THINKING OUTSIDE OF HEAD START: THE IMPACT OF FAMILY AND SCHOOL RISK FACTORS ON FORMER HEAD START GRADUATES' COGNITIVE AND SOCIOEMOTIONAL COMPETENCE IN THEIR KINDERGARTEN AND FIRST GRADE YEARS

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CHAPTER I

INTRODUCTION

The purpose of this study is to examine how family and school risk factors impact former Head Start graduates' cognitive and socioemotional competence in their kindergarten and first grade years. This research will contribute to the body of knowledge on former Head Start children's cognitive and socioemotional development by examining whether family and school risk factors predict cognitive and social competence across time. Of particular interest will be the investigation of which family and/or school risk factors contribute to the variance in children's cognitive and socioemotional competence. Furthermore, appropriate risk factor models (Single Risk Factor [SRF] versus Dual Risk Factors [DRF]) will be evaluated as predictors of cognitive and socioemotional competence of former Head Start children.

One important goal in the field of child development has been to increase the understanding of the process through which children develop competence in various contexts. In relation to this goal, researchers have identified a variety of contextual risks that tend to interfere with children's developmental competence. For example, children in economically poor families have been referred to as "high-risk," and therefore receive more attention in the child development literature, due in part to the strong negative association of "high risk" with children's cognitive competence as well as academic achievement (Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998; McLoyd, 1998;

Duncan, Brooks-Gunn, Klebanov, 1994). However, researchers have not yet clearly articulated the mechanism of each risk factor, the timing and the duration of risk experiences needed for children to express the negative outcomes associated with risk, and the importance of differing contexts in which the children have been exposed to the risk factors.

In light of recent legislative debate on whether federal or state governments should authorize Head Start, the researcher wants to emphasize that this study is trying neither to determine whether federal or state control is better nor to explain why benefits of attending Head Start "fade-out" after Head Start years. Instead, the present study contributes in several ways to our understanding of the relationship between risk factors and former Head Start children's cognitive and socioemotional competence. First, this study examines the feasibility of conceptualizing risk factors according to the multiple contexts to which Head Start children have been exposed (i.e., family and school) over time, rather than focusing on one single context in one period of time. Second, this study expands the conception of developmental outcomes affected by risk factors, by examining both cognitive and socioemotional competence rather than only relying on cognitive and achievement measures. Third, this study identifies which risk factor model (SRF versus DRF) appropriately explains former Head Start children's cognitive and socioemotional competence. In general, the current study seeks to provide a better understanding of how and what changes occur (i.e., cognitive and socioemotional competence) after children have graduated from Head Start and therefore provide information and opportunity for future research as well as reforming public policy.

An Ecological Approach and Cumulative Risk Factors Conceptual Work

Amplifying on Bronfenbrenner's earlier ecological system model (1979) of the lifelong progressive accommodations individuals make to the changing environments in which they develop, Bronfenbrenner and Ceci (1994) re-conceptualized their previous model as a "bioecological paradigm." Two assumptions can be investigated from this paradigm (Bronfenbrenner, 1995).

First, human development occurs through a "process of progressively more complex reciprocal interactions" between active, evolving "biopsychological" human beings and the individuals, objects, and symbols in the environment (Bronfenbrenner, 1995, p. 620). If these interactions, or proximal processes, are to be effective, they must occur with regularity over extended periods of time. Proximal processes occur between a parent and child and within peer, school, learning, and recreational activities. Second, the effectiveness of proximal processes is determined by the biopsychological characteristics of the individual, the immediate and distant environments in which the proximal processes occur, and the developmental outcome being examined. He also conceptualized the ecological environment or the context in which human development occurs as a set of "nested structures" (Bronfenbrenner, 1994).

Developmental outcomes are influenced by interactions within microsystems, or the immediate settings that contain the developing person. The remaining structures, in order of the distance of their influence on the developing individual, include mesosystems (processes involving two or more microsystems; both contain the developing person), exosystems (processes involving two or more settings; only one contains the developing person), macrosystems (influences of the broader cultural and

socioeconomic environments), and chronosystems (effects of consistency and change over life course).

As indicated by this brief overview of the bioecological paradigm, children participate in a variety of ecological transitions that require adaptation to new or altered environments throughout their childhood (Bronfenbrenner, 1979). As Zigler (2003) stated, in order to understand individual differences in developmental trajectories across time, the environments in which each child is embedded should be considered. Both school and family constitute those environments (Grolnick & Slowiaczek, 1994).

The magnitude of this ecological analysis involving multiple settings and multiple systems appears to have daunted researchers primarily trained to focus on individual behavioral processes (Sameroff, Seifer, Baldwin, & Baldwin, 1993). However, an ecological analysis approach seems to be more appropriate for the multiple-variable models needed to explain children's cognitive and socioemotional competence (Sameroff, 2000).

In their *Rochester Longitudinal Study (RLS)*, Sameroff and colleagues (Sameroff et al., 1993; Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987) constructed a risk index consisting of family structural, maternal mental health, and behavioral factors to predict children's IQ scores. They calculated a multiple environmental risk score for each child by counting the number of high-risk conditions present from the following ten risk factors: mother's behavior, mother's developmental beliefs, mother's anxiety, mother's mental health, mother's educational attainment, family social support, family size, major stressful life events, occupation of head of household, and disadvantaged minority status. They found a significant effect of multiple risk factors on children's IQ scores at both

ages four and 13. Results indicated that multiple risk scores explained more variance in children's IQ scores than any single risk alone at ages four and 13. As the number of risks increased, IQ scores decreased. However, investigating the impact of environmental risk factors on children's cognitive competence, which was measured only by children's IQ score, seemed not sufficient or persuasive enough to explain children's developmental competency in a full picture. Additional dimensions of competency, such as social competence also can be assessed to provide more complete aspects.

Other researchers have compared three statistical approaches in the evaluation of children's early cognitive and language development: individual risk variables, factor scores derived from those risk variables, and a risk index computed by tallying the number of risk conditions present (Burchinal, Roberts, Hooper, & Zeisel, 2000). Burchinal et al. (2000) concluded that the individual-risk-variable approach provides better overall prediction of children's developmental outcomes (cognitive development, expressive, and receptive language) at a particular age but is less useful in predicting developmental patterns (change of the developmental outcomes over time). Moreover, the risk-factor approach provides good prediction of developmental trajectories when sample sizes are moderate to large. And the risk-index approach is useful for relating social risk to developmental patterns when a large number of risk variables (see Table 1) are assessed with a small sample (Burchinal et al., 2000). However, since the study was only conducted on 87 African American children, generalizibility is very limited.

In order to differentiate cumulative risk index approaches applied by different groups of researchers, a table of comparison has been developed to summarize the literature review. Table 1 is a comparison in between *RLS*, lead by Sameroff and

colleagues (Sameroff et al., 1993; Sameroff, et al., 1987) and Cumulative Risk Approach (CRA)) by Burchinal et al. (2000).

Table 1

Risk Index Approach Comparison Between Sameroff and Burchinal

RLS Risk Index by Sameroff	**CRA Risk Index by Burchinal**
Maternal Education	Maternal Education
Family Size	Household Size
Family Support (Father Absence)	Single Parenthood
Stressful Life Events	Stressful Life Events
Maternal Anxiety	
	Maternal Depression
Maternal Spontaneity In Interaction	Maternal Responsiveness In Interaction
Minority Group Status	
Maternal Mental Health	
Occupation of Head of Household	
Parental Perspectives/Belief	
	Poverty
	Quality of Family Environment
	Quality of Childcare Environment

In recent years, the Cumulative Risk Factors (CRF) approach has been widely used to investigate the relation of environmental risk to children's outcomes (e.g., Evans and English's Cumulative Stressors Exposure (CSE), 2002; and the Contextual Risk index (CR) by Ackerman, Brown, & Izard, 2004). Additional reason for using the CRF approach include the applicability of Hierarchical Linear Models (HLM; Bryk & Raudenbush, 1992) to examine trajectories of children's outcomes as a function of differing levels of CRF.

In summary, the major goal of this research is to better understand the relation of Head Start children's cognitive and socioemotional development to family and school environments. The ecological approach serves as a framework for this study to accommodate the need to examine these two contexts. The risk-factors approach serves as the conceptualization of the risk factors experienced by Head Start children.

Research Questions and Hypotheses

The proposed study will explore the relation of family and school risk factors to Head Start graduates' cognitive and socioemotional competence in their kindergarten and first grade years. It is designed to address the following three research questions and constituent hypotheses:

1. How do family and school risk factors relate to former Head Start children's cognitive and socioemotional competence in their kindergarten and first grade years?

Two hypotheses were derived from this question:

Hypothesis 1a: Family and school risk factors will be significantly inversely associated with former Head Start children's cognitive competency.

Hypothesis 1b: Family and school risk factors will be significantly inversely associated with former Head Start children's socioemotional competency.

2. How much of the variance in former Head Start children's cognitive and socioemotional competence in their kindergarten and first grade years is explained by family and school risk factors? One sub-question which can be asked here is which risk factor index (Family vs. School) contributed more to explaining the former Head Start children's cognitive and socioemotional competency.

Hypothesis 2a: Family and/or school risk factors would explain significant variance in former Head Start children's cognitive competency in their kindergarten and first grade years.

Hypothesis 2b: Family and/or school risk factors would explain significant variance in former Head Start children's socioemotional competency in their kindergarten and first grade years.

3. Which model is more appropriate (Single Risk Context Model or Dual Risk Contexts Model) for explaining the relation of family and school risk factors to former Head Start children's cognitive and socioemotional competence over time?

CHAPTER II

REVIEW OF LITERATURE

Brief Head Start Background

Head Start, considered as one of America's great success stories in the early 80's (Brody, Stoneman, & McCoy, 1994), was designed to enhance the preschool experiences of children from low-income families in order for them to begin public school on a more even footing with other children (Zigler & Styfco, 1993, 1994). It is a child-focused program that serves children ages 3 to 5 from low-income families. The aim of Head Start is to "…help disadvantaged children to break the cycle of poverty by enabling them to start school on an equal footing with their more privileged peers" (Zigler & Valentine, 1979, p.5). Thus, the overall goal of Head Start is to increase the school readiness of young children in low-income families. To accomplish this goal of school readiness, Head Start programs provide educational, health, and nutritional services to preschool-aged children as well as social services to their families to increase their capacities to care for their children (Kassenbaum, 1994).

Since its inception, groups of researchers have dedicated their efforts to investigating what the effects of Head Start are on children's development, in order to implement changes in Head Start programming and increase benefits for children. McKey (1983), who reviewed 76 research studies on the effectiveness of Head Start, summarized that Head Start programs had immediate and positive effects on the cognitive performance of

disadvantaged children. However, by the end of first grade, after being out of the Head Start programs for 2 years, the cognitive performance of these children was no longer significantly different than that of children who did not attend Head Start. Moreover, findings also showed that in the few studies that did address socioemotional outcomes, the positive effects shown immediately following Head Start intervention also tended to fade within 1 to 2 years. However, approaches for such review have been criticized for only focusing on specific cognitive variables (e.g., IQ scores) as opposed to more socially relevant outcomes (e.g., socioemotional competence) (Barnett, 1998).

Zigler and Styfco (1996) also came to similar conclusions regarding the lack of long term effects of Head Start programs. In their review, they indicated that much of the research on the effectiveness of Head Start programs has focused on children's cognitive development and school readiness. The majority of these studies have found that children's cognitive competence and school readiness increase during pre-school, but tend to fade during elementary school (McKey, 1983; Zigler & Styfco, 1996). Other findings from those studies of socioemotional competence are similar in that children's socioemotional competence skills increase during preschool but tend to fade out during elementary school (Kresh, 1998; Lee, Brooks-Gunn, Schnur & Liaw, 1991; Zill, Resnick, & McKey, 1999).

In a study that followed Head start children into adulthood, once baseline differences in the level of disadvantage between the Head Start group and the comparison group were taken into account, no statistically significant differences in outcomes were found for the total sample (Oden, Schweinhart, Weikart, Markus, & Xie,

1996). Intriguingly, in this study, in which the Head Start participants had attended one of two programs, those who had graduated from a program similar in design to the Perry Pre-school did exhibit significantly better grade point averages in school, and had significantly fewer arrests or convictions that the other Head Start group.

According to Lee et al. (1991), in their comparison of low-income children who had attended Head Start to children who had attended other pre-schools or no pre-school, the Head Start children scored higher on measures of social competence. Unfortunately, these effects also diminished over time. In general, there seems to be an immediate substantial effect but fade-out over time. They suggested that the "fade-out" of effects over time is likely to reflect the fact that other aspects of children's lives remain unchanged by the Head Start initiatives (Lee et al., 1991).

In recent years, problems confronting low-income families have become more complex (Zigler & Styfco, 1994; 1996). For example, the number of single parents has been increasing dramatically. Behind the statistics are several young single mothers sharing dwellings and child care responsibilities. Moreover, Head Start's children now are a more mixed group. About 20 percent of them speak a language other than English. Most Head Start centers are now bicultural or even multicultural (Phillips & Cabrera, 1996).

The 1996 Roundtable Discussion on Head Start Research encouraged participation by more disciplines in research on children and families and research designs resulting in knowledge of the relation of community and family processes to the outcomes of Head Start children. Methods which are sensitive to and appropriate for

local contexts are also very important (Phillips & Cabrera, 1996). Finally, Zigler and Styfco (1996) argued that when examining Head Start children, their families as well as various programs that they had attended should be addressed as a whole entity (Zigler & Styfco, 1994; 1996).

Participants for the current study are a sample of "at-risk" children who attended Head Start in rural north-central Oklahoma and their families. Given the above information from previous Head Start research, current research applies a longitudinal method, evaluates multiple contexts, and provides in-depth investigation of multiple aspects of child competence.

Risk and Risk Factors

Risks are understood as conditions that "predispose individuals and identifiable groups of people to specific negative or undesirable outcomes" (Cowan, Cowan & Schulz, 1996, p. 9) or variables that have "proven or presumed effects that can directly increase the likelihood of a maladaptive outcome" (Rolf & Johnson, 1990, p. 387). Assigning risk status to an individual means that he or she shares characteristics similar to a group for which there is a known probability of attaining a certain outcome (e.g. "at-risk") that is greater than the probability in the general population (Pianta & Walsh, 1996). Accordingly, risk must be for something in particular which means one may be at risk for one outcome but not for another. Moreover, in a much-cited study, Rutter (1979), the originative of the concept of multiple risk, argued that the risk is seldom located in any single component but rather in the combined impact of multiple risk factors (Rutter, 1990).

One pivotal aspect confronting researchers concerned with risk are the questions of where risk(s) is/are located, and how to link such risk status to preventive intervention (Pianta & Walsh, 1996). That is to say, the factors that researchers study when examining risk become the contexts targeted for change by prevention and intervention programs.

When considering factors that may constitute risks for maladaptive child outcomes, an ecological perspective emphasizes the necessity of considering the context within which child development occurs, because child development is thought to be determined by the interplay between characteristics of the child and characteristics of the environmental context (Sameroff & Chandler, 1975; Bronfenbrenner, 1995; Sameroff, et al., 1993). In this body of literature (e.g., Sameroff et al., 1993; Bryant et al., 1994; Klebanov, et al., 1998), risk to child development can be located within the child (e.g., difficult temperament), within the home environment (e.g., maternal depression), and within broader social structures (e.g., low quality of classroom).

One approach to the study of risk argues that it is not any one particular risk factor but the total number of risk factors in a child's background that is linked to negative developmental outcomes. For example, in Rutter's (1990) sample of 10-year olds, psychiatric risk rose from 2% in families with zero or one risk factor to 20% in families with four or more risk factors. Similar findings were also evident in research conducted by the Rochester research groups (Sameroff, et al., 1987, 1993). Their risk index revealed that the more risk factors children experienced, the worse were their developmental outcomes.

Researchers have also suggested that risk needs to be understood not in terms of static factors, but rather in terms of system or process (e.g., Cicchetti & Garmezy, 1993; Rutter, 1987). Specifically, they claim that the "active ingredients" which lead to problematic outcomes do not lie in the variable itself, but rather in the set of processes related to the variable (e.g. Rutter, 1987). Given that, risk to child development therefore can be found in many different contexts, and thus there are many different testable models that can be used to study risk. For example, Pianta and Walsh (1996) propose a contextual systems model which includes an examination of the ways in which child, home, and school factors interact together to influence children's poor school performance.

The current study will adopt an ecological model of risk, according to which it is assumed that risk exists in each context to which a child has been exposed. The relations of school and family risk factors to children's cognitive and socioemotional competence will be evaluated separately as well as in combination. The following literature review provides the rationale for the inclusion of each risk component under two larger contexts, family and school, in the proposed measure of cumulative risk.

School Context and Children's Competence

Interest in providing children with early school experiences that enhance the likelihood of success in later years (e.g., Ripple, Gilliam, Chanana, & Zigler, 1999; National Educational Goals Panel, 1995) has led to a focus on the quality of classroom environments. In particular, interest in the impact of early childhood programs on young children's cognitive and socioemotional competence has risen recently in light of the focus on National Education Goal #1 (all children will reach school ready to learn) as

well as policy-driven studies revealing the prevalence of low quality child care in the United States (Kontos, Burchinal, Howes, Wisseh, & Galinsky, 2002).

Early education program evaluation research generally has been dominated by attempts to document immediate program effects. Comparisons of the contributions of school and family environment together to children's developmental outcomes have been much less frequent. However, a few such studies have been conducted. With a sample of 145 Head Start children, Bryant, Burchinal, Lau, and Sparling (1994) found that family and classroom contexts were both related to children's developmental outcomes. Specifically, one result indicated that children in higher quality Head Start classrooms, rated by the Early Childhood Environment Rating Scale (ECERS), performed better on measures of achievement and pre-academic skills, regardless of the quality of their home environment, rated by the HOME scale.

It is also known that early childhood programs can make a difference in children's lives, especially for economically disadvantaged children (Kontos et al., 2002). Thus, school settings in which former Head Start children are enrolled need more investigation. The current study defines school risk factors as classroom quality and classroom transience.

Classroom Quality and Children's Competence in the Context of Risk

There is an extensive debate concerning how to define and operationalize quality in early childhood classroom environments (Bredekamp & Copple, 1997; Morrison, 1999; Pianta, La Paro, Payne, Cox, & Bradley, 2002). Developmentally appropriate practice (DAP) is a single set of standards to which all high-quality early education programs are held. It emphasizes the treatment of children as individuals with the ability

to make choices about their educational experiences (e.g., Goldstein, 1997). From a measurement standpoint, observations of quality in child care or preschools most often involve ratings of the environment on a variety of clearly articulated dimensions that are purported to index quality of DAP. Standardized procedures to evaluate the classroom environment such as the Early Childhood Environment Scales (ECERS; Harms, Clifford, & Cryer, 1998) have received extensive use in the field.

Interest in the quality of classroom environments for young children in public elementary school is fueled by at least two lines of research. One focuses on the importance of the early school years for later school outcomes (e.g., Alexander & Entwisle, 1998; Pianta & McCoy, 1997), and the second examines quality and the correlates of quality (i.e., child competence) within preschool and early childhood settings (e.g., Burchinal, Peisner-Feinberg, & Bryant, 2000).

In regards to the first line of research, Pianta et al. (2002) have established that early school experiences, and the kinds of instruction and interaction with adults that occur within the experiences, have reliable effects on children's achievement (Pianta et al., 2002). For example, high-quality preschool settings are related to positive school outcomes and have long-lasting effects, particularly when language development is emphasized (Ramey & Campbell, 1991; Ramey & Ramey, 1999).

The second line of research reveals high variability in terms of classroom quality across classrooms in a child's experience. Byrant, Clifford, and Feinberg (1991) observed quality in 103 kindergarten classrooms using the ECERS and found that a minority (20%) met the accepted criteria for DAP and that there was high variability among classrooms. In their findings, Bryant et al. (1994) indicated that children in higher

quality Head Start classrooms (i.e., higher ECERS scores meaning greater DAP) performed better on measures of achievement and pre-academic skills, regardless of the quality of their home environment, rated by the HOME scale. Nonetheless, the children from better home environment seemed to benefit more from classroom quality in the area of problem solving and reasoning than did children from less stimulating homes. Moreover, children who have attended more developmentally appropriate classes have higher levels of cognitive skills and show fewer stressful behaviors (Bryant et al., 1994).

Using a Head Start sample, Lee and Loeb (1995) addressed that children who had participated in Head Start were more likely to attend a middle school of lower socio-economic status than children who had either attended no preschool or who had attended a non-Head Start program. Besides, Head Start graduates were more likely to attend a middle school with poor teacher-student relations than children who had not attended Head Start. Moreover, Head Start graduates were more likely to attend a middle school with poor academic climate than children who had attended other types of preschool. Given the results from the findings, the researchers argued that following up Head Start with such inferior educational experience may well be the reason for the fade-out of benefits Head Start participants gained throughout their Head Start years.

Since preschool or childcare is the major out-of-home socialization experience for many young children, the nature of the opportunities for social development presented to children in these settings may very well be important to their development. Relations between childcare quality and the social development of children have been studied extensively over the last few decades (Bryant, Peisner-Feinberg, & Clifford, 1993;

Howes & Hamilton, 1993; Whitebrook, Howes, Phillips, & Pemberton, 1989; McCartney, 1984).

In general, children who experience high-quality childcare demonstrate more positive social outcomes than children who experience low-quality childcare (Lambert, Abott-Shim & McCarty, 2002). By randomly selecting classrooms from three Head Start programs, representing high and low classroom quality in urban and rural settings from the southeastern United States, Lambert et al. (2002) found that higher quality classrooms measured by the Assessment Profile (validated with ECERS) tended to have lower scores on a parent-reported measure of children's problem behaviors outside of the Head Start environment. The researchers argued that children are better equipped to generalize the positive social behaviors that they are learning in the better quality Head Start setting to the home environment, because these children are engaged in more self-directed, independent learning experiences than their peers who are in classrooms that do not have the variety and accessibility of learning materials (i.e. lower quality classroom). Therefore, they may be more self-directed and less inclined to exhibit problem behavior when they return home (Lambert et al., 2002).

Burchinal et al. (2000) added classroom quality (measured by the ECERS) to parenting variables in their risk index. They argued that this multiple risk index approach is useful for relating social risk to children's developmental patterns when a large number of risk variables are assessed with a small sample (Burchinal et al., 2000).

Roberts and Barnes (1992) noted that young children entered school with a wide variety of language and cognitive skills that are relevant to the school experience. Besides, children learn differently depending upon the classroom in which they attend

(Evans, 2001). Given the above information, it can be seen that there are many factors that could contribute to the impact of school (i.e., classroom quality) on a child's later development. However, very few studies have evaluated the changing of classroom quality that Head Start students experience after their Head Start settings, let alone convey the impact of changing classroom quality after Head Start settings on children's competence. Hence, this current study will define classroom quality after Head Start as one of the classroom risk factors, and will evaluate its impact on children's cognitive and socioemotional development in their kindergarten and first grade years.

Classroom Transience and Children's Competence in the Context of Risk

Every year, nearly 1 in 6 persons in the United States relocate or changes place of residence (U.S. Bureau of the Census, 2000). Although the mobility rates for young children in the early elementary grades parallel those for the U.S. population, low-income children who are the most disadvantaged are also the most mobile (Mantzicopoulos & Knutson, 2001). Because residence changes disrupt children's agendas and connections with friends, they may impose difficulties in adjusting to a new school (Adam & Chase-Lansdale, 2002).

When children change schools, they experience an ecological transition. Ecological transitions are changes in the settings, roles, or expectations of a developing person (Bronfenbrenner, 1979). Frequent moves into different schools or places of residence bring about ecological transitions that place numerous adjustment demands on young children and their families. The transitions may be sources of considerable disruption in children's social and physical environments and have the potential to affect developmental outcomes adversely.

School mobility is believed to be a risk factor for low-income children because it introduces discontinuity in learning environments that can adversely affect learning, especially if frequent, or if it occurs during children's formative school years. Mobility may disrupt children's instructional environments, because the subject-matter curriculum is neither uniform from school to school nor classroom to classroom, and school or classroom climate also may differ across settings (Mantzicopoulos & Knutson, 2001). Moreover, school mobility reduces the stability and predictability of any established patterns of activities that is important for children's adjustment (Stoneman, Brody, Churchill, & Winn, 1999). Researchers have demonstrated that students who frequently change schools are more likely to experience academic, social, and emotional problems than students who do not change as often (Ellickson, Bianca, & Schoeff, 1988; Wood, Halfon, Scarlata, Newacheck, & Nessim, 1993). This has been especially true among low-income, ethnic minority students (Reynolds, 1991).

Nelson, Simoni, and Adelman (1996) tracked a sample of 2,524 early elementary school students (kindergarten and first grade students) from low-income families for 3 years, and examined (a) overall rates of mobility, (b) demographic variables associated with mobility, (c) the relationship between initial social and academic functioning and mobility, and (d) the correlates of mobility among a subgroup of students identified as adjusting poorly to school. The researchers reached the following conclusion: the most mobile students (moving two or more times) tended to have lower initial school behavior ratings, poorer school adjustment, higher absenteeism, and to be more likely to come from single-parent families than those students who had lower mobility (moving once or no move).

Using hierarchical regression analysis with a sample comprising 90 children who had attended Head Start and had made the transition to public school, Mantzicopoulos and Knutson (2001) found that frequent school changes in the primary grades were related to lower achievement levels even after controlling for the child's sex and the effects of achievement prior to the school moves. They argue that Head Start children who are highly mobile while they are making the transition to school may be particularly vulnerable. The changes associated with frequent mobility may overburden the resources of those children who must cope with new school settings as well as new neighborhoods and physical surroundings (Zigler & Styfco, 1993).

In their eight-year longitudinal study, Ackerman, Brown, and Izard (2004) examined the relations between multiple risk indexes representing contextual adversity, income-to-needs ratios, and the elementary school adjustment of children (measured by teacher's report of target children's behavior) from economically disadvantaged families in their first-grade, third-grade, and fifth-grade years. They conceptualized "residential moves" (question asked the mother of the target child on the number of moves the family made in the last 2 years) as one of the six adverse contextual risk variables (other five include: maternal relationships, parental police contacts, drug and alcohol abuse, psychiatric morbidity, and life events) (see Table 2). Results indicated that there was considerable volatility in family circumstances in each 2 year level. Notice the fact that the "residential moves" in this study was only for the target child and only was measured within the family context (Ackerman, et. al., 2004).

Different from the assumption that mobility influences the students who actually move, Lash and Kirkpatrick (1990, p. 186) indicated five ways in which the addition of

mobile students might negatively affect the stable classroom. First, when new students are added, teachers must "re-teach", "backtrack," and design instruction to catch new students up with the rest of the class. Second, new students can hurt classroom management because they are unfamiliar with the rules and routines. Thus, the entry of a new student requires added effort by the teacher, both to bring the student "up to speed" and to integrate the new student into the methodology and climate of the class. All of this takes valuable teacher time away from original students. Third, entry (or exit) of students can create a sense of "impermanence" and "restlessness," which may make students less attentive. Forth, disruption in friendships and peer relations can make learning more difficult. And fifth, mobility creates teacher paperwork, and again takes time away from lesson planning as well as instruction (Lash & Kirkpatrick, 1990). The departure of a well-integrated student can also bring hardships. Not only are some of the same problems mentioned above duplicated, but existing learning groups are disrupted and the remaining students may need to be reshuffled. As such discontinuity becomes common, achievement or competence may suffer. In the end, accumulated/aggregate mobility (the sum of entrants and exits) can be reasonably expected to diminish the stability of the learning environment of stable students. Based on this reasoning, Heywood, Thomas, and White (1997) altered the focus on students with frequent mobility to examine whether students in those classrooms with greater mobility suffer smaller gains in academic achievement. The study was conducted by examining the impacts of their classmates' mobility on the academic achievement (measured by math and reading skill) of 5,701 fifth grade students from 214 classroom within the setting of inner-city schools. The time frame for this study was one school year. Unfortunately, results were inconclusive and

there were no negative impacts of their classmates' mobility on stable students' math and reading achievement scores. Reasons for such inconclusive findings might include the following: First, a one-school-year time frame may have been too short to see the impacts. Negative impacts of classmates' mobility on the stable students' academic achievement might be a function of the effect of several years of exposure to other children's mobility. If the researchers had been able to follow stable students over many years, they might have identified the effect. In other words, the effects of mobility may well be cumulative. Second, impacts of their classmates' mobility on those stable students might not be measured only by academic achievement. In other words, effects may be on cognitive or socioemotional competence rather than on academic achievement.

According to a recent report, Rumberger (2003) indicated that mobility not only can harm the students who change schools, it can also harm the classrooms and schools they attend. In their case study on a set of California high schools, school personnel characterized the overall effects of student mobility at the school level as a "chaos" factor that impacts classroom learning activities, teacher morale, and administrative burdens and all of these can impact the learning and achievement of all students in the school which include the stable students (Rumberger, 2003).

Early childhood programs are designed, in part, to promote stability in children's learning environment (Ramey & Ramey, 1999). Therefore, the impact of mobility on Head Start children's school-related outcomes is a topic of particular importance because of the evidence that the transition to school is a critical point in young children's development.

Longitudinal studies on the impacts of classmates' mobility on the stable children's developmental outcome for Head Start children are rare. Moreover, studies addressing the impacts of mobility have tended to focus only on children's academic performance rather than looking at cognitive and socioemotional outcomes, except the results from Ackerman et al. (2004). Thus, in the current study, classroom mobility is operationalized as classroom transience. Most importantly, the current study is not measuring each individual child's mobility. Instead, mobility is defined as proportion of child mobility in the classrooms attended by former Head Start children. The author reasoned that the instability of the classroom environment (i.e., high transience of other children) in which the Head Start graduates are embedded might pose a risk for the children's cognitive and socioemotional competence.

Family Risk Factors and Children's Cognitive and Socioemotional Competence

Theoretical insights into sources of developmental differences come from bioecological and transactional models of child development, which describe child development as the result of reciprocal interactions between children and the multiple environments in which they are embedded (Bronfenbrenner & Ceci, 1994; Sameroff, 2000). Therefore, during early childhood, "proximal processes" in children's home environments are central to development. Under this theoretical influence, the home environment has become a central focus of inquiry in human development over the past four decades (Bradley, Corwyn, McAdoo, & Garcia Coll, 2001). In the past decade, studies on relations between family risk and child outcomes have been greatly influenced by the conceptualization and findings from the RLS conducted by Sameroff and his colleagues. The original purpose of the RLS was to examine the relation of maternal

schizophrenia to child IQ. In this study, a multiple environmental risk score was calculated for each child by counting the number of high-risk conditions from 10 dichotomous risk factor ratings: mother's teaching style, mother's beliefs/values, mother's anxiety, mother's mental health, mother's educational attainment, family support defined by father absence or present, family size, major stressful life events, occupation of head of household, and disadvantaged minority status (Sameroff et al., 1993). At the end of the study, they found no single risk factor was more important than any other, but the number of risk factors predicted the child outcomes. Hence, subsequent research has emphasized the "additive" nature of risk factors.

By applying hierarchical regression analysis and examining one model of how a group of social, family, and individual risk factors were related to a child's intellectual functioning, Barocas et al. (1991) found that cumulative risk explained 38% of the variance in children's verbal outcomes. Bradley, Corwyn, and McAdoo et al. (2001) and Bradley, Corwyn, and Burchinal et al. (2001), found that home risk factors summed together to predict children's developmental outcomes, including motor, social, and vocabulary development, as well as achievement and behavior problems. Specific results will be articulated below for each family risk factor discussed.

Poverty and Children's Competence in the Context of Risk

Socioeconomic status (SES) has long been considered as a "must-be" statistically controlled variable, due to the fact that it has some influence on most outcomes that social scientists measure (Klebanov, et al., 1998). In their longitudinal investigation of 347 children from age 1 to 3 years, Klebanov et al., (1998) indicated that lower income was associated with lower developmental test scores at ages 2 and 3 years. Moreover,

children who lived in economically disadvantaged families were more likely to experience socioemotional problems than children who lived in families with greater financial resources (Duncan, et al, 1994; Hanson, McLanahan, & Thompson, 1997).

As summarized by McLoyd (1998), low SES predicts children's lower scores on tests of intelligence and cognitive functioning (Klebanov et al., 1998), lower levels of school achievement, increased levels of socioemotional problems (Duncan, et al., 1994), as well as higher externalizing and internalizing behaviors (Eamon, 2001; 2000).

Lately, borrowing from the cumulative risk index approach, Evans and English (2002) found that when compared with their middle-income counterparts, low-income, rural children were exposed to higher levels of self-and parent-reported psychological distress (i.e., violence, family turmoil, density, noise, housing problems, and family separation), had greater difficulties in self-regulatory behavior (i.e., delayed gratification, measured by Harter Competency Scale and other instruments), and manifested elevated psychophysiological stress. They concluded that the "accumulation of exposure to multiple, adverse, physical and psychosocial stressors" (Cumulative Stressor Exposure, CSE), rather than "singular stressor exposure" is the key process in the environment of poverty (Evans 2004; Evans & English, 2002) (see Table 2).

In sum, there is sufficient evidenced that poverty negatively affect children's competency. Hence, the current study defines "low-income" as one risk factor within the family context that has an impact on former Head Start children's cognitive and socioemotional competence.

Minority Group Status and Children's Competence in the Context of Risk

Ethnicity refers to group membership in which the defining feature is the characteristic of shared unique cultural traditions and a heritage that spans generations (Gibbs & Huang, 1989). Membership in an ethnic group provides the cultural identity and lens through which the developing child comes to understand and act upon prescribed values, norms, and social behavior within his or her world (Brookins, 1993). It also gives meaning to the child's subjective experiences, a scaffold for interpersonal relationships, form to behavior and activities, and a sense of personal survival in the historical continuity of the group. Therefore, ethnic group is one of the environmental contexts a child will experience.

Hoover-Dempsey and Sandler (1997) argued that parents' construction of their role in their children's education could be influenced by their ethnicity or racial group membership. For example, Espinosa (1995) indicated that many Hispanics, because of their strong family ties and beliefs in the absoluteness of schools, failed to see a role for themselves in their children's education. Hence, minority status can become an important influence on developmental outcomes for children. In this study, minority status will be operationalized as one of the risk factors within the family environment.

Parenting Practices and Children's Competence in the Context of Risk

Parents are their children's first and in some instances, primary teachers, and are indispensable partners in the education of their children (Langemann, 1993). Moreover, early childhood theorists have pointed out the continued importance of the parent-child relationship from birth through the early school years. Specific parenting characteristics

associated with school success include joint activities that encourage children to talk and to act on their environment.

By examining 631 kindergarten children and their parents, Stormshak, Bierman, McMahon, and Lengua (2000) indicated the relationship between parenting practices and child disruptive behavior problems in early elementary school. In their study, parenting practices were measured by the Parenting Questionnaire (PQ), the Parenting Practices Inventory (PPI), and the Conflict Tactics Scale (CTS) while children's behavioral problems were evaluated by the Child Behavior Check List-Parent Report Form (CBCL-PRF, Achenbach, 1991). Their findings indicated parenting practices that included punitive interactions were associated with elevated rates of all child disruptive behavior problems. Moreover, low levels of warm involvement were particularly characteristic of parents of children who showed elevated levels of oppositional behaviors. Physically aggressive parenting was linked more specifically with child aggression. In summation, parenting practices contributed more to the prediction of oppositional and aggressive behavior problems than to hyperactive behavior problems, and parenting influences were fairly consistent across ethnic groups and sex (Stormshak et al., 2000).

From their study of 103 kindergarten children and their mothers, Hill and Bush (2001) argued that mothers who reported using higher levels of love withdrawal as a disciplinary strategy reported that their children had more anxious symptoms. Moreover, maternal hostile control and rule enforcement were positively related to both mothers' and children's reports of conduct problems.

Amato and Fowler (2002) investigated the links between parenting practices (parents' reports of support, monitoring, and harsh punishment) and child outcomes for

children in two age groups: 5-11 years (n=3,400 for phase I) and 12-18 years (n=1,331 for phase II). They indicated that parents' reports of lower support, lower monitoring, and frequent harsh punishment were associated with children's poorer adjustment, lower school grades, and more behavior problems when children were age 5-11 years, and children's reports of lower self-esteem when they were 12-18 years old (Amato & Fowler, 2002). They also concluded that parenting practices did not interact with parent's race, ethnicity, family structure, education, income, or gender in predicting child outcomes (Amato & Fowler, 2002).

Previous findings also indicated that negative parenting practices such as intrusiveness predict negative child cognitive and behavioral outcomes (Jacobvitz & Sroufe, 1987; Olson, Bates, & Kaskie, 1992; Egeland, Pianta, & O'Brien, 1993; Culp, Hubbs-Tait, Culp, & Starost, 2000; Hubbs-Tait, Culp, Culp, & Miller, 2002). For example, results from Jacobvitz and Sroufe (1987) indicated that maternal intrusiveness is related to children's later development of hyperactive and distractible behavior in kindergarten. Egeland et al. (1993) indicated that children whose mothers had been judged to be intrusive when they were six months old were less competent academically, socially, emotionally, and behaviorally in 1st and 2nd grades than children of non-intrusive mothers. Moreover, when maternal intrusiveness was operationalized by frequency and level of directive guidance during a teaching task, maternal intrusiveness was significantly inversely correlated with children's Peabody Picture Vocabulary Test (PPVT) scores (Olson, et al., 1992).

Culp et al. (2000) related maternal intrusiveness (a one-item measure of mothers' tendency to take over a task from their child, measured by the Computer Presented

Parenting Dilemmas) to child kindergarten competence (as measured by PPVT-R and teacher-rated child's memory of teacher instructions). Correlational analysis revealed that maternal intrusiveness inversely predicted receptive vocabulary scores while children were in Head Start.

That parents can foster cognitive competence in their children has been well established by research in the past three decades (Sternberg & Williams, 1995). Vygotsky's (1978) theory provided the explanation for this. He hypothesized that the development of intelligence is through our own *internalization* process. In the process of being exposed to, and learning from, the environment, we incorporate experiences into ourselves. And there must be a *collaboration* process during problem solving to enhance the learning process (Rogoff, 1998; Tudge & Winterhoff, 1993). For example, skillful parents, in their role as teachers, help the child make sense of the environment by providing guidance to the child in how to interpret it (Fagot & Gauvain, 1997).

Sigel's "cognitive distancing" (1982) provides one conceptualization and operationalization of parental cognitive guidance or stimulation. He stated that parental cognitive stimulation can be measured by "cognitive distancing," the degree of representational thought required of children to understand parents' statement to them during *collaboration*. Results indicated that the greater the parental use of statements that challenge children to use representational thought, the better children's cognitive performance. In contrast, parental use of more statements requiring only referential thought or including no challenge to thinking is related to children's lower cognitive performance.

Using the same data set but different measures of competence and intrusiveness as well as measures of cognitive stimulation and emotional support, Culp et al. (2000) and Hubbs-Tait, Culp, Culp, et al. (2002) indicated that maternal intrusiveness measured during the preschool period is related to former Head Start children's cognitive functioning during kindergarten. They examined the relationship of maternal cognitive stimulation, emotional support, and intrusive behavior during Head Start to children's kindergarten cognitive competence (measured by the McCarthy Scales of Children's Abilities). Results indicated that parental emotional support (positive feedback) during guidance of problem solving explained statistically significant unique variance in children's perceptual scores beyond other measures of emotional support. Moreover, asking questions during the problem solving process also explained statistically significant unique variance in children's cognitive performance. Finally, intrusiveness when defined as physical restraint or taking on the task explained perceptual or verbal outcomes for kindergarten children. These results were consistent with the relation of intrusiveness to teacher ratings of the social competence of children enrolled in Head Start (Brody et al., 1994).

Hubbs-Tait, Culp, Huey et al. (2002) examined whether cumulative family risk (sum of four dichotomous measures: low income, low cognitive stimulation, intrusiveness, and depression) would moderate the relation between regularity of attending Head start and three child outcomes (receptive vocabulary, teacher ratings of social competence, and teacher ratings of following instructions). They concluded that the relation between Head Start attendance and receptive vocabulary was moderated by cumulative risk, with children from higher risk families benefiting more. Not only did

their findings support previous research on the negative impact of low cognitive stimulation on lower children's cognitive skills, but they also suggested that such risks may be offset by the number of days a child attends Head Start.

Given the above evidence, parenting practices are very important components of risk on children's developmental outcomes within the family context. For the current study, parenting practices risk factors have been operationalized as low on positive feedback/emotional support, low on cognitive stimulation, and inappropriate parental belief/values.

Maternal Anxiety and Children's Competence in the Context of Risk

Maternal anxiety has long been associated with adverse child outcomes and was one risk factor in Sameroff's RLS Risk Index (Sameroff et al., 1993). The inverse relation between parental psychological distress (i.e. anxiety) and poverty is also well documented (e.g., Duncan et al., 1994; Brody, Murry, Kim, & Brown, 2002; Mistry, Vandewater, Huston, & McLoyd, 2002). Moreover, the inverse relationship between psychological distress and parenting attitudes is also recognized (Brody et al., 2002; Oyserman, Bybee, Mowbray, & MacFarlane, 2002). In their recent research, Spence, Najman, Bor, O'Callaghan, and Williams (2002), indicated that maternal anxiety and depression during their children's early childhood years were found to have small, but significant, influences upon the development of high anxiety-depression symptoms when children reached age 14, after controlling for the effects of poverty and marital relationship factors. Hence, the current study includes maternal anxiety as one risk factor within family risk factors.

Maternal Depression and Children's Competence in the Context of Risk

Maternal psychopathology is associated with adverse child outcomes (Seifer et al., 1996). Research has indicated that children of depressed parents are at increased risk for behavior problems, emotional difficulties, as well as cognitive maladjustment (Egeland, Kalkoske, Gottesman, & Erikson, 1990; Cicchetti, Rogosch, & Toth, 1998). Moreover, studies of preschool children in high-risk samples have identified maternal depression as a significant predictor of children's behavioral problems and social competence (Leadbeater, et al., 1996). Maternal depression also influences the social competence of children enrolled in Head Start (Brody, et. al., 1994). Maternal depression was also one risk factor in CRA Risk Index identified by Burchinal et al., (2000). Hence, the current study includes maternal depression as one risk factor within family risk factors.

Table 2

Risk Index Comparison Among Different Studies

RLS Risk Index Sameroff	**CRA Risk Index Burchinal**	**CSE Index Evans & English**	**Contextual Risk (CR), Ackerman**	**Current CRF**
Maternal Education	**Maternal Education**			**Maternal Education**
Family Size	**Household Size**			**Household Size**
Family Support (Father Absence)	Single Parenthood			
Stressful Life Events	Stressful Life Events		Life Events (CR)	Maternal Positive Feedback/ Emotional Support
Maternal Anxiety				**Maternal Anxiety**
Maternal Mental Health	**Maternal Depression**			**Maternal Depression**
Maternal Spontaneity In Interaction	Maternal Responsiveness In Interaction			Maternal Cognitive Stimulation
Minority Group Status			Drug and Alcohol Abuse (CR)	**Minority Group Status**
			Psychiatric Morbidity (CR)	
Occupation of Head of Household			Parental Police Contact (CR)	
Parenting Perspectives			Harsh Parenting	**Parenting Beliefs/Values**
	Poverty (Income-to-needs ratio)		**Poverty (Income-to-needs ratio)**	**Poverty (Income-to-needs ratio)**
				Classroom Transience
	Quality of Childcare Environment			**Quality of Childcare Environment**
	Quality of Family Environment	Family Separation	Residential Moves (CR)	
		Violence	Maternal Relationship Between Partners (CR)	
		Noise		
		Family Turmoil		
		Housing Problems		

Table 2 provides a comparison among different risk factors constituted by different Risk Index model. Risk factors in the current study that are similar to other existing risk index are in bold print.

CHAPTER III

METHODOLOGY

Overview of the Design

This study was designed to add to the understanding of the relationship between family and school risk factors and Head Start graduates' cognitive and socioemotional competence in their kindergarten and first grade years. Eleven risk factors have been identified as related to former Head Start children's cognitive and socioemotional competence in their kindergarten and first grad years. Each family and school risk factor will be investigated as to how they contribute to the variance in former Head Start children's cognitive and socioemotional competence in order to evaluate SRF or CRF models.

Participants

There are two cohorts (cohort1, cohort2; 1995-98, 1996-99) of data involved with six major phases of data collection (Spring and Fall for Head Start, Kindergarten, & First Grade, respectively). The Timeline for the data collection as well as measures employed in the current study are depicted in Table 3.

Participants in this study were 88 primary caregivers and their four-year old children (46 boys, 42 girls), enrolled in rural, north-central Oklahoma Head Start centers from two cohorts in 1995-1996 or 1996-1997 who continued to participate in the study through kindergarten (1996-97 or 1997-98) and First Grade (1997-98 or 1998-99). Age

range for caregivers (86 Mothers, 2 grandmothers with custody) is from 19 to 54 years (M=29.32, SD=6.42) on September 1 of their children's year in Head Start. Ethnicity of caregivers was 78.4% European American, 13.6% Native American, 1.1% African American, 1.1% Hispanic, and 5.7% multiethnic. Caregivers were asked to report on the ethnicity of the birth father of their child who was attending Head Start. Based on mothers' reports, children's ethnicity was as follows: 58% European American; 9% Native American; 1% African American; 1% Hispanic; and 31% multiethnic (22% European American and Native American; 5% European American and African American; 3% European American and Hispanic; and 1% Native American and one other minority group).

In order to be eligible for Head Start programs, families must meet U.S. federal poverty guidelines, although programs are allowed to include over income families where space permits. Thus, families recruited for this study were economically disadvantaged when the focal child for this study was enrolled in Head Start. Monthly household income ranged from $50 (one family) to $4000 (one family). Median monthly household income was $1250. Range for household size is from 2 to 8 persons (Median=4 persons), with adults number ranging from 1 to 4 (Median=2). Number of children from each household ranged from 1 to 6 (Median=2).

45.5 percent of the caregivers were married; 14.8% were divorced; 17.0% were remarried; 10.2% had never been married; 8% were separated; 4.5% were widowed. Thirty percent of the caregivers had dropped out of high school or earlier grades; 70% graduated from high school or completed their GED.

Procedure

Fall

Head Start

Caregivers from two cohorts (cohort 1, cohort 2; 1995-96; 1996-97) were recruited in the Fall of their child's pre-kindergarten year in Head Start. They completed a demographic information questionnaire (DIQ), the Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn & Dunn, 1981), the Adult-Adolescent Parenting Inventory (AAPI; Bavolek, 1984, 1989), the State Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), and the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff & Radloff, 1977, 1991) (see Table 3). Mothers completed additional questionnaires not included in the current report.

Kindergarten

In the Fall of their Head Start graduate's kindergarten year (cohort 1, cohort 2; 1996-97; 1997-98), caregivers completed the Child Behavior Checklist (CBCL), AAPI, STAI, and DIQ. Each target child's classroom teacher completed the Friendship Network Inventory (FNI) checklist with Mobility Index information (MOBIN) (see Table 3).

First Grade

In the Fall of their former Head Start graduate's first grade year (cohort 1, cohort 2; 1997-98, 1998-99), caregivers completed the CBCL during the recruitment and also completed AAPI, STAI and DIQ (see Table 3). Each target child's classroom teacher completed the FNI checklist with MOBIN (see Table 3).

Spring

Head Start

In the spring of pre-kindergarten Head Start year (cohort 1, cohort 2; 1995-96; 1996-97), caregivers paired with their children in order to be videotaped while completing a 4- to 5-minute origami boat-folding task, the Mother Child Teaching Task (MCTT; Sigel, 1982; Sigel & Flaugher, 1980). Children completed the PPVT-R (Dunn & Dunn, 1981) within three weeks after the MCTT and the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PSPCSA; Harter & Pike, 1983). Caregivers also completed Computer Presented Parenting Dilemmas (CPPD). Each target child's classroom teacher completed Howes' (1988) Rating Scale of Social Competence with Peers (HOWES) and the Preschool Behavior Questionnaire (PBQ, Behar, 1977; see Table 3).

Kindergarten

In the Spring of the Head Start graduate's kindergarten year (cohort 1, cohort 2; 1996-97; 1997-98), observers rated each former Head Start graduate's kindergarten classroom with the Early Environment Rating Scales (ECERS, Harms & Clifford, 1980). Each Head Start graduate completed the PPVT-R (Dunn & Dunn, 1981) and PSPCSA (Harter & Pike, 1983). Each Head Start graduate's kindergarten teacher completed the FNI checklist with MOBIN, the HOWES (1988), the PBQ (Behar, 1977), and the Teacher Checklist of Peer Relationships (TCPR; see Table 3).

First Grade

In the Spring of the Head Start graduate's first grade year (cohort 1, cohort 2; 1997-98, 1998-99), observers rated each Head Start graduate's first grade classroom with the ECERS (Harms & Clifford, 1980). Caregivers also completed the Computer Presented Parenting Dilemmas (CPPD). Each Head Start graduate completed the PPVT-R (Dunn & Dunn, 1981) and the PSPCSA (Harter & Pike, 1983). Head Start graduates' first grade teachers completed the FNI checklist with MOBIN, TCPR, and the PBQ (Behar, 1977; see Table 3).

Table 3
Procedure and Timeline for Current Study

Year	Cohort	School	**Data Source**	Measure
Fall 95	1	T1HS	**M**	DIQ, STAI, AAPI CES-D, PPVT-R,
Spring 96	1	T1HS	**M&C**	MCTT
			M	CPPD
			C	PPVT-R, PSPCSA
			T	HOWES, PBQ
Fall 96	2	T1HS	**M**	DIQ, STAI, AAPI CES-D, PPVT-R
	1	T2 K	**M**	CBCL, AAPI, DIQ STAI
			T	MOBIN
Spring 97	2	T1HS	**M&C**	MCTT
			M	CPPD
			C	PPVT-R, PSPCSA
			T	HOWES, PBQ
	1	T2 K	**O**	ECERS
			C	PPVT-R, PSPCSA
			T	MOBIN, HOWES TCPR
Fall 97	2	T2 K	**M**	CBCL, AAPI, DIQ STAI
			T	MOBIN
	1	T3 1^{ST}	**M**	CBCL, AAPI, DIQ, STAI
			T	MOBIN
Spring 98	2	T2 K	**O**	ECERS
			C	PPVT-R, PSPCSA
			T	MOBIN, HOWES, TCPR
	1	T3 1^{st}	**O**	ECERS
			M	CPPD
			C	PPVT-R, PSPCSA
			T	MOBIN, TCPR, PBQ
Fall 98	2	T3 1^{st}	**M**	CBCL, AAPI, STAI, DIQ
			T	MOBIN
Spring 99	2	T3 1^{st}	**O**	ECERS
			M	CPPD
			C	PPVT-R, PSPCSA
			T	MOBIN, TCPR, PBQ

Note: **M**: Mother; **M&C**: Mother and Child; **C**: Child; **T**: Teacher; **O**: Observers; T1, T2, T3: Time 1, Time 2, Time 3; and HS, K, 1^{st}: Head Start, Kindergarten, First Grade.

Measures

Two criteria have been applied to identify risk factors for the current study. The first is that there is a sufficient research literature identifying the variable's potential negative or positive impact on children's developmental outcomes. The second is that the variable is reliably measured over all time points, or at least there is sufficient overlap of alternative forms at the same time period of assessment to assume that alternative forms are measuring the same construct (e.g., TCPR will be validated by Howes).

Data obtained from measures of risk were coded for the purpose of developing risk indices to address the research questions and test the hypotheses proposed in this study. Using a method developed by Sameroff and his colleagues, participants received scores of 0 (low risk) or 1 (high risk) on each of the eleven risk variables, and the scores were summed to provide the risk indices (see Table 4 and 5).

Family Risk Factors

The nine family risk factors and the measures from which they are derived are summarized in Table 4. The criteria for risk are summarized in Table 5.

Demographic Information Questionnaire (DIQ). The DIQ collects information about caregivers'/maternal educational level, household income, number in the household, and ethnicity of mother and biological father of target child. This scale will be used to identify the following family risk factors: caregivers'/maternal educational attainment, poverty, minority group status, and household size of the target child.

Caregiver/Maternal Education Attainment: Maternal educational attainment was coded according to the highest grade level attained by the caregiver/mother of the target child. For the current study, if the highest grade for our target child's caregiver/mother

was less than grade 12, a score of 1 was assigned, indicating high risk. If the highest grade for our target child's caregiver/mother was grade 12 or higher, including GED, a score of 0 was assigned, indicating low risk.

Poverty: Family income was calculated in terms of an income/needs ratio score (Brooks-Gunn, Klebanov, & Duncan, 1996; Burchinal, et. al., 2000; Ackerman et. al., 2004). The family income/needs ratio is obtained by dividing each household's income by the Federal Poverty Threshold (FPT) for families with the same number of children and adults living in the home. For the current study, "family income" information collected from the DIQ for each cohort is calculated against that year's FPT (e.g., first cohort, second cohort; 1995 FPT, 1996 FPT, respectively). A score of 1.0 indicates a family income that is equal to the poverty threshold, with scores higher than 1.0 indicating family income above the poverty threshold, and scores lower than 1.0 indicating a family income below the poverty threshold. Therefore, families receiving a score of less than 1.0 were considered high risk and were assigned a risk score of 1, while families receiving score of 1.0 or higher were considered low risk and were assigned a score of 0.

Minority Status: Because Sameroff et al. (1993) found minority status to be associated with lower levels of child competence, they argued that it is therefore a risk factor to child development. Hence, minority status was assigned based on the guidelines developed by the United States Census Bureau to address racial and ethnic identity (U.S. Census Bureau, Population Division, United States Department of commerce, 2000). These identified groups are: Black or African-American, American Indian, Hispanic, Asian, and Pacific Islander. The U.S. Census Guidelines do not include the category of

bi-racial or multi-racial in their list of identified groups. However, for the purpose of this study, when the mother of the target child has 50 percent of ethnicity that belongs to an identified group, the target child is considered as belonging minority group in this study. Therefore he/she is to receive a score of 1, indicating high risk, otherwise a score of 0 was given indicating low risk. For example, if the target child's mother identified herself as white and American Indian but married with a man who identified himself as white, this target child falls to the minority status and is assigned a score of 1.

Household Size: In terms of number of children living in the home, families with four or more children living at home received a score of 1, indicating high risk. Families with fewer than 4 children received a score of 0, indicating low risk (Sameroff et al., 1993; Burchinal et al., 2000).

The State Trait Anxiety Inventory (STAI). The STAI scales consist of 20 statements describing trait anxiety, the subject's personality trait or how the person generally feels (Spielberger et al., 1970; 1983). The total range of scores is 20-80 points, with each response on a 4-point Likert-type scale (1= almost never, 4= almost always). The higher the score, the higher the anxiety levels. For the current study, when caregiver/mother of the target child scored at or above the 75 percent of the sample on the STAI scores, the children received a 1, indicating high risk. When caregiver/mother of the target child scored in the lowest 75 percent of the sample (i.e. < 75%) on the STAI score, the children received 0, indicating low risk. Internal consistency (Cronbach's α) for the current sample on the STAI was .92.

Center for Epidemiologic Studies Depression Scale (CES-D). In the CES-D, there are 20 self-report items with a 4-point (0 to 3) Likert scale on each item to measure

respondent's current depressive symptoms (DEPRES) during the past week. Questions included " I felt depressed;" "I felt sad;" and "I had crying spells." Lewinsohn and Teri (1982) indicated that a score of 18 on the CES-D was the optimum score for differentiating depressed from nondepressed individuals in community samples. The current study therefore identified caregivers as depressed when they scored 18 or higher on the CES-D scales. Therefore, when the caregiver/mother of the target child scored higher than or equal to 18 on the CES-D, the children received 1, indicating high risk. When the caregiver/mother of the target child scored less than 18 on the CES-D results, the children received 0, indicating low risk. Internal consistency (Cronbach's α) for the current sample on the CES-D was .75.

Videotaped Mother-Child Teaching Task (MCTT). This measure was originally developed by Sigel and Flaugher (1980) and continues to be used in research on parenting and children's cognitive competence (Barocas et al., 1991; Brody, et al., 1994; Roberts & Barnes, 1992; Hubbs-Tait, Culp, Culp, et al., 2002). For the current research, the mother and child were videotaped while they completed a paper boat-folding task. The videotaped MCTT was then transcribed. Transcripts were coded by research assistants naïve to any research questions and who were not the same individuals as those responsible for data collection. Every maternal utterance were coded with two codes: a code descriptive of maternal affect and/or verbal behavior (including Positive Feedback/Emotional Support) and a code of cognitive stimulation. Thirty-three percent of the tapes were coded independently by the two coders to monitor reliability throughout the duration of coding. Reliabilities ranged from .78 to .99 (Hubbs-Tait, Culp, Culp, et. al., 2002). Therefore, when the caregiver/mother of the target child was rated in the

lowest 25 percent of the sample on Positive Feedback/Emotional Support, the children received 1, indicating high risk. When the caregiver/mother of the target child was rated above the bottom 25 percent of the sample on Positive Feedback/Emotional Support, the children received 0, indicating low risk.

In their results, Hubbs-Tait, Culp, Huey et al. (2002) suggested that a low portion of question asking was a more sensitive measure of low cognitive stimulation than was cognitive distancing. Therefore, when the caregiver/mother of the target child had a score of .08 or lower on the questioning measure indicated low cognitive stimulation, the target child received 1, indicating high risk. When the caregiver/mother of the target child have a score of .09 or higher on the questioning measure indicated high cognitive stimulation, the target child received 0, indicating low risk.

Adult-Adolescent Parenting Inventory (AAPI). This is a 32-item inventory of parenting attitudes and behaviors toward raising children at the 6th grade reading level. It has acceptable construct validity and test-retest reliability (Bavolek, 1984, 1989). Because high scores indicate more negative beliefs, when the caregiver/mother of the target child scored in the highest 25 percent on the AAPI scores, the children received 1, indicating high risk. When the caregiver/mother of the target child scored in the lowest 75 percent on the AAPI scores, the children received 0, indicating low risk.

School Risk Factors

The two school risk factors and the measures from which they are derived are summarized in Table 4. The criteria for risk are summarized in Table 5.

Mobility Index (MOBIN). The MOBIN is the index to measure the Classroom Transience risk factor. It is computed at the classroom level, based on counts within each

classroom of three distinct types of students (Heywood et al, 1997). It is obtained from items of "Transfer In" and "Transfer Out" recorded on the Friendship Network Inventory questionnaire (FNI). Stable students (S) are those students whose names were on the classroom rosters at the beginning, middle, and end of the academic year. Leaving students (L) are those whose names were recorded on the classroom roster initially but "Transfer Out" prior to the end of the school year. Arriving students (A) are those whose names were on the classroom roster at the end of the year but who "Transfer In" after the initial roster was created in September. Finally, the index is calculated as follows:

$$\text{Mobility Index (MOBIN)} = \mathbf{(A) + (L) \,/\, (S) + (A)}$$

Therefore, the total number of mobile students, arrivers and leavers, are presented as a share of the final classroom size. Mobility index for the target child's classroom in the top 25 % of the sample received a 1, indicating high risk on Classroom Transience. Mobility index for the target child classroom lower than the top 25% received a 0, indicating low risk on Classroom Transience.

Early Childhood Environment Rating Scale (ECERS). The ECERS is the rating scale designed to assess the developmental appropriateness of classroom practices in the following six areas: Personal Care, Furnishings, Language/Reasoning, Fine/Gross Motor, Creative Activities, Social Development, and Adult Provisions (Harms & Clifford, 1980). It consists of 37 items. Each item is rated on a 7-point scale with descriptors for 1 (inadequate), 3 (minimal), 5 (good), and 7 (excellent). Psychometric analyses of the ECERS indicated that all of the items are highly correlated and that a single total score can provide a parsimonious, reliable, and valid representation of process quality (Whitebook et al, 1989). An average item score (total) is calculated as the mean

of the child-related items. Child-care classroom risk was indicated if the average item score was less than or equal to 3 (Burchinal et. al., 2000). In the current study, for classrooms with an average ECERS item score less than or equal to 3, the target child received a 1, indicating high risk. For classrooms with an ECERS score greater than 3, the target for the target child received a 0, indicating low risk.

Table 4 shows the measurement for each environmental risk factor for the current study. Table 5 shows the summary of the current risk index.

Table 4

Risk Factors, Context, and their Measures and Relevant Sub-scales

CONTEXT OF RISK	
Risk Factors	Measures
FAMILY RISK FACTORS	
Low Maternal Education Attainment	DIQ
Low Income	DIQ
Minority Status	DIQ
Large Household Size	DIQ
High Maternal Anxiety	STAI
High Maternal Depression	CES-D
Low Maternal Cognitive Stimulation	MCTT
Low Maternal Positive Feedback/ Emotional Support	MCTT
Parenting Attitudes	AAPI
SCHOOL RISK FACTORS	
High Classroom Transience	MOBIN
Low Classroom Quality	ECERS

Table 5

Summary of Risk Factors Used to Develop Risk Indices

Risk Factors	Low Risk	High Risk
Low Maternal Education Attainment	Grade 12 or higher	Less than Grade 12
Poverty (Income/Needs Ratio)	below 1.0	1.0 and above
Minority Status	no	yes
Large Household Size	1-3 children	4 or more children
High Maternal Anxiety	75% lowest	25% highest
High Maternal Depression	below 18	18 and above
Low Maternal Cognitive Stimulation	$\geq$ .09	$\leq$ .08
Low Maternal Positive Feedback/ Emotional Support	75% highest	25% lowest
Parental Belief/Values	75% highest	25% lowest
High Classroom Transience	75% lowest	25% highest
Low Classroom Quality	> 3	$\leq$ 3

Competence Outcomes

Outcomes in this study were measured over three years, Head Start, Kindergarten, and First Grade. Two of the instruments described below, Peabody Picture Vocabulary Test and Preschool Behavior Questionnaire, were administered in the Spring of each year, providing the necessary three time points. For all other measures, correlations will be computed at one time point to determine whether two instruments can be viewed as measures of the same construct ($r \geq .60$). Table 6 shows the outcome measurements for children's cognitive and socioemotional competence and their relevant sub-scales.

Peabody Picture Vocabulary Test-Revised (PPVT-R). The PPVT-R (Dunn & Dunn, 1981) is a standardized test of receptive Standard American English vocabulary for testing persons 2 ½ through 40 years of age. It is correlated with measures of aptitude and school readiness (Ladd, 1990). Internal consistency (.67 to .88) and construct validity (.71 with vocabulary subscales of IQ tests) of the instrument are acceptable (Dunn & Dunn, 1981). Moreover, PPVT-R scores are significantly positively correlated with scores on the Wechsler Intelligence Scale for Children-III (WISC-III) Full Scale IQ (.63), Verbal IQ (.65) (Hodapp & Hass, 1997); Full Scale IQ (.77), Verbal IQ (.71), and Performance IQ (.74) (Altepeter, 1989). It was also used to measure the child's language outcomes, because receptive language is considered as one of the strengths in children's successful transition to school since communication and comprehension are vital to doing well in school (Wigfield, 1999).

Child Behavior Checklist (CBCL). The CBCL is a 118 item checklist aimed for parent use in assessing various child behavior problems (Achenbach, 1991). This measure is designed and standardized for use with children and adolescents 4-18 years

old. Items are rated on a 3 point rating scale, according to severity and a fifth grade reading level is necessary for completion of the measure. This scale assesses internalizing behavior problems (e.g., withdrawn, anxious and depressed behavior), externalizing behavior problems (e.g., delinquent and aggressive behavior), and behaviors that are neither internalizing nor externalizing (e.g., problems with attention, academic difficulties, and social skills). Internal consistency (Cronbach's α) for aggressive behavior problems in the current sample was .78. Response to the aggression subscale measured child aggression in kindergarten and first grade.

Computer Presented Parenting Dilemmas (CPPD). This measure is an interactive computer assessment modified from Holden's Computer Presented Social Situations (Holden & Ritchie, 1991). It contains 15 vignettes (e.g., the child spilled his/her juice during breakfast and began crying over his/her mistake) which were presented on a computer. After reading each vignette, the caregiver/mother was asked how she would respond to this behavior by her child (e.g., ignore it; put child in time out) by rating it on a 7-point Likert-type scale (Culp et. al., 2000). In one of the vignettes, story 5, the target child is playing with a friend and hits him/her. The mother is asked to rate how frequently her child hits other children. Responses to this item will provide a measure of aggressive behavior in Head Start and first grade. Correlations will be computed between CPPD response and CBCL aggression score to determine whether there is sufficient overlap between these two measures in order to assume they are measuring the same construct. If so, then growth curves can be plotted at the three time points for aggression.

Preschool Behavior Questionnaire (PBQ). The PBQ (Behar, 1977) is a teacher rating scale on behavior problems for children from ages 3 to 6. Teachers indicate on a

3-point Likert-type scale from "doesn't apply" (1) to "certainly applies" (3) how well each descriptor fits the child. There are three subscales with concurrent validity (Ladd, 1990); hostile/aggressive, anxious/fearful, and hyperactive/distractible. Internal consistency for the current sample is as follows: hostile/aggressive (.77), anxious/fearful (.79), and hyperactive/distractible (.80). The PBQ has been extensively utilized in studies of pre-schoolers' behavior (e.g., Johnson, Gomez & Sanders-Phillips, 1999). The PBQ was administered at all three time points.

Teacher Checklist of Peer Relationships (TCPR). The TCPR consists of 12 items measuring children's social competence with peers or aggression against peers. The head teachers in each classroom completed the scale. It has been used to rate children ranging in age from kindergarten to age 10 (Dodge & Somberg, 1987; Pettit, Harrist, Bates, & Dodge, 1991). Internal consistencies for the current sample are .79 for social competence and .74 for aggression.

Howes' Social Competence with Peers (HOWES). This is an 18-item, teacher rating scale of peer social functioning, developed by Howes (1988). Behavior observations have supported the construct validity for the three factors, difficult, hesitant, and sociable, as well as the over time satiability for the subscale ratings (Howes, 1988). Internal consistency of the three factors for the current sample is as follows: difficult (80), hesitant (79), and sociable (.81).

For the current study, TCPR aggression will be correlated with HOWES difficult (see Table 6). TCPR social competence will be correlated with HOWES sociability to determine whether the variable measure the same construct. If so, growth curve can be analyzed.

Table 6

Outcomes Measurements for Children's Cognitive and Socioemotional Competence and Relevant Sub-scales

Outcome Measurement	**Domain**	**Relevant Sub-scales**
Peabody Picture Vocabulary Test -Revised	Cognitive	
The Pictorial Scale of Perceived Competence Cognitive and Social Acceptance for Young Children	Cognitive	Cognitive Competence
Preschool Behavior Questionnaire	Social	Hostile/Aggressive Anxious/Fearful Hyperactive/Distractible
Child Behavior Checklist	Social	Aggression
Computer Presented Parenting Dilemmas	Social	Hitting Frequency
Teacher Checklist of Peer Relationships	Social	Aggression, Social Competence
Howes Social Competence with Peers	Social	Sociability

Data Analysis Plan and Model Conceptualization

The data obtained from the above measures were coded for the purpose of developing risk factors and scores for formal Head Start children's cognitive and socioemotional competence to address the research questions and test the hypotheses proposed in this study. Abbreviations for each risk factor as well as the measures used to measure them are depicted in Figure 1 (see page 59).

In Figure 1, EDUC stands for caregivers'/maternal educational attainment, POVERT stands for poverty, MINOR stands for minority status, HOUSEH stands for the household size of the target child, ANX stands for anxiety, DEPRES stands for

depression, COGSTI stands for cognitive stimulation, POSEMO stands for positive feedback/emotional support, PBELIEF stands for parenting beliefs, CLTRAN stands for classroom transience, and CLQUAL stands for classroom quality.

Following data entry, frequencies will be checked for out of range values and logical inconsistencies. Prior to data analyses and the development of risk factors and composite scores, the descriptive statistics and distribution of all variables relevant to the present study will be assessed in terms of the range, mean, standard deviation, variance, skewness, and missing data.

Figure 1 depicts the conceptual model of this study. It provides a vital overview of the constructs and measures of the study. The rectangles in the first column represent the instrument used to measure family and school risk factors represented by oval shapes in the second column. The oval shapes in the third column represent the hypothesized categories of outcomes in this study. The fourth column of rectangles represented the measures used to operationalize the outcomes.

In the following paragraph, I will discuss the relations between Figure 1 and the research questions and hypotheses proposed in chapter 1. Research question 1 and its two associated hypotheses were as follows: How do family and school risk factors relate to former Head Start children's cognitive and socioemotional competence in their kindergarten and first grade years? Hypothesis 1a: Family and school risk factors will be significantly inversely associated with former Head Start children's cognitive competency. Hypothesis 1b: Family and school risk factors will be significantly inversely associated with former Head Start children's socioemotional competency.

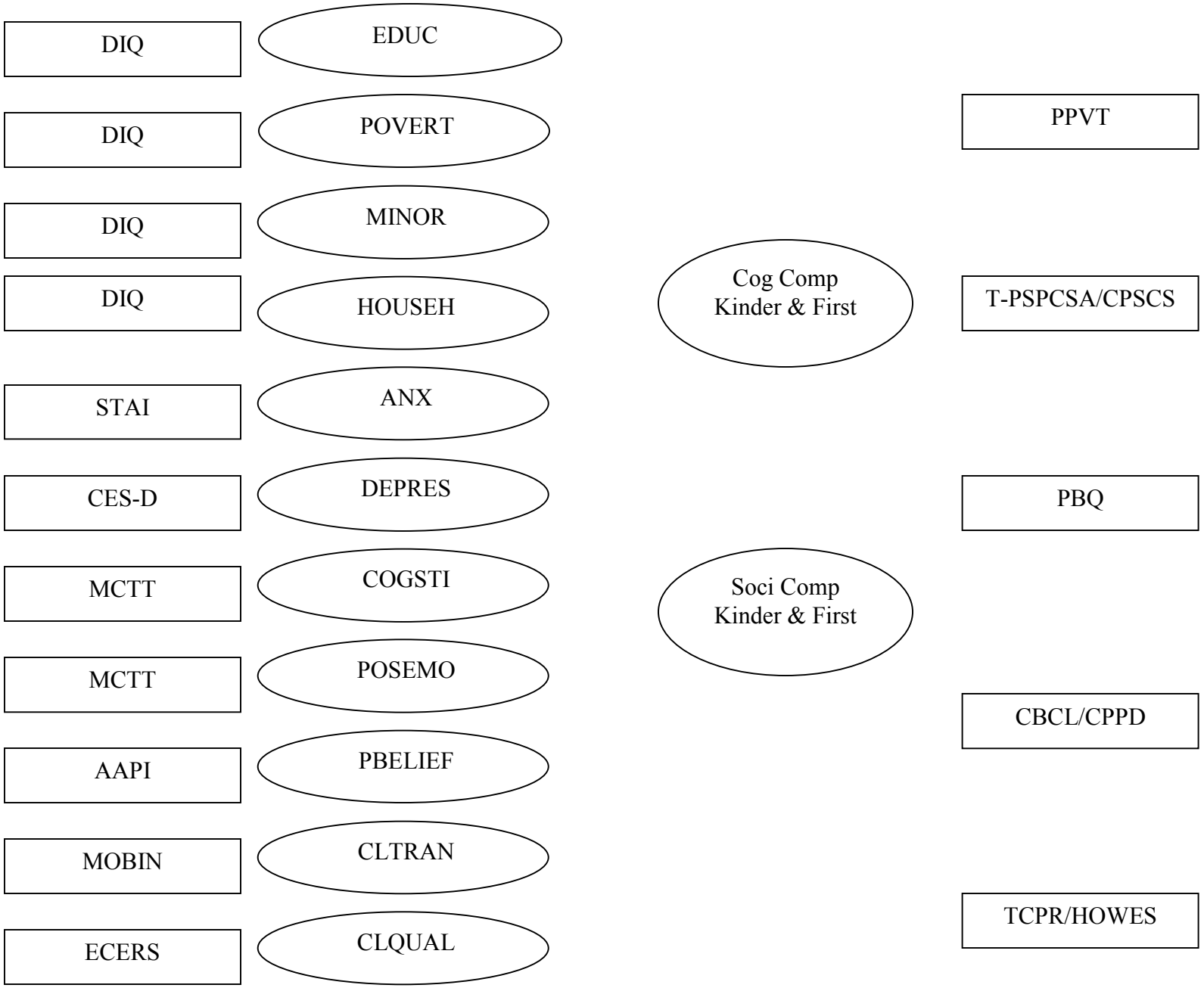
Hence, the first hypothesis examines the relations between the two columns of oval shapes, each measured by their own groups of rectangles. Predictors are family and school risk factors; cognitive outcomes are PPVT receptive language scores and PSPCSA perceived cognitive competence; socioemotional outcomes are PBQ subscales and CBCL subscales. Forward stepwise regression analysis will be used to identify the set of family risk factors most closely related to cognitive or socioemotional outcomes. Then, hierarchical regression analysis will be used to evaluate the relation of kindergarten or first grade outcomes to both family and school risk factors, controlling for the relevant Head Start outcome in the first block of the regression.

Research question 2 and its associated hypotheses were as follows: How much of the variance in former Head Start children's cognitive and socioemotional competence in their kindergarten and first grade years is explained by family and school risk factors? One sub-question which can be asked here is which risk factor index (family vs. school) contributed more to explaining the former Head Start children's cognitive and socioemotional competency. Hypothesis 2a predicted that family and/or school risk factors would explain significant variance in former Head Start children's cognitive competency in their kindergarten and first grade years. Hypothesis 2b predicted that family and/or school risk factors would explain significant variance in former Head Start children's socioemotional competency in their kindergarten and first grade years.

Hence, the second hypothesis examines how much of the variance in the outcomes, cognitive and socioemotional competency, represented by the third columns of oval shapes can be explained by the risk factors represented in the second column of oval

shapes (see Figure 1). It was expected that as risk factors increased, cognitive and social competence would decrease.

Research question 3 asks which model is more appropriate (Single Risk Context Model or Dual Risk Contexts Model) for explaining Head Start children's cognitive and socioemotional competence over the three time points. Because the outcome data for each child have been measured at three time periods (Head Start, Kindergarten, and First Grade-- T1, T2, and T3, respectively), repeated measure ANOVA will be used for testing the third hypothesis.


DIQ
EDUC
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MINOR
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HOUSEH
STAI
ANX
CES-D
DEPRES
MCTT
COGSTI
MCTT
POSEMO
AAPI
PBELIEF
MOBIN
CLTRAN
ECERS
CLQUAL
Cog Comp
Kinder & First
Soci Comp
Kinder & First
PPVT
T-PSPCSA/CPSCS
PBQ
CBCL/CPPD
TCPR/HOWES

CHAPTER IV

FINDINGS

This chapter begins with the discussion of the data preparation process which is followed by the results of descriptive analyses. Finally, the analyses of each hypothesis are presented and discussed in detail.

Data Preparation

Following data entry, frequencies were checked for out of range values and logical inconsistencies. Prior to data analyses and the development of risk indices and composite scores, descriptive statistics of all variables relevant to the present study were assessed in particular, range, mean, and standard deviation. The item distributions for variables were acceptable and showing ample variability. Mean substitution was employed to address missing item. Mean substitution, when used to replace small amounts of missing data, is a conservative procedure which maintains the original mean and results in only a small loss of variance (Tabachnick & Fidell, 1989). The percentage of missing item in the present study was very small (i.e., never exceeded 2%), and therefore the amount of data requiring mean substitution, was also very small.

Descriptive Analysis

Descriptive Information on Former Head Start Children and Family Demographics

Demographic characteristics for the current sample discussed previously in the methodology section are depicted in Table 7 for a quick review. Many researchers on

poverty issues have suggested that the real impact of poverty on people's lives may be understood through the calculation of a family income/needs ratio, which provides greater information on the distance between family income and the poverty threshold, than by looking solely at cash income (Eamon, 2000; 2001; Evans et. al., 2002; Hanson et. al., 1997 & Klebanov et. al., 1998). Hence, the family income/needs ratio is obtained by dividing each household's income by the federal poverty threshold for families with the same number of children and adults living in the home. In order to be eligible for Head Start programs, families must meet U.S. federal poverty guidelines, although programs are allowed to include over income families where space permits. Thus, families recruited for this study were economically disadvantaged when the focal child for this study was enrolled in Head Start (see Table 7).

Table 7 Demographic Characteristics for the Current Sample

	N	Mean	SD
Total Family Income[a]	88	1324.43	739.02
Caregiver's Education (grade level)	88	12.55	1.57
Caregiver's Age	88	29.32	6.42
Former Head Start Children Age	88	4.56	.25
Household Size	88	4.39	1.24

[a]Monthly income in U.S. dollars

Descriptive Information on Risk Factors

As described in the methodology section, data obtained from measures of risk were coded for the purpose of developing risk indices to address the research questions and test hypotheses in this study. Hence, by using the procedures pioneered by Sameroff and his colleagues (1993; 1987), participants received scores of 0 (low risk) or 1 (high

risk) on each of the nine family risk variables. Therefore, the numerical value of the sample mean for each indicator of family risk will never be larger than one. Moreover, the sample mean will be the percentage of the current sample who are in the high risk group for that factor. The means and standard deviations of each of these variables as well as those of the school risk variables are presented in Table 8.

For the current sample, the one family risk factor that was true of the majority of the sample was low income. As seen in Table 8, 16 (18%) of the caregivers reported themselves as never completing high school, 48 (55%) of the sample are from low income families, 37 (42%) of our sample are from a minority group, 11 (13%) of our sample come from a large household with 4 or more people present, 12 (14%) of our caregivers rated themselves as having anxiety, 35 (40%) of our caregivers rated themselves as experiencing depression, 33 (38%) of our caregivers provided low maternal cognitive stimulation, 21 (24%) of our caregivers have low maternal positive feedback/emotional support toward our target child, and 23 (26%) of our caregivers had negative parenting attitudes toward our target child.

Calculation of the classroom transience was described in Chapter 3. Briefly transience = transfers in + transfer out/stable + transfers in. For the current sample, the transience score ranges from 0 to 34 with a sample mean of .57 for the kindergarten year and .78 for the first grade year. Notice the fact that in Table 8, classroom transience is denoted as "inverse transience." Each target child's inverse transience was calculated by using one minus his/her transience score. The main reason for this is for the easement of aggregation of school risk measures in terms of eliminating the confusion of negative and

positive numerical values. Classroom risk as measured by the ECERS is denoted by lower scores; classroom risk as measured by transience is denoted by higher scores.

Table 8 also depicts the average amount of ECERS scores children's classrooms received in the kindergarten and first grade years. By looking at Table 8, it is not difficult to find out the fact that we have two different categories of Risk Factors in terms of their measurement mechanism. Each Family risk factor is a continuous variable from 0 to 1. The two school risk factors are measured differently: proportion of transience versus a 1 to 7 score for classroom quality. Whereas classroom quality has established risk cutoffs, classroom transience does not. Hence, in order to aggregate classroom risk variables, standardizing them becomes necessary. Hence, four sets of data have been transformed into four z-scores, kindergarten inverse transience score, first grade inverse transience score, kindergarten ECERS score, and first grade ECERS score. Each target child's school risk factor was then calculated for two time periods, kindergarten only and kindergarten with first grade. Standardized school risk scores for kindergarten year was ranging from -4.95 to 2.67 with standard deviation of 1.46. Standardized school risk scores for kindergarten and first grade years combined was ranging from -9.09 to 4.13 with standard deviation as 2.13.

Table 8 Descriptive Information on Risk Factors

	N	Mean	SD
FAMILY RISK			
Low Maternal Education Attainment	88	.18	.38
Low Income	88	.55	.50
Minority Status	88	.42	.50
Large Household Size 4+	88	.13	.33
High Maternal Anxiety	88	.14	.35
High Maternal Depression	88	.40	.49
Low Maternal Cognitive Stimulation	88	.38	.49
Low Maternal Positive Feedback/ Emotional Support	88	.24	.43
Negative Parenting Attitudes	88	.26	.44
SCHOOL RISK			
Classroom Transience[a]			
Kindergarten	88	.80	.21
First Grade	88	.76	.22
Low Classroom Quality			
Kindergarten	88	4.49	.68
First Grade	88	3.76	.49

[a] Inverse transience

Table 9 Correlations Among Risk Factors

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Classroom Quality (K)	-----												
2. Classroom Quality (1st)	.082	-----											
3. Classroom Transience (K)	-.068	-.059	-----										
4. Classroom Transience (1st)	.021	.174	.259*	-----									
5. Maternal Education	-.014	.149	-.064	-.058	-----								
6. Income Needs Ratio	-.015	-.144	-.058	-.128	-.108	-----							
7. Minority	-.008	-.067	-.145	.102	-.043	-.074	-----						
8. Household Size	.142	.114	-.054	-.173	.156	-.340**	-.106	-----					
9. Maternal Anxiety	-.042	-.019	-.067	.104	.191	-.049	-.010	.097	-----				
10. Maternal Depression	-.063	.012	-.024	.176	.042	-.050	-.017	.009	.759**	-----			
11. Maternal Cognitive Stimulation	-.180	.053	-.021	-.084	.042	.164	-.005	.041	-.029	-.093	-----		
12. Maternal Positive Feedback/Emotional Support	.174	.076	-.005	.144	-.180	.102	-.030	-.141	-.185	-.121	-.049	-----	
13. Parenting	-.156	.133	-.067	.076	.263**	-.064	.186	-.173	.334**	.288*	-.156	-.169	-----

* p<.05; ** P<.01

Correlations among all risk measures were computed prior to evaluating hypotheses. Table 9 depicts the correlations among all measures. By definition, income to needs ratio and family size are related. For this reason, and our recent report that "number of children" does not load with other risk factors in our higher order latent risk construct (Hubbs-Tait et al. under review, 2005), I omitted number of children (household size) as a risk factor in the analyses reported below.

Descriptive Information on Children's Outcomes

Descriptive information on children's outcomes are presented in Table 10 with three different time period, Head Start, Kindergarten, and First Grade. These findings are based upon comparisons with the norms on those measures for which norms have been established.

Table 10 Descriptive Information on Children's Outcomes

	N	Mean	SD
Head Start			
PPVT-R	86	89.84	13.94
Aggressive Behavior/PBQ	88	5.05	5.60
Hyperactive Behavior/PBQ	88	1.98	2.32
Anxious/PBQ	88	2.73	2.94
Sociability/HOWES	88	13.41	3.46
Kindergarten			
PPVT-R	87	93.47	13.64
Aggressive Behavior/PBQ	88	3.69	5.15
Hyperactive Behavior/PBQ	88	2.50	2.47
Anxious/PBQ	88	2.26	2.25
Sociability/PBQ	88	13.70	3.46
Aggressive/TCPR	88	11.52	5.73
Withdrawn/TCPR	88	1.97	.88
Social Competence/TCPR	88	18.22	2.47
First Grade			
PPVT-R	88	95.28	14.56
Aggressive Behavior/PBQ	88	3.45	4.95
Hyperactive Behavior/PBQ	88	2.34	2.55
Anxious/PBQ	88	2.27	2.56
Aggressive/TCPR	88	11.05	4.96
Withdrawn/TCPR	88	1.95	.95
Social Competence/TCPR	88	18.47	2.26

Note. PPVT-R=Peabody Picture Vocabulary Test-Revised. PBQ=Preschool Behavior Questionnaire. TCPR=Teacher Checklist of Peer Relationships.

For the cognitive competence result, PPVT, scores increased across years for the current sample with the sample mean increasing from 89.84 in Head Start, 93.47 in Kindergarten, to 95.28 in First Grade. For socioemotional competence result, aggressive behavior decreased across years with the sample mean decreasing from 5.05 in Head Start, 3.69 in Kindergarten, to 3.45 in First Grade. Notice that even within the elementary school years, teachers' ratings of children's aggressive behavior on the TCPR decreased from sample mean of 11.52 in kindergarten to 11.05 in First Grade. Moreover, former Head Start children's sociability can be observed as increased across years with the sample mean increasing from 13.41 in Head Start, to 13.70 in Kindergarten (on the Howes measure) as well as 18.22 on the TCPR in Kindergarten to 18.47 on the TCPR in First Grade.

For the social competence results, as mentioned in chapter 3, two sets of correlational analyses were performed comparing the Teacher Checklist of Peer Relationships (TCPR) social competence subscale with Howes' sociability with peers subscale (HOWES) as well the aggression subscale of the Child Behavior Checklist (CBCL) and Computer Presented Parenting Dilemmas (CPPD). These analyses were conducted to determine whether the different subscales measured the same construct. Unfortunately, the magnitude of the correlation between the CBCL and CPPD was below the .60 criterion we designated as indicative of the same construct ($r = .23$). Therefore, these measures were not included in the rest of the analyses. However, the TCPR social competence subscale and the sociability subscale were sufficiently highly correlated ($r = .77$) to indicate that they measure the same construct.

For the cognitive competence outcomes, correlations were computed between the mastery subscale of the California Preschool Social Competency Scale and the cognitive subscale of the Pictorial Scale of Perceived Competence and Social Acceptance. Unfortunately, the correlation was extremely low ($r = .05$) indicating that these two subscales did not measure the same construct. Therefore, these measures were not included in the rest of the analyses.

Table 11 depicts the correlations among family and school risk factors and former Head Start children's cognitive and socioemotional outcomes at three time points, Head Start, Kindergarten, and First Grade. As noted above, the family risk was a variable ranging from 0 to 8. School risk was the sum of two standardized scores and ranged from -9.09 to 4.13 for first grade.

Table 11 Correlations among Risk Factors and Child Outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Family Risk	-----																	
2. School Risk (K)	-.048	-----																
3. School Risk (K and 1st Grade)	-.050	.807**	-----															
4. PPVT (H)	-.265*	.104	-.006	-----														
5. PPVT (K)	-.209	.006	-.098	.712**	-----													
6. PPVT (1st)	-.255*	.041	-.070	.662**	.737**	-----												
7. Aggressive (H)	.101	.109	.173	-.114	-.059	-.087	___											
8. Aggressive (K)	.133	-.018	.040	-.221*	-.332**	-.263*	.580**	-----										
9. Aggressive (1st)	.104	.061	.088	-.100	-.106	.047	.470**	.464**	___									
10. Anxious (H)	-.025	.161	.105	-.149	-.062	-.128	.376**	.058	.019	-----								
11. Anxious (K)	.053	.023	-.026	-.164	-.178	-.155	.077	.298*	.072	.153	-----							
12. Anxious (1st)	.071	.093	-.002	-.021	.111	.083	.006	.040	.397**	.246*	.236*	-----						
13. Hyperactive (H)	.137	.137	.117	-.147	-.115	-.180	.847**	.479**	.330*	.343**	.053	-.108	-----					
14. Hyperactive (K)	.122	-.090	-.045	-.302**	-.277**	-.265*	.363*	.646**	.234*	.019	.286*	.048	.359*	___				
15. Hyperactive (1st)	.145	.178	.153	-.072	-.064	.000	.379**	.397**	.701**	.075	.130	.484**	.341*	.379**	____			
16. Sociable (H)	-.104	.059	.065	.135	.060	.054	-.493**	-.344*	-.314**	-.246*	-.165	-.208	-.445**	-.287*	-.331*	____		
17. Sociable (K)	-.151	-.135	-.119	.442**	.425**	.389**	-.160	-.473**	-.056	-.039	-.509**	-.101	-.166	-.492**	-.101	.313*	___	
18. Sociable (1st)	-.097	-.043	-.034	.096	.316	-.029	-.337*	-.414**	-.467**	-.045	-.030	-.333*	-.278*	-.387**	-.448**	.467**	.230*	___

* p<.05; ** P<.01

Research Questions and Hypotheses

The results which are described in this section correspond to the research questions and hypotheses presented in Chapter One. Each hypothesis will then be addressed in its own section.

Research Question 1: How do family and school risk factors relate to former Head Start children's cognitive and socioemotional competence in their kindergarten and first grade years?

Hypothesis 1a predicted that family and school risk factors would be significantly inversely associated with former Head Start children's cognitive competency. To test this hypothesis, I evaluated relations between continues risk factors and child outcomes in each of the three years of the study: Head Start (hypothesis 1a1), kindergarten (hypothesis 1a2), and first grade (hypothesis 1a3). To examine the relationships of family risk factors with former Head Start children's cognitive competency, a series of forward stepwise regressions were conducted. Because I wanted to be able to compare as many family risk factors as possible with school risk factors, I set alpha =.10 in the analyses of family risk factors.

Hypothesis 1a1.

Hypothesis 1a1 addressed the prediction of Head Start children's PPVT-R scores from family risk factors at the end of the pre-kindergarten year of Head Start. Caregiver/maternal educational attainment, was significantly negatively associated with former Head Start children's PPVT scores in their pre-kindergarten Head Start year (β= -.326, p=.002). The higher the caregiver/maternal educational attainment, the higher the PPVT scores children obtained in Head Start, the lower the caregiver/maternal

educational attainment, the lower the PPVT scores the former Head Start children obtained.

School risk factors were measured only in kindergarten and first grade. Thus, the relation of school risk factors to child outcomes could not be evaluated in Head Start.

Hypothesis 1a2.

To test the hypothesis that family risk factors predicted children's PPVT scores at the end of kindergarten, I controlled children's PPVT scores in Head Start, and then used stepwise forward entry for all family risk factors. Family income to needs ratio (β=.17, p=.02) and negative parenting attitudes (β= -.13, p=.09) were significantly positively associated with former Head Start children's PPVT scores in their kindergarten year. The higher the family income to needs ratio, the higher the PPVT scores the former Head Start children obtained in kindergarten. The lower the family income to needs ratio, the lower the PPVT scores the former Head Start children obtained in kindergarten. The greater the negative parenting attitudes, the lower the children's PPVT scores in kindergarten. The lower the negative parenting attitudes, the higher the PPVT scores in kindergarten.

To test the hypothesis that both family and school risk factors predicted children's kindergarten PPVT-R scores, I controlled children's PPVT scores in Head Start, and then used stepwise forward entry for all family and school risk factors. Classroom transience (β= -.13, p=.09), was significantly inversely associated with former Head Start children's PPVT scores in their kindergarten year. That is to say, the higher the classroom transience in each target child's classroom, the lower the PPVT scores our targeted Head Start child obtained in kindergarten. However, the same analysis of first

grade results (see Hypothesis 1a3) revealed no such effect existed. Hence, the effect in the kindergarten year might simply be due to chance.

Hypothesis 1a3.

To test the hypothesis that family risk factor predicted children's PPVT scores at the end of first grade, I controlled children's PPVT scores in Head Start, and then used forward stepwise entry for all family risk factors. Results showed that minority status and maternal positive feedback/emotional support were significantly associated with former Head Start children's PPVT scores in First Grade. Children of parents from a minority group had significantly lower PPVT scores than former Head Start children who were white (β= -.21, p=.01). The more positive feedback/emotional support the former Head Start children received during the boat folding task, the higher their PPVT scores in first grade, the lower the positive feedback/emotional support, the lower their PPVT scores in first grade (β= .15, p=.06).

To test the hypothesis that both family and school risk factors predicted children's first grade PPVT-R scores, I controlled children's PPVT scores in Head Start, and then used forward stepwise entry for school risk factors. Unlike the kindergarten results in hypothesis 1a2, by the end of first grade, classroom transience was not significantly related to former Head Start children's PPVT scores in first grade (β= -.10, p=.25). Hence, we can conclude that earlier relational finding in hypothesis 1a2 was due to chance or some unstudied variable.

Hypotheses 1b predicted that family and school risk factors would be significantly inversely associated with former Head Start children's socioemotional competency. To test this hypothesis, I evaluated relations between risk factors and child outcomes in each

of the three years of the study: Head Start (hypothesis 1b1), kindergarten (hypothesis 1b2), and first grade (hypothesis 1b3). To examine the relationships of family and school risk factors with former Head Start children's socioemotional competency, a series of forward stepwise regressions was conducted. Because I wanted to be able to compare as many family risk factors as possible with school risk factors, I set alpha =.10 in the analyses of family risk factors.

Hypothesis 1b1.

Hypothesis 1b1 addressed the prediction of Head Start children's socioemotional competency from family risk factors at the end of the pre-kindergarten year of Head Start. To test the hypothesis that family risk factors predicted children's socioemotional competency in pre-kindergarten, I used forward stepwise entry for all family risk factors. No statistically significant relationships were found in this analysis.

School risk factors were measured only in kindergarten and first grade. Thus, the relation of school risk factors to child outcomes could not be evaluated in Head Start.

Hypothesis 1b2

Hypothesis 1b2 addressed the prediction of Head Start children's socioemotional competency from family risk factors at the end of kindergarten. To test the hypothesis that family risk factors predicted children's socioemotional competency in kindergarten, I controlled children's sociable teacher ratings in Head Start and then used forward stepwise entry for all family risk factors. Results indicated that negative parenting attitudes were significantly inversely associated with former Head Start children's sociable teacher ratings in Kindergarten (β= -.21, p=.04). The more negative the parenting attitudes, the lower the teacher ratings of sociability in kindergarten. The less

negative the parenting attitudes, the higher the teacher ratings of sociability in kindergarten. Notice the fact that family risk factors, maternal positive feedback/emotional support (β= -.25, p= .02), was significantly inversely associated with former Head Start children's sociable teacher ratings in their kindergarten year. Such a result was not expected in that the higher the maternal positive feedback/emotional support, the lower the teacher ratings of sociability in kindergarten. However, the same analysis of first grade results (see Hypothesis 1b3) revealed no such effect. Hence, the effect in the kindergarten year might simply be either due to chance or some unmeasured variables. The most parsimonious explanation for such results only in kindergarten might be idiosyncrasies in some kindergarten teachers' ratings.

The results also indicated the fact that negative parenting attitudes were significantly associated with former Head Start children's aggressive teacher ratings in Kindergarten (β= .23, p=.01). The more negative the parenting attitudes, the higher the teacher ratings of aggressiveness in kindergarten. The less negative the parenting attitudes, the lower the teacher ratings of aggressiveness in kindergarten.

Moreover, negative parenting attitudes (β=.24, p=.02) and maternal anxiety (β= -.21, p=.05) were significantly associated with former Head Start children's hyperactive teacher ratings in Kindergarten. The more negative the parenting attitudes and lower the maternal anxiety, the higher the teacher ratings of hyperactive behavior problems in kindergarten. The less negative the parenting attitudes and higher the maternal anxiety, the lower the teacher ratings of hyperactive behavior problems in kindergarten.

To test the hypothesis that both family and school risk factors predicted children's social competence in kindergarten, I controlled children's competence scores in Head

Start, and then used stepwise forward entry for all family and school risk factors. No statistically significant results were found.

Hypothesis 1b3

Hypothesis 1b3 addressed the prediction of former Head Start children's socioemotional competency at the end of first grade from family risk factors in Head Start. To test the hypothesis that family risk factors predicted children's socioemotional competency in first grade, I controlled children's anxious, aggression, and hyperactive teacher ratings in Head Start and then used forward stepwise entry for all family risk factors. Results indicated that family risk factor, negative parenting attitudes, were significantly associated with former Head Start children's anxious teacher ratings (β= .27, p=.01), aggression teacher ratings (β=.16, p=.09), and hyperactive teacher ratings (β=.23, p=.03). The more negative the parenting attitudes, the higher the teacher ratings of anxious, aggressiveness, and hyperactive in first grade. The less negative the parenting attitudes, the lower the teacher ratings of anxious, aggression, and hyperactive in first grade.

Caregiver/maternal educational risk, was also significantly associated with former Head Start children's anxious teacher ratings (β= -.19, p=.08) in first grade. That is to say, the lower caregiver/maternal educational risk, the higher the anxious teacher ratings the former Head Start children obtained in first grade. The higher the caregiver/maternal educational risk, the lower the anxious teacher ratings the former head Start children obtained in first grade.

However, family risk factors, maternal positive feedback/emotional support (β= .01, p= .99), was not significantly associated with former Head Start children's sociable

teacher ratings in their first grade. Therefore, previous effect in the kindergarten year might be due to chance or unmeasured variables such as how schools assigned children to their classrooms.

To test the hypothesis that both family and school risk factors predicted children's social competence in first grade, I controlled children's competence scores in Head Start, and then used stepwise forward entry for all family and school risk factors. No statistically significant results were found.

Research Question 2: How much of the variance in former Head Start children's cognitive and socioemotional competence in their kindergarten and first grade years is explained by family and school risk factors? One sub-question which can be asked here is which risk factor index (Family vs. School) contributed more to explaining the former Head Start children's cognitive and socioemotional competency. In contrast to hypothesis 1 which examined individual family risk factors, hypothesis 2 examined aggregate family and school risk indicies.

Hypothesis 2a predicted that family and/or school risk factors would explain significant variance in former Head Start children's cognitive competency in their kindergarten and first grade years. To test this hypothesis, hierarchical regressions were conducted in each of the two years, kindergarten, and first grade. Before conducting these regressions, I computed the family risk and school risk factors.

Nine family risk factors, low maternal education attainment, low income, minority status, large household size (4 or more), high maternal anxiety, high maternal depression, low maternal cognitive stimulation, low maternal positive feedback/emotional support, and negative parenting attitudes have been calculated by

applying Sameroff's method (Sameroff et. al., 1993). With the cut off points defined in the method section, each target child was assigned to 0 or 1 for each risk factor. Due to colinearity between household size and income-to-needs ratio (see below), household size was omitted from the final risk index. Therefore, each target child had a family risk factor index ranging from 0 to 8. The average family risk index was 2.68 (SD=1.69). Seventy-five percent of our sample received a risk index score of 3 or lower. Only one family in our sample received a score of 7. No family had received a score of 8 (see Table 11).

For school risk factors, as briefly described in the descriptive analysis section, two time periods of school risk factors were standardized for aggregation across both components of the school risk factor, classroom transience and classroom quality. Each target child's school risk factor score was then calculated for two time periods, kindergarten only and kindergarten with first grade. Standardized school risk scores for kindergarten year ranged from -4.95 to 2.67 with standard deviation of 1.46. Standardized school risk scores for kindergarten and first grade years combined ranged from -9.09 to 4.13 with standard deviation as 2.13 (see Table 12).

Table 12 Information on Family and School Risk Factors

	N	Mean	SD
FAMILY RISK	88	2.68	1.69
CLASROOM RISK			
Kindergarten	88	.00	1.46
Kindergarten and First Grade	88	.00	2.13

Tables 13 to 15 show that hypothesis 2a was not supported. However, certain aspects of the results still reveal some important information about the current data set. For example, family risk factors had significantly explained Head Start children's PPVT score in their Head Start year (p=.01, see Table 13) but not in kindergarten nor first grade (see Table 14 and 15).

Table 13
Hierarchical Multiple Regression of Family and School Risk Factors in Head Start (N=85)

Outcome Variables	β	B	SE	ΔR^2	p
PPVT (Head Start)					
Family Risk	-.265	-2.31	.92	.07	.014

Table 14
Hierarchical Multiple Regression of Family and School Risk Factors in Kindergarten (N=84)

Outcome Variables	β	B	SE	ΔR^2	p
PPVT (Kindergarten)					
Head Start PPVT	.712	.684	.07	.507	.000
Risk Factors				.006	.618
Family Risk	-.054	-.454	.67		
School Risk (Kindergarten)	-.056	-.513	.72		

Table 15
Hierarchical Multiple Regression of Family and School Risk Factors in First Grade (N=85)

Outcome Variables	β	B	SE	ΔR^2	p
PPVT (First Grade)					
Head Start PPVT	.662	.686	.085	.439	.000
Risk Factors				.015	.324
Family Risk	-.124	-1.118	.763		
School Risk (Kindergarten and First Grade)	-.034	-.230	.557		

Hypothesis 2b predicted that family and/or school risk factors would explain significant variance in former Head Start children's socioemotional competency in their kindergarten and first grade years. To test this hypothesis, hierarchical regressions were conducted in each of the two years, kindergarten (hypothesis 2b1), and first grade (hypothesis 2b2).

Both Hypothesis 2b1 and Hypothesis 2b2 were not supported in terms of the statistically significant ability to explain the former Head Start children's socioemotional competency in their kindergarten and first grade years by the family and school risk factors (see Table 16, 17, and 18).

Table 16
Hierarchical Multiple Regression of Family and School Risk Factors in Head Start (N=87)

Outcome Variables	β	B	SE	ΔR^2	p
Family Risk					
Socioemotional Competence (Head Start)					
Aggressive	.101	.342	.37	.01	.352
Difficult	.06	.162	.29	.00	.577
Hyperactive	.137	.192	.15	.02	.204
Anxious	-.025	-.043	.19	.00	.820
Sociable	-.104	-.223	.23	.01	.337

Table 17
Hierarchical Multiple Regression of Family and School Risk Factors in Kindergarten (N=87)

Outcome Variables	β	B	SE	ΔR^2	p
Aggressive Behavior					
AGRESSIVE (Head Start)	.580	.541	.08	.336	.000
Risk Factors				.012	.477
Family Risk	.071	.226	.28		
School Risk[a]	-.078	-.273	.31		
Hyperactive Behavior					
HYPERACTIVE (Head Start)	.359	.389	.109	.129	.001
Risk Factors				.020	.378
Family Risk	.067	.102	.155		
School Risk	-.121	-.204	.171		
Anxious					
ANXIOUS (Head Start)	.153	.121	.084	.023	.155
Risk Factors				.003	.870
Family Risk	.057	.079	.150		
School Risk	.000	.001	.168		
Sociable					
SOCIABLE (Head Start)	.313	.314	.103	.098	.003
Risk Factors				.035	.187
Family Risk	-.126	-.273	.221		
School Risk	-.145	-.238	.167		

[a] Kindergarten only

Table 18
Hierarchical Multiple Regression of Family and School Risk Factors in First Grade (N=87)

Outcome Variables	β	B	SE	ΔR^2	p
Aggressive Behavior					
AGRESSIVE (Head Start)	.470	.423	.09	.221	.000
Risk Factors				.003	.831
Family Risk	.059	.179	.30		
School Risk[a]	.011	.025	.23		
Hyperactive Behavior					
HYERACTIVE (Head Start)	.341	.379	.113	.116	.001
Risk Factors				.025	.305
Family Risk	.109	.170	.160		
School Risk	.122	.145	.121		
Anxious					
ANXIOUS (Head Start)	.246	.221	.094	.060	.021
Risk Factors				.007	.743
Family Risk	.076	.121	.167		
School Risk	-.025	-.030	.128		
Sociable					
SOCIABLE (Head Start)	.467	.303	.062	.218	.000
Risk Factors				.006	.618
Family Risk	-.052	-.073	.136		
School Risk	-.067	-.071	.102		

[a] Kindergarten and First Grade

Research Question 3: Which model is more appropriate (Single Risk Context Model or Dual Risk Contexts Model) for explaining the relation of family and school risk factors to former Head Start children's cognitive and socioemotional competence over time?

The third research question concerned the best explanation for the relationship between risk factors and former Head Start children's cognitive as well as socioemotional competence over time. Hypothesis 3 predicted that Dual Risk Contexts Model will be more appropriate for explaining the relation between risk factors and former Head Start children's cognitive as well as socioemotional competence over time. Because of the repeated measures over three different time periods, results were evaluated through a series of repeated two-factor within-subjects designed ANOVA (Keppel, 1991).

However, before the specific results are discussed, it is important to review the process of the analysis in order to understand the statistical meaning behind the analysis. First, I looked at the differences in former Head Start children's cognitive and socioemotional competence over time between four groups defined by different numbers of family risk factors, a 4 (between) X 2 (within) design. Second, I looked at differences in former Head Start children's cognitive and socioemotional competence over time using two between factors: family risk groups and High and Low school risk groups. And finally, I draw conclusions on which Risk Model, Single Risk Context Model (i.e., Family Risk Factor Model) or Dual Risk Factor Model (i.e., Family Risk Factor combine School Risk Factor Model), is more appropriate for explaining former Head Start children's cognitive and socioemotional competence over time in this sample.

To depict the relationship between the different number of Family Risk factors and former Head Start children's cognitive and socioemotional competence over time, each child was assigned to one of the four family risk factors groups: 0 and 1 family risk factor group; 2 family risk factors group; 3 family risk factor group; and greater than 3 family risk factors group. Planned comparisons were applied to compare the different family risk groups.

The 4 (Family Risk Groups) X 3 (Time Periods) main effect analysis of PPVT scores revealed a significant effect of Family Risk Group, $F(3, 81)= 2.88$, $p=.04$, and a significant effect of time, $F= (2, 162)$, $p < .000$. Planned comparisons of the main effect for Risk Group indicated the fact that the group with the most family risk factors (greater than 3) had significantly lower PPVT scores ($M=86.57$, $SD=12.86$) than all three lower risk groups on average ($M=95.25$, $SD=11.70$) ($p=.006$). Further, planned comparisons testing for linear effects indicated the statistically significant linear relationship ($p=.012$). That is to say, there is a linear relationship in between the number of family risk factors and former Head Start children's cognitive competence. The more the family risk factors the child had in Head Start, the lesser the cognitive competence the child will develop across time. Because there was no interaction with time, this linear function is constant from Head Start through first grade. Unfortunately, once the school risk factor entered the analyses, no main effect has reached any statistically significance. Hence, no conclusion can be draw for appropriate model prediction.

CHAPTER V

CONCLUSION

This chapter begins with the discussions of each hypothesis, followed by the limitations, and ends with the implications for future research. The order of the three hypotheses is the guide for each section of the discussion.

Discussion

This study contributed in many ways to our understanding of how risk affects child developmental outcome in various contexts. In particular, by investigating the relations of family and school risk factors to former Head Start children's cognitive and socioemotional competence across three time points, pre-kindergarten, kindergarten, and first grade, the current study provides new insights into child development trajectories. In many regards, the findings of this study were not what had been expected on the basis of the existing literature review. However, this aspect of the study not only highlights the gaps in our understanding about the relationships between family and school risk factors and child competence, but also provides a unique opportunity to consider what differences in this sample might be responsible for the divergent findings. By looking carefully at the findings of this study, it is possible to learn much of value concerning family risk, school risk, and the development of competency in former Head Start children. These findings are presented within the context of the research questions and hypotheses that guide this study.

Relation of Risk Factors to Former Head Start Children's Competency

The first goal of this study was to examine the relation between family and school risk factors and former Head Start children's competency as they made the transition from pre-kindergarten into their kindergarten and first grade years. I hypothesized that family and school risk factors would be significantly inversely associated with former Head Start children's cognitive and socioemotional competency.

Results from the current study supported most of the existing findings in the literature in terms of the relations in between family risk factors and children's cognitive competence. For example, low caregiver/maternal educational attainment (Sameroff et. al., 1993; 1987), low income to needs ratio (Klebanov et. al., 1998), negative parenting attitude (Jacobvitz and Sroufe, 1987; Egeland, 1993), minority status (Sameroff, et al., 1993; 1987), and low maternal positive feedback/emotional support (Culp et al, 2000; Burchinal et. al., 2000; Hubbs-Tait et. al., 2002) were significantly associated with former Head Start children's cognitive development. Moreover, negative parenting attitudes are associated with children's sociability, aggressive behaviors, as well as hyperactive and anxious behaviors. Maternal anxiety (Sameroff, et. al., 1993; 1987) is associated with former Head Start children's hyperactive behavior. Finally, caregiver/maternal educational risk is also associated with former Head Start children's anxious behavior. However, when school risk factors were added, they did not reach statistical significance. Such a discrepancy is so unexpected and intriguing that discussion of it can hardly be omitted.

There are three possible reasons. First of all, according to findings from previous studies on classroom mobility, few of them have reported significant effects of this

measure (Mantzicopoulos et al., 2001; Heywood, et al., 1997). Hence, results from the current study are not surprising but disappointing. Second, Early Childhood Environment Rating Scale may not be the most appropriate tool to measure the feature of classroom quality for the first grade classrooms since the measurement was normed for the child care centers. Third, ECERS score for our current first grade sample were uniformly low across the classrooms (from 2.56 to 4.89). With 69.2% of target children receiving an ECERS score less than 4, there was not much variance among classrooms in quality. Besides, this kind of low and no-variation in classroom quality risk factors certainly cannot offset the effects that can be explained by family risk factors.

Comparison of Family and School Risk Factor to Former Head Start Children's Competency

The second goal of this study was to provide information on the understanding of the possibility of Family and School Risk Factors explaining the former Head Start children's cognitive and socioemotional competence. Unfortunately, there is no statistically significant finding to help attain this goal.

One reason why the school risk factor failed to be an adequate tool to provide information for former Head Start children's competency is due to the poor quality of the schools. Classroom qualities were uniformly low, at least during first grade years.

Second, it is possible that the family or the school risk factors are not the only influence on children's competency. Perhaps other systems play an important role, such as the extended family members, neighborhood as well as the community our target child is in. Future research should extend investigations of children's competence to include those additional contexts.

Single Risk Factor Model and Dual Risk Factor Model

The third goal of this study was to compare the appropriateness of Single Risk Factor Model and Dual Risk Factor Model for explaining the relation of family and school risk factors to former Head Start children's cognitive and socioemotional competence. Current findings had supported the family risk factor model but not the family and school risk factor model. Reason for this discrepancy from existing findings might be the method of developing the risk indicies.

Based on the theory and previous research, the current study adopted the a priori approach to develop the risk indicies. Using risk indicies constructed empirically might change the results on the model comparison. With the empirical method, participants are classified as high or low risk on the basis of percentile ranking within the sample. For example, higher family risk will be the top 25% of families for the specific risk factor.

Limitation of the Study

There are limitations to this study that need to be addressed. Perhaps the most significant limitation is the characteristics of the current sample, such as the sample size, which limited the potential generalizability of this study to other groups of children in Head Start. These will be discussed in some detail below. A second limitation to this study is that there are better ways of calculating the risk factors to suit the fitness of the current sample in order to find out the risk impacts on former Head Start children's competence. Third, higher level constructs may influence developmental competence in our current sample and although this study investigates some variables that have been found to be important, it does not consider higher level latent constructs.

Characteristics of the Current Sample and Generalizability of the Findings

First, the current study is a three-year longitudinal study with different cohorts of samples. Recruiting families for this study was a difficult task to begin with. For example, some families did not have telephones, or had their telephones disconnected for some period of time during the recruiting period. Moreover, some of the prospective participants moved during the recruitment period, and did not immediately provide the Head Start administrative staff with their new address. There are several possible explanations for the difficulties to make and maintain contact with the prospective participants in this study. One of the most plausible is that being in an economically disadvantaged environment creates disruptions that make it difficult to maintain fixed schedules. For example, the irregular work schedules. Many of the caretakers in these families worked in service industry jobs (e.g., as cashiers, or waitresses) and may not have as much control over their work schedules as parents in other types of jobs. Another explanation on the difficulties of recruitment is the fact that families living in extreme economically disadvantaged environments just did not have access to resources as well as various agencies. Hence, the current study was not able to recruit them.

Second, high attrition rate of the current study is also the reason to cause the small sample size. For example, there were 153 families with competed data for the Spring Head Start sample. However, by the time they reached First Grade, 88 families remained. Families from the earlier phases were either moved beyond a 120-mile radius of the university, refusal to re-participate, or had conflicts due to health problems or work schedules (Hubbs-Tait, Culp, Culp et al., 2002).

Third, the resulting small sample size might have affected statistical significance. Small sample size contributes to decreased power. For the current study, power in the repeated measures analyses of variance was .67, much lower than the recommended .80 level of power.

In sum, the current study was based on a small sample size, and conducted in the rural central state of Oklahoma. It may be that the findings cannot be generalized to children who participated in Head Start programs in other areas of the United States. It is possible that theses findings are affected by the broader social context of rural poverty. Differing value systems, differing access to resources such as health care, and differing patterns of social interactions at the community level all play a role in shaping the ways in which risk factors affect child development. These community - and societal - level variables were not included in the design of the current study.

Alternative Design Method and the Reliance on Teacher Rating of Child Competence

The school risk factor was a composite of classroom quality and classroom transience. From the literature reviews, classroom quality has long been a strong predictor of children's competence. However, the current study did not reveal any similar statistically significant results. There are two reasons to explain the phenomenon. First, classroom transience was a recent measure of classroom quality which I adapted for the current investigation. The few studies that have reported information on classroom transience have also reported few effects of this measure (Mantzicopoulos & Knutson, 2001; Heywood et al., 1997). Thus, current study is consistent with those findings and suggests that classroom transience probably should not be used in future investigations. Instead of using the ratios of the classroom transience, using the exact number days of

school attendance per child as a measure of instructional "dose" might well have revealed significant findings (Hubbs-Tait, Culp, Huey et al. 2002). However, we did not have permission from the public school to examine attendance records. Second, this study relied on teacher reports to determine the competence of the former Head Start children. Providing more research background information for those teachers whose students are participants in the study might have increased the quality or accuracy of teacher reports. Providing more information on the research would give the teachers opportunities to be more open and objective.

The Influence of Other Risk Factors

The study attempted to examine children's cognitive and socioemotional competence in family and school contexts as a function of the total number risk factors though to negatively influence development. However, there are a number of other factors in children's lives that play a role or roles in their development that were not addressed in this study such as father's influence or friendships with peers.

In order to develop a comprehensive understanding of the role risk plays in child development, researchers should seek to obtain information from both mothers and fathers about their perceptions about family based factors. In particular, researchers could propose and test mechanisms through which paternal factors influence child competence. Moreover, researchers should seek to obtain information from both the target child as well as their friends about their perceptions on friendships.

Conclusion and Implications for Future Research

This study was designed to expand our knowledge of family and school risk and former Head Start children's cognitive and socioemotional competence. The findings will be summarized below, and interesting avenues for further study will also be addressed.

Although previous research has recognized certain risk factors for children's developmental outcome, there was little known about the impacts of combined family and school risk contexts. This study has provided an innovative conceptualization on this subject. As a matter of fact, this is the trend for the current research in the child development field (Loeb, Fuller, Kagan, & Carrol, 2004; National Institute of Child Health and Human Development Early Child Care Research Network, 2003).

First of all, the findings raise questions about the way in which we understand the nature and measurement of family and school risk factors. The finding that other risk factors that have been identified in the literature were not significantly associated with child development outcome is surprising and depressing. However, the study overall supports and validated the hypothesis that family risk factors will have impacts on children's cognitive as well as socioemotional competence, although finding the significant school risk factor's impacts on children's competence would add tremendous values on the validation of the conceptualization.

The non-significant results might be due to the fact that I computed risk factor on the basis of cutoffs in the existing literature, suggesting that the definition of risk across samples varying in risk is far from uniform. The discrepancies in such methodology approach difference raises interesting questions about what other factors, within the contexts of family and school, affect children's competence. Further research would be

required to establish this. In particular, that school risk factors were not associated with children's competence across years points to interesting questions about the circumstances under which children's social competence is developed as well as which classroom the child is in. The range of classroom quality was uniformly low in first grade and this restriction of range may have been the reason for the absence of significant findings. Researchers could further explore this aspect.

One particularly intriguing finding for the current study is the linear relationship between the family risk factors and former Head Start children's cognitive competence. Despite the time factor, family risk factor had impacts on children's cognitive competence over years. Such finding calls for even earlier interventions as well as implementations of programs to prevent or intervene against childhood developmental problems. These must begin prior to pre-kindergarten in order to change the consistent impact of risk across years on children's cognitive competence.

In sum, the findings of this study emphasize the need to directly target parents, families, schools, and young children in early childhood prevention and intervention programs.

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VITA

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Candidate for the Degree of

Doctor of Philosophy

Thesis: THINKING OUTSIDE OF HEAD START: THE IMPACT OF FAMILY AND SCHOOL RISK FACTORS ON FORMER HEAD START GRADUATES' COGNITIVE AND SOCIOEMOTIONAL COMPETENCE IN THEIR KINDERGARTEN AND FIRST GRADE YEARS

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Title of Study: THINKING OUTSIDE OF HEAD START: THE IMPACT OF FAMILY AND SCHOOL RISK FACTORS ON FORMER HEAD START GRADUATES' COGNITIVE AND SOCIOEMOTIONAL COMPETENCE IN THEIR KINDERGARTEN AND FIRST GRADE YEARS

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Major Field: Human Environmental Sciences

Scope and Method of Study: The purpose of the study was to examine the relations between family and school risk factors and former Head Start children's cognitive and socioemotional competence in their kindergarten and first grade years. Participants were 88 Head Start children and their caregivers from rural, north-central Oklahoma Head Start centers. Family risk factor was the sum of eight categories: low maternal education attainment, low income, minority status, high maternal anxiety, high maternal depression, low maternal cognitive stimulation, low maternal positive feedback/emotional support, and poor parenting attitudes. School risk factor consisted of the sum of two standardized scores, ECERS and classroom transience score. Children's cognitive and socioemotional competence were measured by the PPVT-R, PBQ, Howes' Social Competence with Peers (or Teacher Checklist of Peer Relationships) at three time points: Head Start, Kindergarten, and First Grade. Correlation analyses, multiple regression analyses, and ANOVA were conducted to test hypotheses.

Findings and Conclusions: Consistent with previous findings, family risk factors successfully predicted former Head Start children's cognitive as well as socioemotional competence in their Kindergarten and First Grade years. Contrary to expectations, none of the school risk indices predicted former Head Start children's cognitive or socioemotional competence in their Kindergarten or First Grade years. The results raise questions about the way in which we understand the nature and measurement of family and school risk factors. In general, the findings of this study emphasize the need to directly target parents, families, schools, and young children in early childhood prevention and intervention programs.

ADVISER'S APPROVAL: _____