Guiding Play: Preschool Teachers' Facilitation of Gender-Typed and Gender Neutral Activities with Boys, Girls, and Mixed-Sex Groups

by

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ABSTRACT

Preschool teachers have the opportunity to facilitate children's play with a variety of classroom activities. Preschool activities can be categorized as masculine, feminine, and gender-neutral based on children's preferences. Understanding how and why teachers facilitate children's play with feminine, masculine, and gender-neutral activities is important because children's engagement in gender typed activities has been linked to cognitive development. The current study extends previous and outdated research on teachers' engagement in gender-typed classroom activities by using a teacher-focal observational coding system and survey data to assess the frequency at which, with whom, and why teachers facilitate feminine, masculine, and gender-neutral activities. Results reveal teachers facilitate gender-neutral and masculine activities more frequently than feminine activities. However, facilitation of these activities is qualified by with whom the teacher interacts and the classroom context. During free play, teachers facilitate gender-typed activities in stereotypic ways, facilitating masculine activities with boys more than with girls and feminine activities with girls more than with boys. Although, during structured settings, teachers do not facilitate masculine and feminine activities at different frequencies. Finally, in both free play and structured settings, teachers' gender attitudes do not seem to be strong predictors of their facilitation of gender-typed and gender-neutral activities with the exception of teachers' facilitation of feminine activities during structured settings. The present findings address important issues in educational and developmental research by investigating teachers' gendered classroom practices.

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CHAPTER 1

INTRODUCTION

By the time children enter elementary school, boys and girls experience significantly different classroom environments that are linked to gender differences in relevant educational outcomes. For example, boys have more conflictual relationships with their teachers than girls, and girls have closer relationships to their teachers than boys (Birch & Ladd, 1997). Additionally, boys and girls express different preferences for school subjects. For example, girls express less interest in science than their male counterparts (for a review see Osborne, Simon, & Collins, 2003). Finally, boys and girls also differ on academic achievement outcomes, with girls performing better in academics than boys (Pomerantz, Altermatt, & Saxon, 2002). A potential factor driving these gender differences might be children's early gendered preschool experiences.

Preschool has become the home for foundational pre-academic learning, providing many children with their earliest exposure to classroom settings, teachers, and large groups of same-aged peers. Recent changes in educational policy, resulting from the need to meet standardized academic guidelines, have shifted the focus of the kindergarten curriculum from one that emphasizes developmental experiences in the classroom to one that emphasizes literacy and math skills (Miller & Almon, 2009). Consequently, preschools are currently responsible for transitioning children from the home environment to the kindergarten classroom environment. Preschools support this transition by providing opportunities for both socio-emotional and academic learning.

Guided by the ideas of Piaget (1951) and Vygotsky (1978), educational researchers and curriculum specialists argue that play provides an important mechanism

through which preschoolers learn socio-emotional and academic skills and strongly support the inclusion of play during the preschool day (Almon, 2003; Burriss & Tsao, 2002; Duncan & Tarulli, 2003). Therefore, guidelines for developmentally appropriate preschool practices recommend that teachers allow prolonged time (at least an hour) for play in the classroom (Christie & Wardle, 1992; Johnson, Christie, & Wardle, 2005).

Accordingly, researchers, educators, and policy-makers have turned their attention toward understanding how teachers shape and influence children's play experiences. One significant way teachers shape children's play is through their interactions with children. Teacher-child interactions have received much interest in educational psychology studies, and observational research shows that teachers employ a range of behaviors when interacting with their students. These behaviors include criticizing, information giving, physical affection, problem-solving help, facilitating, and reminding children of classroom rules (Johnson et. al.,2005). Of these behaviors, teachers' facilitation of children's play is regarded as the developmentally appropriate practice for teachers' involvement in play (Bodrva & Leong, 2003; Berk & Winsler, 1995; Johnson, Christie, & Yawkey, & Wardle, 1987).

Teachers' facilitation of play maximizes the benefits of play and helps children develop important pre-academic skills (Tarman & Tarman, 2011). For example, by verbally interacting with children during pretend play, teachers model language use, encourage social talk, and show children how to designate a make believe identity and plan story lines (Christie, 1991; Massey, 2004). Based on the benefits of teachers' engagement in children's play, it is not surprising that teachers emphasize the importance of taking an active role in structuring stimulating environments for children's play and

almost half of teachers' interactional time with children is spent facilitating children's play (Kontos, 1999; Sandberg & Pramling-Samuelsson, 2005).

Preschool teachers have the opportunity to facilitate children's play with a variety of toys and objects. Typical preschool classrooms consist of play activities such as blocks, art equipment, dress up clothes, pretend kitchen sets, toys, board games, books, writing materials, math and science toys (e.g., magnifying glass, scale), sensory play materials (e.g. sand and water buckets), computers, musical instruments, and more (Bredekamp & Copple, 1997; Dodge, Colker, & Heroman, 2002). Preschool play activities can be differentiated according to children's gender based preferences. It is well documented that children's activity choices are influenced by their gender. For example, preschool boys generally choose to play with activities such as blocks and toys with wheels; in contrast, girls choose to play with activities such as dolls and dress-up (Connor & Serbin, 1977; for a review, see Ruble, Martin, & Berenbaum, 2006). Thus, children may choose to orient their play in gender-typed ways and preschool toys and materials can be categorized as masculine, feminine, and gender-neutral. It is likely that teachers recognize and respond to children's gender-typed activity preferences and organize toys and activities by grouping gender-typed activities together (e.g., dolls, kitchen, and dress-up may be placed in one area of the classroom; Miller, 1987). Given that children show strong preferences for gender-typed activities and teachers organize their classrooms in gendered ways, categorizing activities by gender (i.e. feminine, masculine, and neutral) provides a useful framework for understanding how often and why teachers facilitate classroom activities during free play classroom time. To the best of our knowledge, empirical evidence on teachers' facilitation of gender-typed and gender-neutral activities

is lacking. Thus, the first goal of this study was to examine the extent to which preschool teachers facilitate gender-typed and gender-neutral activities during free play time in their classrooms.

Additionally, researchers have yet to study with whom (i.e., boys, girls, and mixed-sex groups) teachers facilitate gender-typed and gender-neutral activities. Considering with whom teachers facilitate gendered activities is important because children's engagement in gender typed activities has been differentially linked to the development of cognitive skills (Connor & Serbin, 1977; Fagot & Litman, 1976). For example, children who consistently engage in masculine activities are exposed to a narrow range of academic experiences that are associated with masculine activities such as spatial skill development. This narrow skill development can potentially limit the development of academic skills thought to be associated with feminine or gender-neutral classroom activities (e.g., language; Serbin & Connor, 1979). Moreover, research suggests that the types of activities children are encouraged to participate in may differentially encourage the development of appropriate classroom behaviors, which set the stage for later academic achievement. For example, boys often receive positive reinforcement for engaging in interactive games such as sports and action or adventure toys (Lamb, Easterbrooks, Holden, 1980). These types of activities may facilitate the development of competitive behavior and assertiveness. Girls often receive positive reinforcement for playing with toys such as dolls and kitchen. These types of activities may encourage the development of cooperative and prosocial skills. The skills promoted by involvement in feminine activities may be more consistent with appropriate behaviors for the preschool classroom and may promote children's concurrent and future school

success (Mickelson, 1989). Therefore, understanding with whom teachers facilitate gender-typed and gender-neutral activities may shed light on why children differentially engage in gendered activities and may be relevant to theory and knowledge on how these activity preferences relate to later academic success. Thus, the second goal of the current study was to examine the extent to which teachers facilitate gender-typed and gender neutral activities with boys, girls, and mixed sex groups in their classrooms.

In addition to examining the frequency with which teachers facilitate feminine, masculine, and gender-neutral activities with girls, boys, and mixed-sex groups of children, it is also important to examine teacher-level individual factors that might guide teachers' decisions to facilitate gender-typed and gender-neutral activities in their classrooms. Existing empirical work has demonstrated that individuals' attitudes are related to their subsequent behaviors (Fisbein & Ajzen, 1972). However, research has yet to examine the link between teachers' gender attitudes and their gendered teaching behaviors. Considering teachers' attitudes in relation to their classroom behaviors is essential as gender role beliefs of early childhood teachers may be predictive of teachers' behaviors, which in turn shape children's gendered classroom experiences (Cahill & Adams, 1997). Thus, the third goal of this study was to examine how teachers' traditional gender role attitudes influence the extent to which they facilitate feminine, masculine, and neutral activities with boys, girls, and mixed-sex groups of students.

To summarize, the aims of the present study were threefold: 1) to determine if teachers facilitate masculine, feminine, and neutral activities at different rates in the classroom; 2) to explore with whom teachers facilitate masculine, feminine, and gender-neutral activities; and 3) to determine if teachers' gender role attitudes predict with whom

they facilitate feminine, masculine, and gender-neutral activities. The findings generated in this research will address important issues in educational and developmental research. By studying how and why teachers facilitate gendered activities, findings will contribute to theory, knowledge, and application underlying timely educational topics, such as the factors that influence girls' and boys' interest, involvement, and achievement in math and science subjects. Understanding teachers' facilitation of gender-typed and gender-neutral activities is important as there continues to be a gender difference in boys' and girls' involvement in science and math subjects. This difference is likely linked to children's educational experiences and opportunities to learn about gender-typed activities in the classroom (Jones, Howe, & Rua, 2000).

In the following sections, theories reviewing the importance of play in preschool and teachers' facilitation of play will be reviewed. Next, how teachers respond to children's engagement in gender-typed and gender-neutral activities will be discussed. Subsequently, there will be a discussion of how teachers' attitudes may influence the extent to which they facilitate gender-typed and gender-neutral activities with boys, girls, and mixed-sex groups.

CHAPTER 2

LITERATURE REVIEW

Preschool: A Play Based Learning Context

In preschool, children learn social and academic skills through play via a process known as play-based learning (Stagnitti, 2004)). Play based learning is a unique form of learning in that it is controlled by the player (i.e., child), is internally motivated, involves more attention to the process of playing than the outcome, is fun, unpredictable, pleasurable, spontaneous, and involves non-obligatory active engagement (Bracegirdle, 1992; Rubin, Fein, & Vandenberg, 1983; Pellegrini & Smith, 1998; Stagnitti, 2004). Additionally, play based learning integrates play behaviors and academic content (Hirsh-Pasek, Golinkoff, Berk, & Singer, 2008). For example, two children building and knocking over blocks are engaged in play based learning. Through this play activity, the children are learning about cause and effect and the properties of the materials (e.g., shape and size of the blocks) as well as how to interact with a peer.

Engagement in play helps children develop skills across a variety of developmental domains. Play has been linked to cognitive gains in concentration, impulse control, attention span, problem solving, and self-awareness (Bergen, 2002; Christie & Johnson, 1989; Golomb & Cornelius, 1977; Smilansky & Shefatya, 1990). Play is also associated with increases in positive socialization skills such as cooperation, empathy, and communication (Christie & Johnson, 1989). Play encourages flexible thinking, curiosity, imagination, adaptability, and exploration (Cheyne & Rubin 1983; Stagnitti, 2004). Therefore, the developmental benefits of play are many-fold as it is associated with children's academic achievement, advances children's school readiness,

and it increases vocabulary and language development (Burriss & Tsao, 2002; Chrisite, 2006). For these reasons, preschools provide children with substantial time for play during the school day, emphasizing the need for the current study.

Theoretical Support for Play Based Learning in Preschool

The idea that play during preschool is important for child development can be supported by two developmental theorists, Piaget and Vygotsky (Piaget, 1951; Vygotsky, 1978). Both Piaget (1951) and Vygotsky (1978) address how play influences children's learning during the preschool years. However, the theories differ on the extent to which play is thought to impact children's academic versus social learning as well as on the mechanisms that are thought to underlie learning during play. The following sections will discuss these theories and address the similarities and differences between them, with the goal of highlighting the importance of play based learning in preschool.

Piaget and play based learning. Piaget created a constructivist theory of cognitive development, divided into four distinct stages, in which children subsequently develop higher order cognitive skills. He categorized preschool-aged children in the Preoperational Stage. This stage is characterized by several important features. For example, compared to younger children, preschool aged children are able to talk about events that happened in the past, plan pretend play, and coordinate roles and story lines. Additionally, preschoolers become more efficient thinkers, as they are able to organize their thoughts in categories and show more sophisticated use of symbols (Henninger, 2009). However, despite these advances, preschoolers are still limited in their cognitive processing, and Piaget suggested that preschool children were less capable than older children in their thinking skills. For example, preschool children are unable to understand

logical reasoning, take the perspective of another person, and understand that objects can change appearance and still maintain the same properties (Piaget, 1951). These limitations can make preschoolers think in unreasoned, egocentric, and one-dimensional ways (Hennniger, 2009).

Because preschool children do not yet have the abstract and concrete thinking skills that older children are capable of, Piaget believed that play was particularly important for preschool children's academic learning (Piaget, 1951). Play is important because it strengthens children's newly acquired ability to mentally picture different situations and allows children to take control of creating their own learning experiences (i.e., planning pretend play; Piaget, 1951). By playing with objects, such as toys, preschool children are thought to gain new verbal and cognitive skills and strengthen existing skills (Goldhaber, 2002). Piaget believed this happened via a process called equilibration, which is the mechanism through which children process and organize new information (Goldhaber, 2002). When processing new information, Piaget suggested children first had to experience disequilibrium, which occurs when children interact with objects and face contradictions about the objects, based on their current level of understanding. Disequilibrium helps children to explore the objects in new ways. For example, a child playing with blocks may already know how to sort them by color. However, if asked to sort the blocks by color and shape, the child must adapt his thinking about the blocks and experiment with this more complicated skill. By practicing this task, the child is able to make sense of this new information and emerge with a higher level of cognitive processing. After the child has reached this new level of thinking, he has returned to a state of equilibrium (Renner et al., 1976). In this way, the child experiences

cognitive growth. Piaget regarded the process of equilibration as an important part of preschool learning and therefore supported the inclusion of play based learning in preschool contexts.

Empirical research supports these aspects of Piaget's theory, thus establishing links between preschool children's engagement with classroom objects and learning *(*Bowman, Donovan, & Burns, 2000; Shonkoff & Phillips, 2000). For example, children build literacy skills through exposure to and interaction with classroom materials such as pencils, paper, and wall signs (Neuman & Roskos, 1992; Vukelich, 1994). Additionally, playing with objects that expose children to patterns, shapes, and numbers, helps children build pre-academic math skills (Ginsburg & Seo, 1999). For example, a study by Siegler and Ramani (2008), found that preschoolers who played board games involving linear numbers, such as Chutes and Ladders, learned number lines, counting, and identifying numbers.

Piaget's theory offers support for the important influence of play in preschool on children's' academic learning. However, his theory does not directly address how play in preschool may influence children's social development. Vygotsky, however, did highlight the ways in which preschoolers' play contributes to social learning.

Vygotsky and play based learning. Similar to Piaget, Vygotsky believed that play was critically important for preschool children's development. However, instead of focusing on how children build knowledge through interactions with objects, Vygotsky believed that development was primarily influenced by social and cultural events. He suggested that children's interactions with other peers and adults were the primary mechanisms for learning (Vygotsky, 1967). Because play provides children with

opportunities to interact with teachers and peers, Vygotsky believed that play was a major contributor to children's social, language, and cognitive growth (Henniger, 2009).

Vygotsky (1967) described several types of play important for children's learning experiences. Specifically, he highlighted the importance of pretend play and believed this imaginative play was critical to social development (Vygotsky, 1978). Children in pretend play create imaginary situations that allow them to practice symbolic thinking. For example, a child may wish to ride a horse and pretend to use a broom to symbolize a horse. Pretend play is social in nature and provides opportunities for children to practice taking the perspective of others (Burns & Brainerd, 1979; Connolly & Doyle, 1984).

According to Vygotsky, pretend play helps children learn rules, social norms, and expectations. For example, if children are pretending to play in a store they must act out the rules of paying for items. By practicing these rules children begin to understand and internalize how to behave in socially appropriate ways, which in turn, helps them develop self-restraint and self-regulation skills (Berk & Winsler, 1995; Henninger, 2009; Vygotsky, 1978). Empirical research supports this potential benefit of play. For example, the amount of time children spend in pretend play is positively related to children's self-regulation during clean up time (Elias & Berk, 2002).

Beyond self-regulatory skills, pretend play also gives children the opportunity to engage in symbolic thinking. By using objects in make believe ways (e.g., using a block to represent a car), children practice abstract thought (Vygotsky, 1978). The development of abstract thinking is linked to later academic achievement, making children's engagement in play and use of symbols critical for learning and development (Smilansky & Shefatya, 1990).

Preschool Teachers' Involvement in Children's Play

Whereas there has been little debate regarding the utility of play in preschool, there has historically been debate over the degree and nature of teachers' involvement in children's play activities (Berk & Winsler, 1995; Bredekamp & Copple, 1997; Tarman & Tarman, 2011). Prior to the 1960s, early childhood teachers were expected to provide opportunities for children to play in the classroom but to never interfere in children's play (Spodek, 1974; Tarman & Tarman, 2011). This rationale stemmed from the psychoanalytic theory of play, which assumed that children needed to play to work out their inner conflicts (Tarman & Tarman, 2011). Teachers' involvement in children's play was thought to inhibit children from expressing their true feelings and to reduce potential therapeutic benefits associated with play (Johnson et al., 1987; Spodek, 1974). However, this perspective changed in the 1960s, when developmental theorists and educational researches provided support for the importance of teachers' involvement in play.

Empirical and theoretical support. Smilansky (1968) was one of the first researchers to provide empirical support for teachers' involvement in children's play. In an attempt to encourage children of low socioeconomic backgrounds to engage in socio-dramatic play, Smilansky created an experimental study in which three groups of teachers engaged with children from ages three to six. Teachers led students in direct experiences (e.g. field trips), play training, or a combination of play training and direct experiences. During play training sessions, teachers modeled play behavior and gave children suggestions on how to improve the quality of their play. For example, if two children were struggling to build a tower out of blocks, the teacher may have recommended they

sketch out the tower before trying to build it again. Smilansky (1968) found that this guidance increased the quality of children's play and promoted children's cognitive development.

In addition to Smilansky's work, Vygotsky's sociocultural theory was critical in providing theoretical support for the importance of teachers' role in children's play. According to Vygotsky, adults are able to engage in children's play in ways that help them learn new skills and reach new developmental levels (Berk & Winsler, 1995). That is, when children are playing, they perform at one of two levels: lower and higher (Vygotsky, 1978). The lower level is what a child can do on his own without assistance. In contrast, the upper level is what this same child can accomplish with help from a more advanced person. Vygotsky described the distance between the developmental level of the child and the developmental level the child can achieve with help from an adult as the zone of proximal development. This support received from a more advanced person is called scaffolding. In a scaffolded interaction, the advanced participant (i.e., teacher) finds the edge of a child's ability and subsequently helps him learn or do something that he would not be able to complete on his own (Vygotsky, 1978).

Vygotsky suggested that teachers scaffold children's play in two ways, indirectly and directly. Teachers engage in indirect scaffolding by choosing developmentally appropriate toys and objects (Berk & Winsler, 1995). They directly scaffold play by asking questions, prompting and commenting on children's play activities. According to Vygotsky, it is through direct scaffolding that teachers help children learn new skills. For example, if a child is playing by lining up blocks by shapes, a teacher may comment that the child is lining the blocks up in a pattern or ask the child how many blocks are in the

line. These actions help move the child's play to higher levels of cognition. Further, through direct scaffolding teachers help children maintain interest and engagement in play. This is especially important in preschool as children move quickly from one activity to the next. Vygotsky's support of teachers' involvement in play set the stage for future research focusing on how teachers can effectively interact with children during play.

Building on Vygotsky's theory and Smilansky's work, educational researchers have since empirically shown that teacher participation in children's play enriches play activities and develops children's academic and social skills (Tarman & Tarman, 2011). For example, teachers' involvement in children's play has been linked to improved performance on group problem solving, role taking, creative thinking, language use, verbal intelligence, IQ scores, early math skills, emergent literacy, and self- regulation (Cameron & Morrison, 2011; Howes & Smith, 1995; Saltz, Dixon, & Johnson, 1977). Further, teachers who support play have children who master literacy skills and concepts at higher rates, develop better language and social skills, and learn to regulate their physical and cognitive behaviors better than teachers who do not support play in their classrooms (Bodrova & Leong, 2003). In contrast, teachers who do not support play report struggling more with classroom management and a lack of children's interest in reading and writing compared to teachers who do support play (Bodrova & Leong, 2003). Additionally, teachers' involvement in children's play can help to prevent disruptive classroom behaviors from occurring in the classroom (Tarman & Tarman, 2011). Therefore, from educational and behavioral management standpoints, teachers and children both benefit from teachers' involvement in play. Taken together, these findings suggest that teachers are taking a primary role in helping children engage in constructive

play because these experiences lay the foundation for academic and social growth and emphasize the need to better understand teachers' involvement in play (Bergern, 2002; Bodrva & Leong, 2003; Cameron & Morrison, 2011; Christie & Enz, 1992).

Dimensions of preschool teachers' involvement in children's play. As theoretical and empirical support for teachers' involvement in children's play has accumulated, researchers have defined dimensions of teachers' involvement (Johnson et al., 2005; Roskos & Neuman, 1993). These dimensions are conceptualized on a continuum, ranging from minimal to extreme involvement. That is, teachers' involvement in play ranges from observing children's play to giving non-directive statements and asking questions to modeling play behaviors or giving directive statements, and physically intervening in children's play (Johnson et al., 2005).

The extent of teachers' involvement in play (e.g., observing versus directing play) has varied impacts on children's learning and development. For example, teachers can be minimally involved in children's play (i.e., limiting their interactions to situations in which children get into fights; Bodrva & Leong, 2003). This poses a problem because children are missing important teacher guided opportunities to expand their play. Teachers may also be overly involved in children's play (i.e., using directive statements). This may cause the activity to become adult-directed and lose important child-directed characteristics (e.g., independently planning storylines and assigning pretend characters; Bodrva & Leong, 2003; Sutton & Smith, 1990). In response to the debate on the amount of teacher involvement, researchers propose that teachers engage in children's play in ways that preserve the child directed characteristics of play but also encourage children's learning and development (Bodrva & Leong, 2003). This type of involvement is termed

facilitation, is conceptualized in the middle of the involvement continuum, and is regarded as the developmentally appropriate practice for teachers' involvement in play.

Preschool teachers' facilitation of children's play. Teachers can facilitate children's play in many ways. For example, they can model behaviors, provide explanations, comment on children's behavior, ask questions about activities, and model logical thought and language (Ashiabi, 2007; Trawick-Smith, 1998; 2011). These facilitative actions can occur inside the flow of play and outside the flow of play (Hadley, 2002). Although the current study does not distinguish between teachers' facilitation inside or outside the flow of play, an overview of these concepts helps to depict how teachers facilitate children's play. When a teacher is inside the flow of play, she assumes a playful role, in a way that is similar to the children, and communicates possible play extensions (Christie, 1992; Hadley, 2002). For example, she may become a pretend character in a make believe play activity or play alongside the children with the same materials. When a teacher is outside the flow, the children take the lead and the teacher helps to expand play, encourages exploration and independence, shows interest in children's ideas and experiences, and assists when necessary. A teacher may do this by offering verbal guidance, making comments and suggestions designed to encourage children to continue with and expand on their engagement with an activity (Ashiabi, 2007). For example, a teacher may facilitate children's pretend play by narrating and describing the pretend activity, asking open-ended questions that elaborate on the theme of play, and introducing knowledge about the world into the children's play event (Christie, 1985). Compared to involvement inside the flow of play, this type of facilitation is less obtrusive to children's play (Christie, 1982). Heidemann and Hewitt

(1992) have suggested that teachers become directly involved (i.e. inside the flow of play) when children are struggling to engage in complex play behaviors. Otherwise, play should remain child-oriented and child-directed as much as possible. That is, teachers should facilitate play by verbally reinforcing, making informative statements about play, or asking questions about play (i.e. outside the flow of play) (Henninger, 2009). Through these actions, the teacher gives support to the child by showing interest in what the child is doing, by giving attention to the positive aspects of play, and by giving approval for engagement in the activity. Considering the implications of teachers' facilitation of children's play, this study sought to examine how often, with whom, and why teachers facilitate gendered typed activities in their classroom.

PRESCHOOL TEACHERS' FACILTIATION OF GENDERED ACTIVITIES: HOW OFTEN, WITH WHOM, AND WHY?

What Play Activities Do Teachers Facilitate?

Preschool teachers have the opportunity to facilitate children's play with a variety of classroom activities. Preschool activities can be categorized as masculine, feminine, and gender-neutral based on children's preferences and teachers' organization of the classroom environment (Goble, Martin, Hanish, & Fabes, 2012). Understanding how teachers facilitate children's play with feminine, masculine, and gender-neutral activities is important because children's engagement in gender typed activities has been linked to cognitive development (Connor & Serbin, 1977; Fagot & Litman, 1976). For example, engagement in masculine activities, such as blocks, is linked to spatial skill development (Serbin & Connor, 1979).

To the best of my knowledge, research on teachers' facilitation of gender-typed activities is nonexistent. However, studies from the 1970s and 1980s describe overall rates of teachers' responses to children's engagement in gender-typed activities (Fagot & Patterson, 1969; Lamb, Easterbrrok, & Holden, 1980). These studies primarily focused on teachers' reinforcement (i.e., praising) and punishment (i.e., criticizing) of children's gender-typed activity engagement. Findings revealed that preschool teachers spent more time reinforcing children's engagement in feminine versus masculine activities (Fagot & Patterson, 1969; Lamb et al., 1980). For example, Fagot and Patterson (1969) found that the majority (83%) of gender-typed behaviors that received positive teacher reinforcement (i.e., the teacher commented favorably on an activity or joined in the behaviors) were feminine activities, such as dolls and pretend kitchen. Further, Lamb and colleagues (1980) reported that teachers had fewer positive responses to children's engagement in masculine activities than feminine activities. Perhaps feminine activities were reinforced more than masculine activities because the majority of early childhood educators are female (Institute of Education Sciences, 2008). Thus, teachers may reinforce feminine activities based on their own preferences and activity interests. Additionally, teachers may spend more time reinforcing feminine activities because these are activities that are typically more cooperative, quiet, and sedentary compared to masculine activities which tend to involve more active and rough and tumble play. Therefore, feminine behaviors are conducive to classroom management and learning (Fabes, Martin, & Hanish, 2003; Fagot, 1977).

A review of prior research on these topics reveals several limitations. First, the extent to which teachers facilitate gender-typed activities in the classroom has yet to be

explored. This study intends to fill this gap in the literature. Based on past research suggesting that teachers reinforce feminine activities more than masculine activities, it was expected that teachers would also facilitate feminine activities more than masculine activities. A second limitation of existing work is the exclusion of gender-neutral activities from being considered (i.e., books, music). One of the few reinforcement and punishment studies to include gender-neutral activities reported that teachers reinforced gender-neutral activities more than masculine activities but less than feminine activities (Fagot, 1985). Because prior research is lacking, research questions guiding this investigation about teachers' facilitation of gender-neutral activities were largely exploratory. Finally, the existing research on teachers' responses to children's engagement in gender-typed activities is outdated. The last several decades have seen shifts in how gender is perceived, in opportunities for boys and girls to excel in gender-atypical disciplines, and in perceptions of how teachers should serve as gender socialization agents in the classroom (for a review see, Basow, 2010). For example, since the 1970s, unequal gender-based educational practices, such as offering home economics classes only to girls and shop classes only to boys, were terminated (Basow, 2010). Today, women students now outnumber men in colleges, and an increased number of women have joined the professorate and science fields (NCES, 2007). It is possible that this societal shift has influenced how teachers facilitate gender-typed activities in their classrooms. Thus, there is a need for new research that provides a contemporary picture of how teachers facilitate gender-typical and gender neutral activities with girls and boys. This study intends to fill gaps in prior research on teachers' involvement in children's

play activities by examining the frequency with which teachers facilitate children's engagement in feminine, masculine, and gender-neutral activities.

With Whom Do Teachers Facilitate Feminine, Masculine, And Neutral Activities?

Although it was expected that teachers would facilitate feminine activities more than masculine activities, the extent to which they facilitate gender-typed activities might be qualified by student gender. To my knowledge, research on teachers' differential facilitation of gender-typed activities with girls, boys, and mixed-sex groups of students is nonexistent. However, research, again from the 1970s and 1980s, suggests that teachers' reinforcing and punishing responses to boys' and girls' engagement in gender-typed activities tend to be gender-typical (Fagot, 1977; 1984; Lamb, Easterbooks & Holden, 1980; Serbin, Connor & Iller, 1979). For example, Fagot (1984) reported that children who chose activities in line with traditional gender-typed behaviors were given positive feedback. Thus, boys were given positive feedback by teachers for engaging in masculine activities such as blocks and bikes and girls were given positive feedback for engaging in feminine activities such as dolls or dress up. Moreover, when teachers responded to children's engagement in gender-atypical activities they did so in negative ways. For example, Lamb, Easterbooks and Holden's (1980) study of teachers' reinforcement and punishment of preschool children's behaviors found that 91% of teachers' punishments (i.e., criticism, diversion, disapproval, and disruption) were directed at children's engagement in cross-sex activities. In particular, boys may receive higher rates of negative attention from teachers for their engagement in gender atypical activities compared to girls. Fagot's (1977) study of the consequences of cross-sex play found that boys were significantly more likely to be criticized by teachers when they

engaged in dress-up behaviors than girls. In contrast, girls who exhibited cross-sex behaviors were only occasionally given negative feedback from teachers. Taken together, these studies hint that teachers prefer and reinforce feminine activities to masculine activities, although they do selectively reinforce boys' engagement in masculine activities. Based on this past research it was hypothesized that teachers would facilitate feminine activities with girls more than with boys and masculine activities with boys more than with girls. One of the few studies to examine gender-neutral activities found that teachers reinforced gender-neutral activities at similar rates with boys and girls (Fagot, 1985). Although based on limited prior research, it was also expected that teachers would facilitate gender-neutral activities at similar rates with boys and girls.

Even less is known about teachers' facilitation of gender-typed and gender-neutral activities with mixed-sex groups of children. There is evidence to suggest that children behave differently when they play in mixed-sex groups compared to same-sex groups. For example, children playing in mixed-sex groups have been found to play with relatively non-stereotyped neutral activities (Goble et al., 2012). I predicted that teachers may notice these differences and facilitate gender-neutral activities more with mixed-sex groups compared to same-sex groups. Considering that mixed-sex play occurs in approximately 30% of all interactions children have with their peers (Fabes, 1994), understanding how teachers and students interact while in mixed-sex groups and while playing with gender-neutral activities is an important but understudied aspect of the classroom. Therefore, this study examined the frequency with which teachers facilitate masculine, feminine, and gender-neutral activities with girls, boys, and mixed-sex groups.

Why Do Teachers Facilitate Gender-Typed and Gender-Neutral Activities at Different Rates with Boys, Girls, and Mixed-Sex Groups of Students?

In addition to examining the frequency with which teachers facilitate feminine, masculine, and gender-neutral activities with girls, boys, and mixed-sex groups of children, it is also important to examine individual factors that might guide teachers' decisions to facilitate gender-typed and gender-neutral activities in their classrooms. Existing empirical work has demonstrated that individuals' attitudes are related to their subsequent behaviors (Ajzen & Fishbein, 1977). Attitudes can be conceptualized as an individual's evaluation of an object -- such as a person, physical object, a behavior, or a policy. Behaviors can be conceptualized as one or more observable actions performed by an individual and recorded by the observer. Fishbein and Ajzen (1972) argue that a person's attitude toward an object influences the overall pattern of his or her responses to the object. This argument is based on the idea of consistency. That is, if a person holds a favorable attitude toward some object, he or she is more likely to perform favorable behaviors and less likely to perform unfavorable behaviors (Ajzen, 1989). Although seemingly simple, the relationship between attitudes and behaviors has been the topic of debate for several decades (Kraus, 1999).

Early conclusions about attitudes and behaviors assumed that attitudes had a direct influence on behaviors and that testing this relationship was unnecessary (Kraus, 1999). However, in the 1970's, the assumption that a simple predictive relationship between attitudes and behaviors existed was challenged after Wicker (1969) published an extensive review of the empirical literature on attitudes and behavior. He concluded it was likely that attitudes would be unrelated to behaviors. Wicker's statement prompted

researchers to further examine the relation between attitudes and behaviors. New methods for measuring attitudes were created and the conditions under which attitudes link to behaviors (i.e., potential moderators) were examined (Fazio & Petty, 2008; Fazio & Zanna, 1981; Fishbein & Ajzen, 1972). For instance, Cooke and Sheeran (2004) found that attitude accessibility, stability, certainty, ambivalence, and direct experience influence the attitude-behavior relation. The findings from this line of research have countered Wicker's argument and have since provided support for an existing relationship between attitudes and behavior. For example, Kraus's (1999) meta-analysis of 88 attitude-behavior studies revealed that attitudes significantly predict behaviors.

Links between teachers' attitudes and classroom behaviors further support research connecting attitudes and behaviors. Teachers' attitudes have been found to influence their perceptions and judgments, which, in turn, affect their classroom behaviors (Pajares, 1992). For example, teachers with positive attitudes toward an instructional practice use the practice frequently in the classroom (Donerlson, 2008; Wilkins, 2008). Although not empirically tested, Delamont (1990) suggested that teachers' gender-related attitudes might also influence their classroom practices.

Teachers' gender attitudes and facilitation of gender-typed and gender-neutral activities.

Gender-related attitudes are likely to influence teachers' classroom behaviors because gender is a salient feature of children's identity that is commonly used in teachers' classroom interactions with children (Thorne, 1993). For instance, teachers frequently use the phrase "boys and girls" to direct their students, line up students by gender, and create competitions between boys and girls (Lloyd & Duveen, 1992; Thorne,

1993). Attitude-behavior researchers suggest that attitudes are more likely to guide behaviors when they are easy to retrieve from memory (i.e. the individual thinks about the object often or talks about the attitude often) (Fazio, Powell, & Williams, 1989; Regan & Fazio, 1977). Thus, because gender is a salient feature of the classroom that is frequently referenced by teachers, gender-attitudes may be easily accessible for teachers, which should strengthen the association between teachers' gender attitudes and subsequent teaching behaviors.

Although theory supports the connection between teachers' gender attitudes and their teaching behaviors, empirical evidence exploring the link between teachers' attitudes about gender roles and their facilitation of gender-typed and gender-neutral activities is nearly nonexistent. However, one of the few studies about teachers' gender attitudes showed that egalitarian teachers reported being more lenient of cross-sex behaviors in girls than in boys (Cahill & Adams, 1997). Although Cahill and Adams (1997) examined teachers' attitudes about gender, they did not examine how teachers' gender attitudes influence their classroom behaviors. The present study expands on Cahill and Adams' research by predicting teachers' observed classroom behaviors from their gender role attitudes. Based on limited prior research and attitude -behavior theories, it was predicted that teachers with traditional gender role attitudes should facilitate gender-typed and gender-neutral activities in stereotypical ways with boys, girls, and mixed-sex group.

CHAPTER 3

PRESENT STUDY

In an effort to explore how and why teachers facilitate gender-typed and gender-neutral activities in their classroom, the goals for this study were threefold. The first goal was to determine if preschool teachers facilitate masculine, feminine, and neutral activities at different rates in the classroom. The second goal was to explore with whom (i.e., boys, girls, or mixed-sex groups) teachers facilitate masculine, feminine, and gender-neutral activities. The third goal was to determine if teachers' gender role attitudes predict their facilitation of feminine, masculine, and gender-neutral activities with boys, girls, and mixed-sex groups. The current study uses observations of teachers' interactions with their students and teachers' reports of their gender attitudes from a cross-sectional study of 37 Head Start teachers.

What Play Activities Do Teachers Facilitate?

Prior research shows that teachers themselves spend more time engaged in feminine activities in the classroom and that they are more likely to reinforce feminine activities relative to masculine activities (Fagot & Patterson, 1969). It is not clear if this pattern is the same for teachers' facilitation of gender-typed activities. Accordingly, to address this first goal, teachers were hypothesized to (H1) facilitate feminine-typed activities significantly more frequently than masculine-typed activities. Because of limited prior research, questions about teachers' facilitation of gender-neutral activities are largely exploratory (H2).

With Whom Do Teachers Facilitate Feminine, Masculine, and Neutral Activities?

Past work shows that teachers have a preference for children to engage in gender-typed activities and this preference appears to be stronger for boys (Fagot & Patterson, 1969; Fagot 1977). Given these findings, it is of interest here to explore how teachers facilitate feminine, masculine, and gender-neutral activities with boys, girls, and mixed-sex groups of children. Thus, the second goal of this study was to test for child gender differences in teachers' facilitation of masculine-typed, feminine-typed, and gender-neutral activities. Separate hypotheses were made regarding the many possible ways in which teachers may differentially facilitate gender-typed and gender-neutral activities. When no a priori hypothesis was made, this was also noted.

(H3) Teachers were expected to facilitate feminine-typed activities with girls significantly more frequently than with boys and mixed-sex groups. No a priori hypothesis was made for teachers' facilitation of feminine activities with boys compared to mixed-sex groups.

(H4) Teachers were hypothesized to facilitate masculine-typed activities with boys significantly more frequently than with girls and mixed-sex groups. No a priori hypothesis was made for teachers' facilitation of masculine-typed activities with girls compared to mixed-sex groups.

(H5) Based on research suggesting that mixed-sex peer groups play with relatively non-stereotyped neutral activities (Goble et al., 2012), teachers were expected to facilitate gender-neutral activities with mixed-sex peer groups significantly more frequently than with girls and boys. Additionally, based on limited research showing that teachers reinforce gender-neutral activities at

similar rates with boys and girls (Fagot, 1985), it was expected that teachers would facilitate gender-neutral activities at similar rates with boys and girls.

Why Do Teachers Facilitate Gender-Typed and Gender-Neutral Activities with Boys, Girls, and Mixed-Sex Groups?

The third goal of this study was to examine how teachers' gender role attitudes predict their facilitation of masculine, feminine, and gender-neutral activities with boys, girls, and mixed-sex groups. Based on limited prior research and attitude behavior theories, it was predicted that teachers' traditional gender role attitudes would relate to their facilitation of gender-typed and gender-neutral activities with boys, girls, and mixed-sex groups in stereotypic ways. Separate hypotheses were made regarding the possible ways in which teachers' gender role attitudes may differentially predict their facilitation of gender-typed and gender-neutral activities. When no a priori hypothesis was made, this was also noted.

(H6) Teachers' traditional gender role attitudes were expected to significantly and positively predict the proportion of time spent facilitating feminine activities with girls and masculine activities with boys.

(H7) Teachers' traditional gender role attitudes were expected to be significantly and negatively related to the proportion of time spent facilitating feminine activities with boys and masculine activities with girls.

(H8) No a priori hypotheses were made for the links between teachers' traditional gender role attitudes and facilitation of gender-typed and gender-neutral activities with mixed-sex groups.

CHAPTER 4

METHODS

Participants

Participants were preschool teachers in Head Start classrooms in an urban southwestern city. Head Start supervisors were contacted and asked if their districts or agencies would be willing to participate in a study of teaching practices and teacher-student interactions. Subsequently, Head Start supervisors helped to arrange in-service meetings at which teachers and researchers met, discussed an overview of the project, and teachers volunteered to participate. The final sample consisted of $N = 37$ teachers. Teachers were given $150 to $200 worth of classroom supplies as compensation for their participation. All of the participating teachers were women. The sample was relatively diverse in ethnicity. Just under half of the participants were White, Hispanic/Latino (43.2%) and just over one-fourth were White not Hispanic/Latino (24.3%). In addition, 13.5% were Black/African American Hispanic/Latino and 2.7% were Hawaiian or Pacific Islander. Race/Ethnicity was other or unknown for the remaining 16.3% of the sample. Teachers ranged in household earnings, with 51.4% earning below $55,000, 81.1% earning less than $75,000, and 97.3% earning less than $105,000. On average teachers had taught preschool for 10.57 years (range 2-27), $SD = 6.851$). A majority of teachers had completed at least a bachelor's degree (75.6%), with 21.6% of teachers having completed a two-year college or technical school and 2.7% having earned a master's degree.

Participating classrooms were comprised of, on average, 17 children (range, 15-20, $SD = 1.47$). Approximately half (52.3%) of the children were boys (range per

classroom was 4-14, *SD* = 9.05). Over half of the children were White, Hispanic/Latino (73.3%) (range per classroom was 0-19, *SD* = 12.6) and 13.6% were Black/African American (including both Hispanic/Latino and not Hispanic/Latino). In addition, 7.2% were White, not Hispanic/Latino, 3.8% were American Indian or Alaskan Native, .5% were Hawaiian or Pacific Islander. Race/Ethnicity was other or unknown for the remaining 1.35% of the children. Additionally, that the sample consisted of Head Start classrooms is noteworthy, as the children of participating teachers were largely of low socio economic status.

Procedures and Measures

Protocol for Observations. Lead teachers were observed by trained classroom coders (90% female) using a teacher-focal observational protocol. Observations took place indoors and outdoors. Although observations occurred throughout the school day, the observations collected during free play (e.g., teacher provides a choice for children to freely decide what to do, with whom, and where to do it), were the focus of the analyses, given the purpose of examining how teachers facilitate children's play activities. During each observation, trained coders observed the teacher for 10-seconds, recorded the appropriate codes on a handheld computer and then began the next 10-second observation. Coders repeated this process for a total of 20 minutes, took a 5 minute break and then began another 20 minutes of observations. Observations occurred four days a week for three to four weeks. For the 37 teachers participating in the present study, on average 1,061 (range: 556-1886, *SD* = 302.80) 10-second observations were collected per teacher. Of these observations, an average of 342 (range: 162-595, *SD* = 113.63), were collected during free play per teacher. Recorded classroom schedules revealed that

classrooms were similar in the amount of time that teachers scheduled free play, and variation in the number of observations per teachers was largely due to school schedules (i.e., holiday breaks or in-service days) and variability in the time coders took to enter each observation.

Measurement of teachers' facilitation. Coders observed and recorded a range of teachers' behaviors during free play periods. These behaviors included teachers' instructions for children to start a new activity or to stop an ongoing activity. Additionally, coders recorded when teachers' provided feedback for children's engagement in an activity and when teachers' facilitated children's engagement in classroom activities. Of interest to this study are observations of teachers' facilitation of classroom activities. Facilitation was coded if a teacher supported or expanded on a child's engagement in an activity (i.e. "Do you need help building this tower of blocks?" or "What are you going to do next with that toy?"). For the 37 teachers participating in the present study, on average 76 (range: 29-235, *SD* = 43.67) facilitation observations were collected during free play activities per teacher. Kappas assessing inter observer agreement were .85 for facilitation.

Measurement of with whom teachers facilitate activities. With whom a teacher facilitated activities was coded by observing who the teacher directed her visual, verbal, and auditory attention to during a facilitation event. Of interest to this study is teachers' facilitation of activities with a single boy, a single girl, groups of boys (ranging from 2-5 boys), groups of girls (ranging from 2-5 girls), and mixed-sex groups (ranging from 2-5 girls and boys). In the present study, I aggregated codes of single boys and groups of boys to create a variable representing teachers' facilitation of activities with boys

(ranging from 1-5 boys). In a similar manner, I aggregated codes of single girls and groups of girls to create a variable representing teachers' facilitation of activities with girls (ranging from 1-5 girls). Coders also recorded when teachers facilitated activities with large groups (more than 6 children). These codes are not of interest to this study because the gender composition of large groups was not recorded. Kappas ranged from .82-.90 for all recipient codes.

Measurement of activities. To measure teachers' facilitation of feminine, masculine, and gender-neutral activities, coders recorded the activity referenced or engaged in by the teacher. Coders chose from a list of 29 activities, which have been previously categorized as feminine (e.g., dolls, dress-up), masculine (e.g., trucks, bikes) gender-neutral (e.g., books, music), and other (e.g., cleanup, snack) in prior research (Goble et al., 2012). The activities coded as other are not of interest to this study. Kappas ranged from .63 to 98 for all activity codes. The categorization of activities by feminine, masculine, and gender-neutral is presented in Table 1.

Calculating proportion scores. To address Hypotheses 1 through 5, proportion scores representing the amount of time teachers spent facilitating feminine, masculine, and gender-neutral activities were calculated by dividing the time spent facilitating each type of activity by the total number of observations of teachers' facilitation. For example, the number of times a teacher facilitated masculine activities was summed and divided by the sum of the number of times that a teacher facilitated activities. The activities coded as other were included in these proportion score calculations so that the scores would not sum to 1.0. The created variables are referred to as the proportion of teachers' facilitation

of feminine activities, facilitation of masculine activities, and facilitation of gender-neutral activities.

Additionally, proportion scores were calculated to assess the time teachers spent facilitating activities with girls, boys, and mixed-sex groups. Proportion scores were calculated by dividing the time spent facilitating activities with each recipient (i.e., boys) by the total number of observations of teachers' facilitation. For example, the number of times a teacher facilitated an activity with boys was summed and divided by the sum of the number of times that teacher facilitated activities. Teachers' facilitation of activities with large groups were included in the proportion score calculations so that the scores would not sum to 1.0.

To address Hypotheses 6 through 8, proportion scores were calculated to assess the time teachers spent facilitating feminine, masculine, and gender-neutral activities with girls, boys, and mixed-sex groups. Proportion scores were calculated by dividing the time spent facilitating each type of activity with each recipient (i.e., boys) by the total number of observations of teachers' facilitation. For example, the number of times a teacher facilitated a masculine activity with boys was summed and divided by the sum of the number of times that a teacher facilitated activities. Teachers' facilitation of activities with large groups and activities categorized as other were included in the proportion score calculations so that the scores would not sum to 1.0

Protocol for teacher-reported surveys. At the end of the 3-4 week observation period, teachers completed survey questions about their teaching beliefs and practices. Completion of the surveys took approximately 2 hours. The current study used a subset of the survey measures including teachers' reports on relevant demographic information

previously known to be related to teachers' classroom practices and teaching beliefs (i.e., teachers' level of education, teaching experiences, and gender composition of the classroom), and their traditional gender role attitudes. No hypotheses were made for the influence of the covariates on teachers' facilitation of gender-typed and gender-neutral activities.

Measurement of teachers' traditional gender role attitudes. Teachers' gender role attitudes were assessed using the Gender Role Attitude Scale (a= .956; Hoffman & Kloska, 1995). Example items include, "Education is important for both sons and daughters but it is more important for a son." and "It is okay for children to help around the house, but I would not ask a son to dust or set the table." Each statement was rated using a 5-point scale ranging from "Not at all true" to "A lot true", with greater scores reflecting teachers' endorsement of more traditional gender role attitudes. Although this measure has not yet been used to assess teachers' gender role attitudes, prior research has employed this measure to assess parents' gender role attitudes and their differential treatment of sons and daughters (Tenenbaum & Leaper, 2002). Because teachers, in addition to parents, serve as agents of gender socialization, transferring this measure to the school context will help to provide information on the connections between teachers' gender attitudes and their gendered classroom practices.

CHAPTER 5

RESULTS

The first goal of the present study was to test if preschool teachers facilitate masculine, feminine, and neutral activities at different rates in the classroom. The second goal was to assess the extent to which teachers facilitate feminine, masculine, and gender-neutral activities at different rates with boys, girls, and mixed-sex groups. The third goal was to determine if teachers' traditional gender role attitudes predict their facilitation of feminine, masculine, and gender-neutral activities with boys, girls, and mixed-sex groups. Though not originally hypothesized a series of additional questions were also explored to explain findings from initial analyses. In these follow up analyses, I considered whether controlling for child sex clarified findings, whether analyses of facilitation within gender helped to explain patterns of facilitation of masculine, feminine, and neutral activities, whether an alternative categorization of activities would result in different findings, and whether facilitation of activities during structured class times shed more light on the question of teacher-level predictors of facilitation.

Although teachers' engagement in gender-typed activities has been studied in the past, the current study attempts to provide a contemporary understanding of how often teachers facilitate gender-typed activities and also why teachers choose to facilitate these activities. Additionally, the current study is the first to explore teachers' facilitation of gender-neutral activities and to investigate teachers' facilitation of feminine, masculine, and neutral activities with mixed-sex groups.

How Often Do Teachers Facilitate Feminine, Masculine, and Gender-Neutral Activities?

Hypotheses 1 and 2 addressed the extent to which teachers facilitate feminine, masculine, and neutral activities. Teachers were hypothesized to facilitate feminine-typed activities significantly more frequently than masculine-typed activities (H1). However, questions about teachers' facilitation of gender neutral activities were largely exploratory (H2).

Preliminary analyses. Preliminary analyses were conducted to examine the descriptive statistics, skew and kurtosis of the proportion of time teachers spent facilitating feminine, masculine, and gender-neutral activities. For all variables, skew was less than two and kurtosis was less than seven, suggesting all study variables were normally distributed and no transformations were necessary (Tabachnick & Fidel, 2006).

Preliminary analyses were also conducted to explore possible control variables. Pearson product moment correlations were conducted to examine if the proportion of time teachers spent facilitating feminine, masculine, and neutral activities was related to teachers' education, years of teaching experiences, and the gender composition of the classroom (Table 2). Results revealed no significant associations between teachers' education, years of teaching experiences and the outcome variables. However, the proportion of boys in a class was positively related to the proportion of time teachers spent facilitating masculine activities. Therefore, the gender composition of the classroom was included as a control variable in all of the following analyses.

Hypothesis testing. In order to test hypotheses 1 and 2, a repeated measures ANOVA with one within-subject factor (activity type) was conducted. Means and standard deviations are presented in Table 3. Results indicated a marginally significant main effect for activity, $F(2,70) = 3.03$, $p = .06$. This trend level effect was followed up

using Tukey's post-hoc tests. Results indicated that teachers facilitated feminine activities significantly less than masculine activities and neutral activities, *p*'s <.05.

With Whom Do Teachers Facilitate Feminine, Masculine, and Gender-Neutral Activities?

Although teachers facilitated feminine activities less often than they facilitated masculine and neutral activities, the extent to which they facilitate gender-typed activities might be qualified by student gender. Hypotheses 3, 4, and 5 addressed the extent to which teachers differentially facilitate feminine, masculine, and gender-neutral activities with boys, girls, and mixed-sex groups. Teachers were expected to facilitate feminine-typed activities with girls significantly more frequently than with boys and mixed-sex groups. No a priori hypothesis was made for teachers' facilitation of feminine activities with boys compared to mixed-sex groups (H3). Additionally, teachers were hypothesized to facilitate masculine-typed activities with boys significantly more frequently than with girls and mixed-sex groups. No a priori hypothesis was made for teachers' facilitation of masculine-typed activities with mixed-sex groups compared to girls (H4). Finally, teachers were expected to facilitate gender-neutral activities with mixed-sex groups significantly more frequently than with girls and boys and to facilitate gender-neutral activities at similar rates with boys and girls (H5).

Preliminary analyses. Preliminary analyses were conducted to examine the descriptive statistics, skew and kurtosis of the proportion of time teachers spent facilitating feminine, masculine, and gender-neutral activities and the proportion of time spent facilitating activities with boys, girls, and mixed-sex groups. For all variables, skew was less than two and kurtosis was less than seven, suggesting all study variables were

normally distributed and no transformations were necessary (Tabachnick & Fidel, 2006). Again, gender composition of the classroom was included as a control variable in all of the following analyses.

Hypothesis testing. In order to test hypotheses 3 through 5, a repeated measures ANCOVA with two within subject factors: gender-type of activity (i.e., feminine, masculine, and neutral) and the gender composition of with whom teachers facilitated activities (i.e. boys, girls, mixed-sex groups) was conducted. Means and standard deviations are presented in Table 4. Similar to the prior analyses, results indicated a significant main effect for activity, $F(2,140) = 3.86$, $p = .026$, however this effect was subsumed by a significant interaction between with whom teachers facilitated activities and the gender-type of the activity, $F(3.44, 120.31) = 2.90$, $p = .025$. The sphericity assumption was not met, resulting in a loss of power, so the Greenhouse Geiser correction was applied (Greenhouse & Geisser, 1959). To understand this interaction, activity-type was held constant and differences in with whom the teacher interacted were explored. These simple effects were significant for feminine, masculine, and neutral activities, Fs$(2, 34) = 19.55, 31.21, 37.83$, ps $< .001$, respectively. Tukey's post-hoc test were used to examine the extent to which teachers facilitated gender-typed activities at varying rates with boys, girls, and mixed-sex groups. Tukey's post-hoc tests indicated that teachers facilitated feminine activities with girls more than with boys and mixed-sex groups, at $p < .001$. However, teachers facilitated feminine activities with boys more than with mixed-sex groups, at $p < .001$. Results also revealed that teachers spent more time facilitating masculine activities with boys than with girls and mixed-sex groups, at $p < .001$, and spent more time facilitating masculine activities with girls than with mixed-sex

groups, at $p < .001$. Further, teachers facilitated neutral activities with girls more than with boys, at $p < .001$, but facilitated neutral activities with both boys and girls more than with mixed-sex groups, at $p < .001$.

Why do teachers facilitate gender-typed and gender-neutral activities at different rates with boys, girls, and mixed-sex groups?

The third goal of this study was to examine how teachers' gender role attitudes predict their facilitation of masculine, feminine, and gender-neutral activities with boys, girls, and mixed-sex groups. Teachers' traditional gender role attitudes were expected to significantly and positively predict the proportion of time spent facilitating feminine activities with girls and masculine activities with boys (H6). Teachers' traditional gender role attitudes were expected to be significantly and negatively related to the proportion of time spent facilitating feminine activities with boys and masculine activities with girls (H7). No a priori hypotheses were made for the links between teachers' traditional gender role attitudes and facilitation of gender-typed and gender-neutral activities with mixed-sex group (H8).

Preliminary analyses. Preliminary analyses were conducted to examine the descriptive statistics of the proportion of time teachers spent facilitating feminine, masculine, and gender-neutral activities with boys, girls, and mixed-sex groups (i.e., proportion of time spent facilitating masculine activities with boys). Skew was less than two and kurtosis was less than seven, suggesting all outcome variables were normally distributed and no transformations were necessary (Tabachnick & Fidel, 2006). Pearson product moment correlations were also conducted to examine if teachers' gender-role attitudes were related to time spent facilitating feminine, masculine, and neutral activities

with boys, girls, and mixed-sex groups (Table 5). Results revealed no significant associations between teachers' gender-role attitudes and the outcome variables.

Hypotheses testing. In order to test hypotheses 6 through 8, nine separate hierarchical regression models were conducted for each of the dependent variables assessing the proportion of time teachers spend facilitating gender-typed and gender-neutral activities with boys, girls, and mixed-sex groups. In step 1 of each of the models, the proportion of boys in the classroom was entered in order to examine whether gender role attitudes explained additional variance in teacher's practices above and beyond this classroom characteristic. In step 2 of the models, the independent variable assessing the extent to which teachers endorse traditional gender role attitudes was entered. Consistent with the correlations, results revealed that teachers' gender role-attitudes did not significantly predict teachers' facilitation of masculine, feminine, and gender-neutral activities with boys, girls, and mixed-sex groups (Table 6).

Alternate Analyses

Generalized estimating equations. Traditionally, observational measures are analyzed by collecting data on a number of individuals and subsequently aggregating data within an individual. For example, multiple observations on an individual's behavior may be aggregated in order to create a proportion score. However, this approach is limited because, in order to aggregate data within an individual, the number of individuals needs to be large to have power to detect effects. In the present study, aggregating behaviors across teachers results in a sample size of 37. This approach does not take advantage of the numerous observations collected on each teacher. As an alternative method, generalized estimating equations (GEE; Liang & Zeger, 1986; Zeger, Liang, & Albert,

1986) permit data to be analyzed at the observation level by taking into account the interdependence of the observations. Additionally, GEE methods do not make assumptions about the distribution of the dependent variables. Thus, these methods are more flexible than traditional generalized linear modeling approaches and allow for the number of observations per teachers to vary. Because the present study consists of a small number of teachers, with an unequal number of data points collected for each teacher, GEE analyses were used as alternative means to answer hypotheses 3 through 8.

With whom do teachers facilitate feminine, masculine, and gender-neutral activities?

Hypotheses 3, 4, and 5 address the extent to which teachers facilitate feminine, masculine, and gender-neutral activities with boys, girls, and mixed-sex groups of children. By employing the use of GEE modeling, it is possible to explore how the gender composition of with whom a teacher interacts predicts teachers' facilitation of activities. In these models, the activity type (i.e., feminine, masculine, or neutral) serves as the dependent variable and the gender composition of with whom teachers interact (i.e., boys, girls, mixed-sex groups) serves as the independent variable. Descriptive statistics for teachers' facilitation of activities with boys, girls, and mixed-sex groups and teachers' facilitation of feminine, masculine, and neutral activities are presented in table 7. Two sets of models were run for each dependent variable, the first in which mixed-sexed groups serve as the reference group and the second in which girls serve as the reference group. In all models, the gender composition of the classroom was included as a covariate. This modeling strategy was the same for each of the three dependent variables, resulting in a total of six models (Tables 8 and 9). Results revealed that

teachers facilitated masculine activities with boys more than with girls but facilitated masculine activities with mixed-sex groups more than with girls. Teachers facilitated feminine activities more with girls than boys but facilitated these activities with mixed-sex groups more than with boys. Finally, teachers facilitated gender-neutral activities with girls more than with boys. However, teachers facilitated neutral activities with mixed-sex groups more than with both boys and girls.

These findings are largely similar to those in the initial repeated measures ANCOVA. However, three findings regarding mixed-sex comparisons are different. The GEE analyses revealed that teachers' facilitated feminine activities with mixed-sex groups more than with boys, but the repeated measures analyses indicated that teachers facilitated feminine activities with boys more than with mixed-sex groups. Similarly, the GEE analyses revealed that teachers facilitated masculine activities more with mixed-sex groups than with girls, but the repeated measures analyses showed that teachers facilitated masculine activities with girls more than with mixed-sex groups. Finally, the GEE analyses revealed that teachers facilitated gender neutral activities with mixed-sex groups more than with boys and girls when the repeated measures revealed teachers facilitated neutral activities with girls and boys more than with mixed-sex groups. Discrepancies in these findings may be due to differences in how the models approach the dependent variable. In the repeated measures analyses, the dependent variables are the aggregated proportion scores of time teachers spend facilitating each type of activity. In the GEE analyses each observation of teachers' facilitation of activities is treated as a unique data point.

Why do teachers facilitate gender-typed and gender-neutral activities at different rates with boys, girls, and mixed-sex groups?

The third goal of this study was to examine how teachers' gender role attitudes predict their facilitation of masculine, feminine, and gender-neutral activities with boys, girls, and mixed-sex groups. I also tested this question using GEEs. Again, the activity type (i.e., feminine, masculine, or neutral) served as the dependent variable and the gender composition of with whom teachers interacted with (i.e., boys, girls, mixed-sex groups) served as the independent variable. Additionally, teachers' gender role attitudes, and the interaction of gender composition and gender role attitudes served as independent variables in these models. Gender role attitudes were centered in order to correct for multicollinearity (Aiken & West, 1991). Again, the proportion of boys in the classroom was included as a covariate. Two sets of models were run for each of the three dependent variables, the first in which mixed-sexed groups served as the reference group and the second in which girls served as the reference group. This modeling strategy was the same for each of the three dependent variables, resulting in a total of six models (Tables 10 and 11). In each model, independent variables were ordered to examine the significant contribution of teachers' gender attitudes over and above the gender composition of the classroom as well as the gender composition of with whom the teacher interacted. Results revealed only one significant interaction between the gender composition of the recipient and teachers' gender attitudes. Teachers' were more likely to facilitate feminine activities with boys, when compared to girls, if they held more traditional gender attitudes.

Summary

The aims of the study were threefold: 1) to determine the extent to which teachers facilitated feminine, masculine, and neutral activities; 2) to examine the extent to which teachers facilitated feminine, masculine and neutral activities with boys, girls, and mixed-sex groups; 3) to determine if teachers' gender role attitudes predicted their facilitation of feminine, masculine, and gender-neutral activities with boys, girls, and mixed-sex groups. A series of repeated measures ANCOVAS, hierarchical regression analyses, and GEE analyses were conducted to evaluate the hypotheses of the current study. Although differences were found in the extent to which teachers facilitated feminine, masculine, and neutral activities overall and with boys, girls, and mixed-sex groups, little evidence supported the hypothesized relation between teachers' facilitation of activities and their gender role attitudes.

Additional Exploratory Analyses

Results from tests of the three primary goals of the study prompted the need for additional exploratory analyses in order to gain a more comprehensive description of teachers' facilitation of gender-typed and gender-neutral activities with boys, girls, and mixed-sex groups. These analyses examined teachers' facilitation of feminine, masculine, and gender-neutral when controlling for child sex, how teachers facilitate activities within gender, a potential re-categorization of masculine activities, and teachers' facilitation of gender-typed and gender-neutral activities during structured classroom settings.

Examining how often teachers facilitate feminine, masculine, and gender-neutral activities when controlling for child sex. Results from the current study revealed that teachers were more likely to facilitate masculine than feminine activities. These findings do not coincide with prior work showing that teachers have a tendency to

facilitate and reinforce feminine activities more than masculine activities (Fagot & Patterson, 1969). The present findings may differ from past work because they are confounded by child sex. That is, teachers may facilitate masculine activities more than feminine activities because boys tend to play more with masculine activities and prior work has shown that teachers spend more time with boys than girls in the classroom (Basow, 2010; Ruble, Martin, & Berenbaum, 2006). In order to explore this idea, another repeated measures ANCOVA was conducted, this time controlling for child sex and the proportion of boys and girls in the classroom. Results revealed a significant main effect for activity, $F(2,1.76) = 4.48$, $p = <.05$. This effect was followed up using Tukey's post-hoc tests. Similar to prior analyses, results indicated that teachers facilitated masculine and neutral activities more than feminine activities when controlling for the proportion of boys and girls in a class and controlling for child sex, ps <.05.

Exploring how often teachers facilitate gender-typed and gender-neutral activities within gender. Post hoc tests from the repeated measures ANCOVA revealed that teachers facilitated feminine activities with girls more than with boys and that they facilitated masculine activities with boys more than with girls. In order to further explore how often teachers facilitate gender-typed and gender-neutral activities when interacting with boys, with girls, and with mixed-sex groups, additional post hoc tests were examined using the same repeated measure ANCOVA. Whereas the first set of post hoc tests held activity constant and looked at differences in with whom teachers' facilitated activities, the second set of post hoc tests held gender constant and examined differences in teachers' facilitation of each activity type. Results show the simple main effect was significant for boys, $F(2, 34) = 16.26$, $p < .001$, but effects were not significant for girls

and mixed-sex groups. Tukey's post-hoc tests were used to examine the extent to which teachers facilitated gender-typed and gender neutral activities with boys. Results indicated that when interacting with boys, teachers facilitated masculine activities significantly more than feminine, at $p < .001$, masculine activities more often than neutral activities, at $p < .05$, and neutral activities more often than feminine, at $p < .05$.

Examining a re-categorization of masculine activities. The present study found little evidence to support the hypothesized relation between teachers' facilitation of activities and their gender role attitudes. One possibility for these null findings is that activities were categorized as gender-typed or gender neutral based on preschool aged boys' and girls' preferences for activities (Goble, et al., 2012). It is possible that adults' perceptions of feminine, masculine, and neutral activities do not perfectly align with children's preferences. For example, teachers may not have considered computers to be a masculine activity because many types of computer games (i.e., math, science, art) were available (even though computers were categorized as masculine). Additionally, teachers may not have considered blocks to be a strictly masculine activity for preschoolers.

To explore this possibility, both blocks and computers were removed from masculine typed activities and additional GEE models were conducted to further consider hypotheses 3 through 5. In these models, activity type (i.e., feminine, masculine, or neutral) served as the dependent variable and the gender composition of the group with whom teachers interacted (i.e., boys, girls, mixed-sex groups) served as the independent variable. Results revealed similar patterns to the initial analyses. However, teachers were more likely to facilitate masculine activities with mixed-sex groups compared to groups of girls (Tables 12 and 13).

To re-consider hypotheses 6 through 8, GEE models were conducted with teachers' gender role attitudes, and the interaction of gender composition and gender role attitudes as the independent variables. Again results revealed no significant associations between teachers' gender attitudes and their facilitation of masculine, feminine, and gender-neutral activities (Tables 14 and 15). Thus, the results of these analyses were nearly identical to those obtained when blocks and computers were classified in the masculine category.

Exploring teachers' facilitation of feminine, masculine, and neutral activities during structured settings. Another possibility for a lack of findings regarding the link between teachers' facilitation of activities and their gender role attitudes is that, by facilitating activities during free play, teachers are reacting and responding to children's preferences as opposed to intentionally encouraging children's engagement with gender-typed or gender-neutral activities. Examining teachers' facilitation of gender-typed and gender neutral activities during structured classroom activities, in which children have limited or no choices between activities, may provide insight into how teachers intentionally support children's engagement in feminine, masculine, and neutral activities.

To explore this idea, teachers' facilitation of feminine, masculine, and neutral activities with boys, girls, and mixed-sex groups was examined for structured classroom settings. Again GEE models were conducted in which the activity type (i.e., feminine, masculine, or neutral) served as the dependent variable and the gender composition of the group with whom teachers interact (i.e., boys, girls, mixed-sex groups) served as the independent variable. Results revealed that in structured classroom settings, teachers

were more likely to facilitate neutral activities with girls than boys but were more likely to facilitate neutral activities with mixed-sex groups than girls and boys. For teachers' facilitation of feminine and masculine activities, no differences were found between girls, boys, and mixed-sex groups (Tables 16 and 17).

The findings for neutral activities are fairly similar to those obtained during free play. For instance, regardless of setting, teachers facilitated neutral activities with girls more than with boys. However, the findings for gender typed activities differ. Interestingly, during structured times, teachers did not differentially facilitate gender typed activities in gender stereotyped ways.

In order to test the relation between teachers' facilitation of activities during structured settings and their gender attitudes, again GEE models were run. Results revealed that teachers with more traditional gender attitudes were more likely to facilitate feminine activities with girls than mixed-sex groups in structured settings. Additionally, teachers with more traditional gender attitudes were less likely to facilitate gender-neutral activities with boys than mixed-sex groups and girls (Table 18 and 19). These findings differ from the prior results, which did not reveal a relation between teachers' facilitation of gender typed activities with boys, girls, and mixed-sex groups and their gender attitudes during free play settings.

Summary. Several important findings were obtained from these exploratory analyses. First, results showed that, even when controlling for child sex, teachers still facilitated masculine and neutral activities more than feminine activities. Additionally, results revealed that when interacting with boys, teachers facilitated masculine activities significantly more than feminine, masculine activities more often than neutral activities

and neutral activities more often than feminine activities. Further, exploring a new way to categorize masculine activities did not reveal any differences compared to prior findings. Finally, results suggest that the classroom context may be a driving factor of teachers' choices to facilitate masculine, feminine, and neutral activities. These findings extend the original hypotheses and provide a deeper understanding of teachers' facilitation of gender-typed and gender-neutral activities.

CHAPTER 6

DISCUSSION

The first goal of the current study was to extend earlier and outdated research on teachers' engagement in gender-typed activities by examining how often contemporary teachers facilitate gender-typed activities overall and with boys, girls, and mixed-sex groups. Additionally, the current study aimed to explore the relation between teachers' facilitation of these activities and their gender role attitudes. Specifically the study examined three main research questions: 1) do preschool teachers facilitate masculine, feminine, and neutral activities at different rates in the classroom? 2) with whom (i.e., boys, girls, or mixed-sex groups) do teachers facilitate masculine, feminine, and gender-neutral activities? And 3) do teachers' gender role attitudes predict their facilitation of feminine, masculine, and gender-neutral activities with boys, girls, and mixed-sex groups? This study was one of the first to examine teachers' facilitation of gender-neutral activities and to investigate teachers' facilitation of feminine, masculine, and neutral activities with mixed-sex groups.

Observations of Head Start teachers' facilitation of activities with boys, girls, and mixed-sex groups were conducted using a teacher-focal coding system. Twenty-nine classroom activities were observed during free play periods and subsequently categorized as masculine, feminine, and gender neutral, guided by the model provided by Goble and colleagues (2012). A series of proportion scores were created from these observations. These included the overall proportion of time teachers spent facilitating feminine, masculine, and neutral activities. These were then broken down to examine the extent to which teachers facilitated these activities with boys, girls, and mixed-sex groups.

Additionally, teachers' gender role attitudes were measured through self-report to explore the relation between teachers' gender attitudes and their facilitation of activities. Multiple repeated measures ANVOCAS and hierarchical regression analyses were used to test the various study hypotheses. In order to further explore these hypotheses, generalized estimating equations were conducted and alternative analyses were conducted to shed additional light on the questions of interest. It was expected that teachers would facilitate activities in gender stereotypic ways and that teachers' traditional gender role attitudes would predict their facilitation of gender typed activities with boys, girls, and mixed-sex groups in gender stereotypic ways.

Overall, results from this study provide partial support for the hypotheses. In general, during free play, teachers facilitated gender-typed activities in stereotypic ways, facilitating feminine activities with girls more than with boys and mixed-sex groups and masculine activities with boys more than with girls and mixed-sex groups. However, teachers' reported gender role attitudes did not significantly relate to their facilitation of gender-typed and gender neutral activities with boys, girls, and mixed-sex groups. In the following sections, findings and potential explanations for the initial analyses and exploratory analyses are discussed. In the subsequent sections, the strengths and limitations of the current study are considered. Finally, implications and directions for future research are provided.

How Often Do Teachers Facilitate Feminine, Masculine, and Gender-Neutral Activities?

The first goal of this study was to assess the extent to which teachers facilitated masculine, feminine, and gender-neutral activities in their classrooms. Teachers were

found to facilitate feminine activities less often than masculine activities and even less than gender neutral activities. These findings are surprising given that they contradict prior research and do not support my hypotheses. Past research suggested that teachers spend more time reinforcing children's engagement in feminine activities compared to masculine activities (Fagot & Patterson, 1969, Lamb Easterbrok, & Holden, 1980). This was thought to occur because teachers, who are often female, may be responding to their own preferences and activity interests. Additionally, teachers were thought to facilitate feminine activities the most because these activities, which are for the most part quiet and sedentary, may encourage calm and well behaved classrooms (Fabes, Martin, & Hanish, 2003; Fagot, 1977). However, findings from the present study do not support these ideas and, in fact, differ from prior work. Several explanations for this contradiction are explored.

One possible explanation for the finding that teachers facilitate feminine activities less often than masculine activities is that teachers are spending more time engaged with boys in their classrooms and are, as a result, facilitating activities that boys are interested in, which tend to be masculine activities. Past work has shown that teachers spend more time interacting with boys than with girls (for reviews see, Basow, 2010; Brophy & Good, 1970; Ebbeck, 1984). Because teachers interact more with boys they may be more likely to facilitate their play activities (which typically involve relatively high rates of engagement in masculine-typed activities) (Conner & Serbin, 1977; Ruble, Martin, & Berenbaum, 2006). For this reason, I conducted a follow-up analysis, considering whether the significant main effect of facilitation of masculine activities remained after controlling for child sex. Importantly, even when controlling for child sex, results still

revealed that teachers were more likely to facilitate masculine activities compared to feminine activities. Thus, this effect is unlikely to be because teachers interact with boys more than with girls.

Although it was thought that teachers might facilitate feminine activities over masculine activities because feminine activities are more quiet and sedentary, in fact, the opposite may be occurring. Teachers may choose to facilitate feminine activities less than masculine activities because feminine activities do not require as much supervision as masculine activities, which tend to me more active and rough and tumble in nature (Fabes, Martin, Hanish 2003, Fagot, 1977). Because teachers are concerned about classroom management and children's misbehaviors, they may facilitate students' engagement in masculine activities over feminine activities in order to promote safe classroom environments (Emmers & Stough, 2001).

Teachers were also found to facilitate feminine activities less often than gender-neutral activities, even after controlling for child sex. One possibility for this finding may be due to contemporary teachers' views about gender in the classroom. The last few decades have seen a shift in how gender is perceived and in how teachers should serve as agents of gender socialization. Head Start guidelines reflect this shift. The Head Start website states that one goal of Head Start is to provide accepting classroom environments that support and respect gender, in addition to culture, race, and language (Revisiting and Updating the Multicultural Principles, 2012). In light of this goal, Head Start encourages all staff, consultants, and volunteers to refrain from stereotyping on the basis of gender, race, culture, religion, or disability in order to promote the unique identity of each child and family. This also extends to classroom activities. Head Start teachers are instructed to

provide books and dramatic play materials that reflect a range of diverse gender roles, racial and cultural backgrounds, and special needs and abilities (Revisiting and Updating the Multicultural Principles, 2012). Findings from the current study reflect this goal; it is possible that Head Start teachers in the current sample facilitate gender-neutral activities more than feminine activities in an effort to prevent gender stereotyping from occurring in the classroom.

Another possibility is that teachers facilitate gender-neutral activities more than feminine activities due to the nature of the individual activities that comprise each category. The nature of the activities categorized as gender-neutral appear to be intended to directly promote children's academic skills (i.e., science, math, books, language). Although not all of the activities categorized as neutral appear to be explicitly focused on building academic skills (i.e. sensory play), a majority of the neutral activities are academically focused. Thus, teachers may be inclined to facilitate gender-neutral activities more than feminine activities in order to promote children's engagement in activities that directly encourage reading, writing, and critical thinking skills.

In summary, considering the pattern of findings together, even when controlling for child sex, it becomes evident that teachers facilitate gender-neutral and masculine activities at the highest frequency and feminine activities are the least frequently facilitated activity. This may suggest that teachers are primarily concerned with facilitating gender equitable classrooms, children's academic development, and safety in the classroom.

With Whom Do Teachers Facilitate Feminine, Masculine, and Gender-Neutral Activities?

To explore the extent to which teachers' facilitation of feminine, masculine, and gender-neutral activities was qualified by child gender, both ANCOVAs and GEE analyses were conducted. Results from the GEE analyses will be interpreted as these models examine the data at the observation level, limit the assumptions about the distribution of the dependent variable, and take into account the interdependence of the data. Considering these strengths of GEE analyses I am more confident in interpreting these findings compared to findings from the ANCOVA analyses.

Masculine and feminine activities. Results revealed that teachers facilitated masculine activities with boys more than with girls and that they facilitated feminine activities with girls more than with boys. These findings support my initial hypotheses and also support prior work showing that teachers' reinforcing and punishing responses to boys' and girls' engagement in gender-typed activities tend to be gender-typical (Fagot, 1977; 1984; Lamb, Easterbooks & Holden, 1980; Serbin, Connor & Iller, 1979). These findings bring into question the extent to which teachers are able to adhere to Head Start's guidelines and provide gender equitable classrooms for their students. Although teachers were found to facilitate gender-neutral activities the most and the past 30 years have seen shifts in how gender functions in the classroom, Head Start teachers in this sample are not equally facilitating boys and girls engagement in masculine and feminine activities. These findings are similar to those from the 1970s and suggest contemporary teachers may hold some traditional views about gender in the classroom, particularly about the extent to which feminine activities can be facilitated with boys and masculine activities with girls.

Although findings revealed that teachers facilitated feminine and masculine activities at different rates with boys and girls, these findings do not answer questions about how often teachers facilitate these activities within each gender category. This question was not originally proposed, but understanding how teachers facilitate activities within child gender provides further insight into how teachers shape boys' and girls' gendered classroom experiences. When interacting with boys, teachers facilitated masculine activities substantially more than feminine activities. In contrast, when interacting with girls or mixed-sex groups, there were no significant differences between the frequency of teachers' facilitation of masculine and feminine activities. Considering these findings it is apparent that not only are teachers facilitating feminine and masculine activities at higher frequencies with the stereotypically appropriate recipient (i.e., more masculine activities with boys than girls) but also that teachers specifically facilitate boys' engagement in gender-typed activities. These findings coincide with prior research showing that teachers are more tolerant of girl's engagement in masculine activities but that boys receive higher rates of negative attention from teachers for engagement in feminine activities (Fagot, 1977).

When teachers do facilitate feminine activities with boys, they tend to do so when girls are present in the group. The same is true for teachers' facilitation of masculine activities – teachers in this sample tended to facilitate masculine activities with girls more often when boys were present. That is, teachers were more likely to facilitate masculine activities with mixed-sex groups than with girls. Additionally, teachers were more likely to facilitate feminine activities with mixed-sex groups than with girls. To my knowledge, this study is the first to investigate teachers' facilitation of gender-typed activities with

mixed-sex groups. Findings suggest that teachers are more likely to facilitate gender atypical activity engagement if peers of the other sex are present.

Gender-neutral activities. Teachers facilitated gender-neutral activities with mixed-sex groups more than with girls and more than with boys. These findings match my hypotheses and coincide with limited prior work on children's play in mixed-sex groups. When interacting in mixed-sex groups, prior work has shown that children play with relatively non-stereotyped activities (Goble, et. al., 2012). Because the current study observed teachers' facilitations of children's activities during free play, children had free choice of their activity involvement. Therefore, when facilitating mixed-sex groups' gender-neutral activity engagement, teachers may be responding to children's preferences.

Why Do Teachers Facilitate Gender-Typed and Gender-Neutral Activities at Different Rates with Boys, Girls, and Mixed-Sex Groups?

The third goal of this study was to examine how teachers' gender role attitudes predicted their facilitation of masculine, feminine, and gender-neutral activities with boys, girls, and mixed-sex groups. Regression analyses revealed no relations between teachers' gender role attitudes and their facilitation of gender-typed and gender-neutral activities. To further test for a potential relation, GEE models were conducted to examine the relation between gender attitudes and teachers' facilitation of activities. These GEE models revealed that teachers were more likely to facilitate feminine activities with boys, when compared to girls, if they held more traditional gender attitudes. Because this was the only significant effect and because it does not coincide with prior work, I hesitate to

interpret this finding. In the following sections, possible explanations for a lack of findings are discussed and alternative analyses are explored.

The regression and GEE analyses that assessed gender attitudes were conducted with data obtained during free play. During free play, children have free choice of the activities they want to play with. It is possible that during free play teachers may be responding to children's preferences when facilitating feminine, masculine, and neutral activities rather than actively pushing children toward their own preferences. In order to explore this possibility, teachers' facilitation of gendered activities with boys, girls, and mixed-sex groups while in structured classroom settings was examined. During structured settings, children have limited or no choices between activities. For instance, a teacher may give children choices between playing with a math game or with blocks. Examining teachers' facilitation of activities in structured settings provides additional insight into how teachers structure and actively support boys, girls, and mixed-sex groups' engagement in feminine, masculine, and neutral activities.

Teachers' facilitation in structured settings: With whom? During structured settings, teachers were not observed to facilitate feminine or masculine activities at significantly different rates with boys, girls, or mixed-sex groups. However, during free play settings teachers facilitated feminine and masculine activities in stereotypic ways (i.e. facilitated masculine activities at a higher frequency with boys than with girls). This may suggest that the extent to which teachers facilitate gender-typed activities with boys and girls depends, in part, on the classroom context and on the opportunities for children to choose their own activities. For instance, during free play, in which children have free choice of activities, teachers may facilitate the gender-typed activities that children are

interested in and choose to play with. However, when teachers assign students to activities in a structured setting, teachers may facilitate gender-typed activities based on their own interests and goals (i.e. academic or safety) for the children. Interestingly, when in both structured settings and in free play, teachers facilitated gender-neutral activities with mixed-sex groups more than with girls and more than with boys. This suggests that the classroom context may have little impact on teachers' facilitation of gender-neutral activities and that teachers may choose to facilitate gender-neutral activities regardless of children's preferences.

In sum, an informal comparison of the results from structured and free play settings suggests that teachers' facilitation of activities during structured settings is less gender stereotyped than their facilitation of activities during free play. This may indicate that during free play teachers' facilitation of gender-typed activities is driven by children's own preferences for activities, rather than those of the teacher.

Teachers' facilitation in structured settings: Why? Teachers with more traditional gender attitudes were more likely to facilitate feminine activities with girls than with mixed-sex groups in structured settings, suggesting that the presence of boys in mixed-sex groups may deter teachers with traditional gender attitudes from facilitating feminine activities. This falls in line with past work from the 1970s that shows teachers were less flexible with boys' engagement in feminine activities than girls' engagement in masculine activities (Fagot, 1977). Further this finding expands limited gender attitude research which thus far shows that egalitarian teachers report being more lenient of cross-sex behaviors in girls than in boys (Cahill & Adams, 1997).

Although during structured settings there was no evidence of gender-typed facilitating, findings hint that teachers with more traditional gender attitudes may facilitate activities in gender-typed ways. Taken together, it is possible that teachers' facilitation during structured activities may be driven by their own preferences for activities as well as their attitudes about girls' and boys' engagement with gender-typed and gender-neutral activities. These findings may help to raise teachers' awareness about how their gender attitudes impact their teaching practices. Past work shows that when teachers are made aware of their gender biases that they treat boys and girls more equally (e.g., Sanders, 1997). By informing teachers that during structured settings their traditional gender attitudes may lead them to facilitate feminine activities with girls more than with mixed-sex groups, teachers can change these gendered classroom practices. Thus, dissemination of these findings to teachers and teacher educators has the potential to help create equitable classrooms.

Summary. In sum, when children have free choice over which activities to engage in, teachers' facilitation of gender-typed activities tends to be along gender stereotypic lines and may be driven by children's activity preferences. In contrast, when teachers dictate the classroom activities, their facilitation of gender-typed activities is less gender-stereotyped. An exception to this trend is that teachers who hold traditional gender attitudes facilitate feminine activities more often with girls than mixed-sex groups in structured settings. Thus it appears that teachers facilitate gender-typed and gender-neutral activities at different rates overall but that the extent to which they facilitate these activities is not only qualified by with whom they are interacting (i.e., boys, girls, and mixed-sex groups) but also by the structure of the classroom context (i.e. free play and

structured settings). However, it appears that across both contexts, teachers' gender attitudes are not strong predictors of their facilitation of gender-typed and gender-neutral activities and that only in specific circumstances, such as structured settings, do teachers' traditional gender attitudes guide their facilitation of only feminine activities.

Implications

Teachers are an important influence over how often children choose to play with gender-typed activities. Indeed, their presence during an activity increases children's involvement in that activity and preferences for that activity (Johnson, Christie, & Yawkey, 1987). Moreover, a teachers' presence may prompt children to play with activities they would not typically choose. An observational study of young children reported that boys played significantly more with feminine activities during their interactions with teachers, suggesting that, through interactions with teachers, children are exposed to a greater range of activities than what they experience when they play alone (Goble, Martin, & Hanish, 2012). Thus, teachers have a critical role in shaping children's play with classroom gender-typed activities.

Although teachers did not facilitate feminine and masculine activities at different rates during structured settings, by differentially facilitating boys' and girls' engagement in feminine and masculine activities during free play, teachers may not be encouraging children's independent engagement with a range of classroom activities. Specifically, teachers may be missing opportunities to facilitate and encourage boys to play with feminine activities; teachers facilitated masculine activities much more often than feminine activities when interacting with boys during free play. This is problematic because children's play with gender-typed activities is linked to the development of

different types of early academic skills (Ruble, Martin, & Berenbaum, 2006; Connor & Serbin, 1977; Fagot & Litman, 1976). For instance, children who engage frequently with masculine activities develop spatial skills and children who engage in feminine activities develop social skills such as cooperative play and prosocial behaviors (Mickelson, 1989; Serbin). If teachers tend to facilitate boys' play with masculine activities more often than feminine activities during free play, this narrow range of activity exposure may limit boys' opportunities to develop academic skills associated with feminine activities (i.e. the range of emotional, social, and nurturing skills developed through dramatic play) (Bredekamp & Copple, 1997).

The present findings provide a contemporary picture of how today's teachers facilitate gender-typed activities. Researchers, educators, and policy makers can use this information about teachers' current gender based classroom practices in order to make recommendations for how teachers should increase or decrease their facilitation of gender-typed activities with children. For instance, intervention work could highlight that teachers have a tendency to facilitate boys' engagement in masculine activities over feminine activities. By raising awareness about this trend, teachers can change their current classroom practices in order to create classroom environments in which both boys and girls receive support for engagement in feminine and masculine activities.

Strengths of the Study

The present study adds to a limited body of research on teachers' engagement in gender-typed classroom activities. By examining the extent to which preschool teachers facilitate gender-typed and gender-neutral activities in their classrooms, the extent to which teachers facilitate gender-typed and gender neutral activities with boys, girls, and

mixed sex groups in their classrooms, and the link between teachers' gender attitudes and their gendered teaching behaviors this work advances previous research on teachers' engagement in activities in the classroom and their interactions with children.

A major strength of the present study is the observational research design. No studies, to my knowledge, have employed the use of a teacher-focal coding system. The majority of observational studies on teacher-student interactions have used child focused scan observations in which coders rotate observations on each child in the classroom. Although child scan data provides important information at the child level, this focus limits the information gathered on the teacher. This style of observation may underestimate the frequency and quality of teachers' interactions with students. By employing the use of a teacher-focused observational coding system, these data capture all of the teachers' interactions with students in the classroom.

Limitations of the Study

Although the present study fills important gaps in the extant literature, it also has some limitations. First, the cross-sectional nature of the data, collected over a three-week time frame, limits information about teachers' facilitation of activities. Teachers' facilitation of gender-typed activities may vary based on a number of factors such as the number of boys and girls present in the classroom, their academic goals, classroom curriculum, and classroom schedules. In order to obtain a more comprehensive view of teachers' facilitation, future work should look to collect an increased number of observations over a longer period. For instance, future work could investigate how teachers facilitate gender-typed and gender-neutral activities with boys, girls, and mixed-

sex groups using a longitudinal design ranging from the beginning of the school year to the end.

An additional limitation is that the study included a non-diverse sample of teachers. All teachers were female, teaching in the southwestern United States in Head Start classrooms. The nature of the sample limits the generalizability of these findings. Future work should look to examine teachers' facilitation of gender-typed activities across a range of classroom types (i.e., head start, private, public), with both male and female teachers, from across the United States, in order to obtain a representative sample of teachers and generalizable findings.

Additionally, it is possible that the questions comprising the gender role attitude scale (i.e., "It is okay for children to help around the house, but I would not ask a son to dust or set the table") were not specific enough to the classroom environment. To explore this possibility, the gender role attitudes scale was divided into two subscales, one to represent teachers' gender role beliefs about child rearing and the other to represent beliefs about marital roles, to examine if the items related to child rearing would be significant predictors of teachers' facilitation. However, both subscales were unrelated to teachers' facilitation of feminine, masculine, and neutral activities. Future work should include measures of teachers' gender attitudes specific to the classroom environment as it is possible that teachers' gender attitudes about classroom activities (i.e., it is okay for girls but not boys to play dress up) may be better predictors of their facilitation of gender-typed activities.

Finally, teachers' gender attitudes may also not have related to their facilitation of activities because the observed activities were categorized as gender-typed or gender

neutral based on preschool aged boys' and girls' preferences instead of based on adults' perceptions of gender-typed activities (Goble et al., 2012). It is possible that adults' perceptions of feminine, masculine, and gender-neutral activities do not perfectly align with children's preferences. To explore the possibility that teachers may not have perceived some of the activities categorized as masculine as strictly masculine-typed behaviors, blocks and computers were removed from the category and the analyses were re-run. However, results still revealed no significant associations between teachers' gender attitudes and their facilitation of activities. Future work should examine teachers' facilitation of activities based on adults' perceptions of gender-stereotyped activities. For instance, Liben and Bigler (2002) examined the degree to which activities were stereotyped in American culture by asking college students to rate the extent to which activities were for mostly male, equally for males and females, and mostly for females. By assigning classroom activities to feminine, masculine, or neutral based on this framework it is possible that teachers' attitudes would be a predictor of their facilitation of gender typed activities in the classroom.

Conclusions and Future Directions

The goals of this study were to examine the extent to which teachers facilitated masculine, feminine, and gender-neutral activities overall and with girls, boys, and mixed-sex groups. Further, this study investigated how teachers' gender attitudes impacted their facilitation of gender-typed and gender-neutral activities with girls, boys, and mixed-sex groups. The results of this study contribute to the understanding of

teachers' gendered classroom practices and provide important directions for future research.

The findings that teachers differentially facilitated masculine and feminine activities with boys, girls, and mixed-sex groups during free play but not during structured settings suggests that during free play teachers may be responding to children's preferences for gender-typed activities. Future work should look to combine teacher focal coding and student scan data to examine the extent to which boys and girls play with gender-typed activities during free play. These data could answer new questions about the direction of effects of teachers' facilitation of gender typed activities. For instance, these data could predict children's play with gender-typed activities from rates of teachers' facilitation of these activities. These data could also predict teachers' facilitation of gender-typed activities from the strength of children's gender stereotyped activity preferences in the classroom. For instance, if a teacher instructs in a classroom in which boys and girls have very strong preferences for gender stereotyped play, it could be expected that these teachers would facilitate gender-typed activities in largely stereotypic ways during free play. Future work could also include child outcomes, such as boys' and girls' beliefs in gender stereotypes and the extent to which they play with the other sex, as it is possible that teachers who facilitate gender-typed activities at unequal rates influence these child outcomes.

Future work should also consider a range of teachers' behaviors such as praise, punishment, and feedback. As with teachers' facilitation, there is likely variability in the extent to which teachers employ these behaviors when children interact with gender-typed activities during free play. Examining these behaviors together will provide a

comprehensive description of how teachers' interact with boys and girls differently in the classroom and shape the gendered classroom environment.

In summary, when controlling for child sex and classroom gender composition teachers facilitate gender-neutral and masculine activities more frequently than feminine activities. However, facilitation of these activities is qualified by with whom the teacher interacts and the classroom context. During free play, teachers facilitate gender-typed activities in stereotypic ways, facilitating masculine activities with boys more than with girls and feminine activities with girls more than with boys. However, during structured settings, teachers do not facilitate masculine and feminine activities at different frequencies. Finally, in both free play and structured settings, teachers' gender attitudes do not seem to be strong predictors of their facilitation of gender-typed and gender-neutral activities with the exception of teachers' facilitation of feminine activities during structured settings. The present findings address important issues in educational and developmental research by investigating teachers' gendered classroom practices.

REFERENCES

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage.

Ajzen, I. (1989). Attitude structure and behavior. In Pratkins, A., Breckler, S. J., & Greenwalkd, A.G. (Eds.) *Attitude structure and function*, (pp. 241- 274). NJ: Lawrence Erlbaum Associates, Inc.

Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, *84*, 888-918. doi: 10.1037/0033-2909.84.5.888

Almon, J. (2003). The vital role of play in early childhood education. In Olfman, S. (Ed.) *All work and no play: How educational reforms are harming our preschoolers*, (pp. 17-42). Westport: Pragear Publishing.

Ashiabi, G. S. (2007). Play in the preschool classroom: Its socioemotional significance and the teacher's role in play. *Early Childhood Education Journal*, *35*, 199-207. doi: 10.1007/s10643-007-0165-8

Basow, S. A. (2010). Gender in the Classroom. *In Chrisler, J. & McCreary, D. (Eds.) Handbook of Gender Research in Psychology* (pp. 277-295). NY: Springer.

Bergen, D. (2002). The role of pretend play in children's cognitive development. *Early Childhood Research and Practice, 4.*

Berk, L. E., & Winsler, A. (1995). *Scaffolding Children's Learning: Vygotsky and Early Childhood Education.* Washington, DC: National Association for the Education of Young Children.

Birch, S. H., & Ladd, G. W. (1998). Children's interpersonal behaviors and the teacher–child relationship. *Developmental Psychology, 34*, 934-946. doi: 10.1037/0012-1649.34.5.934

Bodrova, E., & Leong, D. J. (2003). The importance of being playful. *Educational Leadership, 60*, 50-53.

Bowman, B. T., Donovan, M. S., & Burns, M. S. (2000). *Eager to learn: Educating our preschoolers*. Washington, DC: National Academy Press.

Bracegirdle, H. (1992). The use of play in occupational therapy for children: is play? *The British Journal of Occupational Therapy, 55*, 107-108.

Bredekamp, S., & Copple, C. (1997). *Developmentally appropriate practice in*

early childhood Programs. Washington, DC: National Association for the Education of Young Children.

Brophy, J., & Good, T. (1970). Supervisors' communication of differential expectations for children's classroom performance: Some behavioral data. *Journal of Educational Psychology, 61,* 365–374. doi: 10.1037/h0029908

Burns, S. M., & Brainerd, C. J. (1979). Effects of constructive and dramatic play on perspective taking in very young children. *Developmental Psychology, 15*, 512-521. doi: 10.1037/0012-1649.15.5.512

Burriss, K. G., & Tsao, L. L. (2002). Review of Research: How Much Do We Know about the Importance of Play in Child Development? *Childhood Education, 78*, 230-233. doi: 10.1080/00094056.2002.10522188

Cahill, B., & Adams, E. (1997). An exploratory study of early childhood teachers' attitudes toward gender roles. *Sex Roles, 36*, 517-529. doi: 10.1007/BF02766688

Cameron, C. E., & Morrison, F. J. (2011). Teacher activity orienting predicts preschoolers' academic and self-regulatory skills. *Early Education & Development, 22*, 620-648. doi: 10.1080/10409280903544405

Cheyne, J. A., & Rubin, K. H. (1983). Playful precursors of problem solving in preschoolers. *Developmental Psychology, 19*, 577–584. doi: 10.1037/0012-1649.19.4.577

Christie, J. F. (1985). Training of symbolic play. *Early Child Development and Care, 19*, 43-52. doi: 10.1080/0300443850190104

Christie, J. F. (1991). *Play and early literacy development*. Albany, NY: State of University of New York Press.

Christie, J. F. (2006). Play as a medium for literacy development. In D. Fromberg, & D. Bergen. (Eds.) *Play from birth to twelve. Contexts, perspectives, and meanings* (pp. 181-186). NY: Routledge.

Christie, J. F., & Enz, B. (1992). The effects of literacy play interventions on preschoolers' play patterns and literacy development. *Early Education and Development, 3*, 205-220. doi: 10.1207/s15566935eed0303_1

Christie, J. F., & Wardle, F. (1992). How Much Time Is Needed for Play? *Young Children, 47*, 28-33.

Christie, J., & Johnson, L. (1989). The role of play in social-intellectual

development. *Review of Educational Research. 53*, 93-115. doi: 10.3102/00346543053001093

Connolly, J. A., & Doyle, A. B. (1984). Relation of social fantasy play to social competence in preschoolers. *Developmental Psychology, 20,* 797- 806. doi: 10.1037/0012-1649.20.5.797

Connor, J. M., & Serbin, L. A. (1977). Behaviorally based masculine-and feminine-activity-preference scales for preschoolers: Correlates with other classroom behaviors and cognitive tests. *Child Development, 48,* 1411-1416. doi: 10.2307/1128500

Cooke, R., & Sheeran, P. (2004). Moderation of cognition-intention and cognition-behaviour relations: A meta-analysis of properties of variables from the theory of planned behaviour. *British Journal of Social Psychology, 43*, 159-186. doi: 10.1348/0144666041501688

Delamont, S. (1990). *Sex Roles and the School*. New York, NY: Routledge

Dodge, D. T., Colker, L. J., & Heroman, C. (2002*). The creative curriculum for preschool* (4th ed.). Washington, DC: Teaching Strategies, Inc.

Donerlson, E. (2008). *Elementary School Teachers' Attitudes and Beliefs Toward Teaching Gifted Students in Heterogeneous Classrooms*. Ann Arbor, MI: Walden University.

Duncan, R. M., & Tarulli, D. (2003). Play as the leading activity of the preschool period: Insights from Vygotsky, Leont'ev, and Bakhtin. *Early Education & Development, 14*, 271-292. doi: 10.1207/s15566935eed1403_2

Ebbeck, M. (1984). Equity for boys and girls: Some important issues. *Early Child Development and Care*, *18*, 119-131.

Elias, C. L., & Berk, L. E. (2002). Self-regulation in young children: Is there a role for sociodramatic play? *Early Childhood Research Quarterly, 17*, 216-238. doi: 10.1016/S0885-2006(02)00146-1

Emmer, E. T., & Stough, L. M. (2001). Classroom management: A critical part of educational psychology, with implications for teacher education. *Educational Psychologist*, *36*, 103-112.doi: 10.1207/S15326985EP3602_5

Fabes, R. A., Martin, C. L., & Hanish, L. D. (2003). Young Children's Play Qualities in Same-, Other-, and Mixed-Sex Peer Groups. *Child Development,74*, 921-932. doi: 10.1111/1467-8624.00576

Fabes, R.A. (1994). Behavioral and physiological mediators of gender segregation. In C. Leaper (Ed.), *Gender segregation: Causes and consequences* (pp. 19-34). San Francisco: Jossey-Bass.

Fagot, B. I. (1977). Teachers' reinforcement of sex-preferred behaviors in Dutch preschools *Psychological Reports, 41*, 1249-1250.

Fagot, B. I. (1984). Teacher and peer reactions to boys' and girls play styles. *Sex Roles, 11*, 691-702. doi: 10.1007/BF00288120

Fagot, B. I. (1985). Beyond the reinforcement principle: Another step toward understanding sex role development. *Developmental Psychology, 21*, 1097-1104. doi: 10.1037/0012-1649.21.6.1097

Fagot, B. I., & Littman, I. (1976). Relation of preschool sex-typing to intellectual performance in elementary school. *Psychological Reports, 39*, 699-704. doi: 10.2466/pr0.1976.39.3.699

Fagot, B. I., & Patterson, G. R. (1969). An in vivo analysis of reinforcing contingencies for sex-role behaviors in the preschool child. *Developmental Psychology, 1*, 563- 568. Doi: 10.1037/h0027965

Fazio, R. H., & Petty, R. E. (2008). *Attitudes: Key Readings: Their Structure, Function, and Consequences.* New York, NY: Psychology Press.

Fazio, R. H., & Zanna, M. P. (1981). Direct experience and attitude-behavior consistency. *Advances in Experimental Social Psychology, 14,* 161-202. Doi: 10.1016/S0065-2601(08)60372-X

Fazio, R. H., Powell, M. C., & Williams, C. J. (1989). The role of attitude accessibility in the attitude-to-behavior process. *Journal of Consumer Research, 16,* 280-288.

Fishbein, M., & Ajzen, I. (1972). Attitudes and opinions. *Annual Review of Psychology, 23*, 487-544. doi: 10.1037/h0035872

Ginsburg, H. P., & Seo, K. H. (1999). Mathematics in children's thinking. *Mathematical Thinking and Learning, 1*, 113-129. doi: 10.1207/s15327833mtl0102_2

Goble, P., Martin, C. L., Hanish, L. D., & Fabes, R. A. (2012). Children's gender-typed activity choices across preschool social contexts. *Sex Roles,67*, 435-451. doi: 10.1007/s11199-012-0176-9

Goldhaber, D. (2002). *Theories of human development: Integrative perspectives.*

Mountain View, CA: Mayfield.

Golomb, C., & Cornelius, C. B. (1977). Symbolic play and its cognitive significant. *Developmental Psychology, 13*, 246-252. doi: 10.1037/0012-1649.13.3.246

Greenhouse, S. W., & Geisser, S. (1959). On methods in the analysis of profile data. *Psychometrika*, *24*, 95-112.

Hadley E. (2002). Playful disruptions. *Early Years, 22*,9–17.doi: 10.1080/09575140120111472

Heidemann, S., & Hewitt, D. (1992). *Pathways to Play: Developing Play Skills in Young Children*. Maryland: Gryphon House.

Henniger, M. (2009). *Teaching young children.* Upper Saddle River, NJ: Pearson.

Hirsh-Pasek, K., Golinkoff, R. M., Berk, L. E., & Singer, D. (2008). *A mandate for playful learning in preschool: Applying the scientific evidence.* New York, NY: Oxford University Press.

Hoffman. L.W., & Kloska, D.D. (1995). Parents' Gender-Based Attitudes Toward Marital Roles and Child Rearing: Development and Validation of New Measures. *Sex Roles, 32*. 273-295. doi: 10.1007/BF01544598

Howes, C., & Smith, E. W. (1995). Relations among child care quality, teacher behavior, children's play activities, emotional security, and cognitive activity in child care. *Early Childhood Research Quarterly, 10*, 381-404. doi: 10.1016/0885-2006(95)90013-6

Johnson, J. E., Christie, J. F., & Wardle, F. (2005). *Play, development, and early education*. Pearson.

Johnson, J. E., Christie, J. F., Yawkey, T. D., & Wardle, F. P. (1987). *Play and early childhood development*. Scott, Foresman & Co.

Jones, M. G., Howe, A., & Rua, M. J. (2000). Gender differences in students' experiences, interests, and attitudes toward science and scientists. *Science Education, 84*, 180-192. doi: 10.1002/(SICI)1098-237X(200003)84:2<180::AID-SCE3>3.0.CO;2-X

Kontos, S. (1999). Preschool teachers' talk, roles, and activity settings during free play. *Early Childhood Research Quarterly, 14*, 363-382.doi: 10.1016/S0885-2006(99)00016-2

Kraus, S.J. (1995). Attitudes and the prediction of behavior. A meta-analysis of the empirical literature. *Personality and Social Psychology Bulletin, 21*, 58-75. doi: 10.1177/0146167295211007

Lamb, M. E., Easterbrooks, M. A., & Holden, G. W. (1980). Reinforcement and punishment among preschoolers: Characteristics, effects, and correlates. *Child Development, 51,* 1230-1236. doi: 10.2307/1129565

Liang, K. Y., & Zeger, S. L. (1986). Longitudinal data analysis using generalized linear models. *Biometrika*, *73*, 13-22. doi: 10.1093/biomet/73.1.13

Liben, L. S., & Bigler, R. S. (2002). Appendix D: Use and Scoring of Coat and Oat Scales. *Monographs of the Society for Research in Child Development*, *67*, 134-138. doi: 10.1111/1540-5834.t01-1-00198

Lloyd, B. B., & Duveen, G. (1992). *Gender identities and education: The impact of starting school*. Hemel Hempstead: Harvester Wheatsheaf.

Massey, S. L. (2004). Teacher–child conversation in the preschool classroom. *Early Childhood Education Journal, 31*, 227-231. doi: 10.1023/B:ECEJ.0000024113.69141.23

Mickelson, R. A. (1989). Why does Jane read and write so well? The anomaly of women's achievement. *Sociology of Education, 62*, 47-63. doi: 10.2307/2112823

Miller, C. L. (1987). Qualitative differences among gender-stereotyped toys: Implications for cognitive and social development in girls and boys. *Sex Roles,16*, 473-487.

Miller, E., & Almon, J. (2009). *Alliance for Childhood*. College Park, MD: Alliance. doi: 10.1007/BF00292482

Neuman, S. B., & Roskos, K. (1992). Literacy objects as cultural tools: Effects on children's literacy behaviors in play. *Reading Research Quarterly, 27*, 203-225. doi: 10.2307/747792

Osborne, J., Simon, S., & Collins, S. (2003). Attitudes towards science: a review of the literature and its implications. *International Journal of Science Education, 25*, 1049-1079. Doi: 10.1080/0950069032000032199

Pajares, M.F. (1992). Teachers' beliefs and educational research. Cleaning up a messy construct. *Review of Educational Research, 62*, 307-332. doi: 10.3102/00346543062003307

Pellegrini, A. D., & Smith, P. K. (1998). The development of play during childhood: Forms and possible functions. *Child and Adolescent Mental Health,3*, 51-57. Doi: 10.1111/1475-3588.00212

Piaget, J. (1951). *Play, dreams and imitation in childhood*. London: Routledge & Kegan Paul.

Pomerantz, E. M., Altermatt, E. R., & Saxon, J. L. (2002). Making the grade but feeling distressed: Gender differences in academic performance and internal distress. *Journal of Educational Psychology, 94*, 396-404. Doi: 10.1037/0022-0663.94.2.396

Ramani, G. B., & Siegler, R. S. (2008). Promoting broad and stable improvements in low-income children's numerical knowledge through playing number board games. *Child Development, 79*, 375-394. Doi: 10.1111/j.1467-8624.2007.01131.x

Regan, D. T., & Fazio, R. (1977). On the consistency between attitudes and behavior: Look to the method of attitude formation. *Journal of Experimental Social Psychology, 13*, 28-45. doi: 10.1016/0022-1031(77)90011-7.

Renner, J. W., Stafford, D.G., Lawson, A. E., McKinnon, J. W., Friot, F. E., & Kellogg, D. H. (1976). *Research, teaching, and learning with the Piaget model*. University of Oklahoma Press.

Revisiting and updating the multicultural principles for head start programs serving children ages birth to five. (2012, October 1). Retrieved August 1, 2014.

Roskos, K., & Neuman, S. B. (1993). Descriptive observations of adults' facilitation of literacy in young children's play. *Early Childhood Research Quarterly, 8*, 77-97. doi: 10.1016/S0885-2006(05)80099-7

Rubin, K. H., Fein, G. G., & Vandenberg, B. (1983). Play. *Handbook of Child Psychology, 4,* 693-774.

Ruble, D. N., Martin, C. L, & Berenbaum, S. A. (2006). *Gender development*. Hoboken, NJ, US: John Wiley & Sons Inc.

Saltz, E., Dixon, D., & Johnson, J. (1977). Training disadvantaged preschoolers on various fantasy activities: Effects on cognitive functioning and impulse control. *Child Development, 48*, 367-380. doi: 10.2307/1128629

Sandberg, A., & Pramling-Samuelsson, I. (2005). An interview study of gender difference in preschool teachers' attitudes toward children's play. *Early Childhood Education Journal*, *32*, 297-305. Doi: 10.1007/s10643-005-4400-x

Sanders, J. (1997). Teacher Education and Gender Equity. *ERIC Digest*, http://files.eric.ed.gov/fulltext/ED408277.pdf.

Serbin, L. A., & Connor, J. M. (1979). Sex-typing of children's play preferences and patterns of cognitive performance. *Journal of Genetic Psychology, 134*, 315-316. doi: 10.1080/00221325.1979.10534065

Serbin, L. A., Connor, J. M., & Iler, I. (1979). Sex-stereotyped and nonstereotyped introductions of new toys in the preschool classroom: An observational study of teacher behavior and its effects. *Psychology of Women Quarterly, 4*, 261-265. doi: 10.1111/j.1471-6402.1979.tb00713.x

Shonkoff, J. P., & Phillips, D. A. (Eds.). (2000). From neurons to neighborhoods: The science of early childhood development. Washington, DC: National Academies Press.

Siegler, R. S., & Ramani, G. B. (2008). Playing linear numerical board games promotes low-income children's numerical development. *Developmental Science, 11*, 655-661. doi: 10.1111/j.1467-7687.2008.00714.x

Smilansky, S. (1968) *The effects of sociodramatic play on disadvantaged children: preschool children.* New York: Wiley

Smilansky, S., & Shefatya, L. (1990). *Facilitating play: A medium for promoting cognitive, socio- emotional, and academic development in young children.* Gaithersburg, MD: Psychological and Educational Publications.

Spodek, B. (1974). The problem of play: educational or recreational? In D. Sponseller (Ed.) *Play as a learning medium*. Washington, DC: National Association for the Education of Young Children.

Stagnitti, K. (2004). Understanding play: The implications for play assessment. *Australian Occupational Therapy Journal, 5*1, 3-12. doi: 10.1046/j.1440-1630.2003.00387.x

Sutton-Smith, B. (2001). *The ambiguity of play*. United States: Harvard University Press.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn & Bacon/Pearson Education.

Tarman, B., & Tarman, I. (2011). Teachers' Involvement in Children's Play and Social Interaction. *Elementary Education Online, 10*, 325-337.

Tenenbaum, H. R., & Leaper, C. (2002). Are parents' gender schemas related to their children's gender-related cognitions? A meta-analysis. *Developmental Psychology*, *38*, 615-630. doi: 10.1037/0012-1649.38.4.615

Thorne, B. (1993). *Gender play: Girls and boys in school*. Rutgers University: Open University Press.

Trawick-Smith, J., & Dziurgot, T. (2011). 'Good-fit'teacher–child play

interactions and the subsequent autonomous play of preschool children. *Early Childhood Research Quarterly*, *26*, 110-123. doi: 10.1016/j.ecresq.2010.04.005

U.S. Department of Education, National Center for Education Statistics. (2007). The Condition of Education 2007 (NCES 2007-064). Washington, DC: U.S. Government Printing Office.

U.S. Department of Education, National Center for Education Statistics. (2010). *Teacher Attrition and Mobility: Results from the 2008–09 Teacher Follow-up Survey* (NCES 2010-353).

Vukelich, C. (1994). Effects of play interventions on young children's reading of environmental print. *Early Childhood Research Quarterly, 9*, 153-170. doi: 10.1016/0885-2006(94)90003-5

Vygotsky, L.S. Play role in the mental development of the child. (1967). *Play and its Soviet Psychology, 12,* 62-76.

Vygotsky, L.S. (1978) *Mind in Society: the development of higher mental processes*. Cambridge: Harvard University Press.

Wicker, A. W. (1969). Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects. *Journal of social issues, 25*, 41-78. doi: 10.1111/j.1540-4560.1969.tb00619.x

Wilkins, J. L. (2008). The relationship among elementary teachers' content knowledge, attitudes, beliefs, and practices. *Journal of Mathematics Teacher Education, 11*, 139-164. doi: 10.1007/s10857-007-9068-2

Zeger, S. L., Liang, K. Y., & Albert, P. S. (1988). Models for longitudinal data: a generalized estimating equation approach. *Biometrics*, 1049-1060.

Table 1

Gender-Typed Categorization of Activities

Feminine	Art
	Pretend Role Feminine
	Dress up
	Kitchen
Masculine	Balls
	Bikes
	Blocks
	Computers
	Large Motor
	Pretend Role Masculine
	Trucks
Neutral	Board Games
	Books
	Clay
	Digging
	Figure Play Neutral
	Language
	Math
	Music
	Pretend Role Neutral
	Science
	Sensory Play
Other	Clean up
	Nature
	Other
	Personal Care
	Snacks
	Talk
	Manipulatives

Table 2

Correlations Among Time Spent Facilitating Activities and Covariates

	Feminine Activities	Masculine Activities	Neutral Activities
4. Teachers' Education	-0.04	0.05	-0.16
5. Years Teaching Pre-K	0.23	0.05	-0.10
6. Proportion Boys in Class	-0.04	.39*	-0.23

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 3

Means and Standard Deviations: Proportion of Time Spent Facilitating by Activity Type

	M	*SD*
Feminine Activities	$.15_{ab}$	.12
Masculine Activities	$.25_{a}$	.13
Neutral Activities	$.28_{b}$	.14

Note. Matching subscripts indicate significant differences at $p < .05$.

Table 4

Means and Standard Deviations: Proportion of Time Spent Facilitating by Activity Type and With Whom Teacher Interacted

	With Boys		With Girls		With Mixed-Sex	
	M	*SD*	*M*	*SD*	*M*	*SD*
Feminine Activities	$.03_{df}$	.03	$.06_{de}$	.06	$.01_{ef}$	.01
Masculine Activities	$.08_{gh}$	.07	$.06_{gi}$	.05	$.01_{hi}$	.02
Neutral Activities	$.05_{jk}$	.04	$.09_{jl}$	.07	$.01_{kl}$	.02

Note. Matching subscripts indicate significant mean differences at $p<.05$.

Table 5

Correlations Among Time Spent Facilitating Activities and Teachers' Gender Attitudes

	Gender-Role Attitudes
1 Feminine Activities	-0.05
2 Masculine Activities	0.14
3 Neutral Activities	0.06
4 Feminine Activities: Boys	0.24
5 Feminine Activities: Girls	-0.19
6 Feminine Activities: Mixed Sex	-0.07
7 Masculine Activities: Boys	0.13
8 Masculine Activities: Girls	0.02
9 Masculine Activities: Mixed Sex	-0.15
10 Neutral Activities: Boys	0.04
11 Neutral Activities: Girls	-0.04
12 Neutral Activities: Mixed Sex	-0.10

Table 6

Hierarchical Regressions of Gender Attitudes Predicting Teachers' Facilitation of Gender Typed Activities

	Feminine														
	Boys					Girls					Mixed-Sex				
	B	*SE*	*β*	*F*	R^2	*B*	*SE*	*β*	*F*	R^2	*B*	*SE*	*β*	*F*	R^2
Step 1															
Proportion of Boys	.02	.04	.08	.21(1,36)	.01	-.10	.08	-.20	1.38(1,36)	.04	.00	.01	-.02	.01(1,36)	.00
Step 2															
Proportion of Boys	.02	.04	.06			-.09	.08	-.19			.00	.01	-.01		
				1.11(2,36)	.06				1.30(2,36)	.07				.08(2,36)	.01
Teachers' Gender Attitudes	.01	.01	.23			-.02	.02	-.18			.00	.00	-.07		
	Masculine														
	Boys					Girls					Mixed-Sex				
	B	*SE*	*β*	*F*	*R2*	*B*	*SE*	*β*	*F*	*R2*	*B*	*SE*	*β*	*F*	*R2*
Step 1															
Proportion of Boys	.20*	.08	.37	5.47*(1,36)	.14	.03	.07	.08	.20(1,36)	.01	-.02	.02	-.15	.77(1,36)	.02
Step 2															
Proportion of Boys	.19*	.09	.36			.03	.07	.07			-.02	.02	-.14		
				2.97(2,36)*	.15				.10(2,36)	.01				.73(2,36)	.04
Teachers' Gender Attitudes	.01	.02	.17			.00	.02	.01			.00	.00	-.14		
	Neutral														
	Boys					Girls					Mixed-Sex				
	B	*SE*	*β*	*F*	*R2*	*B*	*SE*	*β*	*F*	*R2*	*B*	*SE*	*β*	*F*	*R2*
Step 1															
Proportion of Boys	.00	.06	.00	.00(1,36)	.00	-.29**	.08	-.52	12.85**(1,36)	.27	.00	.02	.00	.00(1,36)	.00
Step 2															
Proportion of Boys	.00	.06	.00			-.29**	.08	-.52			.00	.02	.00		
				.02(2,36)	.00				6.25** (2,36)	.27				.17(2,36)	.00
Teachers' Gender Attitudes	.00	.01	.04			.00	.02	-.01			.00	.01	-.10		

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 7

Teachers' Facilitation during Free Play

	% total observations	*SD*
Boys	27	.45
Girls	33	.47
Mixed-Sex	4	.20
Feminine Activities	14	.35
Masculine Activities	26	.44
Neutral Activities	29	.45

Table 8

Gender Composition of With Whom Teachers Interacted as a Predictor of Teachers' Facilitation of Gender Typed Activities During Free Play

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-1.90***	.42	.15	-1.5*	.60	.22	-.36	.46	.69
Proportion of Boys	1.72*	.75	5.59	-.37	1.11	.69	-.64	.84	.52
Boys	.10	.10	1.1	-.46*	.14	.63	-.52***	.11	.59
Girls	-.40***	.11	.67	.14	.12	1.15	-.28**	.10	.75

Note. Mixed-Sex is the reference. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 9

Gender Composition of With Whom Teachers Interacted as a Predictor of Teachers' Facilitation of Gender Typed Activities During Free Play

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-2.25***	.42	.105	-1.40*	.60	.25	-.49	.45	.60
Proportion Boys	2.05**	.75	7.78	-.43	1.12	.65	-.62	.85	.53
Boys	.24**	.10	1.31	-.53***	.14	.59	-.41***	.10	.66
Mixed-Sex	.12	.22	1.29	.037	.26	1.03	-.14	.21	.86

Note. Girls is the reference. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 10

Gender Composition of With Whom Teachers Interacted and Teachers' Gender Role Attitudes as Predictors of Teachers' Facilitation of Gender Typed Activities during Free Play

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-1.89**	.42	.15	-1.53*	.61	.22	-.36	.46	.70
Proportion Boys	1.7*	.75	5.55	-.32	1.13	.72	-.68	.85	.51
Boys	.10	.11	1.10	-.48**	.15	.62	-.52***	.11	.60
Girls	-.34***	.11	.67	.12	.12	1.15	-.28**	.10	.76
Gender Attitude	-.05	.16	.95	-.05	.25	.95	.16	.17	1.18
GA X Boys	.24	.16	1.27	.37+	.21	1.44	-.08	.17	.92
GA X Girls	.10	.15	1.11	-.117	.19	.89	-.24	.15	.79

Note. Mixed-Sex is the reference. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 11

Gender Composition of With Whom Teachers Interacted and Teachers' Gender Role Attitudes as Predictors of Teachers' Facilitation of Gender Typed Activities during Free Play

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-2.24***	.42	.11	-1.45*	0.67	.27	-.49	.46	.61
Proportion Boys	2.02**	.75	7.60	-0.35	1.12	.70	-.65	.87	.52
Boys	.27**	.09	1.31	-.55***	0.33	.58	-.40***	.10	.67
Mixed-Sex	.10	.22	1.10	0.02	0.69	1.18	.14	.22	.87
Gender Role Attitude	.01	.15	1.00	-0.78	0.23	.92	.10	.16	1.10
GA X Boys	.17	.15	1.19	0.42*	0.20	1.52	-.01	.20	1.00
GA X Mixed-Sex	-.45	.42	.64	-0.10	0.46	.91	-.20	.37	.82

Note. Girls is the reference. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 12

Gender Composition of With Whom Teachers Interacted as a Predictor of Teachers' Facilitation of Gender Typed Activities with Alternate Masculine Activity Categorization

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-2.61***	.52	.07	-1.38**	.602	.25	-.29	.45	.75
Proportion of Boys	1.95**	.93	7.02	-.28	1.11	.76	-.62	.84	.54
Boys	.22	.12	1.25	-.64***	.14	.53	-.51***	.11	.60
Girls	-.04	.13	.96	-.02	.13	.99	-.37**	.11	.69

Note. Mixed-Sex is the reference. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 13

Gender Composition of With Whom Teachers Interacted as a Predictor of Teachers' Facilitation of Gender Typed Activities with Alternate Masculine Activity Categorization

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-2.61***	.51	.074	-1.38	.59	.25	-.45	.45	.64
Proportion of Boys	1.83*	.92	6.24	-.28	1.11	.76	-.69	.85	.50
Boys	.29**	.10	1.33	-.64***	.13	.53	-.33***	.09	.72
Mixed-Sex	.48**	.23	1.62	-.08	.26	.93	-.17	.22	.85

Note. Girls is the reference. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 14

Gender Composition of With Whom Teachers Interacted and Teachers' Gender Role Attitudes as Predictors of Teachers' Facilitation of Gender Typed Activities with Alternate Masculine Activity Categorization

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-2.56***	.52	.08	-1.37**	.61	.25	-.29	.46	.53
Proportion Boys	1.87**	.92	6.48	-.29	1.12	.75	-.64	.84	.45
Boys	.22	.13	1.24	-.64***	.145	.53	-.51***	.11	.00
Girls	-.05	.13	.96	-.03	.13	.97	-.37**	.11	.00
Gender Role Attitude	.06	.20	1.07	-.06	.24	.95	.09	.18	.61
GA X Boys	.11	.17	1.12	.19	.21	1.21	-.03	.16	.87
GA X Girls	.09	.18	1.09	-.17	.21	.84	-.24	.17	.14

Note. Mixed-Sex is the reference. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 15

Gender Composition of With Whom Teachers Interacted and Teachers' Gender Role Attitudes as Predictors of Teachers' Facilitation of Gender Typed Activities with Alternate Masculine Activity Categorization

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-2.55***	.51	.078	-1.42**	.60	.24	-.45	.46	.64
Proportion Boys	1.71+	.91	5.55	-.22	1.11	.81	-.69	.86	.50
Boys	.29**	.11	1.33	-.64***	.13	.53	-.33***	.093	.72
Mixed-Sex	.45+	.24	1.57	-.09	.27	.92	-.17	.22	.84
Gender Role Attitude	.13	.18	1.14	-.09	.23	.92	.02	.17	1.05
GA X Boys	.03	.15	1.03	.28	.18	1.32	.064	.14	1.07
GA X Mixed-Sex	-.634	.44	.53	-.10	.46	.91	-.11	.37	.90

Note. Girls is the reference. $^{+}p < .10$ $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 16

Gender Composition of With Whom Teachers Interacted as a Predictor of Teachers' Facilitation of Gender Typed Activities During Structured Settings

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-3.61**	1.14	0.03	-1.22*	.63	.30	.32	.56	1.37
Proportion of Boys	1.84	2.01	6.31	-.79	1.17	.46	-1.20	1.04	.30
Boys	0.19	0.24	1.21	-.23	.18	.79	-.59***	.14	.55
Girls	-0.24	0.28	0.789	.09	.17	1.09	-.62***	.14	.54

Note. Mixed-Sex is the reference. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 17

Gender Composition of With Whom Teachers Interacted as a Predictor of Teachers' Facilitation of Gender Typed Activities During Structured Settings

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-3.40*	1.11	.03	-1.16+	.62	.31	-.06	.55	.94
Proportion Boys	1.69	1.97	5.41	-.79	1.16	.45	-1.02	1.04	.36
Boys	.25	.22	1.29	-.29	.18	.75	-.31*	.13	.73
Mixed-Sex	-.02	.33	.98	-.13	.22	.88	.35*	.16	1.42

Note. Girls is the reference. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 18

Gender Composition of With Whom Teachers Interacted and Teachers' Gender Role Attitudes as Predictors of Teachers' Facilitation of Gender Typed Activities during Structured Settings

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-3.70**	1.08	.03	-1.25*	.623	.29	.34	.55	1.41
Proportion Boys	1.97	1.90	7.17	-.68	1.17	.51	-1.34	1.02	.26
Boys	.19	.26	1.21	-.28	.19	.76	-.56	.14	.57
Girls	-.28	.31	.76	-.00	.18	1.00	-.59	.14	.56
Gender Role Attitude	-.02	.37	.98	.10	.23	1.11	.22	.19	1.25
GA X Boys	-.18	.34	.84	.25	.22	1.28	-.84	.26	.43
GA X Girls	-.68	.60	.51	.44*	.23	1.56	-.06	.19	.94

Note. Mixed-Sex is the reference. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 19

Gender Composition of With Whom Teachers Interacted and Teachers' Gender Role Attitudes as Predictors of Teachers' Facilitation of Gender Typed Activities during Structured Settings

	Masculine			Feminine			Neutral		
	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio	Estimate	Std. Error	Odds Ratio
Intercept	-3.54**	1.10	.03	-1.19	.623	.30	.00	.55	1.00
Proportion Boys	1.58	2.00	4.85	-.79	1.19	.46	-1.18	1.02	.31
Boys	.26	.23	1.29	-.28	.18	.75	-.30*	.137	.74
Mixed-Sex	-.05	.35	.95	-.05	.22	.95	.28	.17	1.32
Gender Role Attitude	-.14	.44	.87	.33	.22	1.39	.16	.20	1.18
GA X Boys	-.04	.35	.96	.05	.22	1.05	-.80**	.26	.45
GA X Mixed-Sex	.21	.37	1.24	-.22	.24	.80	.20	.19	1.22

Note. Girls is the reference. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.