EXAMINING THE RELATIONSHIP BETWEEN SOCIAL COMPETENCE AND THEORY OF MIND IN PREKINDERGARTEN CHILDREN

by

NICOLE ELOISE BARNED

(Under the Direction of Stacey Neuharth-Pritchett)

ABSTRACT

Social competence and Theory of Mind (ToM) abilities are essential components for successful academic and social functioning. The current study examines the relationship between social competence and children's ToM abilities in an effort to discover how social competence influences ToM abilities. One hundred and twenty-four prekindergarten children were included in the study. Results indicate that social competence, as measured by teachers, influences children's ability to understanding the mental state of others, when language is controlled. Attention/cognitive skills are the component in social competence found to be the most influential variable to ToM performance, explaining 7% of the variance. Through the use of simple strategies teachers and parents have the ability to facilitate ToM understanding. However more research is still needed to examine this relationship.

INDEX WORDS: Social Competence, Theory of Mind, Prekindergarten Children

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NICOLE ELOISE BARNED

B.S., University of the West Indies, Jamaica, 2003

M.A., University of Georgia, Athens, 2009

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NICOLE ELOISE BARNED

Major Professor:	Stacey Neuharth-Pritchett
Committee:	Martha Carr
	Shawn Glynn
	Cynthia Vail

Electronic Version Approved:

Julie Coffield
Interim Dean of the Graduate School
The University of Georgia
December 2014

DEDICATION

To my mother, Margaret Patterson, your profound love for education has been my inspiration to achieve all that I can with this life I have been blessed with. I dedicate this dissertation to you and the family: Arthurine Barned, Devon Dewdney, Patrick Jones, Charles Brown, and Mitchell Barnett. Thank you all for your unconditional love and support.

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TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

It is idealistic to think children entering prekindergarten will possess all the necessary developmental skills to enable them to successfully progress through school and life. In reality, many children begin school with varying social, cognitive, behavioral, and emotional development, which might be attributed to a host of factors including the state of their home environment, culture, parenting practices, family mental status, family dynamics and structure, health status, and the child's own personal characteristics (Center on the Social and Emotional Foundations for Early Learning [CSEFEL], n.d.). Typically children who grow up in challenging circumstances such as poverty or stressful environments are likely to have lower abilities than children who are raised in more stable and supportive households (Zelazo, 2011). Research indicates that "between 9.5% and 14.2% of children between birth and five years old experience social-emotional problems that negatively impact their functioning, development and school readiness," with boys placed at greater risk for developing behavior problems than girls (Cooper, Massi, & Vick, 2009, p. 3).

Challenges arise when children, entering school for the first time, rely on their previous socio-emotional skills and behaviors (i.e., social competence level) along with their capacity to understand the minds of others (Theory of Mind), to navigate and adapt to a new environment, interact with unfamiliar peers and adults, and learn and adhere to rules and regulations that may not be similar to ones used in the home. This process can be highly stressful for children with poor socio-emotional development. For such children, school may become a negative and

uncomfortable place, while for children with moderate or high social-emotional abilities; school may be a place where they might excel both academically and socially.

It is important that schools play a role in supporting socio-emotional development by identifying children's level of social competence and providing the necessary assistance needed for positive social development. This study aims to investigate the relationship between the development of social functioning and social understanding, by examining the relationship between social competence and theory of mind performance. Social competence has been found to not only influence children's ability to socially interact with others (Fabes, Gaertner, & Popp, 2006), but it also predicts school readiness (Raver & Zigler, 1997); academic achievement (Wentzel, 1991) and affects children's mental health and overall well-being (Rose-Krasnor & Denham, 2009). Research suggests that children, during their preschool years (between three to five years old), develop the ability to understand other's actions are guided not only by the demands of life, but also by their thoughts (i.e., Theory of Mind [ToM]; Wellman (2012).

The ability to understand the minds of others (ToM) is an essential factor for children's overall well-being as it impacts their academic (comprehension skills and attentiveness) and social development (peer relationships and support). Theory of Mind (ToM) is an important socio-cognitive ability that enables individuals to speculate and interpret others mental states (desire, intentions, beliefs, and emotions) to regulate social interaction (Barr, 2006, p.189). Several studies have identified ToM as a predictor of social competence; responsible for fostering the development of social competent behaviors, such as advanced play with peers (Jenkins & Astington, 2000**;** Newton & Jenvey, 2011**;** Slomkowski & Dunn, 1996), social skills (Capage & Watson, 2001), peer acceptance, emotional knowledge (Slaughter, 2002), and positive social behaviors (Yagmurlu, 2014). It has also been reported that a lack of ToM impedes

the development of social competence, which is evident in research focusing on clinical populations, such as children with Autism Spectrum Disorders (ASD), conduct disorder, children who bully, among others. Impairments in ToM abilities result in impairments in social functioning (inability to show empathy, difficulty in socially interacting and communicating with others (Sprung, 2010) and as such pose implications for later development. In an attempt to better understand and successfully develop and improve ToM and social competence, studies have investigated the connection between ToM and social competence, as well as the connection between antecedent factors of social competence and ToM abilities (specifically false belief understanding), however a paucity of studies have examined the bidirectional relationship between social competence and ToM. These findings, if positive, could lend support to an alternative approach for assisting the social development of children with or without ToM impairments.

The current research study seeks to address these concerns by examining the relationship between social competence and ToM abilities, specifically, the effect social competence has on developing ToM abilities during the period of development in which ToM emerges (i.e., false belief understanding) and formal education begins, preschool.

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CHAPTER 2

LITERATURE REVIEW

Social Competence

Social competence is the ability to cooperate, interact, and adapt to a wide range of social situations and conditions. It relies on the interplay of an array of complex constructs including social, emotional, cognition, motivation, and interpersonal skills which are necessary for academic and social functioning (Fabes, Garner, & Popp, 2006; Landy, 2002; Semrud-Clikeman, 2007). Social competence also related to the context in which such skills are displayed; age, culture, relationships, location, and function (Fabes, Garner, & Popp, 2006; Landy, 2002).

In relation to age, the requirements for a child to be socially competent during preschool years are different from those of a child in middle school, high school, or adulthood. Culture, which is the beliefs, customs, and way of life for a particular group of people, influences how socially competent behavior is defined. For example, non-verbal communication (social skill), which is essential for social interaction, varies in different cultures. In western societies, eye contact should be maintained when interacting with others, as it shows interest and attentiveness. However, in some eastern societies, not maintaining eyes contact is appropriate as it demonstrates respect (McCarthy, Lee, Itakura, & Muir, 2006).

Relationships are formed through social interactions; and social competence relies on how well individuals differentiate and regulate their behaviors to interact with others. For example, a child communicates and interacts more personally with a parent than with a stranger. In relation to location, especially in formal and informal settings, some behaviors or abilities are

valued more at school than at home. For example, working or playing in groups and critical thinking might be valued more in school. Behaviors, in general, serve many purposes; however, when used in a particular context or situation can serve to either enable social interaction or hinder it. For example, for young children, rough and tumble play is appropriate on the playground, yet when this behavior occurs during class time or outside of recess, it can be interpreted as bullying or overtly aggressive behavior.

Despite the varied elements of social competence, several common features have been identified and used to describe a socially competent child. These features include having and using social skills to initiate, interact, establish, and maintain relationships with others; demonstrating appropriate behavior that is neither aggressive nor submissive during interactions.

Socially competent children use their cognitive capacity to understand, effectively communicate, and plan activities with others which demonstrate a shared meaning (i.e. cooperative and pretend play). The ability to control and regulate their behaviors and emotions during social situations and interactions is also a critical component of social competency. Children should be able to effectively and efficiently navigate their emotions by using positive, appropriate behavior, while inhibiting negative or impulsive behaviors such as physical aggression. Children should be attentive, confident and persistent. These components of social competence assist children in being admired and accepted by their peers and adults, establish friendships, and have meaningful shared interactions with other individuals (Heller, Rice, Boothe, Sidell, Vaughn, Keyes, & Nagle, 2012; Landy, 2002; Orpinas, 2010). An inability to conduct oneself in this manner gives rise to the possibility of social problems or deficits, which might result in the development of antisocial behaviors (Barr, 2006).

Characteristics of Social Competence. Social competence develops over time and the mastery of essential skills is dependent on specific stages of development. The development of social competence occurs in unison and/or is contingent on other development milestones, such as emotional competence, language, and executive functioning which begins at infancy. The following paragraphs will describe the development of social competence for preschool children, beginning with infancy.

Infancy (0 – 2 years old). The period of development between 0-2 years of age, is a period in a child's life where they begin to learn about their environment and self through the use of their senses (vision, tasting, touching, hearing, and feeling) with parents and caregivers taking the supporting role as the child's first teacher. A child's first social and interpersonal relationship develops through his/her level of interaction with parents where trust and basic emotional knowledge (e.g., fear, sadness, and anger) is developed (Harts Research Associates, 2009).

Between 9 and 14 months old, children are able to joint visually attend with another individual, an important skill needed for language and social development. Children are also able to discriminate between expressing positive and negative emotions by interpreting and understanding both non-verbal (social cues, perspective-taking) and verbal communication. They are able to communicate their wants and grievances to others through the use of non-verbal (crying) and limited verbal communication. Children at this age begin to develop their self-esteem. Usually between the ages 1 and 2, children have the ability to evaluate their own self-worth, in terms of feeling good or bad about themselves. They also begin to acquire knowledge about their specific culture.

By having these skill sets in their repertoire, children are able to further develop more advance and complex skills that are essential to social understanding in later years (preschool

and beyond). By ages 3 and 4, children are able to use these skills to develop "theory of mind" abilities.

Preschool (3-5 years old). During the preschool years, between ages 3 and 5, children build on the skills acquired during infancy to display developmentally appropriate behaviors, such as being self-aware of emotional states and regulating the use of negative and positive emotions to effectively interact with peers and others in groups and smaller settings. Children should have the ability to control impulsive responses, such as hitting a child out of frustration, and instead opt for a more appropriate behavior, such as asking an adult or peer for help. Another social competent feature is the ability to develop a sense of confidence and independence away from parental support and attachment. Children should develop healthy attachment separation from their caregiver to focus their attention on learning and developing healthy relationships with peers and adults. Children should be able to play well with others (peers), know how to share and be assertive, possess the ability to handle disagreements, and know how to adapt to society's social norms (Barr, 2006; Fabes, Garner, & Popp, 2006). Once again the development of these essential skills largely depends on early parent-infant relationships.

Importance of Social Competence. The importance of social competence is associated with its impact on children's current and future development to adulthood. Social competence has been identified as a predictor of successful functioning for young children socially, emotionally, and academically (Arnold & Lindner-Muller, 2012). Empirical studies have found social competence influences school readiness, school adjustment, and academic success in kindergarten and elementary school (Diener & Kim, 2003; Hampton & Fantuzzo, 2003). Social competence influences academic achievement through development of positive peer relationships, making it easier to understand social information and thus enabling children to be

more focused on academic learning (Ziv, 2013). Positive peer relationships provide an emotionally supportive academic community from which children are able successfully adapt to the demands of school (Ladd, 1990)

Social competence includes the ability to regulate one's emotions and behavior, in preschool, this skill aids the process of learning as children are able to inhibit the use of impulsive and distracting behavior, for more appropriate behaviors, such as being attentive and thus ready to learn. Emotional regulation, especially in preschool, also aids the process of socialization through the use of interpersonal characteristics: likeability and popularity. Children with high social competence are often times perceived as popular and well liked by peers. They usually benefit greatly from attending school, have more positive experiences and higher self-esteem, can easily adapt to a variety of social situations, and are more likely to successfully complete school. Whereas for children with low social competence, attending school can be an unpleasant experience as they are often times described by peers as unpopular and not well liked. Such children are classified as rejects and find it extremely challenging to be accepted by peers and adapt to school norms and regulations. These children have a greater risk for irregularly attending school, experiencing ongoing disciplinary problems, developing negative feelings towards the institution of school and the benefits that are attributed to it, and are likely to prematurely leave school (Landy, 2002).

Poor social competence can also impact mental and physical health; particularly it has been associated with the development of anxiety disorders, cardiovascular disease, juvenile delinquency, and substance abuse (Fantuzzo & McWayne, 2002; Semrud-Clikeman, 2007). These developmental factors affect an individual's quality of life and that of their social network.

Interpersonal and emotional development. Social competence also influences emotional development. Social competence is dependent on emotional development or emotional competence. During the preschool years essential social-emotional skills are developed, which facilitates children's success in school. Emotional competence is essential in developing and maintaining friendships. It enables children to obtain self-awareness of their own mental states and understand the perspectives of others (i.e., theory of mind). With emotional competence, children also become more skillful at controlling their emotions, being more receptive to others feelings, and are more likely to display empathy towards others, thus making it easier to socially interact with others. Preschool children also develop an understanding of moral emotions such as the ability to determine right from wrong, pride, shame, and guilt, which are used to guide and predict their adaptive and prosocial behaviors (Kochanska, Koenig, Barry, Kim, & Yoon, 2010; Lane, Wellman, Olson, Labounty, & Kerr, 2010).

Children who lack social and emotional competence are more likely to adopt negative behaviors and may be mislabeled as antisocial. Additionally, children who consistently experience difficulty in expressing and understanding emotions, are at risk for developing mental and physical disorders in later years. They are likely to be diagnosed with anxiety disorders, depression, cardiovascular disease, substance abuse, and conduct disorder with emphasis on aggression (Merrel & Wolfe, 1998). Children who are both emotionally and socially competent are able to be more resilient, establish and maintain supportive and healthy relationships, making them less likely to develop such disorders or problems.

Social competence impacts the quality of education children receive. A child's social competence or socio-emotional skills has the ability to affect the quality of teaching and overall emotional state of the classroom. Early childhood teachers' perception of children with low

social competence, who exhibit high levels of behavioral problems, contribute to the high levels of job stress experienced by teachers, even when other variables such as class size were controlled (Friedman-Krauss, Raver, Neuspiel & Kinsel, 2014). Teacher job stress is a mental state which occurs due to negative feelings or conditions associated with an individual's work environment. Job stress can adversely affect a teacher's psychological, physiological, and social health which impacts their relationship with their students and their ability to teach. Teacher job stress has been one of the factors responsible for teacher burnout and the high turnover rate in the education profession (Friedman-Krauss, et al., 2014). Despite the presence of this relationship between behavioral problems and teacher job stress, this relationship is not unidirectional and more research is needed to establish which relationship occurs first and the impact job stress has on preschoolers' academic and socio-emotional development (Friedman-Krauss, et al., 2014).

Measurement of Social Competence. Assessing social competence has been a challenging task due to the multiple-constructs used in its definition. As such, measuring social competence has been based on varying operationalizations of the term. Measures have assessed children's social skills, internalizing and externalizing behaviors, sociometric status, relationships, emotional regulation, temperament (shy/aggressive), and a combination of all terms. Therefore, measuring social competence and ensuring its ecological validity and efficiency (Semrud-Clikeman, 2007) requires the use of multiple methods of assessment, which may utilize different examiners. Common methods used to assess social competence are: interviews, rating scales, and observations, which are typically conducted by individuals who interact with the target participants on a regular basis (i.e., teachers, parents, and peers). Rating scales and interviews have also been designed for self evaluation.

Several standardized measures have examined specific components of social competence, such as emotional regulation, social cognition, and social interaction with peers, cognitive interpersonal problem solving (i.e., the Preschool Interpersonal Problem Solving test; PIPS; Shure & Spivack, 1974), and empathy and prosocial behavior (i.e., Prosocial Behavior Questionnaire; Weir, Stevenson, &Graham, 1980). Tools used to assess children's emotional control have measured children's social and emotional adjustment (Raver & Zigler, 1997, p.368). Each method has benefits and limitations. The following paragraph will provide a description and further elaborate on each approach.

Sociometric scales. Several standardized measures have been established to evaluate children's social competence through the perspective of their peers; such measures are referred to as sociometric scales. The use of these assessments allows peers to identify and nominate classmates who possess qualities reflecting social competence and classmates who lack these qualities. Questions that are usually asked on these tests are geared towards identifying the most and least likeable children. Responses are further grouped into five categories: popular, rejected, average, controversial, and neglected (Coie, Dodge, & Coppotelli, 1982). Popularity and likeability are positive attributes which indicate a child's social competence. The benefit to using this approach is that it allows the researcher to obtain information which can be considered valid and accurate as the informants are individuals in the same age group and are able to interact in settings and situations which cannot be accessed or witnessed by teachers or parents.

However, a disadvantage to using this approach is that it neglects other aspects of social competence, such as social skills. It also fails to consider that children who are not liked by others may still be socially competent, but choose to engage in antisocial behaviors such as

bullying and manipulation. Also, peers' judgment of others is often times fickle, and is likely to change frequently, based on interaction or other factors, such as peer pressure (Hughes, 2011).

Interviews. Conducting interviews is another method for assessing social competence. Through interviews, researchers are able to probe, at length, and obtain information from various sources including the focal child, parents/guardians, teachers and peers. Children are able to provide information on their personal strengths and weakness in relation to their various skill sets. They are able to describe how others perceive them and provide information on their ideal view of how they wish to be seen by others. Children's behaviors usually vary depending on the environment they are in (Semrud-Clikeman, 2007). They are likely to behave differently when at home versus when at school. It is, therefore, better to obtain information from informants in various settings (e.g., home, school, church) to provide a more accurate description of a child's social competence.

Some researchers suggest interviews are a developmentally appropriate method for assessing social competence in younger children, as props in the form of dolls or puppets can be used to motivate children to answer questions correctly. While, others have mentioned that younger children are still acquiring knowledge and understanding regarding their emotions and cognitive abilities; therefore they are unlikely to provide an in depth evaluation of their level of social competence (Bracken, 2000). Despite the viewpoints and lengthy assessment process, interviews continue to provide a rich source of information especially for older children.

Observations. The use of observations both formally and informally, allows the researcher to study the child in his/her natural environment and obtain information not just about the child's social behavior (irregular or not), but also the context in which it occurs. It has been described by researchers as being the preferred method for evaluating preschoolers. Information

on the reactions of others can also be obtained which provides researchers additional information on how best to design interventions to improve social behavior. Observations however, have one significant disadvantage; it is time consuming. It is important to note, that this method provides the least biased results, if reactivity is controlled for.

Rating scales. As with interviews, rating scales provide researchers an opportunity to obtain information on informants' (teacher or parent) perception of a child's level of competence. They also provide the child the opportunity to evaluate his/her own socio-emotional abilities. Rating scales can be designed to assess one aspect of social competence, for example Friendship Quality Questionnaire (Parker & Asher, 1993). This scale measures peer relationship, in terms of investigating the quality of best friendships. More comprehensive scales have been reported to assess all or most of a child's competency including social skills, self-esteem, emotional and behavioral abilities. The Behavior Assessment System for Children (Reynolds & Kamphaus, 2004) is an example of a comprehensive scale (Semurd-Clkeman, 2007).

Most rating scales have been designed to be used by school-aged children and older. The limited use of this approach in preschool children, can be ascribed to the prerequisite skilled required to complete most rating scales, which is reading. Most preschool children do not possess the ability to read and as such are unable to complete most rating scales (Bracken, 2000). Several measures, however have addressed this problem by using pictures instead of written language. The Pictorial scale of Perceived Competence for Young Children (Harter & Pike, 1984) is one such measure and has been reported by several studies as being a valid and reliable measure (Mantizicopolous, French, & Maller, 2004).

A limitation for using rating scales is the possibility of individuals over or under estimating a child's abilities. This concern is especially noted for self evaluation, as over or

under estimating one's abilities has been linked to poor social functioning (Semurd-Clkeman, 2007). Rating scales, however, also provide the opportunity for researchers to compare a child's evaluation of his/her abilities with that of his/her parents or teachers, as many of these measures provide protocols for these informants (e.g., BASC-2, Reynolds & Kamphaus, 2004). Teachers using rating scales are likely to provide more valid findings compared to sociometric scales, as teachers have the opportunity to observe the target student over a specific time period, while peers generally base their decision on memories of past interactions (Hughes, 2011). Teachers also engage in interactions with the targeted children, which are often times different from the interactions experienced with the child's peers. Teachers can remain objective and accurately report on a child's complex behavior patterns which may occur in various situations.

Each form of assessment provides beneficial information regarding social competence, however, as a result of differences or biases which may emerge from relying on only one approach or informant, researchers have recommended the use of multiple methods and informants when examining and assessing social competence in children, especially for younger children whose level of social competence takes into account a broader range of skill sets (Bracken, 2000). The importance of using multiple informants or approaches is also beneficial as children's behavior is dependent on their setting/environment.

Theory of Mind

Theory of Mind (ToM) is a socio-cognitive construct. ToM involves understanding one's own mental states (beliefs, desires, intentions, imagination, emotions, knowledge, etc.) and those of others to explain, predict, and manipulate behavior for the purpose of developing cognitive and social functioning (Baron-Cohen, 2000; Barr, 2006; Chevallier, 2013; Moore 2010, p. 2-3). The term ToM was first introduced by Piaget, who suggested that young children under the age

of 7 years old experience "difficulty when separating physical and mental worlds" (Barr, 2006, p.190) and were socially egocentric and unable to consider others' perspectives. However, since Piaget, a plethora of research has investigated the development of ToM in both typical developing children and children with disabilities and under the premise of different theories (Chevallier, 2013). ToM has been identified as a tenet of several differing theories and as a result there exists multiple ways for explaining and measuring ToM. ToM is developed from the ideology that children are "little scientists" and as such, they are able to investigate others' mental states by proposing theories and examining hypotheses. Under this approach, false belief understanding (a situation in which a child's belief about society differs from reality) and antecedent factors such as belief, emotions, knowledge, and true beliefs of others (Barr, 2006; Bartsh & Wellman, 1995) are specific areas that have been studied. Simulation theory was developed as a critique of ToM and argued that people do not scientifically develop theory and conduct experiments to understand others; instead simulation theory proposes that ToM is developed through a child's thoughts, feelings, and desires being projected or simulated on to another person. Consequently, simulation theory has examined ToM in the context of pretend play. Representational theory conceptualizes ToM as being a part of and contributing to cognition and is studied alongside memory, language, executive functioning, and problem-solving abilities. Modular theory views ToM as specific innate ability, which is activated based on maturation (Barr, 2006; Poulin-Dubois, Brooker, & Chow, 2009).

Lastly, the developmental approach, considers ToM abilities as emerging during infancy and further developing as children grow older (Carpendale & Lewis, 2010). Many recent studies have supported this viewpoint, although others have criticized this developmental view based on the lack of validity in the measures used to assess infants. Studies that have examined the

developmental trajectory of ToM beginning at infancy have identified pre-requisite skills for ToM development as well as social, environmental, genetic, and cognitive factors that can affect early acquisition of ToM. Children with older siblings; who participate in pretend play, families who regularly use and discuss mental state terms and discuss past experiences (feelings, want), as well as engage in effective storybook reading are more likely to develop and have a better understanding of ToM before age 4 (Astington & Edward, 2010).

Development of ToM. In typical developing children, research has found that ToM abilities are essential to development, especially social competence and have existed since infancy. During the first two years of life, children use imitation and visual joint attention to communicate, interact, and gain an understanding of others, environment, and self. Through imitation (the ability to mimic others behavior) infants mimic simple motor movements, facial expressions, and vocalizations (blowing raspberries) by others, which they use to identify similarities that exist between themselves and others and thereby establish connections and relationships (Moore, 2010). Joint attention allows individuals to gain the attention of another through the use of eye contact and/or pointing. Through joint visual attention, children are able to engage in dyadic and triadic interactions, which foster the development of essential cognitive and social skills such as language, playing, and sharing. Within this stage of development children become aware that behavior can be driven by goals and intentions, and intentions can be purposeful or accidental (Sommerville, 2010). Therefore, by the end of infancy children develop essential skills such as gazing, gesturing by pointing, perspective taking, and goal attribution and beliefs, prerequisite skills which have been identified as prerequisites for successful ToM development. Infants "with very limited verbal abilities are able to understand and influence the goals, intentions, and beliefs of others (Chevallier, 2013, p.3113)."

For children aged 3 – 5 years, studies have reported typically developing children in the United States, Australia, and China usually posses the ability to understand mental states such as pretense**,** desire (the ability to comprehend different desire for the same object), desire beliefs (possessing different beliefs about the same scenario), knowledge- ignorance (knowing something is true, while others are unaware of the truth), false belief (something might be true, but another person has a different belief) and hidden emotions (hiding how someone truly feels; being able to understand a façade); although hidden emotions was proven to be the most difficult to understand (Hughs & Leekam, 2004; Peterson, Wellman & Liu, 2005; Wellman, Fang, Liu, Zhu, Liu, 2006; Wellman & Liu, 2004).

Children develop the understanding that individuals may have wants, feelings, or knowledge that are different from their own and with this understanding are able to comprehend and predict behavior (Wellman & Woolley, 1990). They recognize simple emotions and the meaning behind it. In other words, children are able to understand happiness with receiving a desired object and sadness with receiving an undesirable object (Wellman & Banjeree, 1991). They are also capable of hiding their true emotions. For example, expressing happiness when in reality, they are feeling sad. Barsch & Wellman (1995) reported that children at 24 months of age were able to communicate their feelings and desires through the use of verbs such as want, think, and know during conversations; and by 36 months, verbs such as believe, think, and know were frequently used in children's conversation.

The development of pretense occurs as a result of pretend play. Pretend play is the "use of situations, objects, and properties of objects as a source to ascribe aspects of reality through one's imagination (Doherty, 2009). Pretense allows children to understand the difference between mental thoughts and reality. It allows the child to distinguish between real and

imagination and associate imagination to a real object. For example, they are able to distinguish a toy block from a car, and imagine the block to be a car, thus engaging in pretend play (Astington & Edward, 2010; Wellman & Estes, 1986). Pretend play provides children with an understanding and an ability to share in other's thoughts, emotions, and beliefs in an imaginary environment. Pretend play provides a safe place for children to relate to their mental and physical environment (Barr, 2006).

Several studies have examined the relationship between pretend play and ToM performance and have found individuals who reported having imaginary friends, were more likely to understand false belief concepts earlier than individuals who reported not having imaginary friends (Taylor & Carlson, 1997). Children who participated in planned discussions and role assignments during play, were more likely to perform better on false belief tasks, independent of age and language ability (Astington & Jenkins, 1995)

By 5 years old, children become aware people's actions and speech are governed by how they perceived the world even if their perception is false. This however, does not mark the end of the development of ToM abilities. ToM continues to develop and become more complex as children age. The further development of ToM skills is beyond the scope of this study.

ToM's impact on development. ToM abilities have been found to influence two specific areas of development: cognition and social development. The following sections will briefly examine these two areas.

ToM influences on cognition. The development of false belief understanding is often used as an indicator of ToM development. However, ToM development also takes into account other important abilities that are necessary and important to social understanding. Studies have found relationships between ToM and several cognitive factors including memory (Barr, 2006),

executive functioning (Devine & Hughes, 2014), and language (Milligan, Astington, & Dack, 2007). These factors have been found to influence ToM and in some instances are influenced by ToM.

With ToM understanding, an improvement in "memory processing, specifically, source monitoring, metamemory skills, and free recall occurs" (Bright-Paul, Jarrold, & Wright, 2008; Barr, 2006; Perner, 2001). Metamemory has been described as one's awareness of his (her) own memory capability. Metamemory enables children to use cognitive strategies such as rehearsal techniques to record and monitor the different types of information received and encoded, thus increasing free recall and source monitoring, making children more critical of the information they receive (Barr, 2006). This ability to hold conflicting information also improves performance on tasks in which the appearance of an object is deceiving. For example, an object looks like a rock when it is actually a sponge. The development of ToM has also been associated with eyewitness memory. Templeton and Wilcox (2000) reported that children between the ages of 3 and 4 years old with undeveloped ToM abilities are less likely to give accurate eyewitness accounts, thus making them more susceptible to re-encountering information from past events.

Executive functioning is another ability that has been found to be influenced by ToM. Executive function (EF) is an umbrella term used to describe various higher order cognitive abilities such as working memory (WM), inhibition, sustained attention, and cognitive flexibility (switching) that underlie "flexible, goal directed responses to novel or complex situations" (Davidson, Amso, Anderson, & Diamond, 2006; Duvall, 2012, Hill 2004). Early EF is predictive of typical preschoolers' later school readiness (Blair, 2002; McClelland et al., 2007). The mastery of EF skills allows individuals to acquire knowledge by remembering and following instructions, attending, holding and manipulating information, while inhibiting irrelevant

information or behaviors. In relation to ToM, EF skills have been suggested to develop alongside ToM abilities. It remains unclear as to the direction of the relationship between these two variables. Several studies have examined and supported the view that EF predicts ToM understanding. Executive functioning skills such as working memory (ability to hold, engage, and manipulate a wide range of information) and inhibition (the process of restraining impulsive responses and instead utilizing goal-directed responses, choices) have been associated with how well children process information and perform on ToM tasks (Hughes, 2011).

Studies have further identified a component of EF known as response conflict executive functioning (RC-EF) as strongly predicting false belief understanding in preschool children (Benson & Sabbagh, 2013). RC-EF is the ability to suppress impulsive behavior to engage in rule directed behavior. RC-EF is usually demonstrated in the playing of games such as "Simon Says", "Mother (Captian/Father) May I". These games require players to listen to a directive, but perform that action only after receiving permission. For example, the teacher issues a command "touch your nose". Children should withhold the need to perform the action until they hear the command "Simon says, touch your nose". This ability, in relation to ToM, assists preschool children in obtaining the tools to understand the mental states of others. This skill is required if interventions to improve ToM abilities are to be successful. Through RC-EF abilities children are able to be more attentive and interested in attaining knowledge about others (Benson & Sabbagh, 2013; Benson, Sabbagh, Carlson, Zelazo, 2013). Despite the connection to false belief understanding, more research is needed to examine the role RC-EF plays in social functioning.

Lastly, language ability has been identified as a predictor of false belief understanding. Research suggests that a certain level of verbal ability must first be acquired to pass ToM tasks. This finding is supported by literature on children with autism spectrum disorders (ASDs).

Studies have indicated that children with high verbal ability are successful on ToM tasks (Sally & Hill, 2006). Astington (2003) notes the structure of language contributes to symbolic representations needed to form or frame social functioning, thus the need to control for language.

ToM influence on social competence. The acquisition of ToM abilities is important to social development and social functioning. Studies suggest children with good ToM abilities experience better social relationships than children who are less socially competent (Repacholi & Slaughter, 2003). These children are better communicators and problem solvers (i.e., resolving disagreements with peers), participate in more complex pretend play, are judged by others (teachers) as socially competent, demonstrate a positive attitude towards school, are more popular and liked amongst their peers, and are successful academically (Astington & Edwards, 2010). However, having a well develop theory of mind can also influence antisocial behaviors, such as teasing, bullying, and lying (Repacholi & Slaughter, 2003).

Studies have examined the impact of ToM abilities on social functioning by addressing social competence abilities The following section will briefly describe the relationship between ToM and components of social competence (social skills, emotional development, peer relationships). In addition, literature on the relationship between social competence and ToM will also be discussed. The section will end with a summary of the purpose of the study, which is to examine social competence influence on ToM abilities in preschoolers and in so doing, examine the duality of the relationship between ToM and social competence.

In examining the relationship between ToM and social functioning, studies have investigated the link between ToM and several components of social competence not only in typical developing children, but also in children with developmental disabilities and disorders. Studies have examined ToM influence on social competence, in terms of social skills,

specifically prosocial skills used in pretend play (Schwebel, Rosen, & Singer, 1999), as rated by teachers (Watson, Nixon, Wilson, & Capage,1999), and peer interaction (Slaughter, Dennis, & Pritchard, 2002). Lalonde and Chandler (1995) investigated the relationship between several ToM abilities, as measured using six ToM tasks, and teachers' rating of students' social competence, for 30 children at 36 months of age. The authors found that a predictive relationship exists between ToM abilities and social skills (a component of social competence). Using items from the Vineland Adaptive Behavior Questionnaire (Sparrow, Balla, & Cicchetti, 1984) and the Portage Checklists (Bluma, Shearer, Frohman & Hilliard, 1976) the authors identified two types of social skills: conventional (convention & self-regulation/control) and intentional (skills requiring knowledge of others intention & desires). The results indicated that ToM (false belief understanding) predicted intentional social skills, but not conventional. However the results from this study should be interpreted with caution, as verbal ability and age were not controlled.

Astington (2003) replicated this study using children between ages 4 and 5 years old. The same measures and procedures were used (with minor changes such as the removal of unreliable question items), and the author controlled for the effects of verbal ability. The replicated study yielded the same results as the original study. Watson, Nixon, Wilson, & Capage, (1999) also found similar results when using more standardized measures, such as the Perceived Competence Scale for Children (Harter, 1979) to assess social interactions using social skills and popularity with peer subscales in 52 children between the ages of 3 to 6 years old. The findings from these two studies imply that successful attainment of ToM understanding assists children in obtaining conceptual knowledge of social skills, which gives rise to more meaningful interactions with others (Astington & Jenkins, 1995; Schwebel, Rosen, & Singer, 1999).

Gender has also played a role in navigating the relationship between ToM performance and social competence. Walker (2005) examined 111 3 to 5 year olds' ToM performance (i.e., false belief understanding) and their teacher's rating of peer-directed prosocial behavior, externalizing behaviors (aggression or disruptive behavior), and internalizing behaviors (shy or withdrawn) in Australia. The results showed the existence of a gender difference in the relationship between ToM and peer related social competence. The ability to understand ToM was found to influence higher levels of negative interactions (i.e., aggressive or disruptive behavior; peer directed aggression) in boys, while for girls ToM influenced high levels of cooperative interactions with peers (prosocial behavior), with age controlled. The author suggests that having ToM abilities does not automatically dictate the manner in which a child behaves or interacts. Gender roles and social norms may contribute to the behavior and skill set needed to be socially competent. The author recommended that further studies are needed to replicate these results and examine the effect of verbal ability on ToM performance in relation to gender difference.

Razza and Blair (2009) conducted a longitudinal study to assess the directionality of the relationship between 68 low-income preschool children's ToM performance and teacher's later ratings of social competence. The results showed a bi-directional relationship between ToM and teachers' rating of students' social competence. Preschoolers' false belief understanding was positively related to social competence in kindergarten and a positive relationship was also found between preschoolers' social competence and false belief understanding in kindergarten. Future study is needed to examine the relationship between social competence and ToM performance using both cross-sectional and longitudinal studies.

Another component of social competence examined in the literature on ToM is peer acceptance. Studies conducted using preschool children, between the ages of 3-6 years old, have identified conflicting findings. Slaughter, Dennis, & Pritchard (2002) assessed the relationship between peer preference, (children's affinity or dislike for individuals within a peer group) using peer nominations and ToM abilities (ToM tasks) and found that children who were considered, by children 5 years and older, as being popular were more successful on ToM tasks, compared to rejected peers (disliked peers).

Additionally, the authors also found factors that predicted variables of social preference differed for children 5 years and older versus children younger than 5 years old. ToM predicted social preference in older kids, while prosocial and externalizing behaviors, such as aggression, predicted peer acceptance in younger children. The authors suggested that the relationship between theory of mind and peer interaction increases with age.

Despite numerous studies examining the relationship between ToM and social competence and ToM's predictive nature with social competence, relatively few studies have examined whether a bidirectional relationship exists between the two constructs. The literature has identified that both ToM abilities and social competence develop during early childhood (infancy to preschool) and continue throughout adulthood. The literature has also indicated that many of the factors involved in ToM development also play a role in the development of social competence (e.g., family structure, executive functioning, or temperament). Due to these similarities, several studies have attempted to examine the relationship between social competence and ToM understanding by investigating the influence of antecedent components of social competence on ToM. For example, the influence of temperament on ToM development (Wellman, Lane, LaBounty, & Olson, 2011) or play.

Several reviews (Astington, 2003; Hughes & Leekam, 2004; Hughes & Leese, 2010) have recommended further examination of social competence impact on ToM development, by not only examining antecedent factors impact on ToM understanding, but also by taking a more comprehensive look using measures of social competence. Thus giving researchers the opportunity to identify and further investigate an alternative approach for addressing and possibly improving social understanding in individuals with ToM deficits. Through this approach, children can gain knowledge and understanding regarding various mental states thus developing and increasing ToM understanding.

Razza and Blair (2009) examined the association between ToM and social competence and among other findings found that social competence predicted ToM in kindergarten. This result was further supported by the bidirectional relationship between social competence and false belief understanding, specifically, that social competence predicts false belief understanding in preschool. This finding supports the viewpoint that the acquisition of social understanding promotes ToM functioning. Through the interplay of both constructs children are able "to understand the minds of self and others, which promotes social interaction, which results in learning more about mental states" (Razza & Blair, 2009, p. 32). It appears this was the only study that examined the relationship between social competence and ToM. Therefore the current study sought to build on Razza & Blair (2009) study by exploring this relationship among a diverse sample of preschoolers through the use of both children's self-awareness of their level of competence as well as of that of their teachers. The purpose of this study was to investigate the relationship between social competence and ToM performance. The study examined preschool children's self-evaluation of social competence and teachers' rating of students' social competence influences on ToM performance. The study examined the following questions:

1. Is there a relationship between social competence, as measured by teachers and self-reported by students, and ToM performance?
2. How does social competence influence ToM performance in prekindergarten children?
3. How does gender influence the relationship between social competence and ToM in prekindergarten children?
4. How much of children's ToM is explained by children's verbal ability and social competence?

CHAPTER 3

METHODS

Research design

This study employed both correlational and regression models to explain the relationship between social competence and Theory of Mind in a sample of prekindergarten (pre-k) children. Data were collected on four standardized measures, at the beginning of pre-k in the fall. The Behavior Assessment System for Children-Second Edition Teacher Rating Scale for Preschool - Short Form (BASC-2) and the Pictorial Scale of Perceived Competence and Social Acceptance for Young children for pre-k self-report form (PSPCSA, Harter & Pike, 1980) were used to assess social competence. The NEPSY-II-Theory of Mind subtest (TMs) were used to assess Theory of Mind performance and the Peabody Picture Vocabulary Test fourth edition (PPVT-IV) was used to assess children's receptive vocabulary.

Participants

Participants in this study included 124 children who ranged in age from 48 to 62 months (M = 53.75, SD= 3.54). The sample was comprised of 55 females (44.4%) and 69 males (55.6%) with a race distribution of 58.1% African American/Black, 2.4% Multiracial, and 39.5% White. Data from school records indicated that 12.9% (n = 16) children were identified as dual language learners. Within the sample, 12 children (9.7%) were also diagnosed with special needs. The children attended classes in four schools in a southeastern school district. Within these four schools, there were eleven teachers who completed the behavioral rating scale on the children in the study. Chi-square analyses were performed to examine if special needs status or dual

language learner status differed across gender or race groups. For gender, there were no significant differences found for either dual language or special education status. For race, a significant difference was observed ($\chi^2(2) = 28.12$, $p < .01$) where more children identified as White were also coded as dual language learners. For race, there was also a statistically significant difference observed where two of the three children identified as multiracial were also identified with special needs ($\chi^2(2) = 11.86$, $p = .003$).

Instrumentation

Behavior Assessment System for Children-Second Edition Teacher Rating Form for Preschool Children (BASC-2). The BASC-2 is a norm-referenced, multidimensional tool designed to assess adaptive and maladaptive behaviors in individuals between the ages of 2 and 25 years. It contains five different rating scales for three different age groups. For the purpose of this study, the Teacher Rating Scale for preschool-short form version (BASC-2; ages 2 - 5) was used. The BASC-2 is an abbreviated version of the BASC-2 TRS-P form, and contained 25 items designed to identify young children who are "at risk" for developing emotional/behavioral problems (Yansoky, Schwanenflugel, Kamphaus, 2012) and takes less than five minutes to complete. The BASC-2 measured behavior across three constructs: Social Skills with peers, Attention/Cognition, and Affect using a 4 - point likert scale. Responses range from 1 to 4, with "1" representing *Never*, "2" *Sometimes*, "3" *Often*, and "4" *Almost Always*. Total scores with low values implied the presence of adverse emotional/behavioral problems. The psychometric properties of the BASC as the scale relates to native English speakers have been investigated by Yanosky, Schwanenflugel, and Kamphaus (2012) and reported to be an extremely reliable measure. The mean internal reliability was calculated with $\alpha = .936$. Acceptable levels were also reported for test-retest reliability, construct validity, convergent and divergent validity, and

discriminant variability. This study reported Cronbach's α = .93 on the Attention/Cognitive scale, α = .91 on the Social Skills scale and α = .90 on the Affect scale. Overall the BASC-2 was extremely reliable.

A Developmental NEuroPSYologocial Assessment (NEPSY-II). NEPSY-II (Korkman, Kirk, & Kemp, 2007), a revised edition of the North American version, NEPSY (Korkman, Kirk, & Kemp, 1998), is a comprehensive, co-normed battery of subtests designed to assess the neurological development of children between the ages of 3 to 16 years. The tool identifies cognitive deficits that are features of developmental disorders, as well as provides information that informs the development of Individual Education Plans and guides the placement and delivery of these plans to ensure future academic success (Kemp & Korkman, 2010).

NEPSY-II contains 32 subsets and four delayed tasks under six domains (Attention and Executive Functioning, Language, Memory and Learning, Sensorimotor, Social Perception, and Visuospatial Processing). Each subset has the flexibility to be administered alone, as a group or as a battery of tests (Brooks, Sherman, & Strauss, 2010). The subsets were normed using a national, well stratified random sample of 1200 children with ages ranging from 3 to 16 years from data collected between 2005 and 2006. The NEPSY-II has also been standardized and its psychometric properties (internal reliability, test-retest reliability, convergent and discriminative validity) assessed and proven to be a reliable and stable measure. The ToM subset reported an internal reliability of α =.84

For the purpose of this study, the Theory of Mind subset (ToMs) from the Social Perception Domain of the NEPSY-II was used to assess Theory of Mind performance in pre-k children. The ToMs was comprised of two specific tasks: The Verbal and the Contextual tasks.

These two tasks took 10-15 minutes to be administered. The Verbal task contained 15 items, consisting of specific scenarios with or without accompanying visualizations that were read to the child by the researcher. After reading and showing the child participant the illustrations, the researcher asked the child question(s) relating to the readings and/or illustrations. For example, a child is shown a picture of a man engaged in a form of thought and is asked by the researcher "*what is this man doing*?" For an answer to be coded as correct, the child must respond to the question using another's perspective. This task assessed the child's ability to understand mental states, such as belief, intention, deception, emotion, imagination/pretense and imitation. It also assessed the child's ability to understand that other individuals have thoughts, feelings, and ideas that may differ from one's own mental states. The verbal task required the child to comprehend abstract meanings in figurative language (Korkman, Kirk, & Kemp, 2007, p. 115).

For the contextual task, each child was shown six illustrations depicting a social situation of the target individual whose face was obscured. For each illustration, the child was given four pictures of the target individual's face from which a single selection was made. The child's response was recorded as correct, when the picture selected accurately represented the affect/emotion that the target individual was expressing in the drawing. This task assessed the child's ability to recognize facial affect, understand how emotions relate to social context and identify the appropriate affect given the various social cues (Korkman, Kirk, & Kemp, 2007). The scores for each task were summed and converted to scaled scores (M = 10; SD = 3).

The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children. The PSPCSA (Harter & Pike, 1984) is a standardized developmentally appropriate self-report instrument designed to assess the perceptions of young children between the ages of 4 and 7 years old. The PSPCSA is divided into two tests, one designed for use by

preschool/kindergarten children, and the other designed for children in the first and second grades. For the purpose of this study, the test for preschool children was used. The PSPCSA for preschool children has two versions, which are administered based on the gender of the participant. Girls were tested using the female version of the test, and boys received the male version. The PSPCSA contains 24 items and 4 subscales: the (Cognitive Competence, Physical Competence, Peer Acceptance, and Maternal Competence), which are loaded on two domains: Peer Acceptance and General Competence (Harter & Pike, 1984). For the purpose of this study, only two subscales were used, cognitive and peer competence. Each subscale has 6 items that were scored using a 4-point likert scale with "1" representing *low competence or acceptance* and "4" *representing high competence or acceptance*. Each child was shown a picture depicting two polar situations or emotions and was asked to select which of the two pictures was most similar to his/her own experiences or self. For example, a child was shown a picture of a boy/girl who was happy and another who was sad. The child was asked to point to the picture he/she most identified with. He/she was then asked a question on the frequency (e.g., usually or always) or the degree (e.g., pretty good or isn't good) in which he or she experienced the emotion or situation. Each item response was recorded and summed to produce a total score and a mean score for each subscale. Scores ranged from 6 to 24.

The PSPCSA was standardized using a sample of 145 middle-class, predominately Caucasian children, of which 90 were preschool children. This instrument was reported to have acceptable validity and adequate reliability with a Cronbach α =.89. Internal consistency for Peer Acceptance and Cognitive Competence were reported to be good with Cronbach αs = .74 and .71, respectively (Hater & Pike, 1984). Recent studies, such as, Mantizicopolous, French, and Maller (2004) have also reported acceptable reliability and validity values for a sample of

preschool children with ages ranging from 4 -5 years old. For this study, acceptable values for internal consistency were found. Cronbach's alphas of .62 and .60 were reported for Cognitive and Peer Acceptance Competence, respectively.

Peabody Picture Vocabulary Test-4. Receptive language was measured using the Peabody Picture Vocabulary Test Fourth Edition (PPVT-IV; Dunn & Dunn, 2007). The PPVT is a norm-referenced assessment containing 228 test items and 19 item sets, with each item increasing in difficulty. PPVT-IV is designed to assess children as young as 2 years and 6 months and adults older than 90 years. Child participants were asked to look at four colorful drawings per page and select one of the four pictures by either pointing or saying the number associated with the picture that best describes the meaning of a term given by the researcher. Each response was recorded and after obtaining a ceiling score with eight or more errors for a given set, raw scores were calculated and converted to standardized scores. Reliability and validity coefficients for this measure were reported as very reliable with Cronbach's alphas of .9 and above (Dunn & Dunn, 2007).

Procedures

After recruiting participants for the study, demographic data for each participating student was collected from their teachers before any assessment was administered. Participants were excused from class and taken to a quiet room or area assigned for testing by the schools' administrators. The PPVT was administered first following the guidelines described in the testing manual. A second testing session was also held where the researcher administered the Theory of the Mind tasks and the PSPCSA scale. Each assessment followed the procedures stipulated in its manual. At the end of the second testing session the child participant received

two stickers. During the last week of data collection, at each participating school, teachers received and completed a copy of the BASC-2 for each child participant. The data collection process began at the start of fall and lasted for approximately 4 weeks.

Data Analysis

Analyses of the data were conducted using SPSS Version 22. Descriptive statistics were calculated to provide information on central tendency and the distribution of the data (see Table 1). Correlational analyses were also employed. Cronbach's α was conducted to assess the reliability of the data collection measures. Regression analyses were performed to examine whether social competence predicted performance on ToM tasks. Social competence was used as a predictor variable and ToM performance an outcome variable. Analysis of variance was used to assess mean differences between participant characteristics and the outcome variables.

CHAPTER 4

RESULTS

The following chapter discusses the results obtained from the analyses proposed in Chapter 3. The chapter follows the four research questions posed for this study.

Question 1

Analyses were conducted to assess the research question: Is there a relationship between social competence, as measured by teachers BASC-2 rating scale and self-reported by students, and ToM performance.

As displayed in Table 2, correlations among social skills, attention/cognitive skills, and affect scales in the BASC-2 rating scale and Cognitive and Peer acceptance competence scores in the PSPCSA indicated that attention/cognitive skills in the BASC-2 were positively correlated with cognition scores from the PSPCSA (r = .19, p = .03), and ToM performance (r = .26, p <.01), but not for the other constructs.

Question 2

Regression analyses were performed to examine the research question: How does social competence influence ToM performance in prekindergarten children? The regression analysis specified ToM performance as the dependent variable and teachers' rating of students' social competence as the predictor variable. The overall R^2 was .07, $F(3, 120) = 3.02$, $p < .05$. The standard coefficients (betas) were .01 for affect, -.08 for social skills, and .30 for attention/cognitive skills. Only the coefficient for attention and cognitive skills was significant,

$t(3, 120) = 2.41$, $p < 0.02$. Seven percent of the variability in ToM performance was predicted by teachers' rating of students' social competence (see Table 3).

The normality of PSPCA cognition and peer acceptance scores were also analyzed. As in Table 3, the skewness value for cognition is -.791 (SE .217) and -.532 (SE .217), respectively (see Table 4). Skewness within the range of +/- 3 (Onwuegbuzie & Daniel, 2002) are generally considered normal. Applying this rule, normality was evident. The histograms with normal curves superimposed are depicted in Figures 1 and 2. Taken with the skewness statistics, the results for cognition and peer acceptance indicate the PSPCSA scores are reasonably normally distributed.

A second regression analysis was also conducted with ToM performance as the dependent variable and students' social competence (PSPCSA) as the independent variable. R for regression was not significantly different from zero, $F(2, 121) = .36$, $p = .70$, $R^2 = .01$. One percent of the variability in ToM performance was predicted by students' social competence. There were no significant partial effects in the full model.

Question 3

Analyses of variances tests were conducted to evaluate the third research question: How does gender influence the relationship between social competence and ToM in prekindergarten children? A one-way analysis of variance (ANOVA) was conducted to explore the impact of gender on ToM performance. The independent variable was gender and the dependent variable was ToM performance. The resulting statistic was not statistically significant $F(1, 122) = .22$, $p = .64$). There was no significant difference between gender and ToM performance. The mean ToM performance scores by gender were females ($M = 8.46$, $SD = 2.50$) and males ($M = 8.25$, $SD = 2.39$).

Five separate one-way analysis of variance tests were also conducted to explore the impact between gender and social competence as reported by both teachers (BASC-2) and children (PSPCSA). The independent variable was gender and the dependent variables were Teachers' rating of students' social competence (BASC-2 social skills, BASC-2 attention/cognitive skills, and BASC-2 affect scales) and students' social competence (PSPCSA cognitive scale, PSPCSA peer acceptance scales). The analysis revealed a statistically significant difference on two scales on teachers' ratings of students' social competence; the BASC-2 social skills [$F(1, 122) = 6.17$, $p = .01$)] and affect scales [$F(1, 122) = 5.71$, $p = .02$)] based on gender (See Table 5). The mean social skills and affect scores for boys were ($M = 3.26$, $SD = .48$) and ($M = 3.16$, $SD = .63$) respectively. The mean social skills and affect scores for girls were ($M = 3.49$, $SD = .54$) and ($M = 3.42$, $SD = .56$) respectively.

Question 4

The final research question assessed: How much of children's ToM is explained by children's verbal ability and social competence? To assess this question, a regression analysis was conducted. The independent variables were teachers' rating of students' social competence, students' social competence, and receptive vocabulary and the dependent variable was ToM performance. The overall R^2 was .21 [$F(6, 117) = 5.16$, $p < .00$]. The standard coefficients (betas) for each variable are displayed in Table 6. Only the coefficient for verbal ability was significant $t(6, 117) = 4.47$, $p < .01$. Twenty-one percent of the variability in ToM performance was predicted by verbal ability.

Table 1
Means and Standard Deviation of Social Competence, Receptive Vocabulary, and Theory of Mind Measures

Measures	*M*	*SD*
PSPCSA Peer Acceptance	3.25	.55
PSPCSA Cognitive Competence	3.32	.52
BASC-2 Social Skills	3.36	.52
BASC-2 Attention/Cognitive Skill	2.96	.69
BASC-2 Affect	3.27	.61
PPVT	91.23	18.41
Theory of Mind	8.34	2.43

Table 2
Pearson Correlation Matrix among Teacher-Rated Social Competence (BASC-2), Children-Reported social competence (PSPCSA) and Theory of mind

Measure	1.	2.	3.	4.	5.	6.
1. BASC Social Skills	1.0					
2. BASC Attention/Cognitive Skills	.67**	1.0				
3. BASC Affect	.74**	.67**	1.0			
4. PSPCSA Cognition	.02	.19*	-.06	1.0		
5. PSPCSA Peer Acceptance	-.11	-.08	-.09	.50**	1.0	
6. Theory of Mind	-.13	.26**	.16	.05	-.02	1.0
M	3.36	2.96	3.27	3.32	3.25	8.34
SD	0.52	0.69	0.61	0.52	0.55	2.43

Note: * Significant at the .05 level
** Significant at the .01 level

Table 3
Summary of Regression Analysis for Teacher-Rated Social Competence Influencing Theory of Mind

Variable	*B*	*SE B*	*B*	*t*	*Sig*
Social Skills	-0.37	0.66	-.08	-.57	.57
Attention/Cognitive Skills	1.08	0.45	.30	2.41	.02*
Affect	.05	0.56	.01	.08	.94
R^2	.07				
F	3.02*				

Note: Dependent variable: Theory of Mind.
*$p < .05$. **$p < .01$.

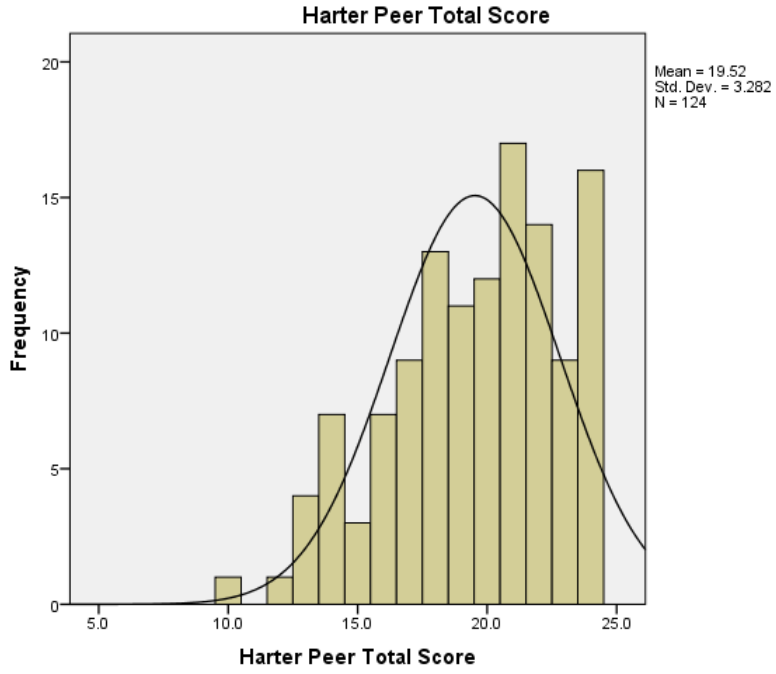

Figure 1: The Distribution of the PSPCSA Cognitive Competence Scale

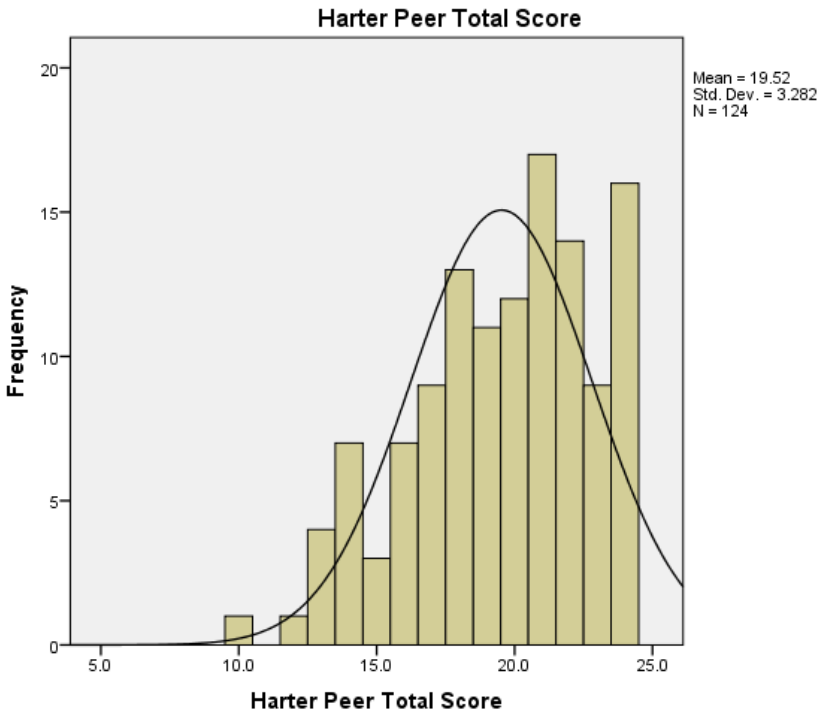

Figure 2: The Distribution of the PSPCSA Peer Competence Scale

Table 4
Standardized Skewness Coefficients for PSPCSA

PSPCA Measure	*Standardized Skewness Coefficient*
Cognition	3.65
Peer Acceptance	2.45

Table 5
One-Way Analysis of Variance of Teachers' Rating of Students' Social Competence and Children's Self-Reported Social Competence by Gender

	F	*p*
PSPCSA Peer Acceptance	.35 (1, 122)	.55
PSPCSA Cognitive Competence	.77 (1, 122)	.38
BASC-2 Social Skills	6.17 (1, 122)	.01*
BASC-2 Attention/Cognitive Skill	3.28 (1, 122)	.07
BASC-2 Affect	5.71 (1, 122)	.02*

*$p < .05$. **$p < .01$.

Table 6
Summary of Regression Analysis for Teachers' Rating of Students' Social Competence Influencing Theory of Mind

Variable	*B*	*SE B*	*β*	*t*	*Sig*
Verbal Ability	0.06	0.01	0.42	4.47	0.00**
PSPCSA Peer Acceptance	-0.00	0.07	-.00	-0.04	0.97
PSPCSA Cognitive Competence	-0.05	0.08	-.06	-0.60	0.55
BASC-2 Social Skills	0.16	0.63	0.03	0.25	0.80
BASC-2 Attention/Cognitive Skill	.22	0.48	0.06	0.47	0.64
BASC-2 Affect	0.09	0.52	0.02	0.17	0.86
R^2	.21				
F	5.16				

Note: N=124. Dependent variable: Theory of Mind.
*$p < .05$. **$p < .01$.

DISCUSSION

This study was designed to examine the relationship between social competence, as rated by teachers and self-reported by children, and theory of mind performance in prekindergarten children. From the results, several findings emerged that suggest implications for teachers and parents of young children. The interpretation of the results will focus on (1) social competence and theory of mind, (2) gender differences, (3) language and theory of mind, (4) universal screening and theory of mind. This section will end with a discussion on the limitations of the study and implications for parents and children of young children.

Social Competence and Theory of Mind

The results indicate that social competence, specifically attention and cognitive skills as rated by teachers (BASC-2), positively correlated with cognitive competence on the children's self report measure (PSPCSA) and with children's ToM performance. This result suggests that children who are emotionally stable are likely to perform better on ToM tasks. Children who are inclined to "listen to directions", "listen attentively" and are less likely to be "easily distracted" are apt to perform well on tasks assessing the mental states of others. Further analysis revealed that TOM is influenced by teachers' rating of students' social competence, which explained 7% of the variance.

Despite teacher-rated competence only explaining a small percentage of the variance, this study does lend some support to previous literature that examined the relationship between social competence and theory of mind (Razza & Blair, 2009). This study further adds to the literature by identifying attention and cognitive skills as influencing ToM performance.

Examples of these cognitive skills in relation to social competence include the ability: to control and self-regulate one's behaviors, thoughts, and emotions during social occasions; use working memory to solve to social problems; and modify responses or behavior in light of the social situation (Semrud-Clikeman, 2007). Caution should be taken when interpreting this finding, as executive functioning rather than social competence could be the influencing variable, as executive functioning abilities continue to develop during the pre-k years and beyond (i.e., 3-7 years; Riggs, Jahromi, Razza, Dilworth-Bart, & Mueller, 2006). Research has also identified a strong relationship between executive functioning and ToM performance (Barr, 2009).

Gender Differences

The study also examined gender differences in ToM performance. Results indicated that there was no gender difference in ToM performance for boys and girls. This finding does not support previous studies (Charman, Ruffman, & Clements, 2002). There was a significant difference between gender and social competence as rated by teachers, with boys demonstrating negative attributes and affect compared to girls. In other words, boys were likely to "bully others", "argue with friends", become "easily upset and frustrated." Negative behaviors have been identified by previous research to be acceptable forms of behavior for boys in preschool settings and may be considered as an indicator of social competence that are defined by gender roles and social norms (Walker, 2005). An alternative explanation for these results is poor executive functioning in boys compared to girls. Studies have identified that poor executive control is related to negative behaviors exhibited by preschool children (Hughes, et al., 2000).

Language and Theory of Mind

Results indicated that receptive vocabulary accounted for 21% of the variance in ToM performance. This finding supports the literature on the importance of language in ToM

performance. ToM is the ability to understand the mental states of the self and others. Through the development of language and communication the acquisition of ToM occurs. For example, children begin to understand that there is a difference between pretence and reality. It is also through the use of semantics and syntax in language that children are able to understand and describe the abstract meaning of mental states in relation to culture (Astington & Baird, 2005).

Universal Screening and Theory of Mind

An interesting finding of this study was a lack of relationship between children's self-reported social competence and ToM despite earlier studies that found a correlation between teacher-rated social competence and ToM. This finding implies that young prekindergarten children may not be the most reliable informants for providing a true account or assessment of their social competence. This lends support to use of other informants, such as teachers or parents and other approaches, such as child observation as better measures of social competence.

The BASC-2 (which measures adaptive and maladaptive behaviors) was found to be a better assessment of young children as a universal screening process for identifying children with ToM difficulties and delays (as compared to PSPCSA). The absence of or impairment in ToM is not a diagnostic marker for any disability or disorder but it is an identifying feature for language and social development problems present in several disorders such as Autism Spectrum Disorders, Social Communication Disorder, and Attention Deficit Disorder (American Psychology Association, 2013). ToM features have also been identified in internalizing and externalizing disorders. Impaired or delayed ToM abilities also affect academic and social functioning in typically developing children. The use of a screening tool such as the BASC-2 allows schools to efficiently identify children who are "at risk" for developing emotional and behavioral problems. The BASC-2 provides an indication of children's levels of social

competence and the likelihood children will experience difficulties when using problem-solving strategies such as ToM to interact socially with others and adjust to the demands of school. The BASC-2 also identifies aspects of social competence that are likely to influence ToM abilities and allows schools to use this information to design and implement early effective interventions. Through the use of early detection, children at risk for developing ToM impairments are likely to make improvements in their ability to understand the mental states of others and further improve their level of social competence and academic performance.

Limitations

One of the limitations of this study included the failure to examine the effects of executive functioning on social competence and ToM performance. Attention and cognition skills are components of executive functioning that may have played a role in explaining the variability in ToM performance. Despite the benefits of PSPCSA (children's self-reported measure) as a developmentally appropriate measure with moderate internal consistency, low correlation with the teachers rating scale and a lack of significant effects with ToM performance implies not only the presence of a measurement issue, but also that self reporting may not be the most effective tool for measuring social competence in pre-k children. The use of observations or parent rating scales in addition to the BASC teacher form may have provided different results.

The use of one time point at the start of the school year may not have provided sufficient time to accurately assess children's evaluation of their social competence. As stated in the literature, children enter school with varying abilities and experiences and it is at school where they learn and acquire similar experiences. Therefore providing two or more time points for data collection (at the start and the end of the school year) may have resulted in differences in findings. Future research should address these limitations by measuring the impact of executive

functioning on ToM and social competence. Longitudinal studies should be employed to further examine the relationship between social competence and ToM and identify whether a cause and effect relationship exists.

Conclusion and Implications

All children entering pre-k will possess varying social abilities. Numerous studies have reported that understanding the minds of self and others facilitates social functioning. The findings from this study add to the literature by reporting that a dual relationship between theory of mind and social competence does exist. Social competence has the ability to influence how children understand the minds of others. This study identifies attention and cognitive skills in social competence as the influencing factor for achieving ToM. This implies that having the ability to regulate and control emotions and behaviors, in addition to being able to transition between various social settings are cognitive features of social competence that facilitate ToM acquisition. Teachers and parents can use this knowledge to design simple strategies for promoting ToM development in young children. Below are a few suggestions for using social competence to acquire ToM abilities.

When children enter school teachers are placed with the responsibility to provide instruction that focuses on the development of ToM. Several approaches can be taken to assist teachers with this task. First, instruction can focus on the development of children's ability to control and regulate their behavior and emotions. Teachers can provide timely cues of instruction to prepare the child on how to respond at a given time. For example, by informing the child a few minutes ahead of time that they are next in line to play with the ipad, assists the child in controlling his/her impulse to grab (a negative behavior) the ipad from another user. This simple

strategy helps facilitate peer acceptance, providing the opportunity for learning and positive interaction with others (Florez, 2011; Landy, 2002).

The second recommendation is for instruction that focuses on transitioning children's behavior and speech to the present social context. Teachers can practice and model various techniques on how to behave and socialize during center time. Center time is a pre-kindergarten activity, where children are assigned to various areas of the classroom, known as centers, and interact with items that are located there. For example, a pre-k classroom may have a writing center and items such as paper, pencils, and crayons are provided for children to use. During center time, teachers can interact with children. Through this interaction teachers can instruct children how to act and converse in various imaginary settings. In so doing, teachers also provide instructions for children on how to use their imagination (ToM ability). These are few ideas in which teachers may use simple tasks to facilitate social interaction and the learning of ToM abilities.

Parents can provide children with the opportunity to foster ToM by creating plans for events. For example, if a child is going to the zoo for the first time and is unaware of what he/she should expect his/her first response is fear and the behavioral response to fear is to throw a tantrum. To regulate emotional control, a parent can design a plan of events. This plan or guide gives the child a description as to what to expect, ahead of time. For example, letting the child know he/she will see many different animals. Some animals will look scary, and you will feel scared, but they will not harm you. To further account for ToM abilities, the parent can continue, through the use of language, explain the child's feelings and beliefs. (e.g., "you are crying because you are afraid to go to the zoo").

Third, parents can provide opportunities for transitioning children's behavior and speech to the present social context, using the same approach as described for teachers, but used within the home. For example, during playtime, parents can use the process of imagination and pretence to create different social scenarios from which to model appropriate behavior and speech. This creates learnt behaviors and memories for the child to use and generalize to other settings. It also teaches the child to use imagination to problem-solve. These are only a few suggestions teachers and parents can use to facilitate ToM development.

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