

SOCIAL DOMINANCE AND THEORY OF MIND IN EARLY CHILDHOOD

A Thesis by

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The following faculty members have examined the final copy of this thesis for form and content, and recommend that it be accepted in partial fulfillment of the requirement for the degree of Master of Education with a major in Educational Psychology.

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ABSTRACT

This research examines whether or not there is a relationship between social dominance and theory of mind skills in three to five year old children. Twenty-seven three to five year old children were both rated and ranked by their lead teacher on social dominance. Each child was given the Peabody Picture Vocabulary Test, 4th Edition, to measure their receptive language skills, and then two common theory of mind false belief tasks. The first hypothesis, that there would be a positive correlation between social dominance and theory of mind skills was not supported. The second hypothesis, that there would be a positive relationship between theory of mind and language was only supported after outliers were removed. The third hypothesis, that when controlling for language, the relationship between social dominance and theory of mind would remain intact was not supported.

The results of this study were surprising due to many similarities between social dominance and theory of mind as well as extensive research supporting a positive relationship between theory of mind and language. Some possible explanations for these results include a very small sample size of children participating as a whole and within each classroom, the age of the children, and possible effects of teacher experience.

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CHAPTER ONE

INTRODUCTION

Social dominance refers to an aspect of interpersonal relationships between individuals, such that those who are more socially dominant acquire more resources. Socially dominant individuals acquire resources through personal means (such as knowledge, abilities, and/or skills). When social dominance is achieved, one person has more "power" over another in a relationship: The one who is more socially dominant will "win" the resource, while the other will "lose" the resource (Hawley, 2002).

Social dominance hierarchies are at the core of understanding dominance relationships. Such hierarchies represent the way power is distributed within a group. The person who has more power is the one who "wins" the most resources. When one person continually "wins" competitive bouts while another continually "loses" competitive bouts, a pattern becomes established. Thus, a social dominance hierarchy forms within a group (Hawley, 1999).

Many different methods can be utilized to achieve social dominance. Both prosocial and coercive behaviors are often used, and both are effective ways to achieve social dominance within a group. Prosocial means of attaining social dominance refer to using one's social skills in a way that wins resources while maintaining positive relationships (e.g. using polite requests or cooperation as a means of attaining a resource; Hawley, 2002). Coercive/aggressive means of attaining social dominance can involve harming others to get a desired resource, and may include verbal, physical, and/or relational aggression (e.g., hitting, purposely socially excluding another individual; Murray-Close & Ostrov, 2009).

Social dominance in early childhood has been studied extensively. Although early childhood has been defined in many places as children from birth to five years of age, for the purpose of this paper, early childhood will be defined as children between three to five years of age. During early childhood, cognitive abilities are rapidly changing. Thus, social dominance is displayed differently during early childhood compared to older children and adults: younger children will more often use aggression as a method of attaining social dominance (Hawley, 1999; Strayer & Trudel, 1984). Although aggression is the most utilized method among preschoolers, prosocial means of attaining resources may also be used to attain social dominance. Such prosocial means are more prevalent among older preschoolers (4 to 5 year olds) as they become more cognitively mature (Hawley, 1999; Teisl, Rogosch, Oshri, & Cicchetti, 2011). Dominance hierarchies are also evident in preschool classrooms and play an important part in relational organization in early childhood (LaFreniere & Charlesworth, 1983; Strayer, Chapeskie, & Strayer, 1978; Strayer & Strayer, 1978).

Theory of mind ability is another important component of cognitive development during early childhood. A child develops theory of mind skills when he/she can understand and interpret both external and internal events, which include thoughts, beliefs, desires, and emotions. Theory of mind entails understanding that every person has a different portrayal of reality, which may be true or false, and may be different than one's own reality (Renouf et. al, 2009).

Theory of mind development typically follows a certain developmental sequence. Specifically, many changes occur in the development of theory of mind during early childhood. During this time period, children begin to understand a variety of things, which include others possessing different desires, beliefs, and emotions that differ from their own and that a belief held by themselves or others may be false (Wellman & Lui, 2004).

Language also develops rapidly during early childhood, and has been strongly linked to theory of mind skills during this time period (Milligan, Astington, & Dack, 2007). Many researchers argue that theory of mind development depends on language (Astington & Jenkins, 1999; Milligan et al., 2007). Therefore, it is important to control for the role of language when examining theory of mind.

Although both social dominance and theory of mind have been studied separately, much less is known about how they may potentially interact. However, both are implicated in cognitive development during early childhood and both have common correlates, such as aggression, gender and peer acceptance. Furthermore, it is plausible that a child possessing more advanced theory of mind skills might be more likely to utilize these skills as a useful tool in "winning" social dominance competitions. Therefore, this study seeks to address the important research question of whether there is a relationship between social dominance and theory of mind in early childhood. This study is important because it gives researchers and professionals better insights into cognitive development during the early childhood years.

CHAPTER TWO

LITERATURE REVIEW

Social Dominance

Charlie is coloring and would like to use a specific crayon that another child is using. He asks the other child for the crayon and is denied. Charlie then tries to convince the other child that another crayon is really the best one for him to use. The other child continues to color with the same crayon. Charlie becomes frustrated with his failed attempts to get the crayon he wants, so he takes the color out of the other child's hand. Charlie has just demonstrated several forms of socially dominant behavior. Social dominance is generally understood as one using his/her available knowledge and skills to achieve a particular goal or resource, and the knowledge and skills can be used in any way that allows them to "win" the desired resource (Hawley, 2002). As such, social dominance represents power relationships between individuals, such that one person has more power than the other, which is assessed by the number of "wins" in resource competitions. The methods used to attain resources can either be positive (prosocial) or negative (coercive or aggressive) (Hawley, 2002; Pellegrini et al., 2007). When considering resources in social dominance, material factors such as toys, food, and other possessions are the most obvious resources individuals seek. However, non-material resources, such as friendship and love, must also be considered because they are often highly sought by humans (Hawley, 1999).

Social Dominance Hierarchies

Social dominance theory primarily involves understanding dominance hierarchies. A social dominance hierarchy is the way in which power is organized amongst members of a particular group. For the purpose of social dominance, power is defined as one having more access to resources than others within a group. When individuals come together in groups, they

often compete for resources where one person “wins” and gains the desired resource while the others “lose.” This leads to asymmetries between relationships. When contests produce the same results over time (that is, the same group members continue to win), a pattern between group members emerges (Hawley, 1999). Soon, group members begin to understand their position and role within the dominance hierarchy. Strayer & Strayer (1976) describe social dominance hierarchies as one of the basic components to social organization: Hierarchies function to allow members of the group to predict outcomes of behavior, which in turn helps them avoid unfavorable behavior from others.

Aggression and Prosocial Behavior in Social Dominance

When considering the methods used to achieve social dominance, coercive and aggressive behaviors are often utilized. Coercive and aggressive behavior occurs when an individual tries to “hurt, harm, or injure another person” (Murray-Close & Ostrov, 2009, p. 828), and this can come in the form of physical, relational, or verbal aggression. Physical aggression involves hurting another in any way that involves his/her physical well-being. Some common examples of this include hitting, kicking or pushing another child. Relational aggression is harming another in any way that damages a relationship or the way one feels about belonging. Some common behaviors that illustrate this are socially excluding a person or threatening to end a relationship unless the other person submits to a request (Murray-Close & Ostrov, 2009). Verbal aggression occurs when words or tones of voice are used to intimidate someone, which can include yelling or making threats to another person.

Although aggression is one means of attaining social dominance, prosocial behavior is also often used. This occurs when one uses his or her social skills in a manner that allows him/her to win resources while keeping peer relationships positive (Hawley, 2002). This

behavior may include using polite requests, forming alliances with others, or using cooperation as a means to attain resources. Those who use prosocial forms of attaining dominance are often identified as being socially proficient, because they still attain resources and reach their goals, but do so in a manner that keeps relationships with others positive. Although some theorists have debated whether this prosocial behavior is for altruistic purposes or for selfish reasons (i.e. attaining resources), prosocial behavior can regardless increase social dominance.

Animal Studies and Social Dominance

Many researchers have attempted to understand human social dominance by putting it in the framework of animal studies. In fact, a large amount of research focuses on primate social dominance behaviors and hierarchies. In comparing monkeys to humans, there are some obvious similarities as well as differences. Like humans, many animals, including many monkey groups, operate under linear, stable dominance hierarchies (de Waal, 1991; de Waal & Luttrell, 1985; de Waal & Luttrell, 1989; Strayer, Bovenkerk, & Koopman, 1975; Strayer & Strayer, 1978). Animals display these hierarchies through social power. One animal is said to have more social power than another when the other animal displays submissive behavior and does not win whatever resource was being sought (Strayer & Strayer, 1978). Strayer (1976) studied macaque monkeys and found the most dominant monkeys to be those who displayed the most antagonistic behaviors, which included behaviors such as assault, biting, and chasing one another. Interestingly, the monkeys displayed these behaviors toward both high- and low-dominant ranking monkeys. Research suggests this is not the case during early childhood (Strayer & Strayer, 1978). Regardless, the purpose of the dominance hierarchy is the same in animals as humans: to decrease aggression within a group, and as a result, provides social organization to the group.

In addition to aggression, in many species of monkeys, dominance hierarchies can form by being born into a certain dominance status rather than by attaining resources through aggression. For example, in rhesus monkeys, hierarchy rank is explained fully through matriarchal lineal hierarchies (de Waal, 1991). That is, when these monkeys are born, they will be placed into the hierarchy right under their mother's rank and above older siblings. This is especially true with female rhesus monkeys. Therefore, it is often difficult to assess behaviors associated with dominance in monkeys where the rank has already been established. One behavior de Waal (1991) found in rhesus monkeys was that they associated most with other monkeys close in rank distance to them. Past research has found many similarities and differences when comparing social dominance in monkeys to humans. Because many of the studies on social dominance in animals led to studying humans, understanding these similarities and differences is important when considering social dominance in humans.

Social Dominance in Early Childhood

Next, consider social dominance during early childhood. This is a unique age because children ages 3 to 5 years have limited, but growing cognitive and language abilities. Thus, they display socially dominant behaviors differently than older children and adults. Specifically, preschoolers, especially younger preschoolers, tend to use aggression more frequently than prosocial strategies (Hawley, 1999; Strayer & Trudel, 1984) because they may lack the linguistic and cognitive capabilities to gain resources in a way that others would perceive as prosocial. Preschool children most often use aggression by taking objects from another child, using negative words to boss another child (e.g. "Do not touch those scissors."), using physical aggression (e.g., pushing), and by insulting the child (e.g. "You are too slow to ride this bicycle.") (Hawley, 2002). Dominant children tend to display the most aggressive behaviors in the

classroom when compared to less dominant children, and they generally direct aggressive behavior toward other dominant children in the classroom (Strayer & Strayer, 1978).

Although aggression is one of the most prominent forms of social dominance, prosocial behavior is also used to establish social dominance. The use of prosocial means for attaining dominance increases as children mature cognitively (Roseth, Pellegrini, Bohn, Van Ryzin, & Vance, 2007). Children ages 3 to 5 years use many different forms of prosocial behavior for the purpose of social dominance (Hawley, 2002). For example, a child can make suggestions to his/her peer (e.g. “You can use this color for your picture.”), direct or help his/her partner (e.g. “I will show you how to build this tower with the blocks.”), give objects to another child (e.g. “You play with this doll.”), and verbally mislead their play partner that it is better to not control a resource (e.g. “It’s more fun to follow the leader than to be the leader.”).

As children mature cognitively, they more deeply understand how dominance works and are able to choose which method will be most beneficial (prosocial or coercive) (Murray-Close & Ostrov, 2009). Interestingly, the same children who use prosocial forms of dominance commonly interchange between coercive and prosocial behaviors as a means of attaining social dominance as a function of the situation. In other words, a child uses whatever form of behavior necessary to achieve his/her goal. Thus, a child who successfully switches between both prosocial and coercive means of attaining his/her goal tends to be more socially dominant (Hawley, 2002; Roseth et al, 2007). As the child ages, usually by middle childhood, and certainly during adulthood, aggression is not tolerated to the same degree. Thus, a prosocial form of dominance is needed and used to win resources, and less switching between prosocial and coercive means occurs (Hawley, 1999; Teisl et al., 2011).

Dominance hierarchies are prominent in early childhood classrooms (LaFreniere & Charlesworth, 1983; Strayer et al., 1978; Strayer & Strayer, 1978). In early childhood, social dominance hierarchies usually form within the first few months after a group forms (LaFreniere & Charlesworth, 1983; Pellegrini et al., 2007). Aggressive behavior peaks at the beginning of a school year. After the dominance hierarchy is formed, aggression declines (LaFreniere & Charlesworth, 1983; Pellegrini et al., 2007; Roseth et al., 2007). Once roles are established within a group, the children feel less need to use aggression in the classroom because they understand their roles within the group as well as costs and/or benefits of using aggression to attain resources. Social dominance during early childhood demonstrates a linear pattern. That is, if child A is dominant over child B, and child B is dominant over C, but less than dominant than A, then child C is less dominant than child A, and so on (LaFreniere & Charlesworth, 1983; Strayer et al., 1978; Strayer & Strayer, 1978).

Predictors of Social Dominance During Early Childhood

In 3 to 5 year old children, certain predictors of social dominance exist, including leadership, personality, age, cognitive level, and gender. Dominant children are the ones who often lead games and activities in the classroom; thus leadership seems to be a factor in social dominance during this time period (Hawley, 2002). In addition, the child whose parents rate him/her as extroverted displays the most socially dominant behaviors in the classroom. Surprisingly, though, parents who rate their children as extroverted do not rate their children as aggressive, although the teachers in their classroom do. It seems that social dominance can be context specific, that is, a child can act differently at home than he/she does at school (Hawley, 2002). Similarly, another personality trait associated with social dominance in 3 to 5 year olds is persistence. The child who tries again and again is the one who often gains the desired resource

(Hawley & Little, 1999). Age (or physical maturity) and cognitive maturity also correlate with social dominance during early childhood. That is, the older children in the classroom (hence, usually more cognitively mature) are often the ones who are socially dominant (Hawley, 2002; Hawley & Little, 1999; Strayer & Trudel, 1984; Teisl et al., 2011).

Gender is another major variable related to social dominance in 3 to 5 year olds (LaFreniere & Charlesworth, 1983; Neppel & Murray, 1997; Pellegrini et al., 2007; Teisl et al., 2011). Boys are often considered by their peers and teachers to be more socially dominant than girls (Teisl et al., 2011), but this perception may occur because preschool boys exhibit more physical and verbal forms of dominance than girls, whereas girls tend to use relational forms of dominance (Ostrov & Keating, 2004). For example, girls in early childhood tend to make more indirect requests such as, “Would you please hand me that crayon?” to gain resources, while boys make more direct requests, such as “Give me the marker!” (Serbin, Sprafkin, Elman, & Doyle, 1982). Furthermore, same-sex peers display more aggression toward one another than mixed-sex dyads (Neppel & Murray, 1997; Pellegrini et al., 2007). This most likely occurs due to the same gender often playing together. That is, boys usually play with other boys, and girls with other girls.

Methods of Studying Social Dominance

Observing and Recording Behavior. There are several methods of collecting data and measuring social dominance in early childhood. One of the most common methods is observing children in classrooms and recording their behavior (LaFreniere & Charlesworth, 1983; Pellegrini et al., 2007; Roseth et al., 2007; Strayer et al., 1978; Strayer & Strayer, 1976; Strayer & Strayer, 1978; Strayer & Trudel, 1984). When using behavioral observations to collect data, researchers often video record or observe by using a place in the classroom that is as unobtrusive

as possible. They observe the children's behavior during free play settings (in the classroom as well as on the playground and in the gymnasium) over many months. A commonly observed behavior in assessing social dominance is visual peer regard. A child who is higher in the social dominance hierarchy will have a larger number of children watching him/her. Another observational measure of social dominance is to record competitive bouts between children (including who initiates the competition and how each person responds), and who is the "winner" of each aggressive bout, as determined by who attained the desired resource (LaFreniere & Charlesworth, 1983; Pellegrini et al., 2007). A benefit to using an observational method of collecting data for social dominance is that recording frequency of behaviors from someone who does not know the child personally can minimize possible biases compared to other forms, such as having parents or teachers rate children. Furthermore, the observers have received extensive training in the definition and embodiment of dominance behaviors. However, a weakness is that observational methods of collecting data require extensive amounts of time and manpower, which can include setting up the equipment and having someone in place to record data over long time periods. In addition, establishing inter-rater reliability can be challenging.

Teacher Observation. Another common and valid method of collecting data for social dominance is through teacher-observed dominance, usually by having teachers fill out a rating scale for each child in their classroom (Hawley, 2002; Pellegrini et al, 2007; Teisl et al, 2011). These rating scales can be used in several ways. Hawley (2002) asked teachers to fill out rating scales where they assigned each child a linear rank from 1 to 15 according to who wins competitions and controls resources in the classroom. A more commonly used scale for social dominance includes teachers using Likert scales in which they rate each child according to

frequency of their behaviors (e.g. 1-almost always, 2-often, 3-sometimes, 4-rarely, 5-never). For example, some behaviors that are measured this way include items such as “dominates peers,” “stands up for self,” and “bossy.” These scores are then added for each child and averaged to give them a dominance status. Teacher-observed dominance has been correlated with observational methods of collecting social dominance behaviors (Hawley, 2002; Pellegrini et al, 2007). That is, the children who were found to be socially dominant through observation were the same children who the teachers rated as socially dominant. An advantage to using a survey method is that the data are easily collected by someone who personally knows the child. Also, the use of teacher ratings is widely acknowledged as a valid approach of measuring social dominance (Pellegrini et al, 2007). Some possible disadvantages to using this type of method is that the person reporting about the child can have personality conflicts or biases that may affect his/her report, the teachers may not have a deep knowledge of dominance behaviors, and these methods may promote a bias toward coercive means of attaining dominance.

Ticket Paradigm. A less common, but effective way to collect data on social dominance in early childhood is through a method called the ticket paradigm (Pellegrini et al., 2007). The ticket paradigm consists of reading children a story involving animals attending a party in which the animals line up in the order they will attend the party. After reading the story, the children are told about an exciting event they will attend and are instructed to line up to receive tickets that are color-coded in the order they will attend. Children in the first third of the line attend that day, the second third of the children in line attend the next day, and the back third attend the event last. The children decide amongst themselves who lines up where. The tickets are numbered according to the child’s place in line and each child is given a rank of how socially dominant they are in the group (based on the number on their ticket). The ticket paradigm involves

collecting data over many days, and includes a practice event for the children (to make sure they understand what to do as a group), a comprehension assessment (to help determine that the children understand what they are supposed to do), and three test events. A benefit to using the ticket paradigm is that the data are collected relatively quickly and easily over a short period of time. A drawback to using this method is that it has not been significantly correlated with winning aggressive competitions, possibly because when using the ticket paradigm, there are no real winners and losers; everyone “wins” a ticket (Pellegrini et al., 2007).

Theory of Mind

Successfully achieving social dominance requires both cognitive and social skills. A child must demonstrate cognitive development in many ways when achieving social dominance: these cognitive skills may include interpreting what others are thinking, using problem-solving strategies such as trial and error to determine the best means of attaining a resource, and a child understanding his/her role within a group. During the early childhood years, substantial growth within the area of cognitive development occurs. One critical area of development during this time period is that of theory of mind. Theory of mind includes having the ability to interpret one’s own as well as other’s actions by understanding how external events and internal states (such as one’s thoughts, beliefs, desires, and emotions) affect behavior (Pears & Moses, 2003). Theory of mind encompasses understanding that every person has a mental depiction of reality, which may be different from ‘objective’ reality, and may also vary from one’s own viewpoint (Renouf et al., 2009). Because theory of mind entails understanding what another person is thinking, using theory of mind skills should help a child achieve social dominance.

Developmental Progression of Theory of Mind

Researchers have identified a specific developmental sequence of theory of mind skills in early childhood. In each of the theory of mind developmental stages mentioned below, age contributes significantly. That is, the older the child, the higher theory of mind skills the child possesses (Wellman, Cross, & Watson, 2001). Precursors of developing a theory of mind begin in infancy, which includes curiosity about others as well as the first forms of communication with others (crying, cooing, and making eye contact). These milestones typically occur by 18 months of age, and are important steps to eventually acquiring theory of mind skills (Flavell, 2004).

One of the first and most well known theorists who studied cognitive development within the area of theory of mind is Jean Piaget. A major claim of Piaget was that children are born cognitively egocentric, meaning that children believe that everyone thinks and acts as they do, and that everyone shares their thoughts, desires, and feelings. According to Piaget, this egocentrism occurs primarily in the pre-operational stage of cognitive development, from about 2 to 7 years of age (Bergen, 2008). During the preschool years, this egocentrism begins to change, and children begin to understand that others hold different desires and feelings than their own. One of the first changes from egocentrism to theory of mind is the development of visual perception. That is, children learn that others can see the objects they are viewing only if the person's eyes are looking at the object and there is no other object blocking their visual field. Eventually during this period, they learn that others may see an object from a different angle than their own (Flavell, 2004).

In addition to visual perception, another milestone in theory of mind in early childhood is the beginning of pretend play. When children engage in pretend play, they begin to understand

that an object can represent something else (for example, a banana used as a telephone; Miller, 2006). Pretend play helps a child begin to understand the difference between what an object really is versus what another person is trying to mentally represent. Children also begin to understand that another individual's mind does not always signify reality and can create false representations of reality. During the preschool years, pretend play becomes more complex and has been associated with theory of mind ability. Specifically, preschool children use the more complex roles of pretend play by using joint proposals and role assignments toward other children (Astington & Jenkins, 1995; Jenkins & Astington, 2000). Joint proposals are when a child references him or herself and another child in a task during pretend play. For example, one child says to another "Pretend you are a monkey chasing me again." A role assignment is when a child assigns a role for him or herself or another child. An example of this would be "Let's pretend we are trains now." As the pretend play becomes more complex, a child is able to understand that one thing can represent something else.

The first traditional measure of theory of mind ability happens next in the developmental progression. Sometime between the ages of 3 to 5 years, children also learn that others can have different desires than their own (Atance, Belanger, & Meltzoff, 2010). For example, if a child was given a choice for a gift for his or her father and could choose between play-dough and a car magazine, sometime between the ages of 3 to 5 years they would correctly choose a car magazine, even though they may prefer the play-dough for themselves.

The next progression in theory of mind skills during early childhood is the understanding that others may hold different beliefs than their own (Capage & Watson, 2001; Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991; Ronald & Happe, 2005; Wellman et al., 2001). For example, if Sherry is told a story about her teacher going on vacation, she may think the teacher

is going to the beach. Next, imagine Sherry is told that Richard thinks that the teacher is traveling to the mountains for vacation. If Sherry has met this developmental milestone, she will be able to state that Richard thinks his teacher is going to the mountains for vacation, but she thinks differently in that she believes the teacher is going to the beach. If Sherry has reached this theory of mind stage, she understands that Richard thinks differently than her, but may not yet understand that one of their beliefs is a true belief and the other is a false belief.

The next stage of theory of mind development in early childhood is false belief (Astington & Jenkins, 1999; Wellman et al., 2001). When one has mastered the skill of understanding false belief, he/she realizes that two conflicting representations can occur from the same situation (true belief versus false belief), such as that a person can be mistaken about something that he/she understands. For example, imagine that a child is told a story about two children, Jane and John, coloring. The children finish coloring and put their crayons inside a desk. Jane leaves the room. While she is gone, John moves the crayons to his backpack. Jane comes back in the room. If a child has mastered the skill of false belief understanding, when he/she is asked where Jane will look for the crayon, he/she will answer the desk, even though he/she knows the item has been moved. False belief understanding has been widely used and accepted as a way to measure children's theory of mind development during early childhood (Henning, Spinath, & Aschersleben, 2011).

The last stage of theory of mind development during early childhood is the understanding of real versus apparent emotion. In this stage, a child begins to understand that someone can display one emotion, yet feel another. For example, Henry comes home from school and his mother smiles at him and says "We need to talk. When you were at school today, Fred (the family dog) died." Although smiling is usually perceived as happiness, Henry understands that

his mother is sad because she loved their dog very much. So, while it appears that she is happy, she is masking her real emotion for her son. If Henry understands real versus apparent emotion, he will understand she is sad about losing the dog, even though she is smiling. An understanding of real versus apparent emotion usually develops between the ages of four to six years old (Mizokawa & Koyasu, 2007).

Contribution of Language to Theory of Mind

A developmental sequence to theory of mind provides professionals with a better understanding of children's cognitive development. Another area related to both cognitive development and theory of mind is language development during early childhood. Language has a moderate to strong correlation with theory of mind, as demonstrated in a large meta-analysis of studies (Milligan et al, 2007). The relation between language and theory of mind seems to be interrelated and complex (Astington & Jenkins, 1999). Theorists have debated whether or not language depends on theory of mind, whether theory of mind depends on language, or whether language and theory of mind each depend on another variable. Most of the evidence supports the idea that theory of mind development depends on language abilities (Astington & Jenkins, 1999; Milligan et al, 2007). First, children need a certain amount of linguistic skills to be successful on theory of mind tasks. Suppose a child is shown a bag of chips. When asked what the object is, the child needs one of the most basic language abilities to correctly identify the item as chips. Without the ability to correctly identify, comprehend, and respond to the question asked, one cannot pass a theory of mind task.

Because the basic definition of theory of mind includes observing one's own, as well as others' mental states, there must be a way to observe and identify these states. However, mental states are not always directly observable. For example, one can portray an emotion such as

happiness by using facial gestures such as smiling, yet can actually feel depressed. After talking with the person, he uses language by sharing thoughts and experiences that demonstrate depression. Language is one of the primary modes through which we can understand others' mental states (Miller, 2006). A person can describe what he or she is thinking/feeling through language. Language is also central in theory of mind development in that increasing language can promote theory of mind growth (Astington & Jenkins, 1999). That is, language development provides children with new resources, such as specific parts of language, which also promotes theory of mind abilities. Thus, language helps enable the development of theory of mind skills.

Many different parts of language have been studied in relation to theory of mind including semantics, syntax, receptive vocabulary, general language, and memory. Semantics refers to the understanding of the meanings of words and phrases. Syntax involves the rules with which words are put into sentences. Measuring one's receptive vocabulary involves assessing the words a person recognizes and understands well enough to comprehend. General language ability refers to both semantics and syntax. Memory refers to recalling or reproducing what has been learned. No specific part of language has shown to be more important than another when measured with theory of mind development; all five areas have been correlated (Milligan et al, 2007). Acquiring a theory of mind during early childhood is a complex process that includes both cognitive and social development. The children go through many developmental phases and language plays a critical role in a developing theory of mind.

Theory of Mind Informs Social Dominance

Theory of mind involves a variety of skills, such as language ability, and reading others' intentions and thoughts. These skills should presumably also be important in attaining social dominance because successfully achieving social dominance within a group involves using one's available resources. Theory of mind skills can be a useful resource for a person to accomplish his/her goals.

When considering the important developmental changes that occur in social dominance and theory of mind during the early childhood years, there could be a connection. First, there are several areas that are both correlated with social dominance and theory of mind. Relational aggression (Murray-Close & Ostrov, 2009; Renouf et al, 2009) is a predictor of both social dominance and theory of mind, as well as prosocial behavior (Capage & Watson, 2001; Eggum et al., 2007; Hawley, 2002). Gender is correlated with both social dominance and theory of mind, which are both associated with 3 to 5 year old boys' aggressive behavior (Ostrov & Keating, 2004) and girls' prosocial behavior (Serbin et al, 1982). Peer acceptance has also been correlated with children successfully acquiring social dominance (Hawley, 2002) as well as high theory of mind skills (Slaughter, Dennis, & Pritchard, 2002). Certainly, many factors are similar in both theory of mind and social dominance in early childhood.

Because social dominance is using the resources one has available to achieve a goal or "win" (Hawley, 1999), the cognitive ability to observe and interpret other's behavior (which is theory of mind) should be present in order to achieve the "wins" associated with social dominance. Children who successfully achieve a high social dominance rating are those who are able to use many different methods to acquire the sought after resources (Hawley, 2002; Murray-Close & Ostrov, 2009). For example, imagine that Sarah and Jennifer would both like to put

together the same puzzle. Sarah observes that Jennifer usually enjoys art projects during play time. Sarah uses this knowledge to lure Jennifer over to the art table to paint so that she can use the puzzle they both wanted. Despite the logical connection between theory of mind skills and social dominance, very little research has been conducted to examine this potential link.

Goals and Hypotheses

The goal of this study is to examine whether theory of mind is related to social dominance in children ages 3 to 5 years old. Social dominance and theory of mind skills are both rapidly changing during early childhood. They both have many similar correlates during this time period as well, including aggression, prosocial behavior, and gender. Because social dominance requires one to use one's resources in order to “win”, it is plausible that using one's theory of mind skills could be a resource used to gain social dominance. Based on these ideas, the first hypothesis of this study is that there will be a positive relationship between theory of mind and social dominance during early childhood.

Many studies demonstrate that language plays an important role in theory of mind, and thus the two are positively correlated (Milligan et. al, 2007). Therefore, the second hypothesis is that there will be a positive relationship between language and theory of mind skills in children 3 to 5 years of age.

Finally, the third hypothesis is that, when controlling for language, the relationship between social dominance and theory of mind will remain intact. Although language plays an important role in cognitive development during early childhood, and certainly in theory of mind, without it, humans (and animals, on a more basic level) still have the ability to observe and interpret behavior even though they may not be able to communicate it without the proper language development. They can still use this ability as part of their resources to attain social

dominance. So, although language is an important part of both social dominance and theory of mind, it is hypothesized that the positive relationship between theory of mind and social dominance will remain intact.

CHAPTER THREE

METHODS

Participants

The participants in this study included 27 children aged 36 months to 73 months ($M = 48.7$ months, $SD = 9.26$) attending a church-based year-round childcare program in Northern Oklahoma. The daycare contained ten classrooms, with a total of 98 students. All children in each classroom were invited to be part of the study, and 27 consented to participate through written parental consent and the child's verbal assent. The participants included 17 boys (59.3%) and 11 girls (40.7%). According to the demographical information that parents reported on the consent forms, 17 reported the child's ethnicity as Caucasian (63%), 1 reported their child's ethnicity as American Indian/Caucasian (3.7%), 2 were reported as Native American (7.4%), and 7 did not report ethnicity for their child (25.9%). There were four classrooms and each classroom had one lead teacher present. The early 3 year old classroom contained 12 children (with 5 participating in the study), the 3 year old classroom contained 12 children (8 participating in the study), the 4 year old classroom had 14 children (9 children who participated in the study), and the 4 year old and Kindergarten half-day classroom contained 15 children (with 5 children participating in the study). According to state regulations in Oklahoma, 3 year old classrooms should have an adult-to-child ratio of 1:12, with a maximum of 24 children in each classroom. For 4 and 5 year old children, the ratio is 1:15 with a maximum of 30 children in each classroom (Oklahoma Department of Human Services, 2010).

Materials

Teacher Ratings. The lead teacher for each classroom completed a 24 item scale where he/she rated each child's aggression and social dominance. This rating scale was based on Dodge and Coie's (1987) Teacher Checklist, which has been shown to be a valid measure of social dominance (Pellegrini & Long, 2002). Each teacher received the rating form a week in advance so he or she could become familiar with the behaviors before rating the child. Each child was rated by his/her teacher using a Likert scale from 1-7 (with 1 being *never true*, to 7 being *almost always true*) on a total of 24 items. Of these items, 15 were related to how frequently the child used aggression and/or social dominance in the classroom. Within these 15 items, 5 items were related to social dominance (i.e., *this child is a leader, gets what he/she wants, is competitive, suggests to other children how things should be done, and is frequently the center of the group*; Cronbach alphas = .89). The other 11 items were related to the child's aggression in the classroom. Although the measure included questions on aggression, the main focus is on items related to social dominance. In addition to the 16 items addressing social dominance/aggression, there were also 8 other items related to the child's personality. The purpose of these 8 personality items was to disguise the primary focus of the rating scale. For the full rating scale, see Appendix C.

Teacher Rankings. Each lead teacher was asked to linearly rank each participating child in his or her classroom from one to the highest number of the children who participated in the study (for example, the 3 year old classroom had eight children participate, so their teacher would rank children from one to eight) according to their social dominance standings within the classroom. The child ranked one was considered to be the most dominant. Children who did not participate in the study were not included in the rankings from the teacher. The teachers were

asked to rank their students by thinking about who typically wins disputes and controls resources in comparison to their classmates. The teachers were given note cards with one child's name per note card, and were asked to lay them all out and write a number on each card (one being the most socially dominant). This took each teacher approximately five to ten minutes to complete. This method of using teacher ratings was adapted from Hawley (2002). When scoring the ranking scales, reverse scores were used because with the teacher rating scales, a high dominance score indicated high dominance, whereas with the teacher ranking scales, a low dominance score indicated high dominance. It was necessary to reverse the scores for the rating scales, so that high scores on each measure would indicate high dominance. See Appendix D for the full document.

Language Assessment. The Peabody Picture Vocabulary Test, 4th Edition (PPVT-4; Dunn & Dunn, 2007) was administered to each child individually. This assessment measures receptive vocabulary skills in children aged 2 years, 6 months through adulthood. This test has been standardized and normed, and has shown to be a reliable and valid measure of assessing receptive vocabulary (PPVT-4; Dunn & Dunn, 2007). During the test, the experimenter showed the child four drawings on a page, and the researcher verbally stated a word. The child would point to the picture that corresponded to the word, and then the experimenter would flip the page to another set of four drawings. The child began with the set that corresponded with his/her age. Each set contained 12 different pages. When the child reached his/her ceiling (answering eight or more questions incorrectly in a set), the test was complete. The child's raw score (based on the number of answers he/she answered correctly) was converted into the standard score given by the Peabody Picture Vocabulary Test (4th Edition). This assessment took approximately five to ten minutes to complete.

Theory of Mind Unexpected Contents Measure. The children were given an unexpected contents false belief task, adapted from Perner, Leekam & Wimmer et al. (1987). Each child was shown a familiar cereal box and asked “What do you think is inside this box?” The child responded, and then the experimenter opened the box to show the child that it actually contained a mirror. Then the experimenter closed the box with the mirror inside. The child was then asked, “Now what do you think is inside this box?” If the child answered “mirror”, it demonstrated that their belief had changed. Next, the child was asked “When I first showed you the cereal box, before it was opened, what did you think was inside the box?” Each child was given a score from zero to three on this task, based on the number of questions answered correctly. This task took approximately one to two minutes to complete.

Theory of Mind Change of Location Measure. The child was then given another well-known false belief task, the change of location task, similar in structure to and first developed by Wimmer and Perner (1983). Each child was individually read a short picture story. The first picture shown to the child was a picture of two children each playing with a train. “This is Sally and Mathew. Can you point to Sally for me? Can you point to Mathew? Sally and Mathew are playing with toy trains.” Before reading the next sentence, a picture of the girl putting her train on the track was shown. Then the child was read, “Sally parks her blue train.” Another picture was shown to the child of the boy putting the train into a drawer on the train table. Then the child was read, “While she is gone, Mathew moves the blue train.” The child was then asked a belief question: “Where will Sally look for the train?” If the child answered train track or pointed to the train track, it demonstrated an understanding of false belief. Three memory questions were then asked: “Where did Sally put the train?”, “Where is the train now?”, and “Did Sally see Mathew move the train?” The child was given a score between zero and four based on the number of

questions answered correctly. This task took approximately two to three minutes for each child to complete.

Procedures

Two weeks prior to the study, parental consent forms were sent home with each child in the classroom. For a copy of consent forms, see Appendices A and B. During the consent process, the following demographic variables were collected from the parent or guardian: the child's name, birth date, gender, and ethnicity. One week before the study, the lead teacher in each classroom was given the teacher rating forms and was asked to review the forms and become familiar with the behavior of the children in his or her classroom as they related to the forms, but to wait to fill out the forms until the study began the following week. The researcher also provided both verbal and written instructions to the lead teacher regarding how to fill out the teacher rating forms. For a copy of the teacher rating scale, see Appendix D. Then, researcher worked to establish rapport and familiarity with the children by helping the teacher in the classroom for one morning before starting the assessments. This helped children feel more comfortable with the researcher before completing the assessments. For the assessments, the researcher would complete all of the assessments in one classroom before moving to the next classroom. Before each assessment, the child gave verbal assent to participate. The child was taken into an office with the researcher and completed the Peabody Picture Vocabulary Test-4. In a separate session, but in the same office, the researcher individually administered the two theory of mind measures: the unexpected contents and change of location tasks. After the teachers handed back the rating forms, the teachers were given the ranking forms to fill out and were provided with both verbal and written instructions on how to complete this task.

CHAPTER FOUR

RESULTS

Descriptive statistics for the social dominance teacher rating and ranking scales, the theory of mind unexpected contents and change of location tasks, and the Peabody Picture Vocabulary Test-4 can be found in Table 1.

Table 1

Descriptive Statistics for Social Dominance/Theory of Mind Measures-Raw Scores

	Minimum	Maximum	Mean	Standard Deviation	Number
Teacher Rating Scale	7	35	22.7	8.48	27
Theory of Mind-Unexpected Contents	0	3	1.96	.76	27
Theory of Mind-Change of Location	0	3	2.15	1.06	27
Theory of Mind- Combined Scores	0	6	4.11	1.4	27
Peabody Picture Vocabulary Test-4	34	96	63.04	18.02	27

Data Transformation

A high score on the rating scale indicated high dominance, whereas a low score on the ranking scales indicated high dominance, therefore reverse scores were used with the teacher rankings, such that, for both measures, a high score would indicate high dominance. The two measures of social dominance, the teacher surveys and rankings, were positively correlated, $r_s(25) = .60, p = .01$. Because these two were positively correlated, a z-score was computed for each assessment and averaged for a single social dominance score for each child. The descriptive statistics for the social dominance rating and ranking z-scores as well as the combined social dominance z-scores can be found in Table 2. Because two measures of theory of mind were used, the two tasks were averaged and computed into a standard score. For the descriptive statistics of the combined z-scores, see Table 2.

Table 2

Descriptive Statistics for Social Dominance/Theory of Mind Measures-Standard Scores

	Minimum	Maximum	Mean	Standard Deviation	Number
Teacher Rating Scale	-1.85	1.45	.0004	1.00	27
Teacher ranking scale	-.33	1.62	.43	.57	27
Teacher Rating and Ranking Combined	-1.68	.89	-.22	.71	27
Theory of mind-combined score	-2.94	1.35	.001	1.00	27
Peabody Picture Vocabulary Test-4	77	123	99.78	10.96	27

Relationships Between Dominance, Theory of Mind, and Language

Because all of the hypotheses were one-sided hypotheses (i.e., that there would be positive relationships between theory of mind, social dominance, and language), one-tailed tests were utilized. The first hypothesis was that there would be a positive relationship between social dominance and theory of mind. To assess this hypothesis, a simple correlation was run between the social dominance z-score and theory of mind z-score. This hypothesis was not supported, $r(25) = .15, p = .23$.

The second hypothesis was that there would be a positive relationship between theory of mind and language in early childhood. To assess this hypothesis, a simple correlation was run between the theory of mind z-scores and the Peabody Picture Vocabulary Test-4 standard scores. The results were not significant, $r(25) = .26, p = .09$.

The last hypothesis was that, when controlling for language, the relationship between theory of mind and social dominance would remain intact. This was assessed by running a partial correlation of theory of mind and social dominance, controlling for language. The results for this hypothesis were not significant, $r(25) = .13, p = .27$.

After observing the data on a scatter plot, it was obvious there were three low scores on the Peabody Picture Vocabulary Test, 4th Edition, which could be influential observations in the theory of mind score (See Figures 1 and 2). To determine if the outliers influenced correlation results, the data were re-run with the three outliers removed. The first hypothesis, that there would be a positive relationship between social dominance and theory of mind remained not significant with the three outliers removed, $r(22) = .26, p = .16$. The second hypothesis, that there would be a positive relationship between theory of mind and language, became significant with the three outliers removed, $r(22) = .43, p = .02$. The third hypothesis, that, when controlling for language, the relationship between theory of mind and social dominance would remain intact, also remained not significant with the three outliers removed, $r(22) = .24, p = .14$.

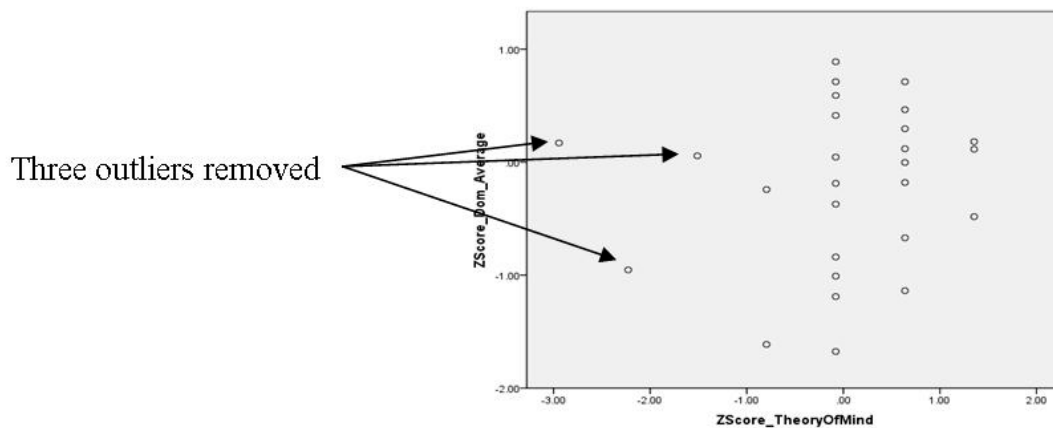


Figure 1. Scatter plot showing relationship between social dominance and theory of mind.

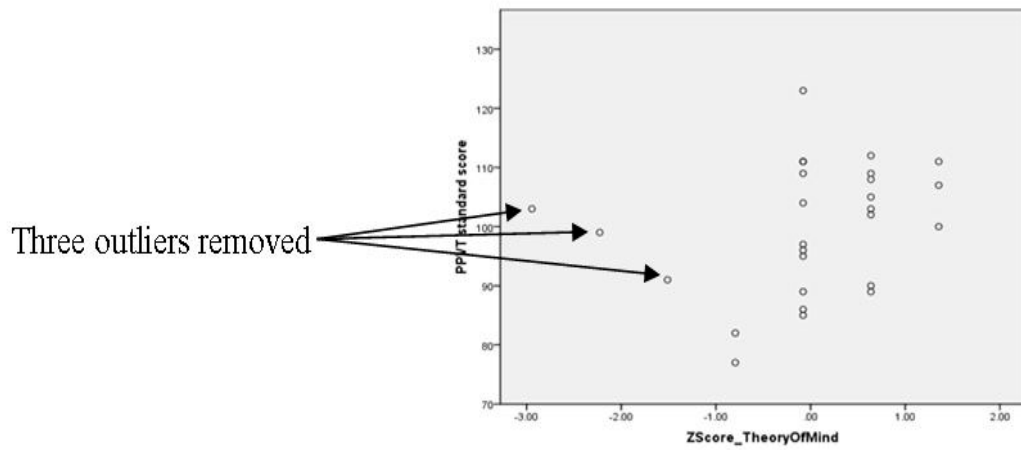


Figure 2. Scatter plot showing relationship between theory of mind and language.

CHAPTER FIVE

DISCUSSION

Previous literature has focused extensively on social dominance and, separately, theory of mind skills in early childhood. However, there are several theoretical reasons why theory of mind might be related to social dominance skills. First, these separate bodies of research have identified many similar correlates, such as proactive and relational aggression (Murry-Close & Ostrov, 2009; Renouf et al., 2009), prosocial behavior (Capage & Watson, 2001; Eggum et al., 2007; Hawley, 2002), and peer acceptance (Hawley, 2002; Slaughter, Dennis, & Pritchard, 2002). Additionally, certain cognitive abilities, such as the ability to observe and interpret other's behavior (theory of mind) could be beneficial in achieving social dominance. This is because being able to understand what others are thinking could serve as a resource one could utilize to achieve goals and, therefore, social dominance (Hawley, 2002; Murray-Close & Ostrov, 2009). However, no empirical research has tested the relationship between social dominance and theory of mind skills in early childhood. Therefore, the goal of this study was to examine whether theory of mind is related to social dominance in 3 to 5 year old children.

Summary of Findings

The first hypothesis, that there would be a positive correlation between social dominance and theory of mind was not supported, even with outliers removed. Although this study documents a positive correlation, it was not significant. This was surprising, considering that research suggests common correlates between the two, and that there is theoretical reason to believe that theory of mind should be related to social dominance. However, it is possible that this was not significant because of the high correlation between theory of mind and language skills (Astington & Jenkins, 1999; Milligan et al, 2007). Because theory of mind skills depend on

language (Astington & Jenkins, 1999), and as described more below, language may be a confounding variable that is masking the true effects of the relationship between social dominance and theory of mind. Thus, it may not be possible to find a correlation between the two unless the effects of language are accounted for.

Therefore, the second hypothesis was that there would be a positive correlation between theory of mind and language. The abounding research on the relationship between theory of mind and language suggests there is a significant correlation between the two (Astington & Jenkins, 1999; Milligan et al, 2007). Language is an important predictor of theory of mind skills because theory of mind requires that one understands others' mental states, and using language is one of the primary tools used to understand others (Miller, 2006). Additionally, as children's language skills advance, they acquire new resources in which to better communicate and understand both themselves and others (Astington & Jenkins, 1999). In this study, however, this relationship was only statistically significant when the outliers were removed. These three outliers represented scores that were much lower than the mean on the PPVT-4 (see Figure 2). Because there were only 27 children in the study, three outliers contributed 11percent of the data, and therefore the results changed. Outliers can serve as influential observations, especially when examining correlations (Sprinthall, 2007). Also, there was a lack of variability in performance, such that everyone scored about the same, which resulted in a more uniform distribution on the theory of mind tasks.

The third hypothesis, that the relationship between theory of mind and social dominance would remain intact when controlling for language was not supported, even with the outliers removed. As stated above, there is little to no research on the relationship between theory of mind and social dominance when controlling for language. Although language plays a large role

in theory of mind skills (Astington & Jenkins, 1999; Milligan et al., 2007), it is not necessary for a positive correlation between social dominance and theory of mind, because children can use resources other than language (such as behaviors) to display social dominance. Regardless, given that social dominance and theory of mind share a number of correlates, and that there is theoretical reason to believe that social dominance should be related to theory of mind, this finding was surprising.

There are several possible explanations why social dominance was not related to theory of mind, even when controlling for language. First, this study had a very small sample size of only 27 children. With small sample sizes such as this, it is more difficult to attain statistical significance because the standard errors are larger (Sprinthall, 2007). Second, and more importantly, there may have been issues with the social dominance rankings that decreased variability. The teachers in each classroom only rated a subsample of children on social dominance. Generally, examining the class as a whole is a better indicator of social dominance rankings rather than a smaller subgroup because all of the children in the classroom comprise the dominance hierarchy. For example, one of the classrooms used had 14 children, but only 9 children participated in the study. The child who got the rating of 1 out of the 9 who participated (indicating the most dominant child in the classroom) may have actually been given a rating of 6 if all 14 children in the classroom were rated. Thus, it is hard to say how well the rankings actually measured dominance, because dominance was only assessed in relation to the others who participated in the study, not all of the other students in the class.

Another variable that may have affected the data was the training, experience, and biases of the teacher. This is especially important to consider, because dominance was only determined by the teacher rankings and ratings. That is, different teachers may evaluate students differently.

For example, one teacher may rate a student highly socially dominant whereas another teacher may rate the same child less socially dominant. Or, one teacher may define dominance by placing a greater emphasis on aggression, whereas another may define dominance by placing a greater emphasis on prosocial means of attaining resources. Therefore, the teachers' personal biases can influence ratings to a great degree.

Furthermore, the teacher's years of experience and/or education may be another factor in how the students were rated. In fact, the hypothesized relationship between social dominance and theory of mind was found, but only in one classroom, which was the classroom that had the teacher with the most experience, $r(7) = .79, p = .006$. The lead teacher in this classroom has seven years of experience and holds a Child Development Associates (CDA) credential compared to the other lead teachers who have two, three, and four years of experience and do not have CDA credentials. Thus, perhaps if the teachers held the same level of experience and/or education, it might have led to different results. The use of teacher rating and ranking scales alone, without the use of behavioral observations from an outside researcher may have also affected the results of the study. Without behavioral observation methods separate from teacher ratings, the likelihood of teachers' personal biases and experiences increase. Another area in which this study could be improved is by providing trainings as well as fidelity checks to the teachers to ensure that they held uniform understanding of what social dominance entails.

In addition to the challenges associated with assessing social dominance, some other challenges arose with the measurement of theory of mind skills. In this study, 26 out of 27 children answered one of the three questions incorrectly on the change of location task. When asked "Where will Sally look for the train?", 26 children answered incorrectly by responding "in the box or drawer", rather than the correct answer, "the train track," possibly indicating they

either did not understand the question, or their theory of mind skills had not matured enough to understand what was being asked of them. Thus, there were floor effects on the theory of mind task, which limits the variability in the scores. This may have contributed to the lack of statistically significant results in this study. Increasing the sample to include older children may yield stronger positive correlations between theory of mind and social dominance.

Although this study focused on reasons why social dominance and theory of mind should be positively correlated, there is a possibility that no relationship exists between social dominance and theory of mind. Children, especially younger children, may not have the cognitive ability to use theory of mind as a resource for attaining social dominance. Research indicates that, because of preschool children's limited cognitive skills, they tend to use physical aggression more often than prosocial strategies to achieve their desired outcome (Hawley, 1999; Strayer & Trudel, 1984). In order to use theory of mind as a resource to achieve social dominance, one needs to understand both his own and others' thoughts and actions, as well as be able to strategize what method might work best for attaining dominance. This may be too complex for children who have limited, but growing cognitive skills.

If social dominance is not positively correlated with theory of mind, perhaps social dominance occurs more naturally due to other characteristics, such as the personality and social upbringing of the individual. Related to personality, research indicates that extroverted people are more socially dominant (Hawley, 2002). It is possible that extroversion is a moderating variable, such that extroverts could be more likely to use theory of mind to attain a goal, whereas introverts only use it to better understand others. Related to social upbringing, perhaps as one's circumstances and situations change, people may change how they use theory of mind. In other words, maybe in different situations over a lifetime, or even in different settings (such as the

workplace and home) different resources (i.e. theory of mind) may be used in different ways. Because of this, when and how one uses theory of mind may be difficult to measure. Finally, if theory of mind is not used as a resource for attaining social dominance, it is possible that it is solely used as a tool for helping one understand himself and others, but that it does not necessarily generalize to other social situations.

Limitations and Future Research

As described, the major limitation to this study is related to the sample. The very small sample size and that the sample was only carried out in one daycare center in one part of the country with a homogeneous population of children is a major limitation. Therefore, the results cannot be generalized to other settings (for example, daycare centers in urban areas or public school preschools). Thus, future research should focus on larger, more diverse samples of children within different settings and in different parts of the country.

Another limitation of this study was the age of the children. This study contained 13 three year olds, 12 four year olds, 1 five year old, and 1 six year old. Thus, this sample was biased toward the younger age range of the preschool years. In a large meta-analysis conducted by Wellman et al. (2001), which was comprised of 178 theory of mind studies, they found that age plays a large role in theory of mind development. In the Wellman et al. (2001) study, at approximately 44 months (3 years, 8 months) of age, children scored correctly 50% of the time on false belief tasks, while at 56 months (4 years, 8 months) of age, the number rose to 74.6%. Because half of the children in this study were in the younger end of the preschool age range, this likely resulted in lower performance on the theory of mind tasks, thus decreasing the likelihood of finding a relationship between theory of mind and social dominance. Additionally, previous studies on social dominance in children have had a much larger sample (Murray-Close

& Ostrov, 2009) and/or have examined mostly four and five year old children (Pellegrini et al., 2007). Pellegrini et al. (2007), studied social dominance in 60 preschool children who had a mean age of 50 months (4 years, 2 months). Murray-Close & Ostrov (2009) studied 101 children with a mean age of 45 months (3 years, 9 months). Thus, future work would benefit from including an older group of preschool children to ensure an appropriate baseline of skills, and testing the relationship between theory of mind and social dominance within several different age groups. With a larger group of children comprised of 4 and 5 year olds, the results may show a significant relationship between social dominance and theory of mind skills. And, it may be that the relationship between theory of mind and social dominance increases with age.

Another avenue of future research might be to examine the correlations between theory of mind, language, and social dominance among children with social/emotional disabilities. Theory of mind skills have been studied in children with social/emotional disabilities, especially autism (Senju, 2012; Siegal & Peterson, 2008). However, little research has been done on how children with autism display social dominance and whether or not these hierarchies exist in classrooms composed of only children with autism. Because many children with autism are developmentally delayed in attaining theory of mind skills (or may never possess these skills) (Senju, 2012; Siegal & Peterson, 2008), it would be interesting to see what the correlates of social dominance are for these children. Perhaps size, gender, or aggression may correlate more with children who possess limited theory of mind skills.

Practical Implications

This study informs teachers and other professionals who work with preschool-aged children about the interrelationships between social and cognitive development. Specifically, the results from this study can be used to educate teachers about social dominance in the classroom

and possible contributors to it, such as theory of mind skills. Such knowledge can help educators to address practical issues in the classroom and in schools, such as aggression and bullying. Because social dominance is partially comprised of aggressive behavior, educating teachers on recognizing social dominance can also help them develop strategies to address and minimize bullying in the classroom. Alternatively, social dominance can also be achieved via prosocial means, and theory of mind is related to the use of prosocial behavior and decreased aggression. Thus working with children on theory of mind skills might help reduce aggression and bullying in the classroom. Educators can also benefit from learning about the prosocial means of attaining dominance, and work with children on learning and reinforcing those positive types of strategies in the classroom.

The research from this study can also help those working with young children better understand language development and its contribution to social development. The more knowledge the educators have in specific areas of development, the better they can understand children's needs, which can lead to more effective teaching strategies in the classroom. This research can also assist superintendents and other administrators who make decisions on trainings available to educators. Specifically, this study can help them better understand the child as a whole and focus on different areas of development in early childhood and the importance of teaching different areas such as social, cognitive, and language development. In other words, it is not only important for educators to have knowledge about children's cognitive development as related to academic achievement, but it is also important to understand social development.

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APPENDICES

APPENDIX A

PARENTAL INTRODUCTION FORM

This form must be returned as soon as possible!

Dear Parent/Guardian,

Hello! My name is Stephanie Dodge. Most of you know the director of the preschool, Debria Perry. I am Debria's daughter and currently reside in Wichita, Kansas. I am currently working on a Master's in Educational Psychology at Wichita State University. As part of my requirements to finish the program, I am working on my writing my thesis. Part of my thesis requires me to do some assessments on young children. This study is under the supervision of Dr. Catherine Bohn-Gettler, a professor of Educational Psychology at Wichita State University.

This research study is examining social development in preschool children. Faith Christian is allowing me to perform these assessments in your child's classroom. Before the assessments, I will be spending some time in the classroom helping the teacher so your child will feel more comfortable with me. If your child participates, there are three short activities for him/her to complete. The first activity consists of reading aloud a short story and asking your child 4 questions about the story. The second task involves showing your child a cereal box and asking 3 questions related to what is inside the box. These two activities together will take a total of approximately 5-10 minutes per child. In a separate session, a language assessment called the Peabody Picture Vocabulary Test will also be administered, which takes approximately 5-10 minutes per child.

This packet contains a parental consent form (yellow), which describes the goals of the study, the tasks that will occur, assurance that you and your child's information will remain completely confidential, and assurance that participation is voluntary. Please fill out this form, and return one copy back to me or your child's teacher. You may keep the extra copy for your records.

There are two copies of the consent form. One is for you to send back to your child's teacher. The other is for you to keep. You should turn in 1 yellow form. The pink form is for you to keep.

Please ask me any questions. I am happy to discuss the study in more detail with you.

Thank you!

Stephanie Dodge
stephanie.dodge@gmail.com
(316) 990-6811

or

Catherine Bohn-Gettler, Ph.D.
Assistant Professor
Educational Psychology, Wichita State University
Office: 316-978-5107
Email: kate.bohn@wichita.edu

APPENDIX B

PARENTAL CONSENT FORM

Dear Parent or Guardian of _____,

Hello! My name is Stephanie Dodge. I am currently working to complete a Master's degree in Educational Psychology at Wichita State University, where I will go on to study School Psychology. I am currently working on finishing my thesis examining social development among preschool children. It is under the supervision of Dr. Catherine Bohn-Gettler, an assistant professor in Educational Psychology.

Your child is invited to be in a research study investigating social development in preschool children, specifically examining social interactions and how their development affects their behavior. Your child was selected as a possible participant because Faith Christian School is working with me to conduct this study. I ask that you read this form and ask any questions you may have before agreeing to allow your child to be in the study.

Purpose: The purpose of this study is to investigate children's social and cognitive development, specifically in the area of social interactions and perspective-taking skills. This study is important because it helps professionals and researchers gain more knowledge in child development, which allows for more effective teaching methods in early childhood. This study is being conducted by Stephanie Dodge and overseen by Dr. Catherine Bohn-Gettler in the Counseling, Educational Leadership, Educational and School Psychology Department at Wichita State University.

Participant Selection: Your child was selected as a possible participant because they are a student at Faith Christian School. I hope to have up to 40 participants in this study.

Explanation of Procedures:

If you give consent for your child to participate, I would ask you to do the following things:

1. Provide written consent for your child to participate in the study.
2. Allow me to work with your child individually 2 times by first administering a short language assessment. The language assessment will take approximately 5-10 minutes. The second interaction will include reading a picture story to them and asking them 4 questions about the story, then showing your child a cereal box and asking 3 questions about it. The second interaction will take approximately 5-10 minutes.
3. Allow your child's teacher to answer a few questions about your child's social behaviors in the classroom.

Discomfort/Risks: The study has the following potential risks: Students may not feel comfortable completing the tasks. They will be reassured that if they feel uncomfortable, they do not have to complete the tasks. There are no direct risks to participation.

APPENDIX B (continued)

Benefits: Possible benefits are that we will gain more knowledge and a better understanding of children's social development during the preschool years, which may lead to the development of better instructional strategies.

Confidentiality: Any specific information obtained in this study regarding specific information regarding your child will remain confidential and will be disclosed only with your explicit permission. The records of this study will be kept private. In reports that we might publish, we will not include any information that will make it possible to identify your child. Research records will be stored securely under lock and key, and only researchers will have access to the records. All information will be kept for three years and then destroyed.

Refusal/Withdrawal: Participation in this study is entirely voluntary. Your decision whether or not to allow your child to participate will not affect you or your child's current or future relations with Faith Christian School, their teachers, or Wichita State University. If you agree to allow your child to participate, they are free to not answer any question and may withdraw from the study at any time.

Contact: If you have any questions about this research, you can contact me at: Stephanie Dodge (316) 990-6811 or my thesis advisor Catherine M. Bohn-Gettler, Campus Box 123, 1845 Fairmont, Wichita State University, Wichita, KS 67260, (316) 978-5107, kate.bohn@wichita.edu. If you have questions pertaining to rights as a research subject, or about research-related injury, you can contact the Office of Research Administration at Wichita State University, Wichita, KS 67260-0007, telephone (316) 978-3285.

*Please return ONE COPY of this form to your child's teacher, and keep the other for your records.
Please return this form as soon as possible.*

Statement of Consent:

I have read the above information. I have asked any questions that I have and received answers.

YES, I consent to have my child participate in the study.

NO, I do not consent to have my child participate in the study.



WICHITA STATE
UNIVERSITY
COLLEGE OF EDUCATION
Department of
Counseling, Educational
and School Psychology

APPENDIX B (continued)

You are under no obligation to allow your child to participate. Your signature indicates that you have read the information provided above.

You may keep a copy of this consent form.

Child's name (Printed)

Parent/Guardian Name (Printed)

Parent/Guardian Signature

Date

Signature of Investigator

Date

Also, as part of the data collection process, a few demographics regarding your child needs to be collected. Please feel free not to answer any question that makes you uncomfortable. This information will not specifically identify your child in any way. Each child will be given an I.D. number. The information below will be used for data collection for the group as a whole and will not identify your child specifically in any way.

Name of Child: _____ Child's birthday: _____

Child's Gender: _____ Child's ethnicity: _____

APPENDIX C

TEACHER RATING SCALE

Teacher Name: _____ Child Name: _____

Instructions:

For each of the following statements, please circle the number that best applies. These ratings should be based on behaviors you see from your student in general, but especially in the first week of watching these behaviors. Please have the lead teacher in the classroom fill out this form without the children present and please do not discuss with other teachers inside or outside of the classroom. Please only complete the forms on the children who are allowed to participate in the study. Use the following scale to determine the best number.

- Circle 1 if this statement is NEVER true of this child.
- Circle 2 if this statement is RARELY true of this child.
- Circle 3 if this statement is SOMETIMES true of this child.
- Circle 4 if this statement is OFTEN true of this child.
- Circle 5 if this statement is VERY OFTEN true of this child.
- Circle 6 if this statement is USUALLY true of this child.
- Circle 7 if this statement is ALMOST ALWAYS true of this child.

1. This child gets other kids to gang up on a peer that he or she does <u>not</u> like.	1	2	3	4	5	6	7
2. This child is a leader.	1	2	3	4	5	6	7
3. This child hits, pushes, or shoves peers.	1	2	3	4	5	6	7
4. This child verbally threatens peers.	1	2	3	4	5	6	7
5. This child starts fights with peers.	1	2	3	4	5	6	7
6. This child is good at compromising.	1	2	3	4	5	6	7
7. This child apologizes when he or she does something wrong.	1	2	3	4	5	6	7
8. This child tells peers <u>not</u> to play with other peers who are present.	1	2	3	4	5	6	7
9. This child says mean things to peers, such as teasing or name calling.	1	2	3	4	5	6	7
10. When mad at a peer, this child keeps the peer from being in the playgroup.	1	2	3	4	5	6	7
11. This child is very aware of the effects of his or her behavior towards others.	1	2	3	4	5	6	7

APPENDIX C (continued)

12. This child is very good at Understanding other people's feelings.	1	2	3	4	5	6	7
13. This child tells peers <u>not</u> to play with other peers who are <u>not</u> present.	1	2	3	4	5	6	7
14. This child threatens or bullies others to get his or her own way.	1	2	3	4	5	6	7
15. This child likes to be with others.	1	2	3	4	5	6	7
16. This child tries to get others to dislike another peer who is <u>not</u> present.	1	2	3	4	5	6	7
17. This child likes to share with others.	1	2	3	4	5	6	7
18. This child gets what he or she wants.	1	2	3	4	5	6	7
19. This child snatches objects from his or her peers.	1	2	3	4	5	6	7
20. This child is competitive.	1	2	3	4	5	6	7
21. This child suggests to other children how things should be done.	1	2	3	4	5	6	7
22. This child is frequently the center of the group.	1	2	3	4	5	6	7
23. This child holds a grudge.							
24. This child is nurturing towards others.							

The items below will not be given to the teacher, but explains the breakdown of each category assessed.

Items by Factor

Dominant

- 2. This child is a leader.
- 18. This child gets what he or she wants.
- 20. This child is competitive.
- 21. This child suggests to other children how things should be done.
- 22. This child is frequently the center of the group.

Aggression – Proactive

- 1. This child gets other kids to gang up on a peer that he or she does not like.
- 5. This child starts fights with peers.
- 14. This child threatens or bullies others in order to get his or her own way.

APPENDIX C (continued)

Aggression – Physical

- 3. This child hits, pushes, or shoves peers.
- 19. This child snatches objects from his or her peers.

Aggression – Verbal

- 4. This child verbally threatens their peers.
- 9. This child says mean things to peers, such as teasing or name calling.

Aggression – Relational

- 8. This child tells peers not to play with other peers, who are present.
- 10. When mad at a peer, this child keeps the peer from being in the play group.
- 13. This child tells peers not to play with other peers, who are not present.
- 16. This child tries to get others to dislike another peer, who is not present.

Other additional items:

- 6. This child is good at compromising.
- 7. This child apologizes when he or she does something wrong.
- 11. This child is very aware of the effects of his or her behavior towards others.
- 12. This child is very good at understanding other people's feelings.
- 15. This child likes to be with others.
- 17. This child likes to share with others.
- 23. This child holds a grudge.
- 24. This child is nurturing towards others.

APPENDIX D

TEACHER RANKING FORM

Please use these note cards to rank each child in your classroom (with the first in the stack being the most socially dominant to the last showing the least socially dominant behavior) in the classroom. Please lay them all out and assign (write on the note card) 1 number to each child (#1 being most socially dominant to the last being the least). Do not assign the same number for two children, even if it is a tough decision between two children who is most socially dominant.

When thinking about social dominance, think about the child who: usually wins whatever toy or supply they are seeking, who is a leader, who suggests to other children what they should do, and/or who is competitive.