fitzgerald, 2003).

**Even Start Initiative.** Several family literacy programs have been developed over the years. The National Even Start Initiative is a comprehensive federally funded family literacy program with the primary goal of improving academic achievement, particularly in the area of reading (Edmiaston & Fitzgerald, 2003). Even Start was initiated in 1989 as Part B of Chapter 1 of Title 1 of the Elementary and Secondary Education Act (ESEA) of 1965. It was modeled on the Kenan Family Literacy Program first used in Kentucky (Wasik, 2006). The National Literacy Act of 1991 later renamed Even Start as the Even Start Family Literacy Program. The Even Start Family Literacy Program was reauthorized several times, most recently in 2001 by the No Child Left Behind (NCLB) Act, but is no longer funded by the federal government. Many local communities and a number of foundations (e.g., Toyota) continue to support family literacy programs (www.famlit.org) using a four component model. Furthermore, aspects of family literacy interventions are often incorporated into other early intervention efforts.

Even Start programs and those that follow a comprehensive model include the four components; (1) Adult Education (AE), which involves parent literacy training with the goal of economic self-sufficiency; (2) Early Childhood Education (ECE), which involves age-appropriate education to improve children's likelihood for success in school and life experiences; (3) Parenting Education (PE), which involves the provision of training and support for parents regarding how to be their child's first teacher and how to facilitate learning in the home; and (4) Interactive Literacy Activities (ILA) between parents and their children ("No Child Left Behind (NCLB) Act of 2001," 2001). In order to qualify for services through Even Start, the household must have children under the age of seven, and there must be an adult parent or caregiver, which may include teenage parents, with one or more of the following circumstances: has an insufficient mastery of basic academic skills; does not have a diploma or GED; or does not speak English as a primary language (NCLB, 2001).

**The Present Study**

Because parenting is a major factor in the academic and social readiness of children, the present study used a large data set on parents who participated based on low literacy skills and low income, providing one of the largest samples available to examine parenting constructs with this population. The rationale for examining parenting constructs within this population was to inform future investigations of parenting interventions with similar populations. Given that parent variables can influence the success of early intervention programs targeting children and families, a better understanding of unique parent constructs can facilitate the development of parenting interventions. This study did not only investigate parenting constructs but also examined the co-variation among the parenting skills in the

Even Start Classroom Literacy Interventions and Outcomes (CLIO) study using both exploratory and confirmatory factor analysis.

**Research Questions**

This study first examined the underlying structure of the parenting variables from the CLIO study using exploratory factor analysis (EFA) with the spring 2005 data, collected at the end of the first year of the intervention study. Results from the EFA were used to identify potential factors, which then were validated via a confirmatory factor analysis (CFA) with the spring 2006 data. Specific goals of the factor analyses included (1) explaining the variation among the variables by condensing the items into latent constructs, (2) determining the number of latent constructs underlying the parenting variables in the CLIO study, and (3) defining the meaning of the latent constructs. The resulting constructs were then compared to existing theoretical and empirical investigations of parenting constructs.

QUESTION 1: What are the underlying parenting constructs in the CLIO dataset?

Hypothesis 1. It was hypothesized that nurturance would emerge as a significant parenting construct.

Hypothesis 2. It was hypothesized that teaching would emerge as a significant parenting construct.

Hypothesis 3. It was hypothesized that language use would emerge as a significant parenting construct.

# CHAPTER III

# METHODOLOGY

## Background on CLIO Data Set

The data in the current study were from the Even Start Classroom Literacy Interventions and Outcomes (CLIO) study, the first national experimental randomized study of the Even Start Family Literacy Program. The CLIO study examined the efficacy of an enhanced program – one that combines research based, literacy-focused early childhood education and parenting education curriculum –as compared to the existing Even Start program, and investigated whether the research-based parenting education curriculum added value to the early childhood education curriculum (Judkins et al., 2008).

In addition to the CLIO study, the U.S. Department of Education has sponsored three national evaluations of Even Start since its inception in 1989. The first two national studies of the Even Start program focused on performance and effectiveness and included small experimental studies that randomly assigned families either to the control or to the experimental group. Families in the experimental group participated in Even Start, and families in the control group were delayed from participating in Even Start for at least one year (St.Pierre, Ricciuti, & Rimdzius, 2005). The results of these initial studies indicated that the literacy skills of the parents and children that participated in Even Start were not statistically different from those of the parents and children who did not participate in the intervention (Judkins et al., 2008). Some early gains in school readiness were found;

however, these improvements did not continue upon entry into preschool or kindergarten, as children in the control group caught up to the children who participated in Even Start (U.S. Department of Education, 1998). Because Even Start demonstrated a continued absence of significant effects, the lead investigators of the third national Even Start evaluation raised questions regarding the effectiveness of the Even Start model, the intensiveness of the instructional services, the level of participation, and the quality of Even Start's instruction and curriculum (Judkins et al., 2008).

As a result, the improved effectiveness of Even Start services became the priority of future research. The results from the CLIO study showed that the CLIO combined curricula had statistically significant positive impacts on social competence (effect size of 0.22) as rated by preschool teachers, two parent outcomes -- parent interactive reading skills (effect size of 0.48) and parent responsiveness (effect size of 0.22) -- and some of the child literacy outcomes. The CLIO parenting curricula did not significantly add value to the CLIO early childhood curricula with regard to child social competence, parent responsiveness, or child literacy outcomes (Judkins et al., 2008).

**CLIO Study Participants**

In order to be eligible to participate in the CLIO study, Even Start programs had to meet the following criteria according to Judkins et al., (2008):

> (1) serve preschool children in a center-based instructional setting, (2) enroll a minimum of either five 3- and 4-year olds in one center-based classroom, or eight 3- and 4-year olds in two center-based classrooms; (3) provide at least 12 hours per week of center-based preschool instruction, (4) serve a majority of families who speak either English or Spanish, (5) be able to exert control over the curricula used in preschool classrooms, and (6) be willing to meet the study requirements, including being randomly assigned to one of the five study groups. (pp. 12-13)

Only 330 of the 1,150 Even Start programs in the United States were deemed eligible. Of the 330 programs, 120 agreed to participate. The children enrolled in these Even Start sites were considered eligible to participate if they "were between 36 and 60 months of age at the time of assessment and were not yet attending kindergarten" (Judkins et al., 2008, p. 26). The Even Start programs that participated in the CLIO study were located in 33 states, in all regions of the country. The programs varied with regard to population density, the number of families served, the percentage of families who are English language learners, and the number of years as Even Start programs (Judkins et al., 2008). The CLIO sample, however, is not considered to be nationally representative of Even Start programs because of the criteria used for participation.

**CLIO Curricula**

The CLIO study utilized two research based combined preschool and parenting education curricula that focused on the development of children's literacy skills: (1) Partners for Literacy (PfL) Early Childhood Curriculum and Parent Education and (2) LET'S BEGIN with the Letter People/Play and Learning Strategies (PALS).

**Partners for Literacy**. PfL is an integrated early childhood and parent education curriculum developed specifically for the CLIO Study from existing materials designed for use with children from low-income families. The developers cited positive impacts of these existing materials from three randomized, controlled longitudinal research studies: the Abecedarian Project (Ramey et al., 1976); Project CARE (Wasik, Ramey, Bryant, & Sparling, 1990); and the Infant Health and Development Program (Ramey et al., 1992).

The early childhood education curriculum utilizes language and literacy activities for preschool-aged children, combined with instructional strategies for teachers (Judkins, et al.,

2008). The parent education curriculum coincides with the preschool curricula, utilizing many of the same themes, teaching strategies, and game-like activities. The parent education curriculum provides parents with the support and training necessary to encourage emotional and cognitive development and promote positive parent-child relationships.

**Let's Begin and PALS**. The early childhood education curriculum, Let's Begin with Letter People, utilizes 26 imaginary characters that represent the letters of the alphabet to help children learn about letters, sounds, and concepts. Let's Begin was enhanced by the addition of teacher training on developmentally appropriate techniques for promoting early literacy skills via the Center for Improving the Readiness of Children for Learning and Education (CIRCLE) (Judkins et al., 2008). The parent education curriculum, Play and Learning Strategies (PALS), utilizes responsive parenting strategies to improve cognitive and language skills and school readiness.

**CLIO Study Design and Data Collection**

One hundred and twenty Even Start sites were randomly assigned to one of five study groups: two groups that implemented the combined research-based early childhood education and parenting education curricula (CLIO combined curricula); two groups that implemented the research-based early childhood education curricula along with the existing parenting education services; and a control group that implemented the regular, existing Even Start services (Judkins et al., 2008). Each of the five study groups consisted of 24 individual Even Start programs.

Prior to being randomly assigned, 24 strata were formed as a way to minimize the differences among the five study groups. According to Judkins et al. (2008), the strata were formed based on several variables: "(1) size of the program (number of 3- and 4-year-olds

served), (2) proportion of children who were Spanish speakers, (3) year that the program was up for recompetition, and (4) region" (p. 17). Each of the 24 strata contained five programs, and those five programs were randomly assigned to the five study groups. The use of strata "resulted in well-matched study groups" with "no statistically significant differences among the five groups" (Judkins et al., 2008, p. 17).

Data were collected over a 3-year period in all Even Start programs participating in the CLIO study. CLIO baseline data were collected from fall 2003–spring 2004, prior to the implementation of the CLIO curricula. Data collected from fall 2004–spring 2005 and fall 2005–spring 2006 represent the first and second year of implementation. Several data sources were used, including (1) preschoolers (3- and 4-year-olds), (2) their parents, (3) classrooms, and (4) projects (Judkins et al., 2008). The CLIO study was not longitudinal for all participants, as some of the parent and child participants exited at the end of the first year and new children were added at the beginning of the second year. Some children and parents participated across the two years. This study uses data from spring 2005 (year one) and spring 2006 (year two) to analyze the underlying parenting constructs.

The CLIO study collected child, parent, and instructional outcomes. The outcomes measures pertinent to this study include (a) parent responsiveness, (b) parent interactive reading skill, and (c) parent-child time spent interacting on child literacy activities. A complete list of the CLIO outcomes measures is provided in the CLIO manual (see Judkins et al., 2008).

**Current Study Measures**

Data on parenting skills were measured using both coded videotapes of staged parent-child interactions and parent self-report. There were two staged parent-child

interactions: one involved joint book-reading and the other shared play with a toy chosen to elicit play-acting from the parent and the child. Parent self-reports of parenting behaviors and home environment were obtained via specific questions in the parent interview. The two parent-child interactions were coded using three systems – "one that focused on the mechanics of reading, another on behaviors with emotional overtones, and a third on summarization" (Judkins et al. (2008), p. D-1). These three systems were the Reading Aloud Profile – Together (RAPT), the Contingency Scoring Sheet (CSS), and Quality Indicators (QI) respectively.

The RAPT (See Appendix A) was based on the instrument developed to measure instructional behavior during book reading. A total of fifty-five specific behaviors are measured on the RAPT, some focused on parent behaviors and the others on child behaviors, and are grouped according to when the observation took place: before reading, during reading, and after reading (Judkins et al, 2008). On this form, any behavior observed at least once during the task was checked by the observer. The QI (See Appendix B) consists of three questions, each measured on a 5-point Likert scale, which according to Judkins et al. (2008):

> Focuses on three aspects of reading interaction, (1) the degree to which the parent introduced and contextualized new vocabulary to support the child's learning; (2) the extent to which the parent used open-ended questions that invite the child to engage in prediction, imagination, and/or rich description; and (3) the depth of the child's engagement with the reading activity. (p. D-2).

The CSS (See Appendix C) consists of eight questions, five characterizing parent behavior and three characterizing child behavior, each measured on a 7-point Likert scale. In the CLIO data analysis, the CSS scales globally, based on the sum of observed behavior during the task.

## Current Study Participants

This study used two different CLIO data sets. The spring 2005 data set ($N$ = 1300) was used to first test the factor structure, using exploratory data analysis. In addition, the spring 2005 data set was used to fit the first confirmatory factor analysis, which allowed for improvement of fit statistics. Finally, the spring 2006 data set ($N$ = 890) was used to run a final confirmatory analysis to assess the overall model.

## Statistical Analyses for the Current Study

The CLIO study used both variable clustering and factor analysis to examine 90 items (parenting skills) from the RAPT, QI, CSS, and Parent Interview forms; this analysis yielded two outcome variables: parent interactive skill and parent general responsiveness to the child. Of those 90 items, 29 were child-directed behaviors and thus were not included in this present study. The remaining 61 items were combined with 26 other items from the parent interview deemed relevant for the present study. These 26 items included questions regarding rules and routines in the home, parental engagement in academic activities with their child, and presence of reading materials in the home. Thus, a total of 87 items were used in the EFA. Prior to analysis, all data were screened for missing values, outliers, and normality. For a list of the 87 parenting items included in this study, see Appendix D. All statistical analysis – both exploratory factor analyses (EFA) and confirmatory factor analyses (CFA) – were conducted using Mplus software version 7.0 Base Program with Combination Add-On.

**Exploratory Factor Analyses**. Exploratory factor analyses (EFA) were used to identify the underlying structure and number of latent constructs of the 87 parenting skills measured. In the current study, spring 2005 data were first screened by examining the

correlation matrix to determine if an EFA could be conducted. To have a viable factor analysis, at least some of the relationships in the data set need to be correlated (with a correlation > .3), indicating there are sufficient relationships to factor analyze (Tabachnick & Fidell, 2007). If indicators are too similar, however, indicating multicollinearity, problems can occur in factor analysis. Therefore, the correlation matrix was examined for correlations that exceeded .95, which would indicate variables that are too similar to one another to continue to include in the analysis. In addition, the Keyser-Mayer Olkin measure of sampling adequacy was reviewed to determine whether the data are factorable.

Weighted least square parameter estimates (WLSMV) was used to estimate the factor model. WLSMV is considered to be robust with regard to categorical data, non-normal data, and large samples sizes. Beauducel and Herzberg (2006) found that "WLSMV estimation compensates more effectively than Maximum Likelihood (ML) estimation for the bias that is due to categorical aspects of the variables and that WLSMV does not have the disadvantages of WLS" (pp. 202). The nested data structure was accounted for using a cluster variable (intervention type) in Mplus. The number of factors to be extracted was determined by inspecting the scree plot.

Factor loadings for each indicator variable were reviewed, with factor loadings greater than or equal to .40 interpreted as meaningful (Brown, 2006). Primary high factor loadings are ideal. Items with double or more loadings were examined using theory, factor loading strength, and clinical judgment, and placed accordingly into the proper factor. In addition, eigenvalues, chi-square goodness of fit, CFI/TLI, and RMSEA loadings were examined to determine the number of factors.

**Confirmatory Factor Analysis**. Confirmatory factor analyses (CFA) were conducted to determine the plausibility of the factor model identified in the EFA. First, a set of CFAs was conducted using the spring 2005 data, with the purpose of improving the model fit, through the examination of improvement statistics and modification indices. The final CFA with the spring 2006 data was conducted using the model modified in the first set of CFAs.

According to Bollen and Long (1993), there are five important components of a CFA: model specification, model identification, model estimation, model evaluation, and model respecification (as cited in Meyers, Gamst, & Guarino, 2006). The latent factors used in the CFA were identified through the analysis of the EFA. Following Bollen and Long (1993), the models were identified by fixing the first indicator in each factor to 1. Like the EFA, the CFA analyses were conducted using WLSMV estimation, which allows for categorical, non-normal data. CFA model evaluation included an assessment of the goodness of model fit (chi-square test, RMSEA, and CFI/TLI) and the pattern/structure coefficients. In addition, the correlation between the factors was assessed.

Model respecification involves the revision of the CFA model if the initial proposed model is not considered to be a good fit. According to Brown (2006), the model can be respecified to improve "parsimony and interpretability of the CFA solution." This respecification was completed using the modification indices to determine better fit.

# CHAPTER IV

# RESULTS

The data in this study were obtained from a secured data set governed by policies of the United States Department of Education and the Institute for Education Sciences. To ensure confidentiality of data, licensees using the data set are required to round all unweighted sample size numbers, frequency counts, and degrees of freedom to the nearest ten; the results reported below reflect this requirement. Statistical analyses were conducted using the SPSS Statistics Version 20 and MPlus Version 7 statistical software packages. First, descriptive statistics on the indicators used in the exploratory analyses are reviewed. Next, the results of the EFA are explained. Finally, the results of the CFA are explained.

## Descriptive Statistics

To be eligible to enroll in the CLIO study, families had to have a child between 36 and 60 months of age at the time of the assessment who were not yet attending kindergarten. The parent interview was completed primarily with the biological mothers (93% in spring 2005 and 92% in spring 2006); 4% of biological fathers in spring 2005 and spring 2006 completed the parent interview, and 2% of grandmothers in spring 2005 and spring 2006 completed the parent interview.

**EFA**. Data were screened for missing data. In the spring 2005 data, a total of 179 cases were not included in the study because of missing data. An additional four cases included values for items in the parent interview that were wholly imputed; thus, these cases

were not included in the analyses. A total of 99 cases were removed from the study because of a duplicate or triplicate parent ID. In these cases, multiple children from the same family were enrolled, but parent data from only one case were kept for analysis. Specifically, cases with the same parent ID and same child ID were kept. The total *N* for the spring 2005 group is 1300.

**CFA**. Data were screened for missing data. In the spring 2006 data, a total of 143 cases were not included in the study because of missing data. An additional two cases included values for items in the parent interview that were wholly imputed; thus, these cases were not included in the analyses. A total of 73 cases were removed from the study because of a duplicate or triplicate parent ID. In these cases, multiple children from the same family were enrolled, but parent data from only one case were kept for analysis. Last, 246 parents were removed from the spring 2006 data, as they had participated in the spring 2005 data collection cycle. The total *N* for the spring 2006 group is 890.

Table 4.

*Mean Age of Participants in EFA and CFA Groups.*

| | **EFA** | **CFA** |
|---|---|---|
| **Mean Maternal Age** | 30 | 29 |
| **Mean Paternal Age** | 33 | 32 |
| **Mean Non-Parental Age** | 47 | 42 |

Table 5.

*Percentage Race/Ethnicity of Participants in EFA and CFA Groups.*

| | EFA | | | | CFA | | | |
|---|---|---|---|---|---|---|---|---|
| | **White** | **Black** | **Hispanic** | **Other** | **White** | **Black** | **Hispanic** | **Other** |
| **Maternal Race/Ethnicity** | 22.0 | 11.1 | 61.5 | 5.5 | 24.1 | 10.2 | 59.5 | 6.3 |
| **Paternal Race/Ethnicity** | 22.8 | 11.7 | 61.7 | 3.8 | 23.9 | 11.9 | 59.4 | 5.0 |
| **Non-Parental Race/Ethnicity** | 46.5 | 13.9 | 30.2 | 9.3 | 43.7 | 12.5 | 34.4 | 9.4 |

**Univariate Analyses**. A total of 87 indicators were selected from the larger data set for analysis in this study. These 87 items are presented in a table in the Appendix D. Prior to assessing univariate descriptive results, a polychoric correlation matrix was examined to determine variability across items. Five items were highly correlated (above .95) with other items and were therefore not included in further analyses, as they would not provide any new information to the model due to their high multicollinearity with other variables. Those five items included all three items on the Quality Indicators Form, as well as the items "how often does your child look at books alone or with another child?" and "does your family have rules about what TV programs child can watch?"

Univariate normality was assessed by examining frequencies, histograms, and values of skewness and kurtosis. Frequencies with an agreement of 95% or greater, skewness values greater than 3.0, and kurtosis values greater than 10.0 were examined further (Kline, 2005).

In order to more easily interpret the findings, the descriptive statistics for the 82 items that were used in the EFA were categorized by type of data (i.e., interval, count, or

dichotomous) and data collection method (i.e., parent interview, observation, or CLIO analysis variable).

Items from the Contingency Scoring Sheet (CSS) that were based on outside observation and later coded from one through seven are presented in Table 6. There are five items in the book task and five items in the toy task. Of the 10 observation items from the CSS measure, six variables in the EFA sample and six variables in the CFA sample showed skewness values over 3.0 and kurtosis values over 10.0, which indicate a potential problem in the assumption of univariate normality. When assessed further using a histogram, extremely high values were found more often than low values, explaining the skewness of the data. Items on the CSS with high skewness and kurtosis values had high percentages in one category. For example, 95% of parents received a score of seven.

Table 6.

*Descriptive Statistics for Items from the CSS Gathered Via Observation and Coded 1-7.*

| | EFA | | CFA | |
|---|---|---|---|---|
| **Variable** | **Mean** | **Standard Deviation** | **Mean** | **Standard Deviation** |
| Book Task: Supportiveness - Emotional availability and physical/affective presence. | 3.62 | 1.052 | 3.68 | .938 |
| Book Task: Cognitive Stimulation - Effortful teaching to enhance perceptual, cognitive, and linguistic development. | 3.19 | 1.231 | 3.15 | 1.176 |
| Book Task: Intrusiveness - Parental control of child rather than recognizing and respecting the validity of the child's perspective. | 6.93 | .320 | 6.89 | .437 |
| Book Task: Negative Regard - Expression of discontent with, anger toward, disapproval of, and/or rejection of the child. | 6.91 | .417 | 6.84 | .562 |
| Book Task: Detachment - Lack of awareness of, attention to, and engagement with the child. | 6.73 | 1.011 | 6.75 | .938 |
| Toy Task: Supportiveness - Emotional availability and physical/affective presence. | 3.81 | .877 | 3.84 | .734 |

| | | | | |
|---|---|---|---|---|
| Toy Task: Cognitive Stimulation - Effortful teaching to enhance perceptual, cognitive, and linguistic development. | 3.28 | .893 | 3.17 | .738 |
| Toy Task: Intrusiveness - Parental control of child rather than recognizing and respecting the validity of the child's perspective. | 6.96 | .262 | 6.95 | .292 |
| Toy Task: Negative Regard - Expression of discontent with, anger toward, disapproval of, and/or rejection of the child. | 6.95 | .294 | 6.96 | .224 |
| Toy Task: Detachment - Lack of awareness of, attention to, and engagement with the child. | 6.93 | .420 | 6.94 | .450 |

Items on the Read Aloud Profile – Together (RAPT) that were based on outside observation and dichotomously scored (i.e., observed/unobserved) are found in Table 7. Of the 32 observation items from the RAPT measure, 26 variables in the EFA sample and 24 variables in the CFA sample showed skewness values over 3.0 and kurtosis values over 10.0, which indicate a potential problem in the assumption of univariate normality. Items on the RAPT with high skewness and kurtosis values had high percentages in one category. For example, on the first item in Table 7 – "Pre-Reading: Ensures child is comfortable, can read book" – 96% of parents were not observed to do this.

Table 7.

*Descriptive Statistics for Observed Dichotomous Items from the RAPT.*

| | **EFA** | | **CFA** | |
|---|---|---|---|---|
| **Variable** | **Percent Observed** | **Percent Unobserved** | **Percent Observed** | **Percent Unobserved** |
| Pre-Reading: Ensures child is comfortable, can see book. | 3.4 | 96.6 | 4.0 | 96.0 |
| Pre-Reading: Captures child's attention - expresses interest in book. | 22.2 | 77.8 | 19.9 | 80.1 |
| Pre-Reading: Labels, reads, directs attention to features of book. | 94.4 | 5.6 | 96.0 | 4.0 |
| Pre-Reading: Points to features of book. | 60.4 | 39.6 | 68.5 | 31.5 |
| Pre-Reading: Tells child sounds/letters to listen for, look for. | .5 | 99.5 | .4 | 99.6 |

| | | | | |
|---|---|---|---|---|
| Pre-Reading: Reminds child of similar books he/she has read. | 4.8 | 95.2 | 2.9 | 97.1 |
| Pre-Reading: Responds to questions, expands on child's comments about book. | 4.6 | 95.4 | 5.3 | 94.7 |
| Pre-Reading: Expands on book through close-ended questions, discussion, vocabulary, and/or background knowledge. | 37.7 | 62.3 | 43.7 | 56.3 |
| Pre-Reading: Relates text to child's experiences/asks story related questions about child's experiences. | 1.7 | 98.3 | 8.8 | 91.2 |
| Pre-Reading: Asks story-related open-ended questions. | 4.1 | 95.9 | 1.8 | 98.2 |
| During Reading: Tracks print with finger, labels punctuation. | 48.1 | 51.9 | 54.1 | 45.9 |
| During Reading: Uses gestures, dramatic voices, props, tone of voice to interest child. | 52.1 | 47.9 | 56.6 | 43.4 |
| During Reading: Directs child's attention to illustrations. | 88.7 | 11.3 | 87.3 | 12.7 |
| During Reading: Asks story-related close-ended questions, not recall. | 77.2 | 22.8 | 82.0 | 18.0 |
| During Reading: Discusses/expands on meaning of illustrations or text; offers new information. | 39.9 | 60.1 | 39.9 | 60.1 |
| During Reading: Expands on child's comments/questions about the story. | 22.5 | 77.5 | 21.8 | 78.2 |
| During Reading: Comments on sound, letters, sound-letter links. | 8.1 | 91.9 | 8.5 | 91.5 |
| During Reading: Highlights new vocabulary. | 3.9 | 96.1 | 5.0 | 95.0 |
| During Reading: Asks recall questions about earlier parts of the story. | 2.3 | 97.7 | 1.8 | 98.2 |
| During Reading: Relates text to child's experiences/asks story related questions about child's experience. | 12.8 | 87.2 | 17.7 | 82.3 |
| During Reading: Asks story-related open-ended questions. | 5.5 | 94.5 | 4.6 | 95.4 |
| During Reading: Has child join in reading/completing text on own. | 35.9 | 64.1 | 47.6 | 52.4 |
| Post- Reading: Asks questions about child's interest in book. | 10.0 | 90.0 | 17.7 | 82.3 |
| Post- Reading: Allows child to look at book. | 2.6 | 97.4 | 1.9 | 98.1 |
| Post- Reading: Answers child's questions about story or related topics. | .8 | 99.2 | .8 | 99.2 |
| Post- Reading: Expands on child's comments about story/illustrations. | .7 | 99.3 | .2 | 99.8 |
| Post- Reading: Reviews/reinforces vocabulary in book. | 1.5 | 98.5 | 1.5 | 98.5 |
| Post- Reading: Asks for recall of information about the story. | 3.9 | 96.1 | 5.9 | 94.1 |

| | | | | |
|---|---|---|---|---|
| Post- Reading: Asks questions about story that relate to child's own experiences. | .8 | 99.2 | .8 | 99.2 |
| Post- Reading: Asks story related open-ended questions. | 1.0 | 99.0 | 2.2 | 97.8 |
| Post- Reading: Summarizes/retells story without child involvement. | .6 | 99.4 | 1.5 | 98.5 |
| Post- Reading: Summarizes/retells story with child involvement. | .6 | 99.4 | 1.1 | 98.9 |

Items taken from the Parent Interview (PI) that used a 4-point Likert scale are described in Table 8. There are four items on the Parent Interview form that used a 4-point Likert scale, and of these four items one variable in the EFA sample and one variable in the CFA sample showed skewness values over 3.0 and kurtosis values over 10.0. For example, on the variable, "How often does child look at books alone or with another child?" 89% of parents in the EFA group and 88% of parents in the CFA group responded "one or more times in the past week."

Table 8.

*Descriptive Statistics for Items from the Parent Interview Using a 4-point Likert Scale.*

| | EFA | | CFA | |
|---|---|---|---|---|
| **Variable** | **Mean** | **Standard Deviation** | **Mean** | **Standard Deviation** |
| How many children's books do you have at home? | 4.71 | 1.077 | 4.66 | 1.098 |
| How often did your child ask you to read books to him/her in the past week? | 3.16 | .906 | 3.21 | .938 |
| How often does child pretend to read out loud? | 3.56 | .792 | 3.56 | .818 |
| How many times have you or someone in your family read to child in the past week? | 3.19 | .835 | 3.31 | .840 |

Items taken from the PI that are based on a count are described in Table 9. There are four items on the Parent Interview form that were coded as a count. Of these four items, one variable in the EFA sample and no variables in the CFA sample showed skewness values

over 3.0 and kurtosis values over 10.0, which indicates a potential problem in the assumption of univariate normality. When assessed further using a histogram, extremely high values were found more often than low values, explaining the skewness of the data.

Table 9.

*Descriptive Statistics for Items from the Parent Interview Based on Count.*

| Variable | EFA | | CFA | |
|---|---|---|---|---|
| | **Mean** | **Standard Deviation** | **Mean** | **Standard Deviation** |
| On a typical day, how much time (minutes) does child spend reading or looking at books with an adult? | 43.26 | 40.684 | 44.86 | 38.316 |
| About how many hours does child usually watch TV in your home each day? | 2.151 | 1.190 | 2.169 | 1.267 |
| Number of books (up to three) parent read to child in past week? | 2.45 | .925 | 2.57 | .803 |
| Number of child's favorite books (up to three)? | 2.61 | .780 | 2.54 | .836 |

Items taken from the PI that were scored dichotomously (i.e., yes/no) are described in Table 10. There are 33 items on the Parent Interview form that were dichotomously scored, and of these 33 items, three variables in the EFA sample and four variables in the CFA sample showed skewness values over 3.0 and kurtosis values over 10.0, which indicates a potential problem in the assumption of univariate normality. When assessed further using a histogram, extremely high values were found more often than low values, explaining the skewness of the data. Dichotomously scored items on the Parent Interview with high skewness and kurtosis values had high percentages in one category. For example, on the variable "When you read to child do you stop reading and ask him/her to tell you what is in the picture?" parents in the EFA group responded yes 95.6% of the time, and parents in the CFA group responded yes 93.6% of the time.

Table 10.

*Descriptive Statistics for Items from the Parent Interview That Were Scored Dichotomously (yes/no).*

| Variable | EFA | | CFA | |
|---|---|---|---|---|
| | **Percent Yes** | **Percent No** | **Percent Yes** | **Percent No** |
| Do you have magazines for adults in your home? | 46.2 | 53.9 | 46.8 | 53.2 |
| In the past week, have you or someone in your family worked on arts and crafts with child? | 61.9 | 38.1 | 63.3 | 36.7 |
| When you read to child do you stop reading and ask him/her to tell you what is in the picture? | 95.6 | 4.4 | 93.6 | 6.4 |
| In your house, are there rules or routines about what time child goes to bed? | 91.0 | 9.0 | 90.3 | 9.7 |
| In the past month, did you take any books home from the library or buy any books? | 67.4 | 32.6 | 66.0 | 34.0 |
| Do you have catalogs in your home? | 53.2 | 46.8 | 53.8 | 46.2 |
| Do you have books for children in your home? | 99.8 | .2 | 99.7 | .3 |
| Do you have magazines for children in your home? | 54.6 | 45.4 | 52.6 | 47.4 |
| Does child read or pretend to read to someone else? | 95.5 | 4.5 | 94.1 | 5.9 |
| Do you have comic books in your home? | 54.9 | 45.1 | 49.4 | 50.6 |
| Do you have a dictionary or encyclopedia in your home? | 78.4 | 21.6 | 75.5 | 24.5 |
| In the past week, have you or someone in your family discussed new words? | 64.5 | 35.5 | 65.5 | 34.5 |
| In your house, are there rules or routines about what time child eats? | 78.4 | 21.6 | 77.9 | 22.1 |
| When you read to child do you read the entire story as the child listens without interrupting? | 42.0 | 58.0 | 38.6 | 61.4 |
| Does child have favorite book? | 78.8 | 21.2 | 75.5 | 24.5 |
| When you read to child do you stop reading and ask what will happen next? | 73.5 | 26.5 | 70.4 | 29.6 |
| In the past week, have you or someone in your family helped child learn the names of letters, words, or numbers? | 87.7 | 12.3 | 88.0 | 12.0 |
| In the past week, have you or someone in your family helped child learn songs or music? | 79.2 | 20.8 | 79.8 | 20.2 |
| Has child memorized any books? | 62.7 | 37.3 | 61.5 | 38.5 |
| Do you have other books like novels or biographies or non-fiction in your home? | 50.6 | 49.4 | 50.4 | 49.6 |

| | | | | |
|---|---|---|---|---|
| Do you have newspapers in your home? | 67.1 | 32.9 | 67.9 | 32.1 |
| In the past week, have you or someone in your family played with toys or games indoors with child? | 96.8 | 3.2 | 96.4 | 3.6 |
| When you read to child do you stop reading and point out letters? | 731. | 26.9 | 72.5 | 27.5 |
| In the past week, have you or someone in your family practiced writing the letters of the alphabet with child? | 66.9 | 33.1 | 69.2 | 30.8 |
| In the past week, have you or someone in your family practiced writing or spelling child's name? | 78.9 | 21.1 | 81.1 | 18.9 |
| In the past week, have you or someone in your family practiced the sounds that letters make? | 57.1 | 42.9 | 61.8 | 38.2 |
| When you read to child do you ask child to read with you? | 81.0 | 19.0 | 79.3 | 20.7 |
| Do you have religious books in your home? | 83.0 | 17.0 | 83.9 | 16.1 |
| In the past week, have you or someone in your family talked about rhyming words? | 41.1 | 58.9 | 47.7 | 52.6 |
| When you read to child do you read the same story to the child, over and over? | 17.6 | 82.4 | 19.0 | 81.0 |
| In the past week, have you or someone in your family told child a story? | 90.8 | 9.2 | 91.0 | 9.0 |
| In your house, are there rules or routines about how many hours child can watch TV? | 80.0 | 20.0 | 76.1 | 23.9 |
| In your house, are there rules or routines about what TV programs child can watch? | 90.4 | 9.6 | 90.1 | 9.9 |

A total of 26 items were highly skewed with 95% or higher agreement. These items were excluded from the study, as they provide little to no information for the factor analysis. As a result, the EFA was run with 56 items.

**Exploratory Factor Analyses**

KMO is unavailable in Mplus and was therefore calculated using SPSS Version 20. The KMO measure of sampling adequacy was .772 for the EFA sample data and .758 for the CFA sample data, which indicates the data are factorable. Because the KMO was calculated in SPSS, it is considered to be an underestimate of the sampling adequacy for the EFA and

CFA. Analyses for the current study was conducted in Mplus, which uses a polychoric correlation, whereas SPSS uses a Pearson correlation.

An EFA using WLSMV estimation, and oblique geomin rotation was conducted. In order to gain convergence in the model, 26 variables that had limited variability were dropped. Factor selection was determined by (1) scree plot, (2) eigenvalues, (3) theory, and (4) clinical judgment. There were 15 eigenvalues greater than one. The scree plot indicated between six and seven factors. Factor solutions for four to nine factors were conducted and the results of the factor solutions with fit statistics are found in Table 11.

Table 11.

*Chi-square, RMSEA, and CFI Values for Four to Nine Factors.*

| | ***N*** | **Chi-Square** | ***df*** | ***p*-value** | **RMSEA** | **CFI** |
|---|---|---|---|---|---|---|
| **4 Factors** | 1300 | 1498.244 | 1320 | .0005 | .010 | .938 |
| **5 Factors** | 1300 | 1399.130 | 1270 | .0063 | .009 | .955 |
| **6 Factors** | 1300 | 1315.179 | 1220 | .0279 | .008 | .966 |
| **7 Factors** | 1300 | 1247.020 | 1170 | .0556 | .007 | .973 |
| **8 Factors** | 1300 | 1185.786 | 1120 | .0841 | .007 | .977 |
| **9 Factors** | 1300 | 1126.555 | 1070 | .1204 | .006 | .981 |

The EFA yielded 6 interpretable factors. The first factor (scaffolding and supportiveness) included 15 items that had factor loadings from .437 to .915. The second factor (parent-child interaction and opportunities to read) included six items that had factor loadings from .418 to .846. The third factor (home learning environment: access to print materials) included eight items that had factor loadings from .407 to .730. The fourth factor (concepts of print and parent-child interaction) included three items that had factor loadings from .429 to .483. The fifth factor (teaching) included seven items that had factor loadings from .436 to .701. The sixth factor (rules and routines in the home) included three items that

had factor loadings from .501 to .667. Tables 12 through 17 show the items in each of the six factor and the factor loadings for each item within those factors. See Appendix E for a complete pattern matrix.

Table 12.

*Factor Loadings for Items in Factor 1: Scaffolding and Supportiveness.*

| Item Label | Factor Loading |
|---|---|
| Book Task: Supportiveness- Emotional availability and physical/affective presence. | .831 |
| Book Task: Cognitive Stimulation- Effortful teaching to enhance perceptual, cognitive, and linguistic development. | .915 |
| Book Task: Detachment- Lack of awareness of, attention to, and engagement with the child. | .508 |
| Toy Task: Supportiveness- Emotional availability and physical/affective presence. | .585 |
| Toy Task: Cognitive Stimulation- Effortful teaching to enhance perceptual, cognitive, and linguistic development. | .565 |
| Pre-Reading: Points to features of book. | .575 |
| Pre-Reading: Expands on book through close-ended questions, discussion, vocabulary, and/or background knowledge. | .629 |
| During Reading: Uses gestures, dramatic voices, props, tone of voice to interest child. | .573 |
| During Reading: Directs child's attention to illustrations. | .797 |
| During Reading: Asks story-related close-ended questions, not recall. | .691 |
| During Reading: Discusses/expands on meaning of illustrations or text; offers new information. | .735 |
| During Reading: Expands on child's comments/questions about the story. | .583 |
| During Reading: Comments on sound, letters, sound-letter links. | .437 |
| During Reading: Relates text to child’s experiences/asks story related questions about child’s experience. | .574 |
| During Reading: Asks story-related open-ended questions. | .597 |

Table 13.

*Factor Loadings for Items in Factor 2: Opportunity to Read and Parent-Child Interaction Around Reading.*

| Item Label | Factor Loading |
|---|---|
| How often did your child ask you to read books to him/her in the past week? | .846 |
| How many times have you or someone in your family read to child in the past week? | .751 |
| Number of child's favorite books (up to three)? | .547 |
| Number of books (up to three) parent read to child in past week? | .605 |
| Does child have favorite book? | .418 |
| In the past week, have you or someone in your family told child a story? | .522 |

Table 14.

*Factor Loadings for Items in Factor 3: Home Learning Environment: Access To Print Materials.*

| Item Label | Factor Loading |
|---|---|
| How many children's books do you have at home? | .416 |
| Do you have magazines for adults in your home? | .730 |
| Do you have catalogs in your home? | .577 |
| Do you have magazines for children in your home? | .407 |
| Do you have a dictionary or encyclopedia in your home? | .478 |
| Do you have other books like novels or biographies or non-fiction in your home? | .679 |
| Do you have newspapers in your home? | .471 |
| Do you have religious books in your home? | .464 |

Table 15.

*Factor Loadings for Items in Factor 4: Concepts of Print and Parent-Child Interaction Around Reading.*

| Item Label | Factor Loading |
|---|---|
| During Reading: Tracks print with finger, labels punctuation. | .463 |
| Do you have comic books in your home? | .429 |
| When you read to child do you ask child to read with you? | .483 |

Table 16.

*Factor Loadings for Items in Factor 5: Explicit Teaching.*

| Item Label | Factor Loading |
|---|---|
| In the past week, have you or someone in your family discussed new words? | .436 |
| In the past week, have you or someone in your family helped child learn the names of letters, words, or numbers? | .677 |
| When you read to child do you stop reading and point out letters? | .615 |
| In the past week, have you or someone in your family practiced writing the letters of the alphabet with child? | .659 |
| In the past week, have you or someone in your family practiced writing or spelling child's name? | .701 |
| In the past week, have you or someone in your family practiced the sounds that letters make? | .467 |
| In the past week, have you or someone in your family talked about rhyming words? | .575 |

Table 17.

*Factor Loadings for Items in Factor 6: Rules and Routines in the Home.*

| Item Label | Factor Loading |
|---|---|
| In your house, are there rules/routines about what time child goes to bed? | .667 |
| In your house, are there rules/routines about what time child eats? | .501 |
| In your house, are there rules/routines about how many hours child can watch TV? | .635 |

**Confirmatory Factor Analysis**

Using the same data that were analyzed with the EFA, an initial CFA was conducted in order to find the best model. When running the initial CFA, there were problems with convergence, especially with Factor 4. As a result, Factor 4 had to be removed from the model in order to obtain a positive definite latent variable covariance matrix and to gain convergence. The Chi-Square estimate for the modified 5 factor CFA was 1914.469 with a *p*-value of <.001, indicating that the Chi-square is significant. However, Chi-square is sensitive to large sample sizes and is often significant when it should not be, making the chi-square value difficult to interpret. The RMSEA was .039, the CFI was .900, the TLI was

.893, and the WRMR was 1.673. The comparative fit index (CFI) is a measure of fit in the CFA, dependent on both sample size and correlations between the items. CFI values above .95 are desirable, and in the current study, the CFI was .900 (Hu & Bentler, 1999). Standardized Beta weights, standard errors, and $R^2$ values for the items in each factor are presented in Appendix G through K.

Standardized estimates and modification indices were examined. The CFA was repeated multiple times with different sets of items removed to assess the overall model fit and to improve individual factors. Within Factor 1 (scaffolding and supportiveness), the modification indices for "Toy Task: Supportiveness," "Toy Task: Cognitive Stimulation," and "Pre-Reading: Points to features of book" indicated loadings on multiple factors and the $R^2$ values for these items were under .4. Within Factor 2 (parent-child participation), the modification indices for "Does child have a favorite book?" indicated loadings on multiple factors and the $R^2$ value for this item was below .4. Within Factor 3 (home learning environment: access to print materials), the modification indices for "How many children's books do you have at home?" indicated loadings on multiple factors. Within Factor 4 (teaching), the modification indices for "In the past week, have you or someone in your family discussed new words?" and "In the past week, have you or someone in your family practiced writing or spelling child's name?" indicated loadings on multiple factors, and the $R^2$ values for both items were below .4. Removal of these seven items improved the overall fit of the model as well as the structure of the individual factors.

The Chi-Square estimate of the modified model with 31 items and 5 factors was 847.686 with a *p*-value of < .001. The RMSEA was .028, the CFI was .956, the TLI was

.952, and the WRMR was 1.284. Standardized Beta weights, standard errors, and $R^2$ values for the items in modified model are presented in Appendix L through P.

A final CFA was conducted using the last modified model. Unlike the previous EFA and CFA analyses, this model uses data from spring 2006 (the "CFA" sample). Results of the final CFA showed a chi-Square value of 762.463 with a *p*-value of < .001. The RMSEA was .030, the CFI was .944, the TLI was .938, and the WRMR was 1.224. Standardized Beta weights, standard errors, and $R^2$ values from the CFA are presented in Tables 18 through 22. A diagram of the final CFA model can be found in Appendix F.

Table 18.

*Standardized Beta Weights, Standard Errors, and $R^2$ for Final CFA Factor 1: Scaffolding and Supportiveness.*

| Item Label | $\beta$ | S.E. | $R^2$ |
|---|---|---|---|
| Book Task: Supportiveness- Emotional availability and physical/affective presence. | .777 | .016 | .603 |
| Book Task: Cognitive Stimulation- Effortful teaching to enhance perceptual, cognitive, and linguistic development. | .911 | .011 | .830 |
| Pre-Reading: Expands on book through close-ended questions, discussion, vocabulary, and/or background knowledge. | .629 | .028 | .396 |
| During Reading: Uses gestures, dramatic voices, props, tone of voice to interest child. | .480 | .038 | .230 |
| During Reading: Directs child's attention to illustrations. | .746 | .037 | .557 |
| During Reading: Asks story-related close-ended questions, not recall. | .849 | .026 | .720 |
| During Reading: Discusses/expands on meaning of illustrations or text; offers new information. | .654 | .029 | .428 |
| During Reading: Expands on child's comments/questions about the story. | .595 | .034 | .354 |
| During Reading: Comments on sound, letters, sound-letter links. | .443 | .051 | .197 |
| During Reading: Relates text to child's experiences/asks story related questions about child's experience. | .539 | .040 | .291 |
| During Reading: Asks story-related open-ended questions. | .585 | .052 | .342 |

Table 19.

*Standardized Beta Weights, Standard Errors, and $R^2$ for Final CFA Factor 2: Parent-Child Interaction and Opportunity to Read.*

| Item Label | $\beta$ | S.E. | $R^2$ |
|---|---|---|---|
| How often did your child ask you to read books to him/her in the past week? | .738 | .026 | .545 |
| How many times have you or someone in your family read to child in the past week? | .863 | .024 | .744 |
| Number of child's favorite books (up to three)? | .472 | .033 | .744 |
| Number of books (up to three) parent read to child in past week? | .682 | .043 | .465 |
| In the past week, have you or someone in your family told child a story? | .698 | .050 | .487 |

Table 20.

*Standardized Beta Weights, Standard Errors, and $R^2$ for Final CFA Factor 3: Home Learning Environment - Access to Print Materials.*

| Item Label | $\beta$ | S.E. | $R^2$ |
|---|---|---|---|
| Do you have magazines for adults in your home? | .617 | .044 | .380 |
| Do you have catalogs in your home? | .525 | .048 | .276 |
| Do you have magazines for children in your home? | .547 | .049 | .300 |
| Do you have a dictionary or encyclopedia in your home? | .506 | .053 | .256 |
| Do you have other books like novels or biographies or non-fiction in your home? | .682 | .042 | .465 |
| Do you have newspapers in your home? | .502 | .049 | .252 |
| Do you have religious books in your home? | .467 | .060 | .218 |

Table 21.

*Standardized Beta Weights, Standard Errors, and $R^2$ for Final CFA Factor 4: Explicit Teaching*.

| Item Label | $\beta$ | S.E. | $R^2$ |
|---|---|---|---|
| In the past week, have you or someone in your family helped child learn the names of letters, words, or numbers? | .692 | .059 | .479 |
| When you read to child do you stop reading and point out letters? | .482 | .052 | .233 |
| In the past week, have you or someone in your family practiced writing the letters of the alphabet with child? | .610 | .047 | .372 |
| In the past week, have you or someone in your family practiced the sounds that letters make? | .641 | .045 | .410 |
| In the past week, have you or someone in your family talked about rhyming words? | .580 | .049 | .337 |

Table 22.

*Standardized Beta Weights, Standard Errors, and $R^2$ for Final CFA Factor 5: Rules and Routines in the Home*.

| Item Label | $\beta$ | S.E. | $R^2$ |
|---|---|---|---|
| In your house, are there rules/routines about what time child goes to bed? | .627 | .079 | .393 |
| In your house, are there rules/routines about what time child eats? | .516 | .067 | .266 |
| In your house, are there rules/routines about how many hours child can watch TV? | .749 | .074 | .561 |

# CHAPTER V

# DISCUSSION

## Overview of the Study

This study examined the underlying structure of the parenting variables in the CLIO study. It was hypothesized based on previous research that nurturance, teaching, and language would emerge as important parenting constructs. The results did not support the three hypothesized constructs as significant, possibly because they were too general, though some aspects of these three broad categories were supported. In contrast, five specific parenting practices were found to be significant constructs underlying the parenting variables.

## Study Findings

The major findings of this study showed that the following five parenting practices made up the structure of the parenting variables in the CLIO dataset: (1) scaffolding and supportiveness; (2) parent-child interaction and opportunity to read; (3) home learning environment, particularly access to a variety of print materials; (4) explicit teaching; and (5) rules and routines in the home.

The first factor involves aspects of supportiveness and scaffolding. Supportiveness as defined in the CLIO study is "emotional availability and physical/affective presences" (Judkins et al., 2008, p. D-2). Scaffolding is the individualized support given to students during the learning process that allows them to experience success. Scaffolding is a

component of teaching that has been shown in previous research to be important with regard to emergent literacy and language skills (Teale & Sulzby, 1989; Henderson, Many, Wellborn, & Ward, 2002; Liboiron & Soto, 2006; Wasik & Sparling, 2012). Previous research has also shown supportiveness to be an important parenting construct with regard to school readiness as well as language and literacy (Hubbs-Tait, Culp, Culp, & Miller, 2002; Ryan, Martin, & Brooks-Gunn, 2006; Zaslow et al., 2006; Martin, Ryan, & Brooks-Gunn, 2007; Lugo-Gil & Tamis-LeMonda, 2008; Lunkenheimer et al., 2008; Mistry et al., 2008; Chazen-Cohen et al., 2009; Martin, Ryan, Brooks-Gunn, 2010; Walker & MacPhee, 2011).

Parent-child interaction around literacy, including the opportunity to read, was defined as the second parenting factor. The importance of parent-child interaction for literacy development has been documented in many studies. Hart and Risley (1995) found interventions that focus on the social aspects of language to be more effective in terms of learning early language and developing literacy skills. Specifically, Hart and Risley (1995) stated that socializing during everyday activities was a key factor in children learning to talk by the age of three, and that children with more experiences involving words and interactions with others were more likely to experience success with regard to language and literacy. Senechal and LeFevre (2002) found that parent involvement in teaching children about reading is related to the development of early literacy skills, which is predictive of word-reading skills in first grade and reading-comprehension skills in the third grade. Similarly, Rush (1999) found that parent involvement, language interactions, and participation in early literacy activities were related to early language and literacy skills. Research into the benefits of shared-book reading has also provided support for the importance of parent-child interaction with regard to language and literacy skills of young children (Bracken & Fischel,

2008; Burgess, 1997; Bus, van Ijzendoorn, & Pellegrini, 1995; Hindman & Morrison, 2012; Hindman, Connor, Jewkes, & Morrison, 2008; Lonigan & Whitehurst, 1998; Payne, Whitehurst, & Angell, 1994; Senechal & LeFevre, 2002; Senechal, LeFevre, Thomas, & Daley, 1998; Wasik & Sparling, 2012).

The third parenting factor involves the home learning environment, specifically access to a variety of print materials in the home. Access to print materials in the home has been demonstrated through many studies to be an important factor with regard to children's language and literacy acquisition (Caldwell & Bradley, 1984; Foster et al., 2005; Leventhal, Martin, & Brooks-Gunn, 2004; Sulzby & Teale, 1991). In a meta-analysis, Lindsay (2010) found that children's access to print materials was positively related to eight child outcomes, namely "attitudes toward reading, motivation to read, reading behavior, basic language abilities, emergent literacy skills, reading performance, writing performance, and general academic achievement" (p. 5).

The fourth parenting factor included items that are consistent with explicit teaching. Parent involvement in the explicit teaching of particularly young children and its effect on the development of early literacy skills have been documented in several studies (Haney & Hill, 2004; Hindman & Morrison, 2012; Senechal & LeFevre, 2002) and can include such activities as specifically teaching the alphabet letters or concepts about book reading and print.

The use of rules and routines in the home was defined as the fifth parenting factor. Rosenkoetter and Barton (2002) stated that family routines provide stability and promote language and literacy development. Weigel, Martin, and Bennett (2010) found that "the more regular the routines in the household, the more likely parents were to engage their

children in literacy enhancing activities, and in turn the higher the children's print knowledge and reading interest" (p. 5).

**Comparison of Study Findings with Previous Theoretical and Empirical Findings**

As noted in the literature review, numerous authors have both proposed a set of variables that constitute parenting and drawn conclusions about parenting from empirical research studies. The results of the present study, which identified five major parent variables, can be compared with these previous sets of variables.

Brooks-Gunn and Markman (2005) identified seven categories of parenting behaviors that contribute to school readiness based on theory: nurturance, discipline, teaching, language, monitoring, management, and materials. The five parenting practices identified in this study overlap with those of Brooks-Gunn and Markman (2005) in several ways. Most notably, the "home learning environment - access to print materials" (factor 3) in this study relates to the materials category in Brooks-Gunn and Markman's (2005) article, both of which refer to materials provided to the child in the home. Rules and routines in the home (factor 5) is consistent with Brooks-Gunn and Markman's (2005) management category, which they define as the "scheduling of events, completing scheduled events, and the rhythm of the household" (p. 143). The category of language identified by Brooks-Gunn and Markman (2005) is consistent with parent-child interactions and opportunity to read identified in the present study. Both require interactions between parents and children and involve aspects of shared book-reading.

The teaching category identified by Brooks-Gunn and Markman (2005) also overlaps with several of the parenting practices identified in the present study. Brooks-Gunn and Markman (2005) defined teaching as "didactic strategies for conveying information or skills

to the child" as well as "quality of assistance" (p. 141). Based on their definition, the teaching category is most closely related to explicit teaching (factor 4), although it encompasses aspects of scaffolding and supportiveness (factor 1), as scaffolding is supportive teaching. In the present study, supportiveness (factor 1), defined as "emotional availability and physical/affective presence," was found to be an important parenting practice (Judkins et al., 2008, p. D-2). Although they are not explicitly the same, supportiveness as identified in the current study overlaps with nurturance as identified in Brooks-Gunn and Markman (2005). According to these authors, nurturance encompasses sensitivity and positive regard, which are defined as "the extent to which the parent perceives the child's signals and responds appropriately" and "demonstration of love, respect, and admiration" (p. 141).

Several published empirical studies have cited specific parenting practices important to early literacy development and school readiness. One of the most well known of these is the study by Caldwell and Bradley (1984), which resulted in the derivation of eight parenting subscales from the Early Childhood Home Observation for Measurement of the Environment (EC-HOME). The eight subscales were learning stimulation, language stimulation, physical environment, warmth and acceptance, academic stimulation, modeling, variety in experience, and acceptance (as cited in Linver et al., 2004). The current study overlaps with several of these subscales including learning stimulation, language stimulation, warmth and acceptance, and academic stimulation. In another study of the EC-HOME, Leventhal et al. (2004a) developed an alternative set of parenting subscales, including parental warmth, learning stimulation, interior of the home, parental lack of hostility, and access to reading. Of these

five parenting subscales, the present study overlaps with parental warmth, learning stimulation, and access to reading.

In another study, Leventhal et al. (2004b) identified six parenting domains: including parental warmth and responsivity; provision of learning activities; parental supervision and monitoring; parental communication skills; routines; and quality of physical environment. Findings from the present study are related with those of Leventhal et al. (2004b) in several ways. The concept of rules and routines in the present study is consistent with the routines domain in the study by Leventhal et al. (2004b). Leventhal et al. (2004b) defines provision of learning activities as "parent-child engagement with age-appropriate and varied materials...that promote school readiness and academic functioning," which corresponds to the parent-child interaction and opportunity to read (factor 2) in the current study. Furthermore, although they are not as closely related as the constructs above, aspects of supportiveness (factor 1) in the current study and parental sensitivity and responsiveness in the study by Leventhal et al. (2004b) have some similarities.

Glascoe and Leew (2010) found that parents who endorsed talking to and showing their child new things and talking during everyday activities such as feeding or eating as well as having enjoyment and interest in being with and talking to their child, were more likely to have average language skills. This finding can be compared to several of the parenting practices in the current study, including scaffolding and supportiveness (factor 1), parent-child interaction and opportunity to read (factor 2), and rules and routines (factor 5).

Lastly, Morrison and Cooney (2002) demonstrated that family learning environment, parental warmth and responsiveness, and parental beliefs were most predictive of child outcomes. Results of Morrison and Cooney's (2002) study overlap with the current study.

More specifically, parental warmth and responsiveness corresponds to supportiveness (factor 1) in the current study. Additionally, family learning environment, defined as "quality of language stimulation in the home and more explicit literacy-promoting behaviors" corresponds to aspects of scaffolding and supportiveness (factor 1), parent-child interaction and opportunity to read (factor 2), and explicit teaching (factor 4) in the current study.

In summary supportiveness, parent-child interaction, access to print materials, and cognitive stimulation are well documented parenting practices that research has shown to be important with regard to children's development of language and literacy skills. Other parenting practices, such as rules and routines in the home and specific aspects of teaching (i.e., scaffolding and explicit teaching) have less support throughout previous literature. Rules and routines in the home are often discussed and researched within the context of discipline and parenting style rather than specific household rules enforced by parents in the home. This study highlights the value of looking at rules and routines through a different lens rather than its relationship to discipline or parenting style.

**Study Limitations**

Although this study expands upon and adds to previous research regarding parenting practices and literacy, there are several limitations. The first limitation is the small sample size. The EFA estimated 224 free parameters. The recommended sample size is 10 participants per estimated parameter, which suggests that a sample size of 2,224 was needed for an acceptable ratio. In the initial CFA, the sample size was 1300 and in the final CFA, the sample size was 890. To obtain a higher sample size with the CLIO data, the data from both spring 2005 and spring 2006 would have had to be combined for the CFA. Combining

the data, however, would have prevented conducting both a preliminary and a final CFA, and thus a decision was made to conduct the analysis with smaller sample sizes.

Second, the participants in the study were 61% Hispanic in the EFA population and 59% Hispanic in the CFA population. From the time the federal Family Literacy Even Start program was initiated in the late 1980s until the present study, the percentage of participants who were Hispanic dramatically increased, from a low of about 5% to 10% in the initial years to approximately 60% by the time of the CLIO study. Consequently, the data are not reflective of the earlier family literacy programs. Furthermore, the high percentage of Hispanic families makes it difficult to generalize to all participants in such programs. Also, issues such as immigrant status and home language need to be kept in mind when one views these data. Because parenting practices have been found to differ across families from different cultural backgrounds (Keels, 2009; Watkins-Lewis & Hamre, 2012). The results can be viewed, however, as a reasonably close description of the participants in Even Start programs during the time of data collection, from 2004 to 2006.

Third, the items used in this study were taken from multiple sources (i.e., parent report and observation), with varying response styles (i.e., dichotomous yes/no, dichotomous observed/unobserved, and various Likert scores), and varying scales (i.e. continuous and categorical). Although the statistical software and statistical analyses used in this study account for the differences across the different response formats, factor analysis with so many variations is not as well documented. In addition, information obtained via parent report could be potentially biased. Fourth, some observations included a parent or guardian interacting with more than one child. The parent was coded on their interactions with only

one child, however, the presence of another child may have influences the parent and target child interactions.

Lastly, the chi-square *p*-value of the 7 factor model in the EFA was non-significant. The comparison of the 7 factor model with the 6 factor model showed that the constructs were more clearly and easily identifiable in the 6 factor model, and thus it was chosen over the 7 factor solution.

**Implications and Future Directions**

This study differed from the original CLIO data analysis in two ways. First, only parent items were used in the current analysis (e.g., child items were omitted from the parenting variables), and second other parent interview items excluded in the original analysis were included here. Because the focus of this study is on parenting practices, the inclusion of the child items would have made drawing conclusions about parenting behaviors more difficult.

In previous studies, teaching and the learning environment have been identified as important constructs. In the present study, more specific aspects of teaching and the learning environment, such as scaffolding and explicit teaching, have been identified as important. In addition, the current study provides information about the kind of parent-child interactions that are important to utilize and/or teach within a family literacy program, such as shared book-reading, frequency of shared book-reading, and telling stories to children. Last, this study provides additional evidence for the importance of rules and routines in the home and their impact on family literacy. One key difference between the present study and other theoretical and empirical studies was the finding that specific aspects of teaching such as

scaffolding and explicit teaching as well as rules and routines in the home are underlying parenting practices within the CLIO study.

Though this study focused only on parenting behaviors related to literacy, other information – such as parent education level, family income, English-as-a-second-language status, race/ethnicity, years lived in the U.S., family structure, and participation hours in Even Start – could have added to the understanding of the results obtained in this study and would be valuable to include in future studies. For example, analyzing the data separately for Hispanic, African American, and Caucasian parents could reveal differences in parenting practices across race/ethnicity. Additionally, information on the child items could have been included in the factor analysis as this may be able to tap aspects of parenting such as modeling, which some studies have shown to be important.

It will be important for future research to determine how parents' performance on these five constructs impacts the language and literacy skills of the child. Each variable could be examined for its unique contribution as well as its contribution in combination with other variables. Additionally, this study should be replicated in a more nationally representative sample of parents of preschool children in order to gain information that may generalize to the general population. Last, it would be more beneficial to include questions with responses that provide more variability for parental responses. For example, parent interview items using a Likert response scale rather than yes or no could improve the information gained about parenting behaviors.

In summary, this study found several significant parenting concepts in the CLIO study, a subset of the national Even Start Family Literacy Programs, that were identified as contributing to the structure of parenting. Some of these variables overlap with other

theoretical and empirical studies, namely the findings of significance for parent supportiveness, the home learning environment, particularly access to materials; and parent-child interaction around reading.

# APPENDIX A: READ ALOUD PROFILE TOGETHER (RAPT) FORM

| A. PRE-Reading Activities | | | | B. Behavior DURING Reading | | | | | | C. POST-Reading Activities | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A1. Caregiver** (circle all that apply) | | **A2. Child** (circle all that apply) | | **B1. Caregiver** (circle all that apply) | | | **B2. Child** (circle all that apply) | | | **C1. Caregiver** (circle all that apply) | | **C2. Child** (circle all that apply) | |
| **1** | Ensures child is comfortable, can see book | **1** | Expresses interest, excitement | **1a** | Tracks print with finger, labels punctuation | **1b** | **1a** | Attends to picture/story | **1b** | **1** | Asks questions about child's interest in book | **1** | Asks to read book again |
| **2** | Captures child's attention – expresses interest in book | **2** | Verbally responds to questions from parent about book | **2a** | Uses gestures, dramatic voices, props, tone of voice to interest child | **2b** | **2a** | Verbally responds to questions from parent about book | **2b** | **2** | Allows child to look at book | **2** | Responds to questions, expands on parent's comments about book |
| **3** | Labels, reads, directs attention to features of book such as title, author, illustrations or illustrator | **3** | Tells parent things about book, point out features of book | **3a** | Directs child's attention to illustrations | **3b** | **3a** | Points to pictures, words | **3b** | **3** | Answers child's questions about story or related topics | **3** | Comments on story/illustrations |
| **4** | Points to features of book such as title, author, illustrations or illustrator, tracks print | **4** | Asks questions about the book | **4a** | Asks story-related close-ended questions, not recall | **4b** | **4a** | Labels, names pictures | **4b** | **4** | Expands on child's comments about story/ illustrations | **4** | Asks questions about story or related topics |
| **5** | Tells child sounds/letters to listen for, look for | **5** | Expands on parent's comments about book | **5a** | Discusses/expands on meaning of illustrations or text; offers new info | **5b** | **5a** | Repeats words/parts of story | **5b** | **5** | Reviews/reinforces vocabulary in book | **5** | Tries to "read" book on own – turning pages, exploring pictures |
| **6** | Reminds child of similar books s/he has read/ if s/he has read same book before | **6** | Tells parent things about the story line | **6a** | Expands on child's comments/questions about the story | **6b** | **6a** | Acts out/makes sounds related to story | **6b** | **6** | Asks for recall of information about story | **6** | **No post-reading activities (without codes 1-6)** |
| **7** | Responds to questions, expands on child's comments about book | **7** | **No pre-reading activities (without codes 1-6)** | **7a** | Comments on sound, letters, sound-letter links | **7b** | **7a** | Connects story to own life | **7b** | **7** | Asks questions about story that relate to child's own experiences | | |
| **8** | Expands on book through close-ended questions, discussion, vocabulary, and/or background knowledge | | | **8a** | Highlights new vocabulary | **8b** | **8a** | Makes comments related to text, pictures or parent's comments | **8b** | **8** | Asks story-related open-ended questions | | |
| **9** | Relates text to child's experiences/asks story related questions about child's experiences | | | **9a** | Asks recall questions about earlier parts of the story | **9b** | **9a** | Asks questions related to text, pictures or parent's comments | **9b** | **9** | Summarizes/retells story without child involvement | | |
| **10** | Asks story-related open-ended questions | | | **10a** | Relates text to child's experiences/asks story related questions about child's experience | **10b** | **10a** | Tries to "read" book on own – turning pages, exploring pictures | **10b** | **10** | Summarizes/retells story with child involvement | | |
| **11** | **No pre-reading activities before reading begins** | | | **11a** | Asks story-related open-ended questions | **11b** | **11a** | Tries to "read" book on own – telling story | **11b** | **11** | **No post-reading activities (without codes 1-10)** | | |
| | | | | **12a** | Has child join in reading/ completing text on own | **12b** | **12a** | Loses interest or walks away before book is completely read | **12b** | Length of Interaction: _____ | | | |
| | | | | **13a** | **No Reading activities (without codes 1-12)** | **13b** | **13a** | **No Reading activities (without codes 1-12)** | **13b** | | | | |

# APPENDIX B: QUALITY INDICATORS (QI) FORM

| Quality Indicators for RAPT | | | | | |
|---|---|---|---|---|---|
| **Story-related Vocabulary** | **❒ 1 (Minimal)** | **❒ 2** | **❒ 3 (Moderate)** | **❒ 4** | **❒ 5 (Extensive)** |
| | Some story-related vocabulary words are introduced/discussed but the definition of one or more of the words is misleading or wrong.<br><br>**OR**<br><br>No new vocabulary introduced or discussed. | | Two or three story-related vocabulary words are introduced or discussed and the definition is accurate.<br><br>*Both of the following supports are given for each word*:<br>i. A picture, gesture, or other concrete visual aid is used; or<br>ii. The word is linked to a rich network of related words or concepts. | | Six or more story-related vocabulary words are introduced or discussed and the definition of each vocabulary word is accurate.<br><br>*Both of the following supports are given for each word*:<br>i. A picture, gesture, or other concrete visual aid is used; and<br>ii. Each word is linked to a rich network of related words or concepts. |
| **Use of Open-Ended Questions** [a] | **❒ 1 (Minimal)** | **❒ 2** | **❒ 3 (Moderate)** | **❒ 4** | **❒ 5 (Extensive)** |
| | Parent poses only one open-ended question.<br><br>Parent rarely/never provides opportunity for child to respond (not allowing much time, not restating question or not acknowledging child's response).<br><br>**OR**<br><br>Parent poses no open-ended questions. | | Parent poses **two or three** open-ended questions.<br><br>Parent consistently shows interest in/actively encouraging child's response (e.g., pausing for child, restating question, scaffolding, or acknowledging child's response). | | Parent poses **at least four** open-ended questions.<br><br>Parent consistently shows interest in/actively encouraged child's responses (e.g., pausing for child, restating question, scaffolding, or acknowledging child's response). |
| **Depth of Parent-Child Discussion** | **❒ 1 (Minimal)** | **❒ 2** | **❒ 3 (Moderate)** | **❒ 4** | **❒ 5 (Extensive)** |
| | Parent engages child in no or low-level discussion only; no extended discussion before, during or after reading.<br><br>Parent/child discussion consists mainly of short comments, management statements. | | Parent engages child in **one** extensive discussion before, during or after reading.<br><br>Parent/child discussion involves at least 3 turns (1 turn is one back-and-forth)<br><br>Parent/child discussion lasts at least 2 minutes. | | Parent engages child in extensive discussion at least **twice** before, during or after reading<br><br>Parent/child discussion involves at least 3 turns (1 turn is one back-and-forth)<br><br>Parent/child discussion lasts at least 2 minutes. |

☐ Read Aloud ends before book is completed. Explain Circumstances:_____

# APPENDIX C: CONTINGENCY SCORING SHEET (CSS)

Coder: _____ CHILD ID#: _____

Date: _____ Child's Name: _____

**I. PARENT'S BEHAVIOR**

| | |
|---|---|
| Supportiveness<br><br>**1 2 3 4 5 6 7 NC** | Stimulation of Cognitive Development<br><br>**1 2 3 4 5 6 7 NC** |
| Intrusiveness<br><br>**1 2 3 4 5 6 7 NC** | |
| Negative Regard<br><br>**1 2 3 4 5 6 7 NC** | Detachment<br><br>**1 2 3 4 5 6 7 NC** |

**II. CHILD'S BEHAVIOR**

| | |
|---|---|
| Engagement of Parent<br><br>**1 2 3 4 5 6 7 NC** | Negativity toward Parent<br><br>**1 2 3 4 5 6 7 NC** |
| Sustained Interest in Book<br><br>**1 2 3 4 5 6 7 NC** | Read this book before? ☐ Yes ☐ No<br>If yes; How many times? _____<br>_____ |

| | |
|---|---|
| Coder:_____ | CHILD ID#:_____ |
| Date:_____ | Child's Name: _____ |

**I. PARENT'S BEHAVIOR**

| | |
|---|---|
| Supportiveness | Stimulation of Cognitive Development |
| **1 2 3 4 5 6 7 NC** | |
| Intrusiveness | |
| **1 2 3 4 5 6 7 NC** | **1 2 3 4 5 6 7 NC** |
| Negative Regard | Detachment |
| **1 2 3 4 5 6 7 NC** | **1 2 3 4 5 6 7 NC** |

**II. CHILD'S BEHAVIOR**

| | |
|---|---|
| Engagement of Parent | Negativity toward Parent |
| **1 2 3 4 5 6 7 NC** | **1 2 3 4 5 6 7 NC** |
| Sustained Interest in Toys | Were others present? ☐ Yes ☐ No<br>Is this a twin/sibling case? ☐ Yes ☐ No<br>If yes, indicate Twin ID#:_____ |
| **1 2 3 4 5 6 7 NC** | |

## APPENDIX D: LIST OF 87 VARIABLES USED IN THE ANALYSIS AND THE SOURCE

| Variable | Source |
|---|---|
| Use of story-related vocabulary. | QI |
| Use of open-ended questions. | QI |
| Depth of parent-child discussions. | QI |
| Book Task – Supportiveness: Emotional availability and physical/affective presence. | CSS |
| Book Task – Cognitive Stimulation: Effortful teaching to enhance perceptual, cognitive, and linguistic development. | CSS |
| Book Task – Intrusiveness: Parental control of child rather than recognizing and respecting the validity of the child's perspective. | CSS |
| Book Task – Negative Regard: Expression of discontent with, anger toward, disapproval of, and/or rejection of the child. | CSS |
| Book Task – Detachment: Lack of awareness of, attention to, and engagement with the child. | CSS |
| Toy Task – Supportiveness: Emotional availability and physical/affective presence. | CSS |
| Toy Task – Cognitive Stimulation: Effortful teaching to enhance perceptual, cognitive, and linguistic development. | CSS |
| Toy Task – Intrusiveness: Parental control of child rather than recognizing and respecting the validity of the child's perspective. | CSS |
| Toy Task – Negative Regard: Expression of discontent with, anger toward, disapproval of, and/or rejection of the child. | CSS |
| Toy Task – Detachment: Lack of awareness of, attention to, and engagement with the child. | CSS |
| How many children's books do you have at home? | PI |
| How often does your child look at books alone or with another child? | PI |
| How often did your child ask you to read books to him/her in the past week? | PI |
| How often does child pretend to read out loud? | PI |
| On a typical day, how much time (minutes) does child spend reading or looking at books with an adult? | PI |
| How many times have you or someone in your family read to child in the past week? | PI |
| About how many hours does child usually watch TV in your home each day? | PI |
| Number of books (up to three) parent read to child in past week? | PI |
| Number of child's favorite books (up to three)? | PI |
| Do you have magazines for adults in your home? | PI |
| In the past week, have you or someone in your family worked on arts and crafts with child? | PI |
| When you read to child do you stop reading and ask the child to tell you what is in the picture? | PI |

| | |
|---|---|
| In your house, are there rules or routines about what time child goes to bed? | PI |
| In the past month, did you take any books home from the library or buy any books? | PI |
| Do you have catalogs in your home? | PI |
| Do you have books for children in your home? | PI |
| Do you have magazines for children in your home? | PI |
| Does child read or pretend to read to someone else? | PI |
| Do you have comic books in your home? | PI |
| Do you have a dictionary or encyclopedia in your home? | PI |
| In the past week, have you or someone in your family discussed new words? | PI |
| In your house, are there rules or routines about what time child eats? | PI |
| When you read to child do you read the entire story as the child listens without interrupting? | PI |
| Does child have favorite book? | PI |
| When you read to child do you stop reading and ask what will happen next? | PI |
| In the past week, have you or someone in your family helped child learn the names of letters, words, or numbers? | PI |
| In the past week, have you or someone in your family helped child learn songs or music? | PI |
| Has child memorized any books? | PI |
| Do you have other books like novels or biographies or non-fiction in your home? | PI |
| Do you have newspapers in your home? | PI |
| In the past week, have you or someone in your family played with toys or games indoors with child? | PI |
| When you read to child do you stop reading and point out letters? | PI |
| In the past week, have you or someone in your family practiced writing the letters of the alphabet with child? | PI |
| In the past week, have you or someone in your family practiced writing or spelling child's name? | PI |
| In the past week, have you or someone in your family practiced the sounds that letters make? | PI |
| When you read to child do you ask child to read with you? | PI |
| Do you have religious books in your home? | PI |
| In the past week, have you or someone in your family talked about rhyming words? | PI |
| When you read to child do you read the same story to the child, over and over? | PI |
| In the past week, have you or someone in your family told child a story? | PI |
| In your house, are there rules or routines about how many hours child can watch TV? | PI |
| In your house, are there rules or routines about what TV programs child can watch? | PI |
| Pre-Reading: Ensures child is comfortable, can see book. | RAPT |
| Pre-Reading: Captures child's attention - expresses interest in book. | RAPT |
| Pre-Reading: Labels, reads, directs attention to features of book. | RAPT |

| | |
|---|---|
| Pre-Reading: Points to features of book. | RAPT |
| Pre-Reading: Tells child sounds/letters to listen for, look for. | RAPT |
| Pre-Reading: Reminds child of similar books he/she has read. | RAPT |
| Pre-Reading: Responds to questions, expands on child's comments about book. | RAPT |
| ♟ Pre-Reading: Expands on book through close-ended questions, discussion, vocabulary, and/or background knowledge. | RAPT |
| Pre-Reading: Relates text to child's experiences/asks story related questions about child's experiences. | RAPT |
| Pre-Reading: Asks story-related open-ended questions. | RAPT |
| During Reading: Tracks print with finger, labels punctuation. | RAPT |
| ♟ During Reading: Uses gestures, dramatic voices, props, tone of voice to interest child. | RAPT |
| ♟ During Reading: Directs child's attention to illustrations. | RAPT |
| ♟ During Reading: Asks story-related close-ended questions, not recall. | RAPT |
| ♟ During Reading: Discusses/expands on meaning of illustrations or text; offers new info. | RAPT |
| ♟ During Reading: Expands on child's comments/questions about the story. | RAPT |
| ♟ During Reading: Comments on sound, letters, sound-letter links. | RAPT |
| During Reading: Highlights new vocabulary. | RAPT |
| During Reading: Asks recall questions about earlier parts of the story. | RAPT |
| ♟ During Reading: Relates text to child's experiences/asks story related questions about child's experience. | RAPT |
| ♟ During Reading: Asks story-related open-ended questions. | RAPT |
| During Reading: Has child join in reading/completing text on own. | RAPT |
| Post- Reading: Asks questions about child's interest in book. | RAPT |
| Post- Reading: Allows child to look at book. | RAPT |
| Post- Reading: Answers child's questions about story or related topics. | RAPT |
| Post- Reading: Expands on child's comments about story/illustrations. | RAPT |
| Post- Reading: Reviews/reinforces vocabulary in book. | RAPT |
| Post- Reading: Asks for recall of information about the story. | RAPT |
| Post- Reading: Asks questions about story that relate to child's own experiences. | RAPT |
| Post- Reading: Asks story related open-ended questions. | RAPT |
| Post- Reading: Summarizes/retells story without child involvement. | RAPT |
| Post- Reading: Summarizes/retells story with child involvement. | RAPT |

♟ denotes items included in the CFA

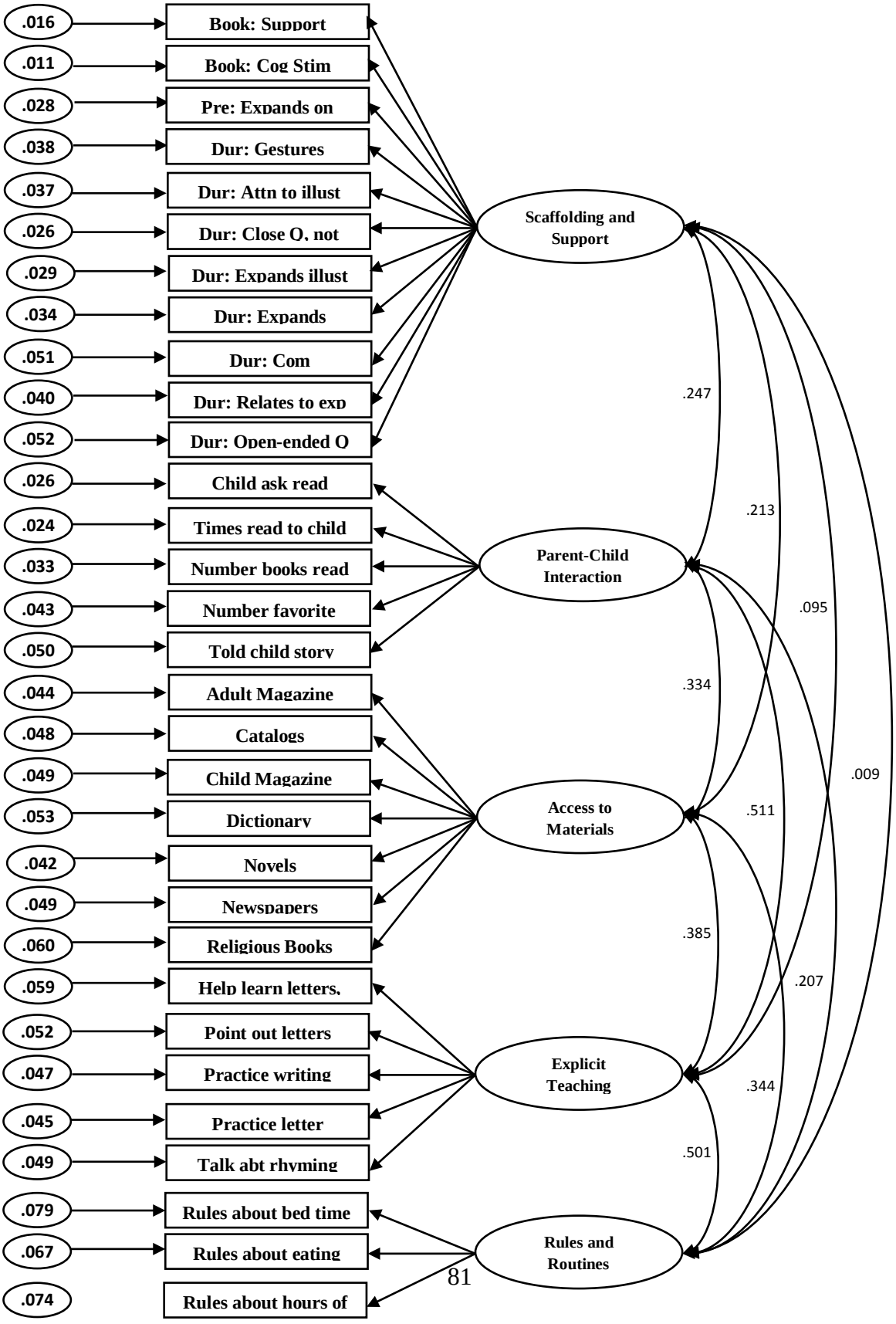
## APPENDIX E: EFA PATTERN MATRIX

| Variable | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Book Task – Supportiveness: Emotional availability and physical/affective presence. | 0.831 | 0.006 | 0.104 | -0.206 | 0.044 | -0.036 |
| Book Task – Cognitive Stimulation: Effortful teaching to enhance perceptual, cognitive, and linguistic development. | 0.915 | 0.005 | -0.001 | 0.000 | 0.029 | -0.037 |
| Book Task – Negative Regard: Expression of discontent with, anger toward, disapproval of, and/or rejection of the child. | 0.100 | -0.028 | -0.040 | -0.111 | 0.014 | 0.064 |
| Book Task – Detachment: Lack of awareness of, attention to, and engagement with the child. | 0.508 | 0.040 | 0.070 | 0.011 | -0.062 | -0.084 |
| Toy Task – Supportiveness: Emotional availability and physical/affective presence. | 0.585 | 0.010 | -0.001 | -0.552 | 0.057 | 0.095 |
| Toy Task – Cognitive Stimulation: Effortful teaching to enhance perceptual, cognitive, and linguistic development. | 0.565 | 0.041 | -0.027 | -0.398 | 0.028 | 0.110 |
| How many children's books do you have at home? | 0.063 | 0.380 | 0.416 | -0.172 | -0.170 | 0.022 |
| How often did your child ask you to read books to him/her in the past week? | -0.065 | 0.846 | -0.068 | -0.003 | 0.006 | 0.017 |
| How often does child pretend to read out loud? | 0.024 | 0.350 | 0.060 | 0.123 | 0.220 | 0.069 |
| How many times have you or someone in your family read to child in the past week? | -0.028 | 0.751 | -0.022 | -0.082 | 0.077 | 0.036 |
| About how many hours does child usually watch TV in your home each day? | 0.006 | -0.035 | -0.066 | -0.054 | 0.057 | -0.301 |
| Number of books (up to three) parent read to child in past week? | 0.012 | 0.547 | -0.008 | 0.077 | -0.015 | -0.046 |
| Number of child's favorite books (up to three)? | 0.069 | 0.605 | 0.004 | -0.021 | 0.006 | -0.094 |
| On a typical day, how much time (minutes) does child spend reading or looking at books with an adult? | -0.058 | 0.278 | -0.076 | -0.012 | 0.235 | -0.275 |
| Do you have magazines for adults in your home? | -0.047 | -0.055 | 0.730 | -0.047 | 0.033 | -0.060 |
| In the past week, have you or someone in your family worked on arts and crafts with child? | 0.016 | 0.190 | 0.358 | -0.138 | 0.082 | -0.046 |
| In your house, are there rules or routines about what time child goes to bed? | -0.040 | 0.028 | -0.003 | -0.170 | 0.101 | 0.667 |
| In the past month, did you take any books home from the library or buy any books? | 0.078 | 0.280 | 0.238 | 0.037 | -0.009 | 0.133 |
| Do you have catalogs in your home? | -0.014 | -0.055 | 0.577 | 0.144 | 0.017 | 0.087 |
| Do you have magazines for children in your home? | -0.039 | 0.025 | 0.407 | 0.045 | 0.039 | 0.166 |
| Do you have comic books in your home? | 0.084 | 0.017 | -0.044 | 0.429 | -0.081 | 0.273 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Do you have a dictionary or encyclopedia in your home? | 0.042 | 0.028 | 0.478 | 0.091 | -0.018 | 0.206 |
| In the past week, have you or someone in your family discussed new words? | 0.064 | 0.072 | 0.261 | 0.020 | 0.436 | -0.026 |
| In your house, are there rules or routines about what time child eats? | 0.015 | 0.089 | 0.024 | -0.027 | -0.009 | 0.501 |
| When you read to child do you read the entire story as the child listens without interrupting? | -0.195 | 0.069 | -0.217 | 0.087 | 0.141 | -0.041 |
| Does child have favorite book? | -0.074 | 0.418 | -0.009 | 0.270 | 0.049 | 0.067 |
| When you read to child do you stop reading and ask what will happen next? | 0.195 | 0.086 | 0.193 | 0.065 | 0.256 | 0.089 |
| In the past week, have you or someone in your family helped child learn the names of letters, words, or numbers? | 0.075 | 0.115 | -0.050 | -0.183 | 0.677 | -0.071 |
| In the past week, have you or someone in your family helped child learn songs or music? | 0.013 | 0.226 | 0.157 | 0.001 | 0.148 | 0.066 |
| Has child memorized any books? | 0.057 | 0.271 | 0.076 | 0.093 | 0.328 | -0.040 |
| Do you have other books like novels or biographies or non-fiction in your home? | 0.008 | 0.158 | 0.679 | -0.143 | -0.088 | -0.083 |
| Do you have newspapers in your home? | -0.048 | 0.010 | 0.471 | -0.036 | 0.068 | -0.025 |
| When you read to child do you stop reading and point out letters? | 0.088 | -0.065 | -0.032 | 0.294 | 0.615 | 0.153 |
| In the past week, have you or someone in your family practiced writing the letters of the alphabet with child? | -0.072 | 0.044 | 0.008 | -0.012 | 0.659 | 0.182 |
| In the past week, have you or someone in your family practiced writing or spelling child's name? | -0.067 | 0.043 | -0.195 | -0.026 | 0.701 | 0.042 |
| In the past week, have you or someone in your family practiced the sounds that letters make? | -0.002 | -0.048 | 0.212 | -0.082 | 0.467 | 0.086 |
| When you read to child do you ask child to read with you? | -0.021 | 0.212 | 0.128 | 0.483 | 0.338 | 0.053 |
| Do you have religious books in your home? | -0.021 | -0.063 | 0.464 | 0.017 | 0.025 | 0.184 |
| In the past week, have you or someone in your family talked about rhyming words? | -0.062 | 0.032 | 0.256 | -0.147 | 0.575 | -0.040 |
| When you read to child do you read the same story to the child, over and over? | -0.095 | -0.224 | -0.205 | -0.188 | -0.035 | -0.035 |
| In the past week, have you or someone in your family told child a story? | 0.068 | 0.522 | 0.172 | -0.080 | 0.079 | 0.086 |
| In your house, are there rules or routines about how many hours child can watch TV? | 0.014 | 0.037 | 0.027 | 0.076 | 0.128 | 0.635 |
| Pre-Reading: Captures child's attention - expresses interest in book. | 0.294 | 0.111 | 0.039 | 0.221 | -0.131 | 0.049 |
| Pre-Reading: Points to features of book. | 0.575 | -0.106 | -0.095 | 0.320 | 0.120 | 0.026 |
| Pre-Reading: Expands on book through close-ended questions, discussion, vocabulary, and/or background knowledge. | 0.629 | 0.026 | -0.032 | 0.129 | 0.031 | -0.002 |

| | | | | | | |
|---|---|---|---|---|---|---|
| During Reading: Tracks print with finger, labels punctuation. | 0.283 | -0.086 | -0.073 | 0.463 | 0.115 | -0.083 |
| During Reading: Uses gestures, dramatic voices, props, tone of voice to interest child. | 0.573 | 0.102 | -0.014 | -0.115 | -0.102 | 0.037 |
| During Reading: Directs child's attention to illustrations. | 0.797 | 0.052 | -0.053 | 0.021 | -0.076 | -0.074 |
| During Reading: Asks story-related close-ended questions, not recall. | 0.691 | 0.146 | 0.054 | -0.002 | -0.067 | -0.123 |
| During Reading: Discusses/expands on meaning of illustrations or text; offers new info. | 0.735 | -0.037 | -0.028 | 0.012 | -0.081 | 0.037 |
| During Reading: Expands on child's comments/questions about the story. | 0.583 | -0.040 | 0.040 | -0.035 | -0.101 | 0.070 |
| During Reading: Comments on sound, letters, sound-letter links. | 0.437 | -0.032 | 0.167 | 0.056 | 0.323 | -0.251 |
| During Reading: Relates text to child's experiences/asks story related questions about child's experience. | 0.574 | 0.013 | 0.152 | 0.004 | -0.035 | -0.156 |
| During Reading: Asks story-related open-ended questions. | 0.597 | 0.005 | -0.042 | 0.028 | 0.007 | 0.092 |
| During Reading: Has child join in reading/completing text on own. | 0.366 | -0.118 | 0.107 | -0.366 | 0.142 | 0.037 |
| Post- Reading: Asks questions about child's interest in book. | 0.294 | -0.001 | -0.072 | -0.020 | -0.068 | 0.183 |

# APPENDIX F: CFA MODEL



# APPENDIX G: STANDARDIZED BETA WEIGHTS AND STANDARD ERRORS FOR FACTOR 1

| Item Label | β | S.E. | $R^2$ |
|---|---|---|---|
| Book Task: Supportiveness- Emotional availability and physical/affective presence. | .876 | .010 | .767 |
| Book Task: Cognitive Stimulation- Effortful teaching to enhance perceptual, cognitive, and linguistic development. | .912 | .008 | .832 |
| Toy Task: Supportiveness- Emotional availability and physical/affective presence. | .616 | .019 | .380 |
| Toy Task: Cognitive Stimulation- Effortful teaching to enhance perceptual, cognitive, and linguistic development. | .602 | .019 | .362 |
| Pre-Reading: Points to features of book. | .441 | .032 | .195 |
| Pre-Reading: Expands on book through close-ended questions, discussion, vocabulary, and/or background knowledge. | .624 | .026 | .389 |
| During Reading: Uses gestures, dramatic voices, props, tone of voice to interest child. | .588 | .028 | .345 |
| During Reading: Directs child's attention to illustrations. | .759 | .028 | .576 |
| During Reading: Asks story-related close-ended questions, not recall. | .730 | .024 | .533 |
| During Reading: Discusses/expands on meaning of illustrations or text; offers new information. | .692 | .023 | .479 |
| During Reading: Expands on child's comments/questions about the story. | .586 | .030 | .343 |
| During Reading: Comments on sound, letters, sound-letter links. | .504 | .043 | .254 |
| During Reading: Relates text to child’s experiences/asks story related questions about child’s experience. | .584 | .036 | .341 |
| During Reading: Asks story-related open-ended questions. | .571 | .042 | .326 |

## APPENDIX H: STANDARDIZED BETA WEIGHTS AND STANDARD ERRORS FOR FACTOR 2

| Item Label | β | S.E. | $R^2$ |
|---|---|---|---|
| How often did your child ask you to read books to him/her in the past week? | .771 | .021 | .594 |
| How many times have you or someone in your family read to child in the past week? | .835 | .021 | .698 |
| Number of child's favorite books (up to three)? | .664 | .029 | .441 |
| Number of books (up to three) parent read to child in past week? | .465 | .035 | .217 |
| Does child have favorite book? | .354 | .044 | .125 |
| In the past week, have you or someone in your family told child a story? | .718 | .044 | .516 |

## APPENDIX I: STANDARDIZED BETA WEIGHTS AND STANDARD ERRORS FOR FACTOR 3

| Item Label | β | S.E. | $R^2$ |
|---|---|---|---|
| How many children's books do you have at home? | .733 | .029 | .537 |
| Do you have magazines for adults in your home? | .583 | .035 | .340 |
| Do you have catalogs in your home? | .451 | .040 | .204 |
| Do you have magazines for children in your home? | .431 | .041 | .186 |
| Do you have a dictionary or encyclopedia in your home? | .527 | .043 | .278 |
| Do you have other books like novels or biographies or non-fiction in your home? | .701 | .032 | .491 |
| Do you have newspapers in your home? | .431 | .043 | .186 |
| Do you have religious books in your home? | .422 | .048 | .178 |

## APPENDIX J: STANDARDIZED BETA WEIGHTS AND STANDARD ERRORS FOR FACTOR 4

| Item Label | β | S.E. | $R^2$ |
|---|---|---|---|
| In the past week, have you or someone in your family discussed new words? | .564 | .037 | .318 |
| In the past week, have you or someone in your family helped child learn the names of letters, words, or numbers? | .753 | .037 | .568 |
| When you read to child do you stop reading and point out letters? | .511 | .039 | .261 |
| In the past week, have you or someone in your family practiced writing the letters of the alphabet with child? | .718 | .032 | .516 |
| In the past week, have you or someone in your family practiced writing or spelling child's name? | .570 | .039 | .325 |
| In the past week, have you or someone in your family practiced the sounds that letters make? | .537 | .039 | .288 |
| In the past week, have you or someone in your family talked about rhyming words? | .656 | .036 | .431 |

## APPENDIX K: STANDARDIZED BETA WEIGHTS AND STANDARD ERRORS FOR FACTOR 5

| Item Label | β | S.E. | $R^2$ |
|---|---|---|---|
| In your house, are there rules/routines about what time child goes to bed? | .759 | .067 | .576 |
| In your house, are there rules/routines about what time child eats? | .582 | .056 | .339 |
| In your house, are there rules/routines about how many hours child can watch TV? | .723 | .058 | .523 |

## APPENDIX L: STANDARDIZED BETA WEIGHTS, STANDARD ERRORS, AND $R^2$ FOR MODIFIED MODEL FACTOR 1

| Item Label | $\beta$ | S.E. | $R^2$ |
|---|---|---|---|
| Book Task: Supportiveness- Emotional availability and physical/affective presence. | .850 | .012 | .722 |
| Book Task: Cognitive Stimulation- Effortful teaching to enhance perceptual, cognitive, and linguistic development. | .931 | .008 | .866 |
| Pre-Reading: Expands on book through close-ended questions, discussion, vocabulary, and/or background knowledge. | .620 | .026 | .384 |
| During Reading: Uses gestures, dramatic voices, props, tone of voice to interest child. | .580 | .029 | .336 |
| During Reading: Directs child's attention to illustrations. | .771 | .027 | .595 |
| During Reading: Asks story-related close-ended questions, not recall. | .759 | .023 | .576 |
| During Reading: Discusses/expands on meaning of illustrations or text; offers new information. | .709 | .022 | .503 |
| During Reading: Expands on child's comments/questions about the story. | .614 | .029 | .377 |
| During Reading: Comments on sound, letters, sound-letter links. | .523 | .042 | .273 |
| During Reading: Relates text to child's experiences/asks story related questions about child's experience. | .602 | .035 | .363 |
| During Reading: Asks story-related open-ended questions. | .594 | .042 | .353 |

## APPENDIX M: STANDARDIZED BETA WEIGHTS, STANDARD ERRORS, AND $R^2$ FOR MODIFIED MODEL FACTOR 2

| Item Label | $\beta$ | S.E. | $R^2$ |
|---|---|---|---|
| How often did your child ask you to read books to him/her in the past week? | .777 | .022 | .604 |
| How many times have you or someone in your family read to child in the past week? | .846 | .021 | .716 |
| Number of child's favorite books (up to three)? | .649 | .029 | .421 |
| Number of books (up to three) parent read to child in past week? | .431 | .036 | .186 |
| In the past week, have you or someone in your family told child a story? | .694 | .044 | .482 |

## APPENDIX N: STANDARDIZED BETA WEIGHTS, STANDARD ERRORS, AND $R^2$ FOR MODIFIED MODEL FACTOR 3

| Item Label | $\beta$ | S.E. | $R^2$ |
|---|---|---|---|
| Do you have magazines for adults in your home? | .464 | .036 | .417 |
| Do you have catalogs in your home? | .522 | .040 | .272 |
| Do you have magazines for children in your home? | .450 | .042 | .203 |
| Do you have a dictionary or encyclopedia in your home? | .570 | .044 | .325 |
| Do you have other books like novels or biographies or non-fiction in your home? | .733 | .035 | .537 |
| Do you have newspapers in your home? | .487 | .044 | .238 |
| Do you have religious books in your home? | .459 | .050 | .210 |

## APPENDIX O: STANDARDIZED BETA WEIGHTS, STANDARD ERRORS, AND $R^2$ FOR MODIFIED MODEL FACTOR 4

| Item Label | $\beta$ | S.E. | $R^2$ |
|---|---|---|---|
| In the past week, have you or someone in your family helped child learn the names of letters, words, or numbers? | .747 | .041 | .558 |
| When you read to child do you stop reading and point out letters? | .504 | .041 | .254 |
| In the past week, have you or someone in your family practiced writing the letters of the alphabet with child? | .670 | .037 | .449 |
| In the past week, have you or someone in your family practiced the sounds that letters make? | .556 | .040 | .309 |
| In the past week, have you or someone in your family talked about rhyming words? | .672 | .039 | .452 |

## APPENDIX P: STANDARDIZED BETA WEIGHTS, STANDARD ERRORS, AND $R^2$ FOR MODIFIED MODEL FACTOR 5

| Item Label | $\beta$ | S.E. | $R^2$ |
|---|---|---|---|
| In your house, are there rules/routines about what time child goes to bed? | .765 | .064 | .585 |
| In your house, are there rules/routines about what time child eats? | .582 | .054 | .339 |
| In your house, are there rules/routines about how many hours child can watch TV? | .718 | .056 | .516 |

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