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Lauren Sebastianelli  
The Relationship between  
Pretend Play and Cognitive,  
Linguistic, and Social Skills  
Development in Early  
Childhood

## ABSTRACT

There is substantial research to support the positive correlation between pretend play and cognitive, language and social skills development in early childhood. Most of this research has explored bivariate relationships. We know little about how these variables might co-vary in the same sample. This exploratory study was based on secondary analysis of developmental screening data for a preschool program in Connecticut. The sample was comprised of 79 three and four year-olds. Proxies for pretend play and cognitive, language and social skills development were operationalized from a standardized instrument, Developmental Indicators for the Assessment of Learning (DIAL) and a Social Skills Checklist that was developed by professional staff at the program.

The findings of the research showed a strong positive correlation between pretend play and social skills development; and language skills and cognitive skills. There was no significant relationship between pretend play and cognitive or linguistic skill development.

Positive correlations were consistent with prior research. They also tended to support Vygotsky's social theory of cognitive development versus Piaget's linear model.

THE RELATIONSHIP BETWEEN PRETEND PLAY AND COGNITIVE,  
LINGUISTIC, AND SOCIAL SKILLS DEVELOPMENT IN EARLY CHILDHOOD

A project based upon secondary analysis of developmental screening data from an elementary school in Plainville, Connecticut, submitted in partial fulfillment of the requirements for the degree of Master of Social Work.

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2010

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To my Mother- You inspired me to take a chance and go over the rainbow. Just like you expected, I love what I've found.

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## CHAPTER I

### INTRODUCTION

Play had widely been recognized as important in promoting healthy child development because it contributes to the cognitive, physical, social and emotional well-being of children and youth (Gmitrova & Gmitrov, 2004; Swindells & Stagnitti, 2006; McAloney & Stagnitti, 2009). In contrast to adults, play is considered the way a child explores and learns to navigate the world around them (Piaget, 1962; Vygotsky, 1978). Research supports that play contributes to brain development, creates flexibility, enhances creativity and builds resilience to stress. Through play, children's intellectual abilities grow as they learn to consider alternatives, problem solve, and make decisions (Casby, 2003; Bedrova & Leong, 2005; Ginsburg, 2007). In recognition of the importance of play to optimal child development, the United Nations High Commission for Human Rights has identified play as one of the rights of every child (Office of the United Nations High Commissioner for Human Rights, 1989).

In spite of the widely recognized benefits of play in the literature, we are witnessing a declining emphasis on play in preschool programs in today's environment and an increasing emphasis on reading, writing and arithmetic. It appears that the increased emphasis on accountability and testing in public schools has resulted in a corresponding decline in the general understanding of the important contribution that high-quality play can make to children's cognitive development in the preschool years.

This is not only misguided, but could even adversely affect the achievement of desired developmental milestones for cognitive development (Bodrova & Leong, 2005; Elkind, 1988; Association of Small Foundations, 2008; Stipek, 2006; Bergen, 2009). Thus, this trend is disturbing and should be a cause for concern and action on the part of social work and all of the allied health/mental health professions, along with parents and educators (Ginsburg, 2007).

Several different types of play have been identified in the literature on early childhood, e.g., motor/physical play, social play, parallel play, constructive play and pretend play (Smith & Pellegrini, 2008). While all types of play promote learning and growth, pretend play receives special recognition in the literature because it is considered the most developmentally advanced form of play in early childhood (Piaget, 1962; Vygotsky, 1978). Pretend play (Smith & Pellegrini, 2008; Bedrova & Leong, 2005) involves make believing that an object or action is something other than what it really is and can also involve socio-dramatic play, which incorporates role taking and pretend play with others. When children engage in pretend play, they create scenarios that can represent real life dilemma, use objects in symbolic ways, and also develop roles and rules for pretend behavior. When children frequently engage in these activities during their early years, they learn to delay gratification, boost emotional security, and use language to keep the play going, prioritize their actions and goals, regulate their behaviors and consider the perspectives of others.

There is a substantial body of research exploring the relationship between pretend play and a child's cognitive, linguistic and social skills development (Smith & Pellegrini,

2008; McAloney & Stagnitti, 2009; Brouillette, 2010). The seminal works of Piaget and Vygotsky are representative of the two major theoretical traditions in this body of work. Both theorists considered the capacity to engage in pretend play as an important developmental achievement that had widespread implications for the development of cognitive, linguistic and social skills. However, their ideas of how cognitive development occurs, the relationship of cognitive development to other areas of development and the significance of pretend play in their respective schema are quite different.

Piaget (Piaget, 1962, 1929; Yang, 2000) viewed cognitive development as an extension of biological development and governed by the same laws and principles (London, 1988). Thus for him, cognitive development is linear with four universal and invariant stages that the growing child must pass through. Children think and reason differently at different stages and, no matter how bright, are not capable of skipping stages. For Piaget, the stages of cognitive development control every other aspect of development - emotional, social, and moral. In Piaget's schema, the capacity for pretend play is an important milestone in early childhood development that does not occur until the latter half of his preoperational stage of cognitive development has been reached. This second stage in Piaget's theory lasts from 2-7 years and is characterized by the growing child's increasing use of language to represent objects and things while the child's thinking remains very egocentric, i.e., things are as he/she thinks or wishes them to be (Wadsworth, 1971).

In contrast to Piaget, Vygotsky advanced a socio-cultural theory of cognitive development. He maintained that an individual's development could not be understood outside of the social and cultural context in which it is embedded. He also placed more emphasis on the role of language development which he saw as being intertwined with cognitive development (Vygotsky, 1962; 1978). He maintained that language develops from social interactions for communication purposes. Specifically, social interactions with a more knowledgeable other with language later become internalized as an individual's thought (Vygotsky, 1978). Thus, thought is the result of language with a more knowledgeable other that has been internalized; and language accelerates thinking. Pretend play for Vygotsky was an important zone of social interaction that fostered creative imagining which, when internalized, led to higher mental functioning. Vygotsky believed that a child working on a task beyond his capability with a more knowledgeable other would arrive at a greater understanding of the task and perform skills more capably than working alone. Later the child would internalize this knowledge to use on his own in the future leading to higher mental functioning.

As indicated, a substantial body of research has accrued exploring relationships between pretend play and a child's cognitive, linguistic and social skills development (Smith & Pellegrini, 2008; McAloney & Stagnitti, 2009; Brouillette, 2010). While there are many quantitative studies exploring the discrete relationship between a child's pretend play skills and cognitive development, pretend play skills and language development, or pretend play skills and social skills development, there has been little attention as yet, to how these variables might co-vary in the same sample. The current

quantitative study was designed to make its contribution to addressing this gap in the literature.

## CHAPTER II

### LITERATURE REVIEW

#### *History of Preschool Programs in the United States*

Early childhood programs in the United States date back to the 1800's following trends first established in Germany and England. One such program, Kindergarten, was started in Germany by reformer and educator, Friedrich Froebel, who believed in the importance of teaching young children through music, nature study, stories, and play activities (White & Buka, 1987; Beatty, 1995). Froebelian kindergarten was brought to the United States by German immigrant, Margarethe Schurtz, who opened a program in her home in Wisconsin in 1856. German speaking kindergartens started in the United States as a German cultural movement. In part, they were used as a means to maintain German culture and language (Beatty, 1995). The first Americanized kindergartens were private, and were viewed as a voluntary supplement to middle and upper class child rearing. The first English speaking kindergarten was founded in Boston in 1860 by educator, Elizabeth Peabody. Peabody was inspired by Froebel's ideas of how to educate young children through play, and stressed the difference between kindergarten and school. She maintained that the purpose of kindergarten was to gently and lovingly guide children through play activities (White & Buka, 1987; Beatty, 1995).

The Free kindergarten movement began after the extreme industrial growth and urbanization of the United States that occurred after the Civil War. More and more

children from varying cultural backgrounds crowded the streets due to high rates of immigration and high birth rates among immigrants. With the help of philanthropists, free kindergartens were established in free kindergarten associations, charities, social settlements, and orphanages (White & Buka, 1987; Elkind, 1986; Beatty, 1995; Bracken & Nagle, 2007). Free urban kindergartens focused on the educational and physical needs of young children as well as educating mothers from differing cultural and socioeconomic backgrounds through books, classes, and lectures. Similar to previous advancements in early education, the kindergarten movement became increasingly popular with middle and upper classes (Beatty, 1995).

As the American kindergarten movement continued to expand due to the growing number of immigrants entering the United States, kindergarten entered the public school system (White & Buka, 1987; Beatty, 1995). The first public kindergarten was started in St. Louis Missouri in 1872 by educator Susan Blow and the superintendent of St. Louis public schools, William Torrey Harris. Public kindergarten began as a three and a half hour program for 3-5 year old children and was run by a staff of educators and assistants. Harris saw public kindergarten as a way to get young children off the streets and meet the educational needs of differing social classes (Beatty, 1995). However, Harris disagreed with the play-based structure of Froebelian kindergartens, believing that it did not fit with the public school's purpose of promoting academics, citizenship, and civil order. By the turn of the 20<sup>th</sup> century, public school kindergarten students outnumbered those in private school kindergarten by almost two to one. Once publicly

funded and housed in schools, the focus of kindergarten programs shifted to academic preparation, and became only available to five year-old children (Beatty, 1995).

Around the same time, developments in early education also came from England and were called nursery schools. Started by Christian socialist, Margaret McMillan, British nursery schools aimed to educate children under school age who were left alone while their caregivers worked. McMillan's goal was to "even up the gross injustice" between upper and lower class children by lengthening the period of working class children's education. McMillan's pedagogy aimed to help children learn through the use of play and physical activities (McMillan, 1921; Beatty, 1995).

American interest in nursery school programs was primarily driven by social concerns around family problems. Nursery schools in the United States grew out of the welfare movements of the late 19<sup>th</sup> century in order to provide day care for immigrant and working class children while their mothers worked. These programs continued through the Depression and were federally funded under the Lanham act in order to support unemployed educators and provide childcare so mothers could work in defense industries. After World War II, the majority of these types of nursery schools shut down as federal funding ended and many mothers stopped working.

Beginning early in the 20<sup>th</sup> century, some nursery schools began to combine child care with education. This change was a reflection of the new psychological and sociological concepts about children and families (Beatty, 1995; Bracken & Nagle, 2007). After World War I, many universities set up nursery schools for research in child development and teacher education. Unlike European nursery schools, nursery schools



affiliated and funded by universities primarily served upper and middle class children whose mothers were unemployed. These schools were set up to provide non-working mothers with parenting support and to offer group experience for children under five. By the early 1920's, these nursery schools had varying schedules and hours and catered to a population of both "normal and "problem" children from 2-4 years of age. Unlike the majority of kindergartens, nursery school teachers experimented with different educational methods to gain information about which environments and curriculums were most appropriate for young children. It was found that the first years in a child's life are important in establishing healthy attitudes, values, cognitive skills, and physical skills as well as good learning habits and appropriate social behavior. These findings supported the importance of play, and served as important points of reference for growth in early education for the more affluent population (White & Buka, 1987; Beatty, 1995).

For the first half of the 20th century, early preschool programs were not particularly widespread and had been largely related to social concerns. In 1964, Congress passed Head Start legislation as part of Lyndon Johnson's War on Poverty, which symbolized the mainstreaming of preschool education (Elkind, 1986). The Head Start program was designed to prepare low-income children for kindergarten and improve the conditions necessary to improve school success later in life (Butler, Gish & Shaul, 2004; Bracken & Nagle, 2007). Head Start originally began as an eight-week program aimed toward addressing poverty through meeting the emotional, social, educational, health, nutritional, and psychological needs of young children from low socioeconomic backgrounds (Elkind, 1986; Bracken & Nagle, 2007). Soon after, it was introduced as a

year-round, fully funded government program. Since Head Start programs were now funded by the government, all were required to establish that they were effective through assessment measurements. This continued throughout the 70's and 80's as the government provided more and more funding for expanding Head Start programs. When the No Child Left behind Act was introduced in 2001, new educational initiatives increased the focus on early learning standards, standard-based assessments, educational accountability and school readiness, including pre-literacy, language, and mathematical skills. (Bracken & Nagle, 2007).

#### *Overview of Current Preschool Programs in the United States*

The National Institute of Early Education Research (2008) indicates that over 80% of four year old children attend some type of preschool program in the United States. Almost half are enrolled in public programs, including state preschool, Head Start, or special education, while the other half attends private programs. In the nation as a whole, approximately one fourth of the programs under public auspices are state run.

In order for a preschool program to qualify as a State preschool, it must be funded, controlled and directed by the state. State preschool programs serve 3-4 year old children; however, some states have wider age ranges. Programs that only serve infants and/or toddlers are excluded. State preschool programs must incorporate group learning experiences at least twice a week and primarily focus on early childhood education. This does not prohibit programs that provide parent education, but does exclude programs that primarily focus on parent education. Programs in which a child's eligibility is dependent

upon parent's work status are also excluded. State funded preschool programs must also be separate from state's subsidized child care systems (Barnett, Epstein, Friedman, Boyd, & Hustedt, 2008). The amount of funding each state uses for preschool programs varies. Some states provide enough funds for high-quality preschool education using only state money, while others depend on a mix of state, local, and federal funds to sufficiently support their state preschool programs.

One of the most widely implemented programs within our existing network of preschool programs, Head Start, is a federally funded program that enhances school readiness by improving the social and cognitive development of 3-5 year old children by providing educational, health, nutritional, social, and other services to children and families from low socioeconomic backgrounds (Butler, Gish & Shaul, 2004; Bracken & Nagle, 2007). Most children attend the program for one year when they are four years old. During the school year, Head Start programs typically run on a part day schedule, and emphasize family and community involvement. In terms of national enrollment, approximately 11% of 4 year olds in the United States participate in the program. Children who are eligible for Head Start must be from families whose income is at or below the official poverty line or who are receiving welfare assistance.

According to the United States Department of Education (2007), a greater percentage of African American and White children participated in early education programs based in community settings. In 2005, 66 percent of African American children and 59 percent of White children were enrolled in such programs, compared to 43 percent of Hispanic children. In 2005, White and Hispanic children from middle and upper class

backgrounds were more likely to participate in preschool programs based in community settings than children from lower socioeconomic backgrounds. There were no measurable differences found between socioeconomic classes in African American children (U.S. Department of Education, 2007).

The funding needed to support the extensive growth of public preschool programs in the United States has contributed to an increased push for academic accountability and evidence-based standards in order to see if the increasing dollars spent on preschool programs is making a difference in children's education outcomes (Vinovskis, 1999; Scott-Little, Kagan & Frelow, 2003). However, there is actually little national consensus as to what specific skills or outcomes public preschool programs should promote. Efforts to guide early childhood programs have tended to be expressed in general goals (e.g., school readiness and preparation for academic learning, improving social skills and language development, afford group learning experiences, etc.). There has also been debate about how children learn in early childhood and, based on ones answer, how best to structure the curriculum in preschool programs. Central to this debate has been the role of play, and particularly pretend play, early childhood curriculums (Bergen, 2001). In spite of the widely recognized benefits of play in the literature, we are witnessing a declining emphasis on play in preschool programs in today's environment and an increasing emphasis on reading, writing and arithmetic

### *The Debate*

Since standardized testing under the No Child Left Behind Act begins in third grade, there is increased pressure on preschool and lower grades to focus more directly

on didactic academic skills (Stipek, 2006). The early childhood education community has been concerned about the possible negative consequences of this emphasis for quite some time (Elkind, 1986 & Stipek, 2006). Dating back to the 1980's, literature has indicated that stress symptoms such as fatigue, loss of appetite, decreased efficacy, and additional somatic symptoms have been frequently observed in young children who have been exposed to the excessive demands of formal instruction (Elkind, 1986). Currently, child development experts and educators worry that the push for increased focus on didactic learning in preschool programs will undermine the importance of meeting the social/emotional needs of young children and thwart their natural motivation to learn (Stipek, 2006). There is concern that the increased focus on preparation for standardized testing will pose additional harm by shifting attention away from other important cognitive abilities such as creative thinking and reasoning, skills which are integral to play in general and pretend play in particular. They also worry that the "greater emphasis on didactic content that advances specific academic skills will come at the cost of attention to nonacademic dimensions of development that are critical for success in life as well as in school, including social competence, behavioral self-regulation, and physical and emotional well-being" (p. 456).

#### *Types of Play and Their Importance*

A vast body of literature asserts that children need play in order to learn (Erickson, 2001; Bodrova & Leong, 2005). Play has been viewed as an essential component to the development of higher intellectual functions (Erickson, 2001). In particular, Erickson (2001) suggests that play activities contribute to children's

psychological growth because through these activities children are “forced to evaluate, fantasize, consider alternatives, solve problems, and make decisions.” When young children engage in play, they begin to make connections between their own personal world and behaviors and activities that are important in the larger social world of family and community (McLane & McNamee, 1991). Additional literature that supports that importance of play indicates that when a child has access to play materials that they can explore, manipulate, and talk about, they begin to naturally learn the basic principles and concepts of the physical world (Elkind, 1986).

Several different types of play have been identified in the literature on early childhood. The most frequently noted are sensorimotor, motor/physical, constructive, parallel, social, and pretend play.

#### *Sensorimotor*

Sensorimotor, or practice play, develops and occurs during infancy and toddlerhood, making this the earliest type of play (Piaget, 1962). During this time, children experiment with movement, sound, bodily sensation, objects and people. Around six months of age, infants begin to develop “action schemes” through practice and trial and error. Infants use pushing, pulling, and grasping to make things happen. For example, an infant will push a ball and make it roll in order to experience the sensation and pleasure of movement (Piaget, 1962; Child Development Institute, 2010).

#### *Motor/Physical Play*

Motor, or physical play, provides opportunities for children to develop their gross and fine motor skills through activities that support coordination, muscle training, and

endurance, i.e. running, jumping, climbing. This form of play increases from toddlerhood to preschool age, and peaks at approximately 5-6 years old (Smith & Pellegrini, 2008; CDI, 2010).

### *Constructive/Object Play*

Constructive play, also referred to as object play, occurs when children manipulate their environment, experiment with objects, and find out what combinations of action work and don't work. Examples of this type of play are when children build towers and castles with blocks, play with puzzles, play in the sand, and draw with chalk on the sidewalk. This type of play is seen in babies when they pick up, drop, or put objects in their mouth. Toddlers demonstrate constructive/object play when they manipulate objects, for example, building with blocks. This type of play can also occur during pretend play when children pretend to feed a doll or build a house. Through constructive play, children develop a sense of accomplishment and begin to learn how to control their environment (Smith & Pellegrini, 2008; CDI, 2010).

### *Social Play*

From birth to the age of two, social play primarily consists of playful interactions between children and their caregivers. From approximately 2-6 years of age, social play increases in complexity as children begin to interact with peers. Parallel play is the earliest type of social play in Piaget's schema, a type of social play most commonly seen among children who are 2-3 years of age, and occurs when children play alongside peers or adults without much social interaction, but generally enjoying being in the presence of another (Smith & Pellegrini, 2008; CDI, 2010). By approximately 3-4 years old, children

engage in social play with others that is more interactive. This type of social play can include the use of objects, language and imagination, and can also incorporate physical and pretend play (Smith & Pellegrini, 2008). Through these playful interactions with others, children learn social rules, like cooperation, sharing, and turn taking (CDI, 2010).

### *Pretend Play*

While all types of play contribute to the healthy development of young children, pretend play is widely recognized as the most advanced form of social play in early childhood (Piaget, 1964; Vygotsky, 1978; Scarlett, 2004). As such, pretend play serves many important functions. For example, pretend play helps children understand reality through reconstructing and repeating every day events like sleeping, eating, cooking, and driving a car (Scarlett, 2004). It also helps children “digest”, or process, recently acquired information (Piaget, 1951; Scarlett, 2004). Pretend play has been identified as a tool for children to learn to cope with anxiety and frustration on their own. Instead of acting out their impulses, children use pretend play as a way to express their emotions symbolically. Piaget referred to this function as “liquidating” conflict to reduce or get rid of anxiety (Piaget, 1951; Scarlett, 2004). For example, a child who is anxious about going to the doctor can use pretend play to manage or reduce anxiety by playing with medical toys to pretend to give shots, etc. (Scarlett, 2004).

Pretend play has been defined as the examination and interpretation of the world through the use of images and symbols that are representative of real-life experiences (e.g., using a block for a phone or serving “tea” to a teddy bear) (Vygotsky & Cole, 1978). Sociodramatic play is considered a more advanced form of pretend play. During



sociodramatic play, children can experiment with possible situations, language, and emotions as they take on roles and stretch their imaginations through creating story lines with other children. In this process sociodramatic helps children understand others' intent while simultaneously advancing both language and social skills development (Smith & Pellegrini, 2008).

### *Piaget and Vygotsky*

There is a substantial body of research exploring the relationship between pretend play and a child's cognitive, linguistic and social skills development (Smith & Pellegrini, 2008; McAloney & Stagnitti, 2009; Brouillette, 2010). The seminal works of Piaget and Vygotsky are representative of the two major theoretical traditions in this body of work. Both theorists considered the capacity to engage in pretend play as an important developmental achievement that had widespread implications for the development of cognitive, linguistic and social skills. However, their ideas of how cognitive development occurs, the relationship of cognitive development to other areas of development (e.g., pretend play, language and social skills development) and the significance of pretend play in their respective schemas are quite different.

### *Piaget's Theory of Cognitive Development*

Jean Piaget (1896-1980) was a Swiss biologist and psychologist who is most recognized for his work in the field of developmental psychology. Piaget was primarily interested in how cognitive functioning (i.e., what a child knows) develops and changes from birth through adolescence (Wadsworth, 1971; Huitt & Hummel, 2003). His early research was primarily descriptive and observational. He asked individual children a

series of skillfully selected questions and analyzed their responses. He also observed and carefully described infant behavior, including the behavior of his own three children. These descriptive and detailed techniques were designed to detect developmental changes in cognitive functioning, and were trademarks of Piaget's work (Wadsworth, 1971).

After years of research, Piaget concluded that cognitive development was an extension of biological development in that it was linear with universal stages that everyone progresses through: sensorimotor, preoperations, concrete operations and formal operations. Children think and reason differently at different stages and, no matter how bright, are not capable of skipping stages. Although he maintained that the sequence of stages were invariant, Piaget did acknowledge that the ages at which each stage was obtained could vary from child to child depending on differences in intelligence and the environment (Piaget and Inhelder, 1969, p. 153 in Wadsworth, 1971). In early childhood and particularly prior to concrete operations, Piaget deduced how children know the world through their play. Until his stage of concrete operations, Piaget maintained that the cognitive development of the child was egocentric and that advances in cognitive development were acquired by the growing infant/child as an independent and active learner progressing through predetermined stages that were universal and invariant and increasingly less egocentric.

Each developmental stage is associated with an increase of the quality and complexity of information and knowledge children obtain. A child cannot learn or be taught the functions of a higher stage before successfully passing through lower stages (Wood, 1998). In other words, Piaget believed that reaching a certain stage of cognitive

development must precedes the assimilation of knowledge and skills associated with that stage. Thus if a child demonstrates a capacity such as pretend play, which Piaget maintains is at its height during the second half of the preoperational stage (his second stage of cognitive development) it is a sign that the child has advanced from sensory motor to preoperational thought.

Piaget organized his stages of cognitive development into four hierarchical periods- sensorimotor, pre-operations, concrete operations, and formal operations (Fischer, 1964; Wadsworth, 1971).

*Sensorimotor Period (0-2 months)*

The sensorimotor stage occurs between the ages of 0 and 2. The infant is born with a number of sensorimotor mechanism or reflexes wired in, e.g., grasping an object placed in the palm, or orienting responses to light and sound. During this stage, children develop plans, or *schemas*, for how they interact with and think about their external world. Children learn how to gain mastery over their bodies and external objects through recurring patterns of sound and movement. As children learn how to manipulate objects, they begin to understand cause and affect relationships (Piaget, 1964; Wadsworth, 1971). For example a ball that is stationary has to be pushed, kicked or hit before it will move.

*Preoperations Period (2-7 years)*

The preoperational stage happens between the ages of 2 and 7. The most important characteristic of this stage is the development of language. When children develop the capacity for language, they are able to use words as symbols to represent

objects (Wadsworth, 1971). As a result, children become able to engage in internal thought about the world, engage in verbal interaction, play symbolically, and use their imagination (Berger, 2008). However, before the age of 6, children's verbal interactions are mostly made up of "collective monologue conversations" (Wadsworth, 1971, p. 69). That is, children talk to themselves in the presence of others and do not ask questions, listen, or exchange information. Therefore, according to Piaget, language is not social or communicative before the age of 6 or 7 (Wadsworth, 1971). In addition, children in this stage are not ready for logical thinking because their behaviors and thoughts are egocentric. For example, children in the preoperational stage believe that everyone thinks the same way they do, and cannot see the perspectives of others. While egocentrism is a normal feature of the preoperational period, intellectual development is restricted because children do not question their own thinking or perceptions at this stage (Wadsworth, 1971).

#### *Concrete Operations Period (7-11 years)*

The concrete operational stage occurs between the ages of 7 and 11. During this period, language is communicative and thinking is logical and no longer egocentric. According to Piaget, the transition from egocentrism to logical thinking mostly occurs through social interactions. Meaning, egocentrism decreases as social interactions with peers increases. When a child exchanges information with others, he becomes aware that peers have viewpoints and ideas that are different from his. As a result, he questions his own thoughts or ideas and seeks to have them verified or denied (Wadsworth, 1971). Children in the concrete operations stage can solve tangible problems of the present, but

do not yet have the capacity to solve problems that are hypothetical, verbally complex, or involve the future (Wadsworth, 1971).

#### *Formal Operations Period (11-15 years)*

The fourth and final period is the formal-operational stage, and develops from 11 to approximately 15 years of age (Wadsworth, 1971; Anderson, 2004). According to Piaget, children's cognitive structures reach maturity during the formal operations stage. That is, their quality of thought has reached its highest potential. During this period of cognitive development, children are able to hypothesize, organize data, and reason scientifically. They can solve all classes of problems-past, present, and future (Wadsworth, 1971).

#### *Implications for Education*

Piaget's theory states that cognitive structures develop the same way for all children-through a sequence of fixed stages. Therefore, from a Piagetian standpoint, educational curricula "should be designed with children's changing cognitive status in mind. If curriculums do not take into account children's levels of conceptual development, learning is going to be inefficient. Children will not learn if they do not have the prerequisite cognitive skills" (Wadsworth, 1971, p. 121). According to Piagetian theory, children will only be ready to learn a new concept when they have attained the appropriate cognitive prerequisites (Wadsworth, 1971).

#### *Vygotsky's Theory of Cognitive Development*

Vygotsky (1896-1934) started his career as a psychologist and educator during the Russian Revolution in 1917. He aimed to find a new way to understand and solve the

educational and social problems of his time, and was interested in how children transform and internalize information from the external world. Vygotsky developed a socio-cultural approach to children's cognitive development. Vygotsky held that knowledge does not originate within the individual, but within our social and cultural environment.

Specifically, social interactions with a more knowledgeable other with language later become internalized as an individual's thought (Vygotsky, 1978). According to his theory, cognitive, linguistic, and social skills development is rooted in interactions with others in a social context. As children learn from others, knowledge slowly becomes internalized. From his point of view, learning precedes development (Daniels, 1996).

Vygotsky's theory focused on three important principles: culture, language, and the zone of proximal development.

### *Culture*

Vygotsky believed that a child's social environment and cultural surroundings determine what information a child learns and how that information is acquired. Children learn through social interactions with others and symbolic representations of their own culture, like language, songs, art, and play (Oakley, 2004) These cultural elements have an affect on how children learn, their viewpoints, and the type of knowledge they acquire. Therefore, "the child's development both reflects and internalizes the culture to which they belong. The culture provides a framework in which the child constructs meaning" (Oakley, 2004, p. 38).

### *Language*

Vygotsky maintained that language development is the result of culture and social interactions with others. He believed that language during the early years plays a noteworthy and distinct role in the development and regulation of mental processes (Vygotsky, 1934, 1962; Bozhovich, 2009). For Vygotsky, language serves two purposes: regulation and communication. Language begins as a social tool used to interact with others, learn from others, and express emotions that initiate behavior. For example, verbally expressing “I want Mommy” leads to the action of getting Mommy.

As learning progresses, children begin to use speech to problem solve, regulate emotions, and guide their actions. Children speak out loud to themselves about what they are doing and why, as they try to carry out tasks. Unlike Piaget, who believed that this form of speech is egocentric and not social, Vygotsky held that this form of speech is, in fact, social because it is a skill that has been learned from others. As children continue to learn from social interaction and verbal exchange with others, this type of speech diminishes as children are able to internalize language as thought, or inner speech. Children use inner speech to plan their behavior, which prepares them for how they will behave in actual situations. When children have internalized the psychological tools for thinking, they are able to move from regulation by others to self-regulation (Bozhovich, 2009). In Vygotsky’s theory, this is the point where children have internalized their external verbal interactions, opposed to Piaget who saw it as externalizing internal thoughts (Daniels, 1996).

### *Zone of Proximal Development*

Vygotsky's zone of proximal development is an important concept that refers to the difference between what a child can achieve independently and what a child can achieve with guidance and encouragement from a skilled adult or peer. The range of cognitive skills that can be developed with guidance or collaboration from a more knowledgeable other exceeds what can be accomplished alone (Vygotsky, 1962). The more knowledgeable other refers to a person who has a more advanced understanding or higher ability level than the child in regard to a specific task or concept. Through interactions with others and the environment, basic mental functions such as attention, perception, and memory are developed into more advanced mental processes (Vygotsky, 1978).

### *Implications for Education*

As previously mentioned, Vygotsky's theory states that interaction with knowledgeable peers and adults is an effective way for children to develop a variety of skills. He suggested that educators use cooperative learning exercises where less competent children develop with the help from more skillful others. He viewed pretend play as the context for this, because during pretend play, children learn to solve problems and internalize tools for thinking and self-regulation under the guidance from both adults and peers (Vygotsky, 1962; Yang, 2000).

### *Piaget vs. Vygotsky*

While both Piaget and Vygotsky agreed that pretend play is important, this form of play had different meanings for the two of them. Because Piaget's way of thinking



was developmental, he believed that development precedes a child's capacity for pretend play. He viewed pretend play as an important milestone that is reached during his preoperational stage of cognitive development. For Vygotsky, on the other hand, pretend play is the context in which linguistic, cognitive, and social skills develop (Vygotsky, 1978). He believed that pretend play advances cognitive skills because play causes children to stretch their conceptual ability (Vygotsky, 1978; Oakley, 2004). In other words, pretend play helps children begin to understand abstract thought. Vygotsky also believed that pretend play provides a safe environment in which children can practice a range of new behaviors and strategies. He viewed pretend play as a mature interaction that calls for more mature social interactions than other forms of play.

### *Research*

#### *Relationship between Pretend Play and Cognitive Development*

Researchers have been examining the relationship between play and a wide variety of cognitive functioning in children for over the past forty years. Some areas of cognition that have been examined in the research include creativity, problem solving, (Fisher, 1992; Wyver & Spence, 1999), sequencing, IQ, and story comprehension and recall.

For example, empirical studies dating back to the 1960's have linked play to creativity. Torrance (1961) and Wallach & Kogan (1965) found that playfulness was one of the characteristics that distinguish more creative children from less creative children. Similarly, Singer and Rummo (1973) found that playfulness was highly

correlated with creativity in kindergarteners. However, this correlation was only found in boys, not girls.

In more recent years, Russ, Robins and Christiano (2000) used a longitudinal design to investigate the relationship between pretend play and creativity over a four year period. They found that both affective and cognitive processes in play activities were consistent over time. Children who expressed higher levels of affect in first and second grade also expressed more affect and fantasy in sixth and seventh grade. Results also indicated that strong play skills in elementary school were “predictive of the ability to generate alternative solutions to every day problems...” The latter finding supports earlier research conducted by Rosen (1974) who also examined play in relation to problem solving. Rosen used a pre and post test design to explore the effects of acquiring and utilizing play upon problem solving behavior among culturally disadvantaged kindergarteners. After forty days of play instruction and practice, post test results indicated major improvement in problem solving behavior (Rosen, 1974).

Pretend play training was also found to be an effective method of improving cognitive functioning in a study conducted by Saltz, Dixon & Johnson (1977). However, this study was interested in examining *several* areas of cognition, and included preschool children in the sample rather than kindergarteners. Results found that children who participated in play training performed higher on IQ tests and increased their ability to differentiate fantasy from reality and understand sequential events (Saltz, Dixon & Johnson (1977).

Studies conducted by Pellegrini sought to examine whether pretend play increases children's ability to comprehend and sequentially retell stories based on Piaget's notion that reenactment through play helps children digest information (Piaget, 1951). In Pellegrini & Galda's 1982 study, 5 and 6 year old children were read a story and subsequently assigned to one of three story reconstruction groups: drawing, adult-led discussion, and play. Findings showed that the pretend play was the most effective facilitator of children's story comprehension. Children in the play group were also able to recall many more story events than children in the other groups. A subsequent study by Pellegrini (1984) study that aimed to further examine the effectiveness of the play training group found that reenacting stories through pretend play seems to play an important role in a child's ability to immediately recall story elements (Pellegrini, 1984).

#### *Relationship between Pretend Play and Linguistic Development*

A number of both observational and quantitative studies have highlighted the connection between pretend play and language development (Smilansky, 1968; Pellegrini, 1980; Copple, Cockings & Matthews, 1984).

Smilansky's (1968) observational study aimed to explore whether enhancing children's sociodramatic play, which is an advanced form of pretend play, would improve their language skills. Results indicated that play training exercises helped improve children's play skills and led to increases in numerous measures of language, such as verbal fluency and average length of utterance. An observational study conducted by Garvey (1979) also explored the relationship between sociodramatic play and language

development. Findings showed that children who engaged in sociodramatic play had a number of opportunities to practice different language skills.

Later studies continued to examine the effects of play on language development. For example, a quantitative British study by Vedeler (1997) also found that children who engaged in sociodramatic play demonstrated more advanced language skills, such as more sophisticated and elaborate verbal utterances, compared to children who engaged in other play activities. Additional research has also suggested that pretend play facilitates the development of early verbal (Pellegrini, 1980; Fewell & Ogura, 1997), narrative (Trionfi&Reese, 2009) and written language skills (Roskos, 1987; Pellegrini, Galda, Dresden & Cox, 1991).

#### *Relationship between Pretend Play and Social Development*

Social development is characterized by a child's ability to get along with others and form and maintain relationships. In order to acquire social competency, children need to be provided with opportunities to practice interacting with peers, learn to appropriately express their emotions, understand their peers' emotions, and regulate their behavior during social interactions (Hartup, 1992). Several studies have suggested that pretend play has a significant role in promoting healthy social skills and social interactions in young children (Uren & Stagnetti 2009; McAloney & Stagnetti, 2009; Swindells & Stagnetti, 2009; Brouillette, 2010).

In a study by Uren & Stagnetti (2009), children ages 5-7 with higher levels of pretend play skills were found to be better able to engage with peers and participate in classroom activities compared to those with poorer play skills. Similarly, McAloney &

Stagnetti (2009) found that how elaborately children play and substitute objects in their play relate to how well they socially interact with peers. Children who demonstrated more detailed play with both conventional toys and unstructured objects and had evidence of object substitution were found to be more socially engaged with their peers, less disruptive, and less disconnected from their peers. Children who had low scores in object substitution were found to be more socially disruptive.

Similarly, Swindells & Stagnetti (2006) found that the level of a child's pretend play ability was significantly correlated with their interpersonal relationship capacity. An observational study conducted by Brouillette (2010) discovered that participation in arts activities, especially drama activities that involved pretending, helped children develop a better understanding of the responses, emotional expressions, and actions of others, as well as a better understanding of what to expect from others and what social scripts should be used in different situations.

### *Conclusion*

In summary, play has been widely recognized as important in promoting healthy child development because it contributes to the cognitive, physical, linguistic, social and emotional well-being of children and youth. In spite of the widely recognized benefits of play, we are witnessing a declining emphasis on play in preschool programs in today's environment and an increasing emphasis on reading, writing and arithmetic. The increased emphasis on accountability and testing in public schools appears to have resulted in a corresponding decline in the general understanding of the important contribution that high-quality play can make to children's cognitive development in the

preschool years and could adversely affect the achievement of desired developmental milestones for cognitive development.

## CHAPTER III

### METHODOLOGY

Pretend play has been positively linked to a number of developmental outcomes in early childhood. Most frequently noted are cognitive, linguistic, and social skills development. Numerous studies have shown that pretend play is crucial to a child's cognitive development, and there is a growing literature which suggests that pretend play has a strong influence on linguistic and social skills development as well. While there have been studies exploring the independent relationship between pretend play and cognitive, linguistic or social skills development, there has been little examination about how these variables might co-vary. This quantitative study was designed to address this gap in the literature.

Thus, this study is exploratory and is based on the secondary analysis of cross-sectional data collected by a pre-school program at an elementary school in Connecticut where this researcher has previously worked. All of the variables in this study (i.e., pretend play, cognitive development, linguistic development and social skill development) were operationalized. Multivariate and correlation analysis was used to examine the relationship between variables.

#### *Setting*

The early childhood special education program is located in an elementary school in a small suburban town in Connecticut. The early education team consists of three early childhood special education teachers, a physical therapist, an occupational therapist,

three speech and language pathologists, and a special education supervisor. The program's three preschool classrooms hold morning and afternoon sessions that are each 2.75 hours long. The program is four days a week for special education students and three days a week for typically developing students. Students in the program vary in race, ethnicity, and socioeconomic status. Special education students receive services such as occupational therapy, physical therapy, and speech therapy during program hours. These services are provided both in and out of the classroom depending on each student's individual needs.

Prospective students are recruited through free monthly developmental screenings. The school system recruits students through newspaper ads, the town's family resource network, and by posting monthly flyers for the screenings in pediatrician's offices.

*Developmental Screening Conducted by Early Childhood Team*

As previously mentioned, the secondary data used for this study was derived from scores on developmental screenings conducted by the early childhood team. The program has been conducting free developmental screenings for children in the local school district for decades. The purpose of these screenings is to detect any children who might be at risk for learning issues. The school is mandated to try and find children who are in need of services and to provide intervention as early as possible. The other purpose of these screenings is to recruit new children for preschool.

Before each monthly screening, parents and children were greeted by members of the early education team. Parents remained in a meeting room to fill out paperwork on



their child's demographic information and developmental history while their child participated in the screening. Each screening averaged approximately 6-7 seven children, and took place in two preschool classrooms. Early education team members were divided amongst the two rooms.

One classroom was set up with a play dough table so children could become familiar with the environment before beginning the screening. When ready, each child was individually administered each component of the Developmental Indicators for the Assessment of Learning (DIAL). This is the most recent and comprehensive screener the program has used. A special education teacher administered and scored the Concepts area, a speech and language pathologist administered and scored the Language area, and a physical therapist and occupational therapist administered and scored the Motor area.

In the second classroom, a variety of toys were available for the children to play with. Another special education teacher collected data on each child's social skills and play skills using a social skills checklist that the early education team developed in 2007.

After each screening was completed, the early education team met to go over scores and collaborate about findings and recommendations. Following the meetings, parents were mailed the results of the screening as well as the team's recommendations.

#### *Procedures and Data Collection*

As previously mentioned, this study is based on the secondary analysis of data collected utilizing the Developmental Indicators for the Assessment of Learning (DIAL) and a social skills checklist developed by the early education team.

The Developmental Indicators for the Assessment of Learning is a commonly used screener for recognizing young children who may be at risk for school failure. More specifically, the DIAL was designed to screen for developmental delays in motor abilities, conceptual knowledge, linguistic competence, psychosocial functioning, and self-help skills.

The DIAL is an individually administered standardized screening tool suitable for children aged 3-6 years-11 months. The screen is comprised of five areas including basic concepts, language, motor, self-help, and social-emotional development (Czudnowski & Goldenberg, 1998). Standardized administration and scoring instructions are provided within the DIAL manual (Czudnowski & Goldenberg, 1998). Scoring involves converting raw numerical scores from each subsection of the screen into scaled scores which are normed and controlled for age.

In terms of reliability, the Mental Measurements Yearbook states that there is significant evidence that DIAL scores are overall dependable; however, there is debate as to whether separate area scores are more dependable than single scores (Mordell - Czudnowski & Goldenberg, 2004). The DIAL manual notes that the single DIAL score is likely to be less useful than area scores (Czudnowski & Goldenberg, 2004) because a screening test that only measures overall ability is not likely to identify children who consequently experience school failure as a result of specific motor, conceptual, or language problems (Greenfield & Scott, 1985).

The DIAL has been widely used since the development of the original DIAL screener in 1971. The original DIAL was developed to help identify children with

potential learning problems and was approved by a twenty member advisory board based on ten criteria. Other developmental tests of that time met some of these criteria, but none met all ten. Years of research confirmed the validity and reliability of the DIAL's items and procedures (Hall, Mardell, Wick, & Goldberg, 1976; Mardell-Czudnowski, 1980; Wright & Masters, 1982).

The social skills checklist was developed by the early education team. This evaluation was devised due to the lack of resources available to test the range of social and play skills that the program was seeking to evaluate.

#### *Characteristics of Participants in Study*

This study is based on a sample of data collected from 79 participant, 51 boys and 28 girls, who attended the program between December of 2007 and March of 2009. These students ranged in age from 3.0 to 4.9 years and were representative of diverse racial and ethnic backgrounds. Approximately 46% of these students had attended a prior preschool program.

#### *Operationalization of Variables in Study for Statistical Analysis*

The four variables that needed to be operationalized for statistical analysis from data routinely collected by the program were: Pretend play, cognitive development, linguistic development and social skills development. The cognitive and linguistic variables were constructed from data gather utilizing the DIAL (*see Appendix A and B*). The pretend play and social skills development variables were developed from data gathered utilizing the social skills check list developed by program staff (*See Appendix C*).

The four variables were operationalized as follows:

*Cognitive Development*

Conceptual knowledge about body parts; identify colors; rapid color naming; rote counting (e.g. count consecutively from 1-20); meaningful counting (e.g. requires that the child move correct number of blocks to show meaningful knowledge of numbers); positions (placing blocks in positions relative to a larger block, e.g. in front of, around, beside, etc.); ability to depict certain concepts such as longest, biggest, least, most, etc.(e.g. child must recognize an object as being big and must also compare it with another to see whether it is bigger or littler); sorting and identifying shapes.

*Language Development*

Ability to articulate personal data (e.g. name, age, etc.) and words for common objects (e.g., cup, ring, toast, etc); identify objects and their actions (e.g., if the object is a” plane”, the action is to “fly it” ; ability to recite the alphabet, name letters and produce their sound when presented with written letters in random order; ability to hear a word and recognize sounds and understand letter-to-sound relationship; and problem solving (assessing child’s ability to solve short, verbally presented problems using expressive language, e.g. “what should you do if...” and “what do you do when...”).

Total scores for language and concepts are scored on a scale from 0-27. The higher the score, the more advanced the level of functioning. Lower scores indicate potential developmental delays.

### *Social Skills*

Chooses/initiates activities; responds to social contacts; adequate attention span; organizational skills; appropriate activity level; transitioning without incident.

Social Skills are scored on a scale from 1-3 where 1= weak, potentially delayed skills, 2=moderate skills, 3=strong, age appropriate skills.

### *Pretend Play*

Score on “demonstrates pretend play” variable on the Social Skills Checklist. Pretend Play is scored on a scale from 1-3 where 1= weak, potentially delayed skills, 2=moderate skills, 3=strong, age appropriate skills.

### *Informed Consent and Precautions to Safeguard Information about Participants*

In the Plainville, Connecticut school district, permission to use collected research data for secondary analysis must be granted by the Superintendent. Because this study was approved by the Superintendent (*see Appendix D*), did not involve any contact with the subjects and draws exclusively on aggregate data, additional informed consent procedures were not required for this study. The fact that this researcher was not engaged in the original data collection was considered further assurance that the anonymity of informants was protected.

## CHAPTER IV

### FINDINGS

This study explored the relationship between pretend play and cognitive, linguistic, and social skills in early childhood. The aim of this study was to examine how these variables might co-vary in the same sample.

#### *Descriptive Statistics*

##### *Demographic Characteristics*

The participants in this sample were children who participated in a developmental screening for a special education preschool program in Connecticut from December of 2007 to March of 2009. The total population of the sample was 79 children. As shown in Table 1, 51 males and 28 females participated in the screening and ranged in age from 3.0 to 4.9 with an approximate mean age of 3.9 years. The children in this study were comprised of 75.9% Caucasian, 7.6% Multiracial, 5.1% African American, 5.1% Asian/Pacific Islander, 5.1% Hispanic, and 1.3% Other. Of the 79 children in this study, 36 attended a prior preschool program, 42 did not attend a prior preschool program, and one child's data was missing.

Table 1  
*Demographic Characteristics*

	n	Percent	Mean	Range
<b>Sex</b>				
Male	51	64.6		
Female	28	35.4		
	N=79	Total 100		
<b>Age in Years</b>			3.9	3-4.9
<b>Race/Ethnicity</b>				
Caucasian	60	75.9		
Multiracial	6	7.6		
African American	4	5.1		
Asian/Pacific Islander	4	5.1		
Hispanic	4	5.1		
Other	1	1.3		
	N=79	Total 100		
<b>Attended Prior Preschool</b>				
Yes	36	46.2		
No	42	53.8		
	N=78	Total 100		

Tables 2-4 display descriptive statistics for the following variables: Concepts Total scores, Language Total scores, Pretend Play scores and Social Skills scores. The Concepts Total scores ranged from 1-23 with a mean score of 13.4. The Language Total scores ranged from 1-24 with a mean score of 13.4. For Pretend Play, 34 children demonstrated strong/ age appropriate skills, 21 showed moderate skills, and 23 showed weak/potentially delayed skills. The social skills scale was created by taking the mean of

scores from six social domains: organization, responding to social contacts, choosing/initiating activities, attention span, and transitions. Of the 79 participants, 70 had scores for social skills while 9 were missing scores. The mean scores for social skills was 2.42, the median was 2.58, and the most frequent score was 3. The standard deviation was 0.52. Cronbach's alpha was used to test the internal reliability of this group of skills in order to see how well they fit together in a scale. The test showed moderate internal reliability (alpha=.78, N=70, n of items=6).

Table 2  
*Frequencies of Concepts and Language Scores*

	n	Mean	Median	Range	Std. Deviation
Concepts Total Score (0-27)	79	13.4	12.0	1-24	5.3
Language Total Score (0-27)	78	13.4	13.0	1-23	4.2

Table 3  
*Frequencies and Percentages of Pretend Play Scores*

	Skill Level	n	Percent
Pretend Play Scores n=78	Strong	34	29.5
	Moderate	21	26.9
	Weak	23	43.6



Table 4  
*Frequencies of Social Skills Scores*

	n	Mean	SD	Range
Social Skills (1-3 )	70	2.42	.519	1.17-3

*Inferential Statistics*

*Correlations*

A Spearman Correlation was used to determine the relationship between a child's pretend play scores, language total scores, concepts total scores, and social skills scores. There was a significant and strong positive correlation between social skills and pretend play ( $\rho=.77$ ,  $p=.00$ , two-tailed). There were no significant correlations between pretend play and language total scores or pretend play and concepts total scores. However, there was a significant correlation found between language total scores and concepts total scores ( $\rho=.734$ ,  $p=.000$ ). Spearman Correlation analysis also showed that age did not affect outcomes.

## CHAPTER V

### DISCUSSION

A substantial body of research has accrued exploring the relationship between pretend play and a child's cognitive, linguistic and social skills development (Smith & Pellegrini, 2008; McAloney & Stagnitti, 2009; Brouillette, 2010). Most of this research has employed bivariate analysis. Thus, we know little about how these variables might co-vary in the same sample. This exploratory study, which is a secondary analysis of cross-sectional data collected by a pre-school program in Connecticut, was designed to address this gap.

Major findings were:

1. There was a positive correlation between pretend play and social skills development.
2. There was a positive correlation between cognitive and linguistic skill development.
3. There was no significant relationship between pretend play and cognitive or linguistic skill development.

Both of the positive correlations were consistent with the literature and prior research, i.e., pretend play and social skills development (Swindells & Stagnitti, 2006; McAloney & Stagnitti, 2009; Uren & Stagnitti, 2009) and cognitive and linguistic skill development (Smilansky, 1968; Pellegrini, 1980; Copple, Cockings & Matthews, 1984; Fisher, 1992; Wyver & Spence, 1999). These findings would also tend to lend support to

Vygotsky's vision about how cognitive and linguistic developments are related. As indicated, Vygotsky advanced a socio-cultural theory of cognitive development that placed more emphasis on the role of language in cognitive development. Specifically language accelerates an individual's thinking because thought is the result of language with a more knowledgeable other that has been internalized. He also maintained that an individual's development could not be understood outside of the social and cultural context in which it is embedded. Thus, one would expect cognitive and linguistic development to be positively correlated as is the case in this sample. Similarly a child's pretend play and social skills development might not be positively correlated with cognitive and linguistic development since they are dependent on the social and cultural context in which each child is embedded. This is in sharp contrast to Piaget's stance that language and cognitive development are genetic and linear; and that these individual genetic competencies develop before the skills associated with a particular stage. In Piaget's vision, we would expect more co-variance among all variables.

On the other hand, it should be noted that while all of the data was collected at the same time and on the same sample, two different instruments were used. One instrument, the DIAL, has been standardized. Data to create the cognitive and linguistic variables for this study came from the DIAL. The pretend play and social skills variables were created using an instrument developed by staff. Viewed from this vantage point, the variables that were correlated were created using the same instrument. In addition, it is important to note that even though the Social Skills Checklist is not standardized, it was developed by

a team of specialists who also scored and conducted the screenings. Therefore, this increases face validity.

*Recommendation*

This study needs to be reduplicated using one sample and the same instrument. Ideally the instrument would be standardized.

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## Appendix A

Order Administered \_\_\_\_\_ Language Operator's Name \_\_\_\_\_

<h1 style="margin: 0;">Language</h1>		Scaled Score					Item Scaled Scores	
		0 under 3 yrs.	1 3 yrs.	2 4 yrs.	3 5 yrs.	4 6 yrs.		
<b>1. Personal Data</b>		Ages 3 and 4	0-1	2-3	4	-	-	
		Ages 5 and 6	0-1	2	3	4	5	
first name	age	birthday						
last name		boy/girl						
<b>2. Articulation</b>			0-9	10-22	23-24	25-26	-	
cup	cheese	fish	thumb					
ring	leaf	truck	glove					
toast	zebra	dress	jar					
spoon								
<b>3. Objects &amp; Actions</b>		Objects	0-6	7-9	10-11	12-13	14	
		Actions	0-4	5-9	10-11	12-13	14	
Objects		Actions						
plane		fly it						
car		drive it						
clock		tell time						
pencil		write						
hanger		hang clothes						
whistle		make whistling noise						
thermometer		tell how hot/cold						
<b>4. Letters &amp; Sounds</b>		Ages 3 and 4	0	1-3	4-5	6-10	-	
		Ages 5 and 6	0	1-4	5-9	10-14	15-17	
A. Alphabet Song:								
0 = a-f 1 = g-o 2 = p-y 3 = z								
B. Letter Naming:								
S B K f G r W								
C. Letter-Sound Correspondence:								
S B K f G r W								
<b>5. Rhyming &amp; "I Spy"</b>			0	-	1-3	4-8	9-10	
A. Rhyming: cat bake wag ring kite								
B. I Spy: /d/ /b/ /sh/ /ch/ /p/								
<b>6. Problem Solving</b>			0	1-2	3	4	5-6	
1. thirsty: 0 1 2 _____								
2. dark room: 0 1 2 _____								
3. break something: 0 1 2 _____								
<b>Scaled Score Total (max. = 27)</b>								
<b>Behavioral Observations</b> For each behavior, circle the option that applies to the child.								
<b>1. Separation from adult</b>		<b>4. Persistence (nonverbal)</b>		<b>7. Participation</b>				
0 easy		0 stays with task		0 willingly participates				
1 hesitant		1 attempts task		1 needs encouragement				
2 unable to separate		2 refuses task		2 unwilling to try tasks				
<b>2. Crying/Whining</b>		<b>5. Attention</b>		<b>8. Impulsivity</b>				
0 none		0 pays attention throughout task		0 waits for directions				
1 a little		1 pays attention some of the time		1 begins before directions are finished on some tasks				
2 a lot		2 pays attention only briefly		2 begins before directions are finished on most/all tasks				
<b>3. Verbal response to questions</b>		<b>6. Activity level</b>		<b>9. Understanding of directions</b>				
0 willing		0 sits quietly		0 easily understands				
1 reluctant		1 some wiggling		1 needs some repetition				
2 no response		2 excessive wiggling		2 unable to understand				
<b>Total Score (max. = 18)</b>								

## Appendix B

<h1 style="margin: 0;">Concepts</h1>	Scaled Score					Item Scaled Scores
	0 under 3 yrs.	1 3 yrs.	2 4 yrs.	3 5 yrs.	4 6 yrs.	
<b>1. Body Parts</b>	0-2	3-5	6-7	8	9-10	
nose      knee      forehead      knuckle hair      thumb      heel      wrist neck      chin						
<b>2. Colors</b>	0-4	5-10	11-12	13-14	-	
red              blue      green      gray yellow      black      purple						
<b>3. Rapid Color Naming</b>	0-4	5-9	10-19	20-24	25	
# of colors named in 30 seconds _____						
<b>4. Counting</b>	0	1-2	3-4	5-6	7	
A. Rote:                      B. Meaningful: 0 = 0-3                      0 = no success 1 = 4-8                      1 = 3 blocks 2 = 9-12                     2 = 7 blocks 3 = 13-19                    3 = 11 blocks 4 = 20 or more						
<b>5. Positions</b>	0	1-3	4	5	6	
under      in front of      around beside      behind      between						
<b>6. Concepts</b>	0-3	4-8	9-10	11	12	
longest      biggest      least most      fat      full empty      cold      day night      shortest      littlest						
<b>7. Shapes</b>	0	1-5	6-8	9	-	
Ages 3 and 4                      ▲ ● ■ Ages 5 and 6                      0 1-2 3-5 6-8 9-12 A. Sorting (ages 3 and 4): B. Sorting (ages 5 and 6): small blue      small yellow      small red large blue      large yellow      large red C,D. Identifying (all ages): circle              square              triangle						
<b>Scaled Score Total (max. = 27)</b>						
<b>Behavioral Observations</b> For each behavior, circle the option that applies to the child.						
1. Separation from adult 0 easy 1 hesitant 2 unable to separate	4. Persistence (nonverbal) 0 stays with task 1 attempts task 2 refuses task	7. Participation 0 willingly participates 1 needs encouragement 2 unwilling to try tasks				
2. Crying/Whining 0 none 1 a little 2 a lot	5. Attention 0 pays attention throughout task 1 pays attention some of the time 2 pays attention only briefly	8. Impulsivity 0 waits for directions 1 begins before directions are finished on some tasks 2 begins before directions are finished on most/all tasks				
3. Verbal response to questions 0 willing 1 reluctant 2 no response	6. Activity level 0 sits quietly 1 some wiggling 2 excessive wiggling	9. Understanding of directions 0 easily understands 1 needs some repetition 2 unable to understand				
<b>Total Score (max. = 18)</b>						



### Appendix C

Name							
Skill							
chooses/ initiates activities							
demonstrates pretend play							
imitates peers in play							
demonstrates parallel play							
responds to social contacts							
adequate attention span							
demonstrates organizational skills							
appropriate activity level							
transitions without incident							

Appendix D



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**Kathleen Binkowski, Ph.D.**  
Superintendent

October 6, 2009

Smith College  
School for Social Work  
Lilly Hall  
Northampton, MA 01063

To Whom It May Concern:

Kathleen Binkowski, Ph.D., Superintendent of Schools, gives permission for Lauren Sebastianelli to locate her research in Plainville Community Schools and gain access to DIAL preschool assessment data. We do not have a Human Subjects Review Board, and, therefore, request that Smith College School for Social Work's (SSW) Human Subject Review Committee (HSR) perform a review of the research proposed by Lauren Sebastianelli. Plainville School District will abide by the standards related to the protection of all participants in the research approved by SSW HSR Committee.

Sincerely,

A handwritten signature in black ink that reads "Kathleen Binkowski". The signature is written in a cursive, flowing style.

Kathleen Binkowski, Ph.D.  
Superintendent of Schools  
Plainville School District

KB/MS;jc







