

**PARENT-CHILD INTERACTIONS: CONTRIBUTIONS TO  
THE DEVELOPMENT OF SOCIAL COMPETENCE IN  
PRESCHOOLERS**

by

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## ABSTRACT

Sixty families with their eldest child, aged 3 or 4 years, participated in this study of parent-child interactions and the development of social competency. Mother-child and father-child dyads were observed for 10 minutes each, completing either a gross motor or fine motor semi-structured laboratory construction task. Parental directiveness and scaffolding were coded and measures of child temperament, child receptive language, and child social competency in preschool were obtained. As expected, fathers exhibited more directiveness and mothers exhibited more scaffolding in their speech with their children. The predictor variables of child gender, age, language ability, attentional focus, inhibitory control and parental education level did not significantly contribute to directiveness or scaffolding with the exception that child language significantly predicted maternal directiveness and child gender significantly predicted paternal directiveness. Paternal directiveness positively predicted a child's teacher-rated social competency. Contrary to expectations, maternal scaffolding negatively predicted a child's teacher-rated social competency. These findings are discussed in terms of fathers' potentially unique role in fostering a child's social development.

**Keywords:** mother child interactions; father child interactions; social competency; scaffolding; directiveness; preschoolers

**Subject Terms:** father and child; mother and child; child development; child psychology; child rearing; parenting

*Dedicated to*

*Brock, Grant and Marin*

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## PARENT-CHILD INTERACTIONS: CONTRIBUTIONS TO THE DEVELOPMENT OF SOCIAL COMPETENCE IN PRESCHOOLERS

The development of social competence in early childhood impacts multiple domains of a child's functioning. The ability to form friendships, cooperate and play with others, participate in group activities and respond to authority figures all require a degree of social competency. A child's social competency in navigating these interpersonal relationships can influence cognitive development, emotional development and a child's sense of self-esteem (Hartup, 1989). Social competency requires flexibility, adaptability, affect regulation and an awareness of one's own goals and needs while recognizing the goals and needs of others in an interpersonal context (Rubin & Rose-Krasnor, 1992; Waters & Sroufe, 1983; Yeates & Selman, 1989). From a young age, these skills are learned through social interactions within the family. This association between early family relationships and a child's social development is well-recognized in the literature, particularly in regards to mother-child interactions; however, far fewer studies have examined associations between father-child interactions and the development of a child's social competence.

The purpose of this study is to examine the contributions of both mothers and fathers to a child's development of social competency. Specifically, differences in verbal interactions (scaffolding and directiveness) between

mothers and fathers and the association that these variables may have with a child's social competence are addressed.

The following literature review first discusses a sociocultural perspective to child development, and social competency in particular. Differences between mother-child and father-child interactions, particularly in terms of language and play, are presented, along with an argument as to why these differences may be important for the development of a child's social competency.

### *Child Development within a Sociocultural Perspective*

The primary importance of parent-child social interactions to child development is recognized within a sociocultural perspective. This theory highlights both social and interactive aspects of development and posits that the origins of higher mental functions in children, such as problem-solving, affect regulation, and social competency, are contained in social experiences that children have with their parents or other more experienced and mature partners (Gauvain, Fagot, Leve & Kavanagh, 2002; Rogoff, 1990; 1998; Vygotsky, 1978; Wood & Middleton, 1975). Within this perspective, similarities and differences between father-child and mother-child dyadic interactions may have particular relevance for a child's social development, as parent behaviours will significantly impact the social experiences that a child has with that parent.

In general, fathers and mothers interact with their children in very similar ways. For example, studies examining parental nurturance, discipline and teaching styles (e.g., Lewis, 1997; Lewis & Lamb, 2003; Roggman, Boyce, Cook,



Christiansen & Jones, 2004) reveal similarities between parents of both genders. Both mothers and fathers are typically sensitive to their child's development and emotional state, and have been observed to adjust their play and interactions accordingly (Crawley & Sherrod, 1984; Notaro & Volling, 1999). However, subtle but consistent differences have also emerged between mothers and fathers in the area of verbal interaction (Abkarian, Dworkin & Abkarian, 2003; Barton & Tomasello, 1994; Leaper, Anderson & Sanders, 1998) and play (Kazura, 2000; Lamb, 1997). These differences are intriguing and warrant further inquiry, given that research suggests that these two areas influence a child's self-regulation, affect-regulation, and autonomy, all of which are aspects of social competency (Hewlett, 1992; Leaper et al., 1998; Roggman et al., 2004).

### *Language*

As noted above, the language that mothers and fathers use when interacting with their children is quite similar overall. For example, both mothers and fathers have been found to adjust their speech and interactions with infants by using slower diction and shorter phrases, and increasing imitation and redundancy (Kokkinaki & Kugiumutzakis, 2000; Lewis, et al., 1996). Indeed, earlier studies examining the structural and linguistic features of parent language reported striking similarities, leading some researchers to conclude that there were essentially no differences between how parents communicate with their children (for a review see Mannle & Tomasello, 1987). However, more recently, research assessing communicative features of maternal and paternal verbal

interactions has identified some important differences (Abkarian et al., 2003; Mannle & Tomasello, 1987).

*Differences in maternal and paternal language styles.*

Studies comparing mothers' and fathers' verbal interactions with their children suggest several consistent themes. First, fathers are frequently described as slightly less attuned to their child's linguistic level than mothers (Gleason, 1975). Power and Parke (1983) found that mothers tended to be more 'attuned' to infants' interests, and were more likely than fathers to follow their child's lead. Further, mothers allowed more exploration and let their infant choose an activity, while fathers tended to disregard their infant's interests and directed the play activity in a particular direction. As children got older, this pattern persisted. In a study of problem-solving in 5-year-olds, for example, mothers were more responsive than fathers in adjusting their instruction according to their child's experience with a problem-solving task (Gauvain et al., 2002). Laakso (1995) also reported that fathers were less skilled at adjusting their instructional information to their school-aged child's understanding of a task than were mothers. Further studies on different aspects of attunement indicate that fathers are also less likely to continue a child's topic in conversations and less likely than mothers to acknowledge their child's contributions (Hladik & Edwards, 1984; Leaper et al., 1998; Le Chanu & Marcos, 1994; Mannle & Tomasello, 1987). Thus, in general, research has shown that mothers facilitate their child's interests and fine-tune their interactions to the developmental stage

of their child to a greater degree than fathers (Baird, Hass & McCormick, 1992; Leaper, 2000).

Fathers and mothers have also been found to differ in their use of directives, which are statements telling a child what to do, and/or providing explicit directions for a task. Fathers are more likely than mothers to use directives and unmitigated requests (i.e., requests that have not been softened with words such as please, or rephrased as a question) in conversations with their children (Abkarian et al., 2003). More frequent use of directives by fathers has been reported in studies of preschool-aged children (Power, McGrath, Hughes & Manire, 1994) and 5-year-olds (Gauvain et al., 2002). In a meta-analysis of gender effects of parents' talk to their children, Leaper and colleagues (1998) found that mothers talk more and use more supportive statements with their children than did fathers, while fathers, in contrast, use more directives, informing statements and questions than mothers. Barton and Tomasello (1994) summarized fathers' communication styles with their child as being less communicatively responsive, less supportive in conversations and more directive of the topic and the child's behaviour.

Differences between mothers and fathers in these features of verbal interaction and the potential impact of attunement and directiveness on a child's social competency provide the rationale for examining two aspects of parental verbal interactions, *scaffolding* and *directiveness*, and their relationship with a child's social competency. Scaffolding, which relies on attunement to the child's developmental level, and directiveness have been shown to relate differentially to

aspects of child development, such as cognitive development. Little is known, however, about how these variables might influence a child's social competence. Furthermore, the consistent differences that emerge between mothers and fathers in these verbal interactions in relationship to a child's social competency have not been studied. Scaffolding and directiveness are further defined in the following sections, and their impact on child development is discussed.

### *Scaffolding*

The term scaffolding is used to describe the support that parents or other adults provide to a child who is developmentally ready to learn new skills, and thus, scaffolding involves an ongoing awareness and attunement to the needs and developmental capabilities of a child (Berk & Winsler, 1995; Gauvain et al., 2002; Vygotsky, 1978; Winsler, Diaz, McCarthy, Atencio & Chabay, 1999). For the purposes of this research scaffolding is defined, according to Winsler et al., (1999), as nondirective parental input that supports a child's autonomy and self-regulation through modulating task difficulty, assisting when needed, and providing verbal problem strategies, (e.g., leading questions, conceptual questions) as necessary. Scaffolding also serves to break a task down into short-term goals and objectives that the child is able to manage more independently (Wood & Middleton, 1975). The above definition indicates that scaffolding supports a child's autonomy and self-regulation, which are two key aspects to social competency, and thus, scaffolding would be expected to facilitate a child's social competency. The majority of studies on scaffolding, however, have focussed on maternal scaffolding and cognitive development, as

is seen in the following section. There is little research regarding how maternal and paternal scaffolding influence a child's social competency.

### *Impact of Scaffolding on Child Development*

Several researchers have found positive associations between scaffolding and preschoolers' cognitive development and problem-solving skills (Landry, Miller-Loncar, Smith & Swank, 2002; Winsler et al., 1999). Wood and Middleton (1975) found that 3- and 4-year-old children performed better on a post-test construction task if their mothers dynamically adjusted their instructions and interventions to the child's ongoing performance during the teaching phase. Two studies, which included both fathers and mothers, found that scaffolding was positively associated with improved performance on puzzles and planning tasks for 5-year-olds (Gauvain et al., 2002) and block puzzles and picture book story re-telling for 2-year-olds (Conner, Knight & Cross, 1997).

Studies addressing the specific relationship between maternal or paternal scaffolding and a child's social competency were not found in the literature. However, studies examining the broader constructs of maternal responsiveness and attunement found support for a positive relationship between attunement or facilitation and a child's social competency. In particular, maternal facilitation or maintenance of a child's interests in conversation and play has been associated with greater cognitive and social development (Baird et al., 1992; Landry, Smith, Swank, Assel & Vellet, 2001; Landry, Smith, Swank & Miller-Loncar, 2000). Landry and colleagues (2001) suggested that facilitation and responsiveness to a child's interests and needs were foundational for both cognitive and social skill

development, as these interactive styles reflected an awareness of a child's individuality and taught the child that they could impact their environment.

As mentioned earlier, these studies have focussed primarily on mother-child dyads and cognitive development. Research suggests that fathers are slightly less attuned to their child's development in general, but little is known specifically about paternal scaffolding and how paternal scaffolding might influence a child's social development.

### *Directiveness*

In contrast to scaffolding, directiveness is defined as a verbal request that provides structured information about how to complete a task or activity, with no choices for the child (e.g., 'Put the box over there.') (Landry et al., 2000). By definition, parental directiveness would appear to work against a child's autonomy and development of self-regulation, as parents take over the direction of the task. As will be discussed in the following section, directiveness has generally been associated with poorer developmental outcomes, while scaffolding and responsiveness to the child's needs and developmental level have been associated with positive outcomes, although the majority of these studies have been conducted with mother-child dyads. This pattern of results is particularly intriguing given consistent findings that fathers typically demonstrate more directiveness than mothers, and tend to be less responsive and attuned to their child's developmental level. The present study specifically examines the impact of directiveness in father-child relationships and how this verbal

interactional style may impact a child's social development, as further research in this area is clearly warranted.

### *Impact of Directiveness on Child Development*

#### *Impact of maternal directiveness on child development.*

In general, maternal directiveness has been shown to be a negative predictor of social and cognitive development. In one study, for example, maternal directiveness was associated with the child trait of emotional intensity and yielded the poorest post-test performance on a joint-planning task (Perez & Gauvain, 2005). In a study of preschool-aged children (Winsler et al., 1999), children of mothers who exhibited greater levels of directiveness and negative control during a teaching task did more poorly when they did the same task independently. Conversely, children did better on the independent task when their mothers used scaffolding during the teaching task and withdrew their physical involvement as their child developed greater skills in the task. Other studies of directiveness report that high maternal control has a negative impact on a child's social autonomy (Crockenberg & Litman, 1990; Pappalardo & Maccoby, 1985; Rocissano, Slade & Lynch, 1987). Similarly, in a longitudinal study, children whose mothers exhibited increasingly less directiveness as the child matured had better social and cognitive outcomes (Landry et al., 2001; Landry et al., 2000). Thus, taken together, these studies support the argument that maternal directiveness is associated with poorer cognitive, emotional and social outcomes.

*Impact of paternal directiveness on child development.*

Initial research would suggest that, although directiveness is generally a more negative trait in mother-child interactions, there may be some usefulness for it in father-child interactions, and it may be complimentary to mothers' more facilitative interactions. Fathers' verbal interactions (i.e., more directive, less attunement to child's developmental level, etc.) have been found to correlate with several interesting aspects of language development in children. Children have been found to use longer speech utterances with their fathers (Masur & Gleason, 1980) and more advanced narratives with their fathers or experimenters as compared to their mothers (Haden, Haine & Fivush, 1997). Fathers' use of unmitigated directives (i.e., imperatives, unsoftened directives, such as "Put the box over there.") has been shown to be associated with language gains (Barnes, Gutfreund, Satterly & Wells, 1983), and fathers' use of rare or abstract words has been associated with longer discourse by children when they were older (Beals, 1997). In general, fathers' language styles are associated with positive language development in children (Abkarian et al., 2003). Finally, in a study examining both language and attachment styles, fathers of securely attached children exhibited higher levels of play complexity *and* more directiveness in their interactions than insecurely attached father-child dyads (Kazura, 2000).

Interestingly, what may appear as 'deficiencies' in father-child communication, may also serve an important social development function (Barton & Tomasello, 1994; Gleason, 1975; Mannle & Tomasello, 1987). In particular, fathers' styles of communicating with their children may be more



similar to those of social interactions outside of the family, and thus, may serve as a mechanism or bridge by which children learn language and social skills to navigate relationships outside of the home. A child's experience with directiveness in the context of a loving relationship with their father may help prepare them for relating to peers, who would typically be expected to be more directive than facilitative, and who may also not be particularly attuned to the child's needs and communicative intent. In such interactions, children would need to learn to adjust their own speech to convey their message. Le Chanu and Marcos (1994) argue that fathers' language patterns, such as directiveness and less attunement to the child's current needs and interests, introduce an unpredictable element into the interaction. Less predictability in father-child interactions may help prepare a child for novel situations, and contribute to a child's development of affect regulation, self-control and an increasing awareness of self and others. Kazura's (2000) study of directiveness in the context of a secure relationship is important to remember as warmth, sensitivity and security would seem to be important underlying factors for directiveness to be optimally utilized in the father-child relationship.

### *Play*

Like language, play is another area in which differences between mother-child and father-child interactions are evident, and fathers' play styles, in particular, are hypothesized to relate to a child's social competency outside of the home. Furthermore, the playful interactive style that has been observed in father-child interactions is also important to consider as a context for the

occurrence of both scaffolding and directiveness in parent-child interactions. The following section discusses the unique aspects of father-child play and how these qualities impact a child's social competency. Lamb (1997) reported that although fathers spend less time in general than mothers interacting with their children, the time that they do spend is often characterized by playful interactions.

Furthermore, the energetic, stimulating and novel qualities of fathers' play seem to make father-child interactions particularly salient for children (Lamb, Frodi, Hwang, & Frodi, 1983). The physically vigorous nature of father-child interactions has been confirmed by numerous studies. Yogman (1981) found that unconventional limb movement games represented 21% of all father-infant games and only 4% of all mother-infant games. Fathers were also more likely to pick up their 12-month-olds just to hold them and play with them, whereas mothers would hold their 12-month-olds primarily to fulfill some caretaking responsibility (Belsky, 1979; Lamb, 1977). Biller (1993) noted that even mundane activities such as pushing a stroller were done differently by fathers than mothers. Fathers were observed to push strollers at a faster and more varied pace in contrast to the more predictable pace seen with mothers. Fathers' engagement in play activities increases as infants and toddlers grow older, with fathers spending the most amount of time playing with their 3- to 5-year-old children (Lewis, 1997). Furthermore, MacDonald and Parke (1986) reported that differences between father-child interactions and mother-child interactions, particularly engaging in more physically vigorous activities, such as wrestling and tickling, became more pronounced as the child aged. This playful nature of

father-child interactions has also been observed in other cultures (Hewlett, 1992; Lamb, 1997; Parke, 1995).

In addition to being more physically vigorous, father-child interactions tend to be more novel, unpredictable and destabilizing for the child (Labrell, 1996; Lamb, 1997). Labrell (1996) reported that fathers of 16-month-olds used toys in more unconventional ways than mothers, and introduced more exploration into their games. They argued that this destabilizing quality of father-child interactions was important for a child's cognitive development, and was complimentary to the more predictable, repetitive and stable nature of mother-child interactions, which also contributed to a child's cognitive development.

A clear pattern emerges across studies. In general, fathers spend less time interacting with their children, but when they do interact, they tend to be more physical, unpredictable and tactile (Clarke-Stewart, 1978; Dickson, Walker & Fogel, 1997; Labrell, 1996). Mothers are more conventional, verbal, didactic and toy-centered, and they also spend more time in caretaking and nurturing tasks. This qualitative difference between fathers and mothers is reflected in a description of fathers as "primary playmates" in contrast to the more common description of mothers as the "primary caregiver" (Roggman et al., 2004).

Within the attachment literature, play is considered a primary vehicle for secure attachment in father-child dyads. Grossman, et al. (2002) found that fathers' supportive and challenging play in toddlerhood predicted later attachment security, and influenced the child's social development. Bretherton, Lambert and Golby (2005) found that fathers identified themselves as active

play-mates for their child, felt emotionally connected to their child through play, and encouraged mastery and risk-taking in their interactions with their child.

### *Impact of Paternal Play on Child Development*

What are the implications for children of the qualitative differences between fathers' more playful interactions, and mothers' more nurturing, caretaking interactions with their children? Many researchers and theorists have linked fathers' play with the development of affect regulation and social competency in children. Biller (1993) proposed that these differences in father play assist children in feeling comfortable with exploration and more varied social situations. MacDonald and Parke (1986) suggested that fathers' physical play with children is the means by which a child learns a great deal about affect regulation, and this impacts peer relationships. Indeed, children who are better able to manage their emotional displays and exhibit more positive affect are rated by teachers and peers as more socially competent (Eisenberg, et al., 1995; Hubbard & Coie, 1994; McDowell & Parke, 2005). MacDonald (1987) found that socially popular boys, aged 3- to 5-years, had longer bouts of play and more positive affect with their parents than non-popular boys. In another study, father-child play was associated with better peer relations and emotional regulation for preschool-aged children (Pettit, Brown, Mize & Lindsey, 1998). In a study of 4<sup>th</sup> grade children, McDowell and Parke (2005) found that fathers' positive affect and control predicted children's socially appropriate responses, whereas mothers' positive affect and control did not. In Roggman and colleagues' study (2004),

father-child play was significantly and positively correlated with children's cognitive development, language development, and emotional regulation.

Taken together, these findings suggest that the interactions between fathers and children, particularly play and exploration, provide critical opportunities for development that are not entirely overlapping with mother-child interactions. In these exchanges, children may learn affect regulation, a sense of competency in social interactions, a willingness to explore and take risks, and courage to face new challenges.

From the previous discussions, it is clear that both language and play characteristics of father-child interactions are thought to contribute to a child's social development. Lamb (1975) characterized fathers as the link between the child and the outside world. Others describe fathers as challenging children's competencies for adaptation into new aspects of their world and assisting children in dealing with different personality styles (Barton & Tomasello, 1994). Hewlett (1992), an anthropologist, described the mediating role of the father as almost universal. Fathers provide knowledge, direction and advice, and provide the child with new experiences, while serving as a familiar and stable companion. This study proposes that these unique aspects of father-child interactions, in both play and language, help prepare children for social exchanges outside of the home, as they provide challenging and unpredictable experiences for the child which may increase social skills, self-confidence and affect regulation. For many children, preschool is the first opportunity they have to socially engage with others outside of the home, and to practice some of the social skills they have

learned. For this reason, and others as described below, the preschool years are particularly relevant when examining how parent-child interactions influence a child's social competency.

### *The Preschool Years and Social Competency*

The preschool years, for a number of reasons, are an important period for the emergence of social competency, and thus, the influence of paternal and maternal behaviours during this time is of particular relevance. First, as previously mentioned, the preschool years are when fathers spend the most time playing with their children and fathers' engagement and interest in the child's activities is greater at this time than when the child was younger (Lewis, 1997). Secondly, preschoolers, as compared to infants, are less dependent on their mothers for caretaking, and can engage in more independent activities for longer time periods. Given that fathers engage in more playful activities with their child at this stage, and children are less dependent on their mothers, it is an optimal time to examine the contributions that both fathers and mothers make. Thirdly, the preschool age is a time when children's language abilities are growing at a rapid rate and children are able to carry on conversations and to respond to verbal instruction. Thus, this age range allows for an assessment of parental verbalizations as the child's language is rapidly developing and joint activities involve considerable verbal exchange, compared to the infant stage. Lastly, the preschool age is a time in which many children are given the opportunity to develop social relationships outside of the immediate family through preschool or daycare. Taken together, these four reasons suggest that the preschool years

are a time when children are likely to make great gains in social competency. Given that the current study is interested in understanding how social competency is influenced by paternal and maternal verbal interactions, and recognizing the importance of play in the father-child relationship, it is evident that the preschool age is the optimal time to study these relationships. Parke (1996) indicated that by the time a child is school-aged, differences emerge between children who have had an involved father, and those who have not, which reinforces the importance of understanding the contributions that fathers make during the formative preschool years.

To summarize, the current study is focused on the associations between scaffolding and directiveness in father-child and mother-child interactions and preschoolers' social competency. Several contextual variables also need to be considered, however, when trying to understand the relationships between parental directiveness and scaffolding and the child's social competency as these variables have been shown to influence social competency or parent-child interactions in past research. These variables are discussed in the following section.

*Contextual Variables: Task, Child Temperament, Language Development, and Parental Education Level*

*Task.*

Several researchers have found that the type of task or activity that a parent and child does together impacts the parent's language and interactive style. Specific toys or tasks as compared to unstructured tasks or free play

impacted both parental language and activity (Leaper et al., 1998; Leaper, 2000; Walker & Armstrong, 1995). For example, in free play activities, fathers gravitated towards physical activities and construction tasks, whereas mothers gravitated towards role-play activities and toy play (dolls, pretending to shop, toy cars and trucks, etc.). Not surprisingly, gender-stereotypical tasks elicited more of the observed differences between mothers and fathers both in the amount of physical play, and language (Leaper et al., 1998; Leaper, 2000). Frankel and Rollins (1983) found that fathers provided more information to their child if engaged in a play task, whereas mothers provided more information in an instructional task.

Given the impact of task type on parent-child interactions, the tasks for the current study were designed to provide a fairly neutral backdrop for the parent-child interactions. In particular, two gender-neutral tasks were developed, one involving primarily fine motor activity while the other was predominantly a gross motor task. Both tasks were designed to allow for freedom, creativity and playful activity and provided a scenario that both mothers and fathers could potentially have engaged in at home, under natural circumstances. The selection of gender-neutral tasks is important given that the current study focuses on potential differences between mothers and fathers in directiveness or scaffolding and these differences could be misleadingly inflated as a result of the task. Levels of directiveness and scaffolding for mothers and fathers were not expected to change systematically for the fine motor task or gross motor task.



### *Child gender.*

Research findings to date are mixed regarding the impact of child gender on parental behaviour and language. Frankel and Rollins (1983) found that both mothers and fathers were more performance oriented with sons and more co-operative with daughters. Likewise, in a series of studies by Fagot and colleagues (Fagot & Hagan, 1991; Fagot, Hagan, Leinbach & Kronsberg, 1985), parents and preschool teachers were both found to be more directive with boys than girls. However, a meta-analysis on parental speech patterns, found that mothers used more supportive statements and directive statements with their daughters than with their sons (Leaper et al., 1998). In a further study, Leaper (2000) did not find differences in parents' affiliation or assertion ratings based on the child's gender, although this finding was moderated by the type of task. In particular, if tasks were gender stereotypical, then more differences emerged in how parents responded to their sons or daughters (Leaper, 2000). Child gender is included as a variable in this study as it may have an impact on parental directiveness and scaffolding.

### *Child temperament.*

Child temperament has been found to relate to both parent-child relationships and social competency. For example, Seifer, Schiller, Sameroff, Resnick and Riordan (1996) found that infant temperament was related to mother-child attachment status and to maternal sensitivity. Fagot and Gauvain (1997) found that a child's difficult temperament at 18 months of age predicted greater levels of maternal cognitive assistance and behavioural directives.

These findings highlight the potentially bidirectional nature of temperament and parental behaviours, in that children who are securely attached to their parents may be more socially outgoing as a result, or alternatively, more temperamentally sociable children may elicit more positive caretaking responses from their parents (McBride, Schoppe & Rane, 2002).

Few studies have looked at the impact of child characteristics on father-child interactions (McBride et al., 2002), even though Belsky (1984) indicated that paternal behaviours are influenced by characteristics of the child, in addition to characteristics of the father and contextual sources of support or stress. Knowledge about how a child's temperament influences maternal behaviour can not be directly transferred to father-child relationships (McBride et al., 2002). Furthermore, when examining the father-child relationship, it is often the mother's assessment of the child's temperament that is used (McBride et al., 2002; Volling & Belsky, 1991), which does not take into consideration that the child may behave differently with the father than with the mother. Given the bidirectional nature between child temperament and parental behaviours, it is anticipated that temperament, as assessed by both mothers and fathers may relate to scaffolding and directiveness in mother-child and father-child interactions.

Of particular interest in this study are the temperament traits of attentional focus and inhibitory control, which are central to self-regulation (Rothbart, Ahadi, Hershey, & Fisher, 2001). In a study of preschool children with attentional difficulties and poor inhibitory control, mothers had significantly higher levels of negative control, other-regulation (directives, commands, instructions) and

physical involvement during a problem-solving task than did mothers of children without attention difficulties (Winsler et al., 1999). Similar results were found for mothers of 5-year-olds characterized as having high emotional intensity (Perez & Gauvain, 2005). These studies suggest that poor attention and inhibitory control will be associated with the amount of maternal scaffolding and directiveness in parent-child interactions. To date, no studies have examined the relationship between attentional focus or inhibitory control and fathers' language in parent-child interactions.

Child temperament and sociability are also associated, and as such, child temperament needs to be considered when evaluating social competency. Several studies have found that child temperament consistently predicts sociable and aggressive behaviours (Goldsmith, Aksan, Essex, Smider & Vandell, 2001; Russell, Hart, Robinson & Olsen, 2003). Specifically in regards to attentional focus and inhibitory control, Eisenberg and colleagues (1995) reported that emotional reactivity and regulation (inhibitory control, attentional focus) were associated with higher social competency ratings in the classroom. Given that child temperament, and specifically attentional focus and inhibitory control, have been shown to influence relationships with both parents and peers, it was important to include measurements of these variables in the current study.

#### *Child language abilities.*

A meta-analysis of studies assessing the association between infant-parent attachment relationships and language development (7 studies) conducted by Van Ijzendoorn, Dijkstra, and Bus (1995), revealed a strong

relationship between these variables. The association between parent-child relationships and a child's language development has also been found in other studies (Klann-Delius & Hofmeister, 1997; Murray & Yingling, 2000). Several studies have looked at specific parenting behaviours that contribute to language development. For example, maternal language responsiveness was found to contribute to better language abilities in 16 month-olds (Karass & Braungart-Rieker, 2003), mothers' verbal scaffolding of their three-year-olds positively influenced language and non-verbal problem solving skills at age four (Landry et al., 2002), and maternal intrusiveness and inflexibility in responding to the child's developmental growth and abilities were both correlated negatively with language development (Landry et al., 2000; Keown, Woodward, & Field, 2001). In general, maternal parenting behaviours that were sensitive to the child's focus of interest and did not highly control or restrict the child's behaviours predicted greater increases and faster rates of language and social development (Landry, Smith, Miller-Loncar & Swank, 1997).

Several studies have also indicated that language development impacts social competency. Elliott, Barnard and Gresham (1989) found that preschoolers with excellent language abilities had higher ratings for prosocial behaviour and fewer problematic social behaviours. Preschoolers with slow expressive language development were noted to have poorer social skills (Paul, 1991) and these early differences appear to impact later development (Cook, Urwin & Kelly, 1989; Vallance & Wintre, 1997). Given these findings, an assessment of the impact of language development on parent-child interactions and social

competency in the current study is important, as accounting for language development will yield a clearer picture of parent-child interactions and the impact of parent-child relationships on a child's social competency.

*Parental education level.*

Maternal education level has been found to influence parent-child interactions in a number of studies (Richman, Miller & LeVine, 1992). Mothers' education levels were found to correlate negatively with the use of physical interventions for discipline or control (Londerville & Main, 1981) and increased maternal directiveness and assertion of maternal interests (Leaper, 2000). Lewis and Feiring (1981) found that college-educated mothers interacted verbally more frequently with their infants, than high-school educated mothers, and that language scores at 24 months of age were higher for the children of the college-educated mothers. Paternal education was also found to relate to positively to a child's cognitive and language development (Tamis-LeMonda, Shannon, Cabrera & Lamb, 2004). Given the impact of parental education on parent-child interactions and child development, the level of parental education was important to assess for the current study.

To summarize, the purpose of the current study is to examine maternal and paternal directiveness and scaffolding in the context of parent-child interactions, and to assess their influence on a child's social competency. Preschool-aged children are targeted as this age is optimal for examining social development and father-child interactions. Mothers and fathers were observed interacting with their children during a joint construction task. A fine motor and a

gross motor task were included to allow for a wider range of activity level during the interactions and to include activities that were more 'father-friendly' and playful in nature. Tasks were chosen to be gender-neutral for both the children and parents. Parental verbalizations were the focus of the parent-child interaction, as parental directiveness and scaffolding across the two different tasks were assessed. Contextual variables including child temperament, child language and parental education level were also assessed, as these variables have been shown to relate to parent-child relationships and a child's social competency. The child's social competency was assessed by his or her daycare or preschool teacher, as it was important to assess social competency outside of the home, given the hypothesized relationship between paternal behaviours and a child's social competency outside of the home environment.

### *Hypotheses*

#### *Differences in scaffolding and directiveness for mothers and fathers.*

1) Scaffolding scores will be higher for mothers than fathers across task order and parent order.

2) Directiveness scores will be higher for fathers than mothers across task order and parent order.

#### *Prediction of scaffolding and directiveness from child and parent variables.*

3) Maternal scaffolding will be associated with relevant mother and child variables, such as maternal education, and a child's age, gender, temperament and language ability.

4) Paternal scaffolding will be associated with relevant father and child variables, such as paternal education, and a child's age, gender, temperament and language ability.

5) Maternal directiveness will be associated with relevant mother and child variables, such as maternal education, and a child's age, gender, temperament and language ability.

6) Paternal directiveness will be associated with relevant father and child variables, such as paternal education, and a child's age, gender, temperament and language ability.

*Correlations of scaffolding and directiveness to social competency.*

7) Social competency, as assessed by the child's teacher, will correlate positively with maternal scaffolding, paternal scaffolding and paternal directiveness. Social competency, as assessed by the child's teacher, will correlate negatively with maternal directiveness.

*Prediction of social competency from maternal and paternal scaffolding and directiveness.*

8) Social competency, as assessed by the child's teacher, will be positively associated with maternal and paternal scaffolding and paternal directiveness. Maternal directiveness will negatively predict the child's social competence. These predictions are expected to remain after controlling for child age, gender and language ability.

*Prediction of social competency from additional child characteristics.*

9) Social competency may also be associated with individual child characteristics including the child's attentional focus and inhibitory control, time spent in daycare, and family ethnic background.



## METHOD

### *Participants*

Participating families were recruited through advertisements in local preschools and daycares, community centres and community newspapers (see Appendix A for sample advertisements). In order to participate, each family had to meet the following conditions in a preliminary phone screen; a) the participating child was 3 or 4 years of age, and the oldest child in the family, b) the child attended daycare or preschool for at least 2 hours a day for a minimum of 2 days per week, c) both mother and father could attend the lab appointment together, d) both mother and father had lived with the child for the previous 24 months (parents did not have to be biological parents to the child), and e) the language spoken between parent and child during play times was predominantly English (see Appendix A). Families were told that they would receive an honorarium of \$25.00 for their participation and that each child would receive a small toy and a 'Young Scientist' award. Preschool teachers would receive a \$5.00 gift card from a popular coffee company for completing a questionnaire. Questionnaires were generally not distributed to teachers in September and October, to allow teachers to get to know their students for at least two months prior to completing the questionnaire. Recruitment occurred over two years, and a total of 79 families participated. Data from seven families were excluded from the study because one or both of the parents predominantly spoke Chinese to

their child during the observational period, and thus, it was not possible to code the parent-child interactions. Data from an additional eight families were excluded from the study because the questionnaires from preschool or daycare teachers were not returned (seven families), or parent questionnaires were not completed (one family). Observational data were missing for four families due to digital recording difficulties, and thus, their data were not included in the study. Only families with complete data (60 families in total) were included in the analyses to follow.

### *Measures*

#### *Demographic Information.*

Each parent (mother and father individually) completed a demographic information questionnaire (See Appendix B) which asked for the child's birth date, the parent's birth date, the parent's ethnic background, and the parent's level of education and occupation. The questionnaire also asked each parent to indicate the length of time that they were married or living common-law, the number of weekly hours that they worked outside of the home, as well as the number of hours each day that they spent playing or interacting with their child. Finally, the questionnaire asked parents to indicate how many hours that their child spent in daycare or preschool, and to list the age and gender of younger siblings of the participating child.

*Social Competence and Behavior Evaluation, Preschool Edition (SCBE).*

The SCBE was designed by LaFreniere and Dumas (1995) as a teacher rating scale to assess social competence, affective expression and adjustment difficulties of preschool children. It has been widely used in Canada and the United States in research, clinical and educational settings (LaFreniere, et al., 2002). The SCBE consists of 80 items, scored on a 6-point Likert scale (1=Never to 6=Always) that yields scores for eight 10-item subscales: Depressive-Joyful; Anxious-Secure; Angry-Tolerant; Isolated-Integrated; Aggressive-Calm; Egotistical-Prosocial; Oppositional-Cooperative; and Dependent-Autonomous. Responses within and across subscales are combined into four summary scores as follows: Social Competence is comprised of the five positive item clusters from each of the 8 subscales; Externalizing Behaviour is comprised of four negative item clusters (angry, aggressive, egotistical, and oppositional); and Internalizing Behaviour is comprised of the remaining four negative item clusters (depressed, anxious, isolated, and dependent). The overall General Adaptation scale is a sum across all eight subscales. Lower scores suggest poorer adaptation and higher scores indicate stronger social adaptation.

In their initial psychometric study of the SCBE, LaFreniere, Dumas, Capuano and Dubeau (1992) reported that the internal consistency for the four summary scales ranged from .79 to .91 and test-retest reliability across two weeks ranged from .78 to .86. Concurrent and construct validity were also adequate. These robust psychometric characteristics were confirmed on a

standardization sample of over 2000 children in the United States (LaFreniere & Dumas, 1995).

Standardized scores, reported as T scores ( $M = 50$ ;  $SD = 10$ ) are provided for the four summary scales, for boys and girls. For the purposes of this study the General Adaptation score is used as a measure of the child's social competency in school, as this is the overall global measure which encompasses scores from both positive and negative social behaviour items.

#### *The Children's Behaviour Questionnaire-Short Form.*

The Children's Behaviour Questionnaire - Short Form (CBQ-SF), developed by Putnam and Rothbart (2006), is based on the Children's Behaviour Questionnaire designed by Rothbart et al., (2001) for 3 to 8 year-olds. Utilizing a definition of temperament that focuses on individual differences in constitutionally based reactivity and self-regulation, 15 subscales of approximately 12 to 13 items each were developed. The subscales include activity level, anger/frustration, attentional focus, discomfort, fear, high intensity pleasure, impulsivity, inhibitory control, low intensity pleasure, perceptual sensitivity, positive anticipation, sadness, shyness, smiling/laughter, and soothability. The CBQ-SF measures the same 15 subscales but uses 6 to 8 items per scale, resulting in a 94-item questionnaire. Parents are asked to rate their child for each item on a 7-point scale ranging from "extremely untrue of your child" to "extremely true of your child". Each item also has a "not applicable" response option. The reported internal consistency for the CBQ-SF ranges from .61 to .85

for the subscales, which is, on average, approximately .06 lower than the internal consistency scores for the standard CBQ (Putnam & Rothbart, 2006).

The attentional focus and inhibitory control subscales were of particular interest in the current study. For these subscales, Putnam & Rothbart (2006) report that internal consistency was .75 and .72 respectively. Agreement between mothers and fathers ranged from .47 to .53 for these two subscales, and consistency over time ranged from .61 to .71, all of which are significant correlations ( $p < .01$ ).

*Peabody Picture Vocabulary Test-Third Edition, Form III-B (PPVT).*

The Peabody Picture Vocabulary Test – Third Edition, developed by Dunn and Dunn (1997), is a frequently used measure of receptive vocabulary and a screening measure of language ability. It can be administered to children as young as 2 ½ years old, and thus, is suitable for this study. The PPVT is easy to administer, the pictures are inviting for children, and it does not take much time. Children completed the PPVT with a research assistant, while their parents were completing the remaining questionnaires. Reliability scores for the PPVT-III Form B are excellent. Dunn and Dunn (1997) report alpha and split-half reliability coefficients for the age range relevant to this study (3-years to 5-years old) ranging from .88 to .95. Test-retest reliability, measured one-month later, was also high at .91 for Form IIIB. Criterion validity was assessed by correlating the PPVT-IIIB scores with Verbal IQ on the Weschler Intelligence Scale for Children – III. The reliability coefficient was .91 (Dunn & Dunn, 1997). For the purposes

of the present study, the PPVT-III B was used as a quick and reliable measure of the child's developing language abilities.

### *Observational Measure*

A key component of this study is the observational measure that involves mothers and fathers interacting with their children, engaged in tasks that were similar enough to provide comparison opportunities, and yet diverse enough to allow both parents to feel comfortable doing the tasks. Two tasks were created to meet these criteria. In one task, the parent and child were asked to build a small home for two plastic farm animal figurines (approximately 9 centimetres high) out of popsicle sticks, sculpting clay, and two pieces of foam paper. As this task involved predominantly fine motor movement, and the parent and child were seated at a small table, it is called the 'fine motor' task, throughout the study. The second task, termed the 'gross motor' task, required the parent and child to build a home for a large stuffed bunny (approximately 90 centimetres tall). Supplies for this task included nine empty cardboard boxes of various sizes, four curtain rods, three hula hoops, two plastic buckets, and two blankets (specific supplies and details for both tasks are presented in Appendix C). This task was designed to encourage more movement and physical activity. Both parents in each family separately completed one of the tasks with their child. Thus, all children completed both tasks.

Order (first or second) and task type (fine or gross) were randomly assigned within families but balanced across the study as a whole (e.g., an equal number of fathers and mothers completed the task first vs. second and

completed the fine vs. gross motor tasks). The parent who was selected to go first and their child went into a play room equipped with the building supplies. Once in the room, the parent was handed instructions on a laminated card, and asked to read them silently. To minimize potential practice effects for the child, the child did not hear the instructions. Instructions for the gross motor task were as follows:

I would like you and your child to build a home for the bunny. The walls and ceiling can't touch the bunny. You can use any of the supplies against the wall and on the shelf where the carpet is (boxes, hoops, fabric, etc.). It is important that you and your child stay on the carpet.

Instructions for the fine motor task were as follows:

I would like you and your child to build a home for the two farm animals. The walls and ceiling can't touch the animals. You can use any of the supplies in the blue bin (play dough, popsicle sticks, foam paper). It is important that you and your child stay at the table.

The parent and child then had 10 minutes to construct the house together.

Coding rules for *directiveness* and general parent verbal interactions were based on Landry's coding scheme (1997), and *scaffolding* was coded according to Winsler et al.'s (1999) definition of the term, described earlier. (Coding criteria are described in Appendix D). Directiveness was coded when parents gave specific directions about how the house should be built. Examples of directive statements include: "Put the box on top of that one."; and "Roll the play dough into a ball, like this." Directiveness reflected the parent taking the lead in how the task was done. Scaffolding was coded when the parent asked an open-ended question about the task and how it could be done. In this way, the parent

facilitated the child to take the lead or direction of how the task was being done. Examples of scaffolding statements include: “How shall we build a house?”; “What should we do next?”; and “Where would you like to put the box?”.

Proportional scores for directiveness and scaffolding were calculated to control for differences in ‘talkativeness’ between parents, as suggested by Landry and colleagues (Landry et al., 1997; Landry, Smith, Miller-Loncar & Swank, 1998). The proportional score was the ratio of directiveness or scaffolding over the total amount of utterances for each parent (see Appendix D for the computation of the denominator – total amount of utterances).

Two research assistants, blind to the study hypotheses, were trained on all the variables to be coded. One research assistant coded all 60 fathers and mothers. A second research assistant coded 20 fathers and mothers (generally every third family for a total of 33% of the families). Intra-class correlations were calculated using the criteria of absolute agreement and a two-way random model (McGraw & Wong, 1996). Reliability coefficients for the four coded variables were as follows: proportion of maternal scaffolding was .78; proportion of paternal scaffolding was .79; proportion of maternal directiveness was .93; and proportion of paternal directiveness was .94. Further information regarding reliability and confidence intervals for the observational measure is included in Appendix E.



### *Procedure*

Families were recruited through advertisements in community newspapers, family magazines and mail-outs to local preschools and daycares (see Appendix A). Parents contacted the lab by phone or via a web-based information form. Potential participants were screened over the phone to ensure that they met the inclusion criteria (child was 3- or 4-years-old, and the eldest in the family, he or she attended daycare or preschool at least twice a week, both mother and father could come to the appointment, etc.) (see Appendix A for screening protocol). A brief description of the study was provided and the voluntary nature of participating was also reviewed. Parents were encouraged to speak to their child's daycare or preschool teacher to get an initial impression of the teacher's willingness to complete a confidential questionnaire.

Families were booked for 1 to 1½ hour appointments at the lab. After completing consent forms (included in Appendix F) and reviewing the nature of the study, the parent to participate in the play task first with their child, and the task to be completed were randomly assigned using a Latin square design for four possible combinations. The four possible task/order combinations are presented in Table 1.

Table 1.

*Task Order and Parent Order Combinations for Observation Sessions*

	<b>First Play Session</b>	<b>Second Play Session</b>
Combination 1	Father, Gross motor task	Mother, Fine motor task
Combination 2	Father, Fine motor task	Mother, Gross motor task
Combination 3	Mother, Gross motor task	Father, Fine motor task
Combination 4	Mother, Fine motor task	Father, Gross motor task

In order to have equal distributions of families in each of the combinations, for both boys and girls, task order / parent order combinations were randomly assigned independently for boys and girls. The numbers of boys and girls for each of the combinations are shown in Appendix G. Counterbalancing was done to account for possible parent order or task order effects. Each play session lasted for 10 minutes. During this time, the parent who was not playing with their child completed questionnaires in another room. Play sessions took place in a large room which was pleasantly decorated in a child-friendly manner. The sessions were digitally recorded with an unobtrusive video camera mounted on a side wall. Supplies for building the houses were readily accessible and placed in standardized locations for each family. Only the parent and their child were in the room for the play session. The parent began the play session by reading silently the instructions for one of the construction tasks, and the session ended

after ten minutes, regardless of the state of the house being built. The experimenter entered the room after the ten-minute play session, and commented or asked a few questions of the child. The house was then put away, and the parents switched places such that the other parent entered the room to begin a second play session with the child. Conversation between parents during this transition was discouraged. The second play session began with the parent silently reading the instructions for the alternative construction task. After ten minutes, the experimenter entered the room and chatted briefly with the child and parent. The child was then administered the PPVT-III, and parents were given the remaining questionnaires to complete. Parents were kept apart in order to ensure independent responses to the questionnaire items.

The questionnaires were administered in the following order: Demographic Questionnaire, Social Competence and Behaviour Evaluation – 30 (part of another study), Kansas Marital Satisfaction Scale (part of another study), Children's Communication Checklist – 2 (part of another study), Children's Behaviour Questionnaire-Short Form (CBQ-SF), and Parenting Stress Index-Short Form (part of another study).

At the end of the visit, each family was given \$25.00, and the child received a certificate and picked a toy from a treasure chest. A package was mailed to the preschool teacher that included a release of information form signed by the parents, a consent form and information sheet for the teacher, the SCBE questionnaire and a \$5.00 gift card from a popular coffee company. The

teacher was asked to return the questionnaire and the consent form to the lab in the stamped and addressed envelope provided.

## RESULTS

### *Sample Characteristics*

Sixty families completed all aspects of the study, and a total of 79 families participated. As noted earlier, 19 of the 79 families were not included for a variety of reasons (i.e., incomplete data, speaking another language than English during the interaction, and technical difficulties). T-tests indicated no significant differences (see Table 2) between the 60 families that participated and the 19 families whose data were not used on the following variables: a) child's gender, b) child's age, c) child's language score, d) mother's age, e) mother's education level, f) father's age, g) father's education level, h) number of hours mothers worked outside the home, i) number of hours mothers interacted with their child, j) number of hours fathers worked outside the home, k) number of hours fathers interacted with their child, and l) the number of hours the child was in day care. All subsequent statistical analyses only include the 60 families with complete data sets.

Table 2.

*Descriptive Statistics for Families with Complete Data Sets versus Families with Incomplete Data Sets*

<b>Variable</b>	<b>Complete Data Set <i>n</i> = 60</b>	<b>Incomplete Data Set <i>n</i> = 19</b>
Child Gender	<i>M</i> = 1.42 <i>SD</i> = .50	<i>M</i> = 1.42 <i>SD</i> = .51
Child's age in months	<i>M</i> = 47.47 <i>SD</i> = 6.86	<i>M</i> = 48.11 <i>SD</i> = 7.21
PPVT-III Language Score	<i>M</i> = 111.30 <i>SD</i> = 10.60	<i>M</i> = 104.11 <i>SD</i> = 20.26
Mothers' age in years	<i>M</i> = 35.76 ( <i>n</i> = 58) <i>SD</i> = 3.83	<i>M</i> = 33.78 ( <i>n</i> = 18) <i>SD</i> = 5.29
Mothers' education level <sup>a</sup>	<i>M</i> = 3.67 <i>SD</i> = .88	<i>M</i> = 3.84 <i>SD</i> = .77
Fathers' age in years	<i>M</i> = 38.35 <i>SD</i> = 4.61	<i>M</i> = 37.42 <i>SD</i> = 5.69
Fathers' education level <sup>a</sup>	<i>M</i> = 3.53 <i>SD</i> = .97	<i>M</i> = 3.63 <i>SD</i> = .83
Number of hours mother worked outside of the home/week	<i>M</i> = 17.75 ( <i>n</i> = 59) <i>SD</i> = 18.29	<i>M</i> = 19.61 <i>SD</i> = 18.22
Number of hours mother interacted with child per day	<i>M</i> = 7.763 ( <i>n</i> = 59) <i>SD</i> = 3.70	<i>M</i> = 6.74 <i>SD</i> = 5.49
Number of hours father worked outside of the home/week	<i>M</i> = 41.44 ( <i>n</i> = 59) <i>SD</i> = 12.133	<i>M</i> = 41.17 ( <i>n</i> = 18) <i>SD</i> = 10.399
Number of hours father interacted with child per day	<i>M</i> = 3.63 ( <i>n</i> = 57) <i>SD</i> = 1.67	<i>M</i> = 3.39 ( <i>n</i> = 18) <i>SD</i> = .92
Number of hours child attended daycare per week	<i>M</i> = 17.25 <i>SD</i> = 13.73	<i>M</i> = 22.74 <i>SD</i> = 16.51

<sup>a</sup> 1=Elementary School; 2=High School; 3=2 years of College/Diploma/Technical Degree; 4=Bachelor's Degree; 5=Graduate Degree

*Mother characteristics.* (Descriptive statistics are summarized in Table 3)

The mean age for mothers was 35.76 years ( $SD = 3.83$ ; range = 29 to 46). On average, mothers reported that they had been a couple (married or common-law) with their current partner for 9 years ( $M = 9.13$ ,  $SD = 3.73$ ; range = 4 to 25 years). In terms of education, 6 mothers completed high school (10%), 18 mothers had completed a college diploma or two year technical program (30%), 26 mothers held a bachelor's degree (43.3%), and 10 mothers held graduate degrees (16.7%). On average, mothers in this sample reported working approximately 18 hours per week outside the home with a wide range of variance ( $M = 17.75$ ,  $SD = 18.28$ ; range = 0 to 63). Twenty-five mothers (41.7%) were currently not working outside the home, and 12 mothers (20%) were working full time (40 hours per week). Mothers reported spending approximately 8 hours a day interacting with their child ( $M = 7.76$ ,  $SD = 3.70$ ; range = 1.5 to 16). Forty-one mothers (68.3%) were of Canadian or European descent, whereas 19 mothers (31.7%) were of Asian descent (Chinese, Japanese, South Asian).

*Father Characteristics.* (Descriptive statistics are summarized in Table 3)

The mean age for fathers was approximately 38 years ( $M = 38.35$ ,  $SD = 4.60$ ; range = 29 to 50). On average, fathers reported that they had been a couple (married or common-law) with their current partner for 9 years ( $M = 9.17$ ,  $SD = 4.26$ ; range = 2 to 25 years). In terms of education, 7 fathers completed high school (11.7%), 27 fathers had completed a college diploma or two year technical program (45%), 13 fathers held a bachelor's degree (21.7%), and 13 fathers held graduate degrees (21.7%). On average, fathers in this sample

reported working approximately 41 hours per week outside the home ( $M = 41.44$ ,  $SD = 12.14$ ; range = 6 to 83). Fathers reported spending approximately 3.5 hours a day interacting with their child ( $M = 3.63$ ,  $SD = 1.67$ ; range = 1 to 9). Forty-six fathers (76.7%) were of Canadian or European descent, and 13 fathers (21.7%) were of Asian descent (Chinese, Japanese, South Asian). One father did not indicate his ethnic background.

*Child Characteristics.* (Descriptive statistics are summarized in Table 3)

There were 35 boys (58.3%) participating in the study and 25 girls (41.7%). The difference in number of boys versus girls was not significant,  $\chi^2(1, N = 60) = 1.67, p = .20$ . On average, children were 4 years (i.e., 48 months) of age ( $M = 47.47$  months,  $SD = 6.86$ ; range = 36 to 61 months). The median age was 47 months as well, indicating that the sample included similar numbers of 3-year-olds (32) and 4-year-olds (27 - plus one 5-year-old). On average, children in this study attended day care or preschool 17 hours per week, but the time spent in these settings was highly variable across participants ( $M = 17.25$ ,  $SD = 13.73$ ; range = 2 to 45). The median was 11.75 hours and the mode was 5 hours. Approximately half of the children (48.3%) were in day care or preschool for 10 or less hours per week. In terms of siblings, 17 children (28.3%) had no siblings, 40 children (66.7%) had one younger sibling, and 2 children (3.3%) had two younger siblings. One child (1.7%) had four adult siblings who were not living at home and were thus not considered to be actively involved socially on a day-to-day level with the child, as a sibling closer in age would be. The language abilities of the children in this sample, as assessed by the PPVT-III, were



considerably higher than what would be expected in the general population ( $M = 111.30$ ,  $SD = 10.60$ ; range = 88 to 131). The PPVT-III provides standard scores with an expected mean of 100 and standard deviation of 15 in the general population. Maternal ratings on the CBQ-SF for a child's attentional focus ( $M = 5.12$ ,  $SD = .82$ ) and inhibitory control ( $M = 5.13$ ,  $SD = .79$ ) and paternal ratings for attentional focus ( $M = 4.98$ ,  $SD = .72$ ) and inhibitory control ( $M = 4.77$ ,  $SD = .67$ ) were similar to those obtained by Putnam (personal communication, February 10, 2007) for attentional focus ( $M = 5.02$ ,  $SD = .98$ ) and inhibitory control ( $M = 4.76$ ;  $SD = .933$ ). Teacher rated social competency on the SCBE was converted to T-scores ( $M = 51.067$ , and  $SD = 8.76$ ), which were generally consistent with the standardized T-scores reported by LaFreniere and Dumas (1995).

Table 3.

*Means and Standard Deviations of Main Variables (N=60)*

	Mean	Range	Standard Deviation
Proportion of Maternal Scaffolding	.06	.17	.04
Proportion of Maternal Directiveness	.10	.32	.07
Proportion of Paternal Scaffolding	.04	.18	.04
Proportion of Paternal Directiveness	.15	.49	.10
PPVT-IIIB Score	111.30	43.00	10.60
Child's Age in Months	47.47	25.00	6.86
SCBE score	51.07	38.00	8.77
Attentional Focus (Mother)	5.12	3.93	.82
Attentional Focus (Father)	4.98	3.67	.72
Inhibitory Control (Mother)	5.13	3.50	.79
Inhibitory Control (Father)	4.77	2.83	.67
Hours/week working outside home			
Mothers (n=59)	17.75	63.00	18.29
Fathers (n=59)	41.44	77.00	12.13
Hours/week interacting with child			
Mothers (n=59)	7.76	14.50	3.70
Fathers (n=57)	3.63	8.00	1.67
Number of hours child is in daycare	17.25	43.00	13.73
Mother's age in years (n=58)	35.76	17.00	3.83
Father's age in years	38.35	21.00	4.61

Table 3 continued on next page

*Table 3 - Means and Standard Deviations of Main Variables (N=60) - continued*

	Mean	Range	Standard Deviation
Mother's education level <sup>a</sup>	3.67	3.00	.88
Father's education level <sup>a</sup>	3.53	3.00	.93
Years married/common-law	9.13	21.00	3.73
Number of siblings	.80	4.00	.66

*Note.* Unless otherwise noted, N=60

<sup>a</sup> 1=Elementary School; 2=High School; 3=2 years of College/Diploma/Technical Degree; 4=Bachelor's Degree; 5=Graduate Degree

### *Analysis of Scaffolding and Directiveness*

#### *Transformation of the proportional data.*

Prior to any substantive analyses, the data were checked for heteroscedasticity. Means and standard deviations were computed for the proportions of maternal scaffolding, maternal directiveness, paternal scaffolding and paternal directiveness within each cell of the design, giving 32 *M-SD* pairs. The *SD*'s had a coefficient variation (*CV*) of .55 and were correlated .82 with the means. Replacing all the proportions by their square roots reduced the *CV* of the *SD*'s to .33 and the correlation with the means to .12. Thus, all substantive analyses were conducted using the square roots of the proportions. In the interest of clarity in interpreting these results, however, means will be reported in the original proportional values. A correlational table between the proportional data and the remaining variables is included in Appendix H, and a correlational table between the transformed data and the remaining variables is presented in Appendix I. The means, standard deviations and ranges of the transformed

variables are presented in Table 4 below. The transformation had the greatest impact on the scores of paternal scaffolding, as nine fathers exhibited no scaffolding at all.

Table 4.

*Means and Standard Deviations for Transformed Variables of Scaffolding and Directiveness*

	<i>M</i>	<i>SD</i>
Transformed proportion of Maternal Scaffolding	.23	.09
Transformed proportion of Maternal Directiveness	.30	.10
Transformed proportion of Paternal Scaffolding	.18	.11
Transformed proportion of Paternal Directiveness	.36	.12

*Parent gender and language as repeated measures.*

Each child in this study was observed interacting with their mother and father separately. Although each mother and father are different individuals, they are both interacting with the same child in this study and this means that their verbal behaviours cannot be considered to be independent. It is common practice to treat parent gender as a within or repeated measure, to account for the effect that the child has in the parent-child-interaction (Leaper, 2000; Notaro & Volling, 1999; MacDonald, 1987; Haden et al., 1997; Gauvain et al., 2002; Belsky, 1979; Conner et al., 1997; Brody, Pillegrini & Sigel, 1986; Kerig, Cowan & Cowan, 1993). While comparing mothers and fathers from the same family is complicated given that they are nested within the family, the advantages of

obtaining and comparing information from both mothers and fathers of the same child (as the above researchers have done) arguably outweighs the alternative of comparing parent-child dyads from different families (see Fagot & Hagan, 1991). For the purposes of this study, parent gender was treated as a within or repeated measure to account for the effect that the child would have on the interaction and to allow for an analysis of parent gender as a main effect. The proportions of scaffolding and directiveness are also included as a repeated measure within the ANOVA design, as they are both on a common proportional scale and are not independent (i.e., both variables have the total number of verbal events during the specific play session as their denominator in calculating the proportion).

*Statistical analyses.*

An overall mixed ANOVA was conducted to examine whether child gender, task order or parent order impacted scaffolding and directiveness, and to assess amounts of scaffolding and directiveness across and between parents. For this ANOVA, the dependent variable of Task Structuring Verbalizations (TSV) was the total of transformed scaffolding proportions and directiveness proportions across parents. The three between (grouping) variables were Child Gender (boy/girl), House Order (gross then fine task/fine then gross task) and Parent Order (father then mother/mother then father). The dependent variable, Task Structuring Verbalizations, had two within (repeated) levels consisting of Parent (mother/father) and Language (scaffolding/directiveness). As seen in Table 5, there were no main effects for the grouping variables of child gender, house order or parent order. However, there was a significant two-way

interaction between parent and child gender,  $F(1, 52) = 9.15, p = .004$  (see Figure 1). Examination of the proportional means indicated that task structuring verbalizations were higher for fathers of boys ( $M = .11$ ) than for fathers of girls ( $M = .07$ ), whereas mothers' task structuring verbalizations were essentially identical for both boys and girls ( $M = .08$ ).

Table 5.

*Analysis of Variance for Scaffolding and Directiveness*

Source	SS	df	F	p	partial $\eta^2$
Child gender (CG)	.0246	1	2.68	.11	.05
House Order (HO)	.0089	1	0.97	.33	.02
Parent Order (PO)	.0004	1	0.05	.83	.00
Child Gender x House Order	.0227	1	2.47	.12	.05
Child Gender x Parent Order	.0307	1	3.35	.07	.06
House Order x Parent Order	.0060	1	0.65	.42	.01
CG x HO x PO	.0088	1	0.96	.33	.02
ERROR	.477	52	(.0092)		
Parent	.0000	1	0.00	.97	.00
Parent x Child Gender (CG)	.0515	1	9.15**	.00	.15
Parent x House Order (HO)	.0066	1	1.17	.29	.02
Parent x Parent Order (PO)	.0029	1	0.52	.48	.01
Parent x CG x HO	.0054	1	0.96	.33	.02
Parent x CG x PO	.0023	1	0.41	.53	.01
Parent x HO x PO	.0175	1	3.10	.08	.06
Parent x CG x HO x PO	.0010	1	0.17	.68	.00
ERROR	.2929	52	(.0056)		
Language (Lang.)	.7945	1	38.17***	.00	.42
Lang. x Child Gender (CG)	.0380	1	1.82	.18	.03
Lang. x House Order (HO)	.0016	1	0.07	.79	.00
Lang. x Parent Order (PO)	.0392	1	1.89	.18	.04
Lang. x CG x HO	.0216	1	1.04	.31	.02
Lang. x CG x PO	.0415	1	1.99	.16	.04
Lang. x HO x PO	.0215	1	1.03	.31	.02
Lang. x CG x HO x PO	.0636	1	3.05	.09	.06
ERROR	1.0825	52	(.0208)		

Table 5 continued on next page.

Table 5. *Analysis of Variance for Scaffolding and Directiveness, continued*

Source	SS	df	F	p	partial $\eta^2$
Parent x Lang.	.2076	1	26.81***	.00	.35
Parent x Lang. x CG	.0000	1	0.00	.96	.00
Parent x Lang. x HO	.0001	1	0.01	.91	.00
Parent x Lang. x PO	.0008	1	0.11	.74	.00
Parent x Lang. x CG x HO	.0248	1	3.20	.08	.06
Parent x Lang. x CG x PO	.0114	1	1.48	.23	.03
Parent x Lang. x HO x PO	.0021	1	0.27	.61	.01
Parent x Lang. x CG x HO x PO	.0059	1	0.77	.39	.01
ERROR	.4026	52	(.0077)		

Note. Values enclosed in parentheses represent mean square errors.

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

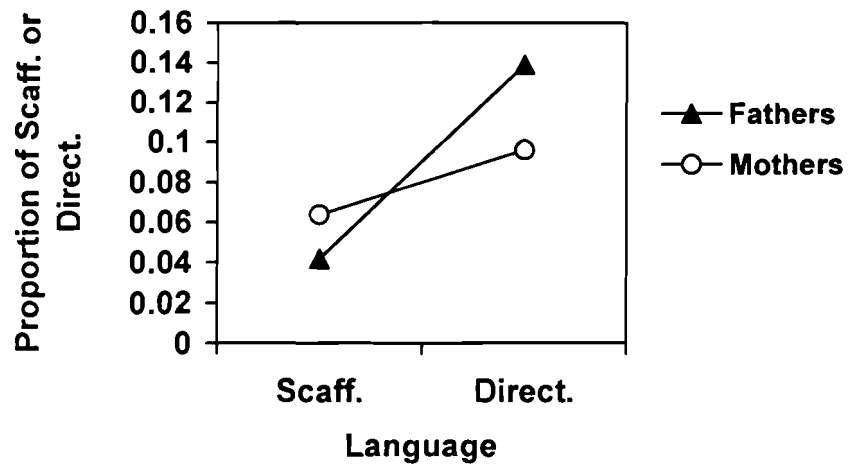




*Figure 1.* Child gender by parent interaction for fathers' and mothers' proportions of task structuring verbalizations.

There was a main effect for language,  $F(1, 52) = 38.17, p = .00$ , indicating that both mothers and fathers across task order and parent order used more directive statements ( $M = .12$ ) than scaffolding statements ( $M = .05$ ) when interacting with their child. However, this main effect was qualified by a significant two-way interaction between parent and language,  $F(1, 52) = 26.81, p = .00$ . As predicted, mothers had higher scores for scaffolding ( $M = .06$ ) than fathers ( $M = .04$ ), whereas fathers had higher scores for directiveness ( $M = .14$ ) than mothers ( $M = .10$ ). These results are presented in Figure 2.

To further explore this interaction, two mixed models ANOVAs were conducted. In the first ANOVA, 3 grouping variables (child gender, house order, and parent order) were entered as the between-subjects factor and Parent (father versus mother) was entered as the within (repeated) subjects factor. The transformed proportion of scaffolding was entered as the dependent variable. No main effects were found for the three grouping variables of child gender, house order or parent order. As predicted, a significant main effect for parent was observed,  $F(1, 52) = 16.09, p = .00$  (see Table 6). Mothers had a higher proportion of scaffolding statements in their interactions with their child ( $M = .06$ ) than did fathers ( $M = .04$ ).



*Figure 2.* Parent by language interaction for proportions of directiveness and scaffolding.

Table 6.

*ANOVA Results for the Transformed Proportions of Scaffolding*

Source	SS	df	F	p	partial $\eta^2$
Child gender (CG)	.0007	1	0.05	.82	.00
House Order (HO)	.0015	1	0.11	.74	.00
Parent Order (PO)	.0240	1	1.84	.18	.03
Child Gender x House Order	.0443	1	3.39	.07	.06
Child Gender x Parent Order	.0004	1	0.03	.86	.00
House Order x Parent Order	.0251	1	1.92	.17	.04
CG x HO x PO	.0126	1	0.96	.33	.02
ERROR	.6792	52	(.0131)		
Parent	.1044	1	16.09***	.00	.24
Parent x Child Gender (CG)	.0246	1	3.80	.06	.07
Parent x House Order (HO)	.0025	1	0.39	.54	.01
Parent x Parent Order (PO)	.0003	1	0.05	.83	.00
Parent x CG x HO	.0267	1	4.12	.05	.07
Parent x CG x PO	.0120	1	1.85	.18	.03
Parent x HO x PO	.0158	1	2.43	.13	.04
Parent x CG x HO x PO	.0011	1	0.16	.69	.00
ERROR	.3374	52	(.0065)		

Note. Values enclosed in parentheses represent mean square errors.

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

In the second ANOVA, with the transformed proportion of directiveness as the dependent variable, the 3 between (grouping) variables were Child Gender, House Order, and Parent Order and the within (repeated) variable was Parent (father versus mother). No main effects were found for the three grouping variables of child gender, house order or parent order. As predicted, a significant

main effect for parent was observed,  $F(1, 52) = 14.99, p = .00$  (see Table 7).

Fathers had a higher proportion of directive statements in their interactions with their child ( $M = .14$ ) than did mothers ( $M = .10$ ).

Table 7.

*ANOVA Results for the Transformed Proportions of Directiveness*

Source	SS	df	F	p	partial $\eta^2$
Child gender (CG)	.0618	1	3.65	.06	.07
House Order (HO)	.0089	1	0.53	.47	.01
Parent Order (PO)	.0157	1	0.93	.34	.02
Child Gender x House Order	.0000	1	0.00	.98	.00
Child Gender x Parent Order	.0719	1	4.24	.04	.08
House Order x Parent Order	.0024	1	0.14	.71	.00
CG x HO x PO	.0598	1	3.53	.07	.06
ERROR	.6792	52	(.0131)		
Parent	.1032	1	14.99***	.00	.22
Parent x Child Gender (CG)	.0269	1	3.91	.05	.07
Parent x House Order (HO)	.0042	1	0.61	.44	.01
Parent x Parent Order (PO)	.0034	1	0.50	.44	.01
Parent x CG x HO	.0035	1	0.51	.48	.01
Parent x CG x PO	.0017	1	0.25	.62	.00
Parent x HO x PO	.0038	1	0.55	.46	.01
Parent x CG x HO x PO	.0059	1	0.85	.36	.02
ERROR	.3581	52	(.0069)		

Note. Values enclosed in parentheses represent mean square errors.

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

In each of the above ANOVAs the significance of the planned comparisons between mothers and fathers for each of the dependent variables was qualitatively different than the contrasts which were marginally significant

(e.g., the two-way interaction between parent and child gender for both the proportion of scaffolding and directiveness). None of these marginally significant contrasts were planned, and due to the number of contrasts in each ANOVA, it is possible that they are a result of Type 1 error. Furthermore, given the Latin square design of this study, each interaction has at least one other interpretation (e.g., the 2-way interaction between parent x child gender could also be interpreted as a 3-way interaction between trial x parent order x gender). Considering the marginal significance of these unplanned contrasts, the possibility of Type 1 error and the confounding interaction interpretations, they are not discussed further.

#### *Prediction of Scaffolding and Directiveness*

It was expected that maternal scaffolding would be predicted by higher levels of maternal education, the child's age, child gender, higher levels of attentional focus and inhibitory control as rated by the mother, and higher scores on the PPVT-III. These variables were entered simultaneously into a multiple regression analysis. None of the variables significantly predicted the transformed proportions of maternal scaffolding (see Table 8).

Table 8.

*Summary of Multiple Regression Analysis for Predictors of Maternal Scaffolding*

<b>Variable</b>	<b>B</b>	<b>SE B</b>	<b><math>\beta</math></b>	<b>p</b>
Child gender	.04	.03	.21	.14
Child's age	.00	.00	-.09	.53
PPVT-III	.00	.00	.17	.23
Attentional Focus (M) <sup>a</sup>	-.01	.02	-.12	.44
Inhibitory Control (M) <sup>a</sup>	.02	.02	.20	.20
Mother's educ. level	.02	.01	.17	.22

Note.  $R^2 = .10$ ; Adjusted  $R^2 = .00$ ;  $p = .42$

<sup>a</sup>questionnaire was completed by mother

A second multiple regression (summarized in Table 9) tested whether maternal education, child age, child gender, child attentional focus and inhibitory control, and PPVT-III score predicted maternal directiveness. Lower language scores on the PPVT-III were found to significantly predict higher levels of maternal directiveness. No other variables were significant predictors of maternal directiveness.

Table 9.

*Summary of Multiple Regression Analysis for Predictors of Maternal Directiveness*

<u>Variable</u>	<u>B</u>	<u>SE B</u>	<u><math>\beta</math></u>	<u>p</u>
Child gender	-.02	.03	-.11	.45
Child's age	.00	.00	-.04	.77
PPVT-III	.00	.00	-.28	.05*
Attentional Focus (M) <sup>a</sup>	-.01	.02	-.08	.58
Inhibitory Control (M) <sup>a</sup>	-.01	.02	-.07	.64
Mother's educ. level	-.02	.02	-.17	.20

Note.  $R^2 = .14$ ; Adjusted  $R^2 = .04$ ;  $p = .22$

<sup>a</sup>questionnaire was completed by mother

\* $p \leq .05$

The same analyses were completed for fathers. A multiple regression tested whether paternal education, child age, child gender, child attentional focus and inhibitory control as measured by the father, and PPVT-III score predicted paternal scaffolding. None of the variables significantly predicted transformed paternal scaffolding (see Table 10).



Table 10.

*Summary of Multiple Regression Analysis for Predictors of Paternal Scaffolding*

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>p</i>
Child gender	-.04	.03	-.17	.25
Child's age	.00	.00	.12	.42
PPVT-III	.00	.00	.03	.84
Attentional Focus (F) <sup>a</sup>	.00	.03	-.03	.87
Inhibitory Control (F) <sup>a</sup>	.02	.03	.14	.43
Father's educ. level	.02	.02	.14	.33

Note.  $R^2 = .06$ ; Adjusted  $R^2 = -.04$ ;  $p = .73$

<sup>a</sup>questionnaire was completed by father

A final multiple regression analysis was conducted to test whether paternal education, child age, child gender, child attentional focus and inhibitory control as measured by the father, and PPVT-III score predicted transformed paternal directiveness. Child gender significantly predicted paternal directiveness, as fathers of boys were more directive during the interaction ( $M = .17$ ;  $SD = .10$ ) than fathers of girls ( $M = .11$ ;  $SD = .07$ ). There were no significant results for other child characteristics (age, attentional focus, inhibitory control) or paternal education (see Table 11).

Table 11.

*Summary of Multiple Regression Analysis for Predictors of Paternal Directiveness*

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>p</i>
Child gender	-.09	.03	-.36	.01**
Child's age	.00	.00	.13	.31
PPVT-III	.00	.00	-.18	.20
Attentional Focus (F) <sup>a</sup>	-.04	.03	-.26	.09
Inhibitory Control (F) <sup>a</sup>	.01	.03	.06	.73
Father's educ. level	-.01	.02	-.10	.42

Note.  $R^2 = .21$ ; Adjusted  $R^2 = .12$ ;  $p = .05$

<sup>a</sup>questionnaire was completed by father

\*\* $p \leq .01$

*Correlations of Scaffolding and Directiveness to Social Competency*

It was hypothesized that maternal scaffolding and paternal scaffolding and directiveness would correlate positively with the teacher evaluation of the child's teacher rated social competency (SCBE). Maternal directiveness was predicted to correlate negatively with SCBE ratings. Contrary to predictions, maternal scaffolding did not correlate positively with the SCBE ratings. In fact, maternal scaffolding was significantly negatively correlated with SCBE ratings. No relationships were found between maternal directiveness, paternal directiveness or paternal scaffolding and SCBE ratings (see Table 12).

Table 12.

*Correlations between Transformed Maternal and Paternal Scaffolding and Directiveness and the Child's Social Competency as rated by the Teacher (SCBE).*

	<i>r</i>	<i>Sig.</i>	<i>N</i>
Transformed prop. of Maternal Scaffolding	-.27*	.04	60
Transformed prop. of Maternal Directiveness	-.03	.84	60
Transformed prop. of Paternal Scaffolding	.09	.49	60
Transformed prop. of Paternal Directiveness	.21	.11	60

\* Correlation is significant at the .05 level (2-tailed)

*Prediction of Child's Social Competency from Maternal and Paternal Scaffolding and Directiveness*

Maternal scaffolding, paternal scaffolding and paternal directiveness were hypothesized to significantly predict the child's social competency as rated by the teacher (SCBE). Maternal directiveness was predicted to be negatively associated with SCBE ratings. The child's gender, age, and language abilities (PPVT-III standard score) were also entered into the regression equation to consider any variance in child social competence that may be accounted for by these variables. As presented in Table 13, maternal scaffolding negatively predicted the child's SCBE ratings. This finding is opposite to what was predicted, but is consistent with the correlational results reported previously. However, as expected, paternal directiveness positively predicted SCBE ratings. Paternal scaffolding and maternal directiveness did not predict SCBE ratings.

Table 13.

*Summary of Multiple Regression Analysis for Predictors of Child Social Competency (SCBE) Ratings*

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>p</i>
Maternal Scaffolding	-32.25	12.72	-.35	.01**
Maternal Directiveness	-14.94	12.39	-.18	.23
Paternal Scaffolding	19.99	11.62	.25	.09
Paternal Directiveness	22.98	11.23	.32	.05*
Child's gender	1.96	2.59	.11	.45
Child's age	.21	.17	.16	.22
PPVT Standard Score	.03	.11	.03	.81

Note.  $R^2 = .22$ ; Adjusted  $R^2 = .12$ ;  $p = .06$

\* $p \leq .05$ , \*\*  $p \leq .01$

*Impact of Child Temperament, Time in Day-care, and Family Ethnicity on the Child's Social Competency Ratings.*

One further multiple regression was completed to determine whether the relationships between the four transformed parental variables of scaffolding and directiveness and SCBE ratings would change when five additional child and family characteristics were added to the regression. The five additional variables included: child attentional focus, inhibitory control, time spent in day-care and maternal and paternal ethnicity. These additional variables were examined because they could potentially impact a child's social competency. However, the sample size of the study limited both the statistical power of the analysis as well as the conclusions that could be drawn from the results. It was decided to use only the maternal ratings for attentional focus and inhibitory control in order to reduce the number of variables in the equation (correlations between parent

variables are in Appendix H). Parent ethnicity was divided into two groups; European or Canadian descent and Asian descent (Chinese, Japanese, South Asian). This regression was based on a sample size of  $n = 59$ , as one family did not have complete data on the additional five variables. The results indicated that child attentional focus and inhibitory control, time spent in daycare and maternal and paternal ethnicity did not significantly predict social competency. Maternal scaffolding remained a significant negative predictor of the child's social competency. Paternal directiveness accounted for less variability in child social competency when the additional variables were added and was no longer significant at the .05 level (see Table 14). Interestingly, the positive relationship between paternal scaffolding and child social competency also approached significance when the additional variables were added.

Table 14.

*Summary of Multiple Regression Analysis for Further Child Characteristics as Predictors of Child Social Competency (SCBE) Ratings*

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>p</i>
Maternal Scaffolding	-34.56	13.54	-.37	.01**
Maternal Directiveness	-7.71	13.90	-.09	.58
Paternal Scaffolding	24.49	12.47	.29	.06
Paternal Directiveness	22.03	11.77	.30	.07
Child's gender	2.85	2.80	.16	.31
Child's age	.22	.18	.17	.23
PPVT Standard Score	-.01	.14	-.01	.94
Child's Attentional Focus <sup>a</sup>	.27	1.59	.03	.87
Child's Inhibitory Control <sup>a</sup>	-1.25	1.71	-.11	.47
Daycare Hours/week	-.06	.09	-.09	.51
Mother's ethnicity	1.71	4.02	.09	.67
Father's ethnicity	-5.97	4.22	-.28	.16

Note.  $R^2 = .282$ ; Adjusted  $R^2 = .094$ ;  $p = .158$ ;  $N=59$ .

<sup>a</sup> Mothers' ratings

\*\*  $p \leq .01$

## DISCUSSION

The results of this study highlight a number of unique associations between maternal and paternal behaviours and social development in preschool-aged children. While both fathers and mothers used more directiveness than scaffolding in their interactions, fathers were found to be more directive than mothers and mothers used more scaffolding in their interactions with their children than fathers. Maternal and paternal scaffolding were not predicted by child characteristics of age, gender, temperament or language, or parental level of education. However, maternal directiveness was associated with a child's language ability, and paternal directiveness was associated with child gender. Paternal directiveness was associated with higher teacher ratings for a child's social competency. However, contrary to expectations, maternal scaffolding was negatively associated with a child's social competency. Maternal directiveness and paternal scaffolding had no relationship with a child's social competency. These results and their implications will be discussed more fully in the following section. Limitations of the study and future directions will also be discussed.

### *Sample Characteristics*

There are two main characteristics of the sample, size and homogeneity, which need to be considered when discussing the results. First, the sample consisted of 60 families with complete data sets. Considering the number of variables that were of interest, this is a small sample size, and it limited the

statistical analyses that could be done. Recruiting a sufficient number of families was difficult given the stringent inclusionary criteria (i.e., both mother and father were able to attend the session, eldest child 3 or 4 years of age, in daycare or preschool at least two days a week, fluent in English). However, one of the most limiting recruiting factors seemed to be the requirement that fathers attend the lab session. Barnard and colleagues indicate that pragmatically, mothers are typically more willing to participate in studies and are more accessible, and thus, are easier to recruit than fathers (Barnard et al., 1989). They suggest that this difficulty in recruiting fathers contributes to the relative imbalance in the number of studies done with fathers versus mothers. Recruiting families for the current study was consistent with Barnard's experience. Several mothers responded to recruitment advertisements for the study, but the families were not included because the fathers declined to participate.

Given the difficulty in recruiting families in which both parents were willing to participate, it is perhaps not surprising that there was a selection bias in the families included in this study. This bias likely contributed to the homogeneity of the sample. Although not specifically measured, it seems reasonable to assume that willingness to participate in the study may be associated to some degree with parental investment and commitment. Participating parents were also generally highly educated, as 60% of mothers and 43.3% of fathers held university degrees. This level of university education is significantly higher than the British Columbia population average of 16% (Statistics Canada, 2001). Participating mothers also gave birth to their first child (target child in this study)



at an older age than average. Extrapolating from mothers' current age and the child's age in this study, mothers were, on average, 31.5 years of age when they had their first child, as compared to the average maternal age of 27.4 for first live births in a similar Canadian population in 2005 (Reproductive Health Working Group, 2006). Given these characteristics, the sample can generally be described as being comprised of high functioning families with involved, older parents of both genders. Similar characteristics have been shown in other research to be predictive of parental sensitivity and involvement (Richman et al., 1992; NICHD, 2005). Thus, the sample characteristics likely influenced the levels of directiveness and scaffolding that parents displayed. For example, given the high mean level of education, mothers and fathers in this sample may have demonstrated higher levels of scaffolding than may have been observed in a more diverse sample. Associations between scaffolding and parental education reported in other research (e.g., Richman, et al., 1992; Leaper, 2000) lend support to this possibility. Given the apparently high level of functioning and parental investment in participating families, it is also likely that directiveness frequently occurred in the context of supportive and caring parent-child interactions. As Kazura (2000) reported, this may be particularly true for father-child relationships, where paternal directiveness correlated positively with secure father-child attachment. Thus, it would be reasonable to expect that the sample would have higher mean levels of scaffolding and a more restricted range of both scaffolding and directiveness than is present in the general population. Despite these sample characteristics, it is noteworthy that statistically significant

relationships were demonstrated for paternal directiveness and maternal scaffolding with a child's social development.

Parent characteristics are also likely to have an impact on child characteristics, particularly when one recognizes the sociocultural context in which children learn new skills through interacting with their parents. Parental characteristics in the present sample likely contributed to the above average language scores that children received on the PPVT-III. However, the means of the remaining child variables (attentional focus, inhibitory control, and teacher rated social competency) were quite consistent with the standardization samples for these measures.

The sample characteristics need to be considered when drawing conclusions about this study, as they limit generalizability. To provide some context, these are families where mothers and fathers are living together, who are highly educated, who typically had their first child when they were older, and who are motivated to volunteer for a study of parent-child interactions. Not only do these characteristics limit the generalizability of the results to the wider population, they also may reduce the variance within each of the variables of interest in the specific studies. Thus, in the following discussion, it is important to recognize the difficulties in recruiting fathers, and the self-selection bias and homogeneity that is introduced when families are asked to willingly participate in a study of this nature.

### *Scaffolding and Directiveness for Mothers and Fathers*

Although this study has specifically focused on differences between fathers and mothers, it is important to re-iterate that overall, there were considerable similarities between fathers' and mothers' interactions, which is consistent with previous studies (Kokkinaki & Kugiumutzakis, 2000; Lewis et al., 1996). Both fathers and mothers had proportionately more directives in their speech than scaffolding statements, and there were also significant correlations between maternal and paternal scaffolding ( $r = .31$ ;  $p < .05$ ) and maternal and paternal directiveness ( $r = .47$ ;  $p < .01$ ). This suggests that within a family unit, mothers and fathers have relatively similar levels of scaffolding and directiveness in their interactions with their children. It would be interesting to further examine the variables that contribute to parents, as a unit, providing more scaffolding or directives in their parent-child interactions.

As predicted, however, there was also a significant interaction between language and parent. In particular, proportions of scaffolding verbalizations were higher for mothers than fathers, and proportions of directiveness in parent-child interactions were higher for fathers. This finding is consistent with previous research on parent verbal interactions, and may reflect different levels of child attunement for mothers and fathers (Gauvain et al., 2002; Leaper et al., 1998; Abkarian et al., 2003). Differences in directiveness and scaffolding for mothers and fathers may also be a result of fathers being more task-focused and mothers being more concerned about the child's interest in the task. This explanation is consistent with several studies. For example, Osofsky and O'Connell (1972)

found that, with 5-year-old daughters, fathers were more oriented to task-accomplishment than mothers, whereas mothers encouraged their daughters' own efforts. Similarly, Conner et al., (1997) found that mothers balanced their instruction with their child's exploration when reading a book, whereas fathers were more focused on the goal of reading the story.

### *Predicting Scaffolding in Mother-Child and Father-Child Interactions*

Scaffolding was predicted to be influenced by parental education, the child's age and gender, higher levels of inhibitory control and attentional focus, and higher language scores. None of these variables were significantly associated with maternal or paternal scaffolding.

These null results for maternal scaffolding are not consistent with previous research, which found positive associations between maternal scaffolding and temperament (Winsler et al., 1999), child age (Landry et al., 1997), maternal education (Leaper 2000; Richman et al., 1992) and child language abilities (Landry et al., 1997). Sample size and characteristics may have contributed to a lack of association, as statistical power was limited and the range of variation within each variable may have been restricted. As previously mentioned, maternal scaffolding, maternal education and children's language scores may all have been impacted by sample characteristics. Thus, conclusions about the influence of child temperament, language and maternal education on maternal scaffolding cannot be made without further research, preferably with a larger and more varied sample.

Paternal scaffolding was also not associated with paternal education, child age and gender, child language scores and attentional focus and inhibitory control. In contrast to research on mother-child interactions, previous research has not investigated whether these variables might predict paternal scaffolding. Sample characteristics may have influenced these results, or alternatively, these results may indicate that paternal scaffolding is not associated with the father's education level or with child characteristics. These findings are consistent with previous descriptions of fathers' lower level of attunement to the child's developmental level that has been observed in other studies of father-child interactions (Le Chanu & Marcos, 1994; Mannle & Tomasello, 1987; Leaper, 2000; Gleason, 1975). Further research is needed to replicate these findings with a more diverse sample.

#### *Predicting Directiveness in Mother-Child and Father-Child Interactions*

Directiveness in mother-child and father-child interactions was predicted to be associated with child's age, temperament, gender, language abilities, and parental education level. A significant negative relationship between maternal directiveness and a child's language abilities was found. Previous research suggests that mothers are more directive when their children are younger and require more assistance (Landry et al., 1997). In the current study, a child's verbal abilities may be the best indicator of a child's developmental level, and this may account for the association with the amount of directiveness that a mother uses. Alternatively, children's lower language scores may themselves be impacted by higher levels of maternal directiveness and less scaffolding.

Replication with a larger sample including children with more varied language abilities may help to clarify this relationship. Null results for the other variables (age, child temperament, gender, maternal education level) are generally not consistent with previous literature, indicating that more research needs to be done before drawing conclusions.

Paternal directiveness was significantly associated with child gender, in that fathers of sons were more directive than fathers of daughters. This finding is consistent with previous research, as fathers have been found to be more performance oriented with sons as opposed to more co-operative with daughters (Frankel & Rollins, 1983), and parents of both genders and preschool teachers have shown more directiveness with boys than with girls (Fagot & Hagan, 1991; Fagot et al., 1985). Demonstrated differences in the level of paternal directiveness for boys and girls may be a factor in early socialization processes that contribute to differences in levels of directiveness between mothers and fathers, as was observed in this study. Early socialization experiences for boys and exposure to directiveness from caregivers and teachers may be a possible predictor of directiveness when these boys grow up and become parents themselves. While intriguing, longitudinal research is needed to test this hypothesis. Apart from gender, paternal directiveness was not associated with the other variables. As with paternal scaffolding, there is little research on what specific child characteristics or paternal characteristics might predict or be associated with paternal directiveness. Nevertheless, these findings are generally consistent with research on fathers' poorer attunement to their child's

developmental abilities, as compared to mothers (Le Chanu & Marcos, 1994; Mannle & Tomasello, 1987; Leaper, 2000; Gleason, 1975). Fathers' use of both scaffolding and directiveness appears to be independent of the child characteristics measured in this study, with the exception of child gender. There may be other variables, however, that were not included in this study that may influence paternal scaffolding and directiveness, such as early socialization experiences, that warrant further study. The findings of the current study provide some preliminary direction to these queries but more research is needed to address these questions more fully.

#### *Paternal Directiveness Positively Predicted Child Social Competency*

Paternal directiveness during the construction task positively predicted a child's social competency in preschool. This finding contributes to the literature on father-child relationships and suggests that father-child interactions have a significant impact on child's social development outside of the home, as has been argued by several researchers (Barton & Tomasello, 1994; Gleason, 1975; Mannle & Tomasello, 1987). Paternal directiveness introduces unpredictability and novelty into the parent-child interaction (Le Chanu & Marcos, 1994), which may help prepare children for novel social situations outside of the home and also contribute to children's development of affect regulation, self-control and an increasing awareness of self and others. Paternal directiveness may also provide opportunities to practice social interactions that preschool children have with peers, as peers would likely be more directive than facilitating in their conversations with each other. Through both directive language and playful

interactions, fathers can be conceptualized as mature play companions, teaching their children through their interactions how to interact with others. Furthermore, preschool teachers and daycare workers are also likely to employ directives as they teach and care for children. Thus, paternal directiveness may be one mechanism through which children learn some of the skills required to navigate relationships with both peers and authority figures outside of the home.

The finding that paternal directiveness is associated with positive social outcomes for children contrasts with the literature on maternal directiveness, and highlights potentially unique characteristics and contributions of father-child interactions, particularly in the realm of social development. As Roggman, Boyce and Cook (2002) argue, fathers are not simply secondary caregivers that 'fill-in' when mothers are not available, they contribute uniquely to their child's development, and recent trends in the literature suggest a broader focus and understanding of fathers, in both theory and research.

The positive relationship between paternal directiveness and child social competency that was found in this study needs to be considered within the context of the sample characteristics. Qualitatively, fathers in this sample presented as well-educated, high-functioning, and generally interested in their child's development and well-being. Paternal directiveness, in this context of a seemingly loving relationship, was associated with increased social competency in the child. Directiveness in the context of father-child relationships that do not have these qualities may have a different association with a child's social competency. The selection bias inherent in voluntary studies would make it



difficult to recruit fathers that were not invested or particularly involved with their children, however, such a study would be useful to understand the contextual variables that may influence the relationship between paternal directiveness and child social competency.

#### *Paternal Scaffolding Unrelated to Child Social Competency*

Contrary to expectations, paternal scaffolding did not positively correlate with child social competency, although when child temperament and parental ethnicity were also considered as predictors of child social competency, the relationship between paternal scaffolding and child social competency approached significance. Interestingly, the correlation between paternal scaffolding and child social competency was in a positive direction, which is in contrast to the negative relationship between maternal scaffolding and child social competency. With a larger sample size, paternal scaffolding would be expected to relate to increased social competency in a child, as paternal directiveness did in this study.

#### *Maternal Directiveness Unrelated to Child Social Competency*

Maternal directiveness was expected to be negatively related to a child's social competency, but no associations were found. This is a surprising result given that past research has demonstrated that maternal directiveness is generally negatively associated with a child's social development, particularly as children grow older (Crockenberg & Litman, 1990; Parpal & Maccoby, 1985; Rocissano et al., 1987). The lack of a negative relationship between maternal

directiveness and a child's social competency may partly be a function of the child's age in the current study. Landry et al. (2000) reported that maternal directiveness was positively associated with developmental gains for infants and toddlers; however, as children matured, maternal directiveness measured when the child was 3 ½ years of age had a direct, negative influence on cognitive and social aspects of the child's development at 4 ½ years of age. Thus, the children in the current study could be in a stage of transition where maternal directiveness may still be meeting some needs, but may be a more negative factor as the children age. This possibility could be examined through follow-up research on the same families as the children mature.

#### *Maternal Scaffolding Negatively Predicted Child Social Competency*

The finding that maternal scaffolding was negatively related to the child's social competency was surprising, and contrary to what previous research would predict (Berk & Winsler, 1995). For example, Landry and colleagues (2001) concluded that facilitation and responsiveness to a child's interests and needs was foundational for social skill development, because these parental behaviours reflect an awareness of a child's individuality and encouraged self-efficacy. Although scaffolding differs from facilitation, there are shared core components to each, such as facilitating autonomy and increasing self-efficacy, which one could assume would be associated with greater social competence. However, in the present study, maternal scaffolding was associated with poorer social competency in a preschool or daycare setting. These findings raise a couple of interesting possibilities. First, mothers may use scaffolding to encourage and

support children who have weaker social skills. Thus, the negative association between maternal scaffolding and social competency may reflect maternal response to certain child characteristics such that mothers attempt to support or encourage less socially competent children using scaffolding. Maternal scaffolding may also contribute to children's poorer social skills outside of the home. The relation between child characteristics and maternal scaffolding may also be bidirectional such that less socially competent children evoke more scaffolding from their mothers which, in turn, contributes negatively to the development of social competence outside of the home environment.

Alternatively, maternal scaffolding may have positive associations with other domains of child development, but not with social competency outside of the home. Maternal scaffolding may for example, be associated with cognitive development, as has been shown in previous studies (Landry et al., 2001; Landry et al., 2002). Maternal scaffolding may also positively impact the specific social relationship between mother and child, but not be significantly associated with the child's social skills outside of the home. Landry's research provides some support for this, as observers of mother-child dyads gave higher social responsiveness ratings to the children of mothers who facilitated and maintained their child's interest in an activity (Landry et al., 2000). These possible explanations require more information regarding the impact of scaffolding on both social and cognitive domains of development.

The age of the children involved in this study may also play a role in the unexpected negative association between maternal scaffolding and social

competence. Maternal scaffolding may be a positive predictor of social competency when children are older, as suggested in other research (Landry et al., 2000; 2002; Berk & Winsler, 1995), however, preschool-aged children may be in a transition phase between being home most of the time to being in activities outside the home, and in the care of a non-parent. Children who have experienced higher levels of maternal scaffolding may have a more difficult transition initially, as they are accustomed to a caregiver who is highly attuned to their needs and developmental levels. Given that preschool teachers and other non-parent caregivers do not know the child as well as their mother does, they may not be as attuned to the child's individual needs and development. Children who are not used to a wider range of social interactions may have more difficulty with this transition for the short term. This transitional pattern would not be expected between paternal scaffolding and a child's social development as father-child interactions are thought to be more similar to non-maternal relationships (less attunement, more directive, and unpredictable), and would thus better prepare the child for social relationships in preschool. Information regarding how long the child had been in daycare or preschool would need to be obtained to further explore this possibility. Longitudinal research would also clarify this possible explanation.

### *Practical Implications for Parents*

What are the implications of the current findings for mothers and fathers? For families with similar demographic characteristics as the sample families, paternal directiveness would be expected to correlate positively with a child's

social development outside of the home. While paternal directiveness is one of many paternal characteristics that may be positively associated with child development, findings for this particular characteristic re-iterate the importance of time spent in father-child interactions during the preschool years. Furthermore, qualities of father-child interactions, such as less attunement to the child's interests and more directiveness, should not be viewed as indicators of poorer parenting skills in comparison to maternal characteristics. As presented in this study and other research, these paternal qualities are positively associated with several domains of child development. In short, it is important for fathers to be actively involved with their preschoolers, as well as to recognize the positive contributions of their interactive styles with their children.

The present findings for maternal scaffolding suggest that in families with similar demographic characteristics, this maternal quality would be negatively related to a child's social competency. Although further research is needed to clarify this result, it does raise some questions about the impact of maternal scaffolding on a child's social development. While encouraging cognitive development and self-efficacy, maternal scaffolding may not provide a child with experiences of social interactions more likely to be found outside the home, such as relationships with peers or authority figures. Optimally, maternal scaffolding would balance the child's growing sense of autonomy and self-efficacy while recognizing that there will be many social interactions where the child's needs are not foremost, and that children need social skills to navigate such settings.

### *Limitations of the Present Study*

There are some limitations to the present study. First, as has already been discussed, the sample size was small and homogeneous in nature. It was difficult to recruit fathers to participate in this study, and time limitations prevented prolonging the study. Self-selection biases also occurred as a by-product of the volunteer nature of participating in the study, resulting in a sample of more highly educated, older and high-functioning parents than what would be expected in the general population. Sample characteristics of the parents may have limited the range of scaffolding and directiveness observed in the interactions, and influenced child characteristics, such as language abilities. In addition, children in day care or preschool may have different scores on language, temperament and social variables than children not in day care or preschool. Furthermore, parents that volunteered for this study may have felt more confident and positive about their parenting styles and their child's behaviour and temperament than families that chose not to participate. There are options to minimize the selection bias and increase sample size, but they come with a cost, as is typically the case. First, the study could have been carried out over a longer time period, which would have increased the sample size, and thus increased power, allowing for greater statistical sensitivity to significant results. In addition, recruitment strategies could have focused on a larger cross section of the population and specifically on fathers (e.g., advertising on a sports radio station); however, the difficulty of reducing self-selection biases inherent in this type of research design remains. The honorarium could be increased so as to attract families that participated for financial purposes, rather

than those agreeing to essentially volunteer their time because of their interest in the research topic.

A second limitation to the study is that it was carried out in a laboratory setting. The benefits of using a lab are that extraneous variables such as setting, interruptions and variations in set up and presentation of materials are minimized. However, it is obviously an artificial environment that will impact to some extent, how parents interact with their child. Observing families in their homes or in naturalistic settings may have resulted in differing amounts of scaffolding and directiveness that parents exhibited. Previous research would suggest that attenuated differences between parental characteristics, such as scaffolding and directiveness, would be evident in a laboratory setting as compared to naturalistic observations in the home (Leaper, 2000; Fagot, 1998). In addition to differences in naturalistic and lab settings, situational characteristics, such as play or caregiving activities have also been found to impact parent-child interactions (Walker & Armstrong, 1995; Leaper et al., 1998). Thus, expanding the observational contexts would provide more information about the relationship between these parental characteristics and a child's social development.

The nature of the task may also impact scaffolding and directiveness. The tasks chosen for this study were quite neutral, and each had several possible ways to complete the task. Tasks that are more cognitively demanding, physically demanding, or socially demanding, with specific strategies or completion requirements may also impact parental scaffolding and directiveness

in a variety of ways. For example, cognitively challenging tasks with post-tests (e.g., puzzles or block designs) would likely elicit greater amounts of scaffolding as parents would be specifically asked to teach their child how to independently complete a challenging task. Further research on the impact of task difficulty and task type, and parents' perceptions of their child's ability to complete the task are important to address these questions.

A fourth limitation is that teachers' ratings of social competency were completed by different teachers. This introduces increased error into the measurement of the child's social competency ratings as a result of potential differences between teachers rather than true differences between children's social competence, although the standardized scores of this measure reduce the variance somewhat. Logistically, it would have been very difficult to recruit enough families who all had the same preschool teacher. This was a compromise that was made in order to facilitate recruitment and, more importantly, to get a measure of the child's social competency that was independent from parental ratings.

### *Future Directions*

The present findings have important implications for the direction of future research on parent-child interactions, specifically, in regards to the differential impact of paternal and maternal interactions on a child's social competency. Replication of this study with a larger and more varied sample that specifically investigates relationships between aspects of social competency (e.g., autonomy, affect regulation) and parental scaffolding and directiveness would



build on the results of the current study. In addition, a more detailed analysis of the verbal exchange between parent and child during the observational period would also provide information regarding how parents utilize scaffolding and directiveness when relating to their child and how children respond to these verbalizations.

The design of this study was cross-sectional in nature. As usual, longitudinal research would provide the opportunity to assess many further questions. For example, do the relationships between parental interaction styles (i.e., scaffolding and directiveness) and a child's social competency change over time. As discussed earlier, the transition that occurs during the preschool years, as children have more opportunities to engage in activities outside the home and increase their independence, may conflict directly with maternal scaffolding as practiced up to this age range. As children become older and more independent, the relationship between maternal scaffolding and social competency may change. Likewise, as the preschool years encompass the time frame when fathers are most playfully interactive with their children, it could be that the relationship between paternal scaffolding and directiveness with a child's social competency also changes as the child matures. The present study highlights the need to further clarify how these variables interact and might change over time.

Another area of inquiry is how scaffolding and directiveness are manifest in the context of co-parenting. That is, do parental characteristics compliment each other so that a child receives optimal levels of these variables? For example, is one parent's directiveness complimented by the other's scaffolding?

Alternatively, each parent may strive for a ratio or balance in their own interactions with their child between scaffolding and directiveness. This line of inquiry raises further important questions about families that do not match the composition of families in the present study. Does the gender of the parent matter? Are these characteristics of father-child interactions, such as playfulness and increased directiveness, there because fathers are men (Roggman et al., 2002), or are these characteristics associated with a particular role in the family, regardless of gender? Further studies of how directiveness and scaffolding relate to a child's social competency with samples of single parent families, same-sex parent families, and non-biological parent figures (e.g., extended family members, caregivers, etc.) would provide interesting information on how directiveness and scaffolding are exhibited in different family systems.

This study specifically assessed the eldest child of the family. This was done to minimize the influence of social skills gained from interacting with an older sibling. However, it is quite plausible that both directiveness and scaffolding would be impacted by birth order and the number of children in the family. One study including 130 fathers, for example, found that fathers of first-born, 3-year-olds, were more sensitive to their child in father-child interactions than fathers who were interacting with their second or third child (NICHD, 2005). Thus, studies with younger siblings would provide further information about how maternal and paternal scaffolding and directiveness are associated with social competency and allocated within family systems.

One further sample variation that would be interesting to examine is that of ethnicity. In the current study, no differences in scaffolding or directiveness emerged for families of an Asian background (predominantly Chinese or Japanese); however, the sample size was likely too small to draw conclusions. Again, it is possible that ethnic variations in parenting would impact levels of directiveness and scaffolding and how these variables relate to social competency.

Finally, changes in the methodology of the current study to look at a variety of different tasks in different settings than a laboratory would be important to further understand both the levels of scaffolding and directiveness in parent-child interactions, as well as the relationship of these variables with social competency. As mentioned earlier, parent-child interactions are influenced by task and situation. Observation of free play, interactions in the home, caretaking interactions and tasks that are more demanding in nature would be beneficial in understanding when parents use scaffolding and directiveness, and how levels of scaffolding and directiveness in these settings relate to a child's social competency.

In conclusion, the findings from this study indicate that fathers exhibited more directiveness and mothers exhibited more scaffolding in their speech with their children. Fathers' directive interactions with their children were associated with positive social outcomes for their children. This positive finding for paternal directiveness is in contrast to maternal directiveness, which has generally been considered as a more negative interaction style in the literature. Conversely,

maternal scaffolding, which is generally thought to be a positive interactional quality, had negative associations with a child's social development. These findings highlight the importance of conducting more research with fathers and developing theories of father-child relationships that extend beyond what is known about mother-child relationships. Furthermore, assessing and evaluating paternal qualities with traditionally maternal measures may overlook or distort aspects of the father-child relationship and the importance of paternal contributions to child development. Despite the challenges of recruiting fathers for studies, recent trends in family and child development research are recognizing the important, varied and unique characteristics of father-child interactions and their contributions to child development.

## APPENDICES

## Appendix A

### *Recruitment Advertisements and Letters*

#### *Advertisement for Community Newspapers*

# SFU PRESCHOOL STUDIES NEED PARTICIPANTS

SFU's Social Emotional Development Lab invites parents and preschoolers (3 and 4 year olds) to take part in research projects on children's social development. Our studies each require one visit to the lab that will take approximately one hour. Participants will be paid \$25.

**For more information please visit our website <http://www.sfu.ca/csedi> or call 604-268-6825.**

#### *Advertisement in Family Magazines*

Would you and your child like to participate in a fun research study that looks at how language and play influence your child's social development?

**RESEARCHERS AT SFU'S SOCIAL EMOTIONAL DEVELOPMENT LAB**

We need families with an eldest child between 3-4 years of age, who attends daycare or preschool at least 2 times a week. Your family will come to our lab for one hour, play and interact, complete questionnaire and receive a \$25.00 honorarium.

604.268.6825 [www.sfu.ca/csedi](http://www.sfu.ca/csedi)



*Recruitment Letter to Preschools and Daycares*

SIMON FRASER  
UNIVERSITY

DEPARTMENT OF PSYCHOLOGY  
8888 UNIVERSITY DRIVE  
BURNABY, BC  
CANADA V5A 1S6



Office: RCB 7318  
Voice: 604-268-6668  
Fax: 604-291-3427

[www.psyc.sfu.ca](http://www.psyc.sfu.ca)

To whom it may concern,

The Children's Social and Emotional Development Lab in the Department of Psychology at Simon Fraser University is conducting a study on how children develop language and social competency from their interactions with their mothers and fathers. We are particularly interested in how father-child play and interactions influence a child's development. Most research on parent-child dyads has focused on mothers, we know far less about how fathers interact with their children, although we know that they are a very important part of a child's development

We are recruiting families whose eldest child is 3 or 4 years old and who attends daycare or preschool at least two times a week. Families come into our lab at SFU and play together and complete some questionnaires. Families receive \$25.00 for their participation, and their child receives a 'Young Scientist Award' and a small toy.

*We are asking for your help in recruiting families for this study.* We have enclosed a poster that you can post in a prominent area, and we have also enclosed approximately 20 leaflets to distribute to children in your class or daycare. One of the reasons why fathers have so rarely been studied is because it is hard to recruit them for study participation, so we would *greatly* appreciate any help you can provide in this regard.

If you have any questions regarding the study, or any further suggestions about recruiting families who meet these criteria, please contact Christine Phillips-Hing at (604) 268-6825, or by e-mail at [cdp@sfu.ca](mailto:cdp@sfu.ca). We also have a great website for our lab which describes what we do and the various studies that are ongoing. The website address is [www.sfu.ca/csedl](http://www.sfu.ca/csedl).

Thank-you very much for your help,

Christine Phillips-Hing, M.A.  
Department of Psychology  
Simon Fraser University  
8888 University Drive  
Burnaby, BC, V5A 1S6



## *Telephone Protocol for Interested Families*

### Telephone Protocol

- 1) Introduce yourself, name and from Children's Social and Emotional Development Lab Simon Fraser University
- 2) Thank-you for calling
- 3) Explain study
  - a. **We will go over the details of the study when you are here for your appointment, but in order to give you a general sense of what we are studying, I will describe it to you briefly. We are studying how moms and dads influence a child's social and language development. Most research in this area has looked at mothers, but we are also very interested in fathers' interactions with their children, as we know much less about this area. We are asking families (both mom and dad) to come to our lab at Simon Fraser University for 1-1.5 hours. You will be asked to fill out some questionnaires about your child's temperament, language, and social behaviours, as well as a questionnaire about parenting. You and your partner will also spend some time playing with your child. The play time will be recorded. Your child will also be asked to point to some pictures after being told a specific vocabulary word (i.e., plane, balloon). We also have a questionnaire that we would like your child's daycare worker or preschool teacher to complete. This questionnaire assesses social behaviours, and is similar to the one that you will fill out for your child. You will receive \$25.00 for your participation, and your child will receive a small toy and a certificate. Your child's teacher will receive a \$5.00 gift certificate to Starbucks.**
  - b. **Do you have any questions?**
- 4) Inclusion criteria\*: **To be able to participate in the study, there are some things that we need to know:**
  - a. **Mother and father can both come in at the same time (parent[s] do not have to be biological, but need to have lived with the child for the past two years)**
  - b. **Child needs to be attending daycare or preschool at least 2 times/week**
  - c. **Family needs to be fluent in English**
  - d. **Child needs to be 3 or 4 years old**
  - e. **Child needs to be eldest in the family**
- 5) Set up appointment
- 6) Give instructions on how to get to lab – see our website for map – and also that we will be providing them with a parking pass
- 7) **We will call you a day before your appointment to confirm. Please call us if you have any questions (604) 268-6825.**

8) Miscellaneous:

- a. Younger siblings can come if necessary, although not ideal.
  - b. Parent does not need to be biological but needs to be living with child for past 2 years.
  - c. Mother and father need to come in at the same tie, as we don't want parents to discuss tasks or questionnaires.
  - d. We will send a questionnaire, consent form and signed release of information to the teacher and a self-addressed envelope to send info back to us. Probably best if parent tells teacher that this will be coming, but we will look after all the details.
- If family does not meet requirements, indicate that we have other studies ongoing and ask permission o contact them for one of these studies at a later date.
  - After phone call, fill out index card with names of family members, phone number, address, date and time of call, and when appointment is set, or why appointment wasn't set. Write down appointment and e-mail lab members. Note when you will call family to remind them of the appointment.

## Appendix B

*Demographic Questionnaire*

Please circle who is filling out this form:                      Mother                      Father

1. What is your child's birth date? \_\_\_\_\_
2. When is your birth date? \_\_\_\_\_
3. What is your ethnic background? \_\_\_\_\_
4. What level of education did you complete?
  - a. Elementary school
  - b. High School
  - c. 2 years of college, or a diploma or technical degree
  - d. Bachelor's degree
  - e. Graduate degree
5. What is your occupation? \_\_\_\_\_
6. How many hours do you work outside of the home per week? \_\_\_\_\_
7. How many hours per day do you spend interacting with your child (playing, helping, feeding, getting dressed, etc.)? \_\_\_\_\_
8. How many hours per week is your child in daycare or preschool? \_\_\_\_\_
9. For each day, please indicate whether your child is in daycare or preschool and for how many hours each day.
 

a. Monday _____	Hours _____
b. Tuesday _____	Hours _____
c. Wednesday _____	Hours _____
d. Thursday _____	Hours _____
e. Friday _____	Hours _____
f. Saturday _____	Hours _____
g. Sunday _____	Hours _____
10. How long have you and your partner been a couple/married? \_\_\_\_\_
11. Do you have other children?                      Yes                      No
12. If yes, how many children do you have and what are their ages?

\_\_\_\_\_

\_\_\_\_\_

## Appendix C

### *Specific Supplies and Details of tasks*

#### *Fine Motor Task*

Parent and child sat face-to-face at a small table (85 cm deep x 60 cm wide x 50 cm tall). On the table was a bin (21 cm x 34 cm x 8 cm tall) with three compartments in the inside. Inside the compartments were two animal figurines approximately 9 centimetres high, two pieces of foam paper (11 cm x 15 cm; 14 cm x 14 cm), 2 containers of sculpting clay, 65 x 15 centimetre popsicle sticks, 25 x 11.5 centimetre popsicle sticks with notches on the sides and 30 x 11.5 centimetre popsicle sticks with no notches on the sides. Parent and child were asked to remain at the table. The wall-mounted camera was turned to focus on the construction task and the profiles of the parent and child.

#### *Gross Motor Task*

The large bunny was placed in the middle of a 2-metre by 3-metre carpet on the floor. Supplies, located on a counter at the end of the carpet, included:

- 4 cardboard boxes (36 x 33 x 46 cm)
- 4 flatter cardboard boxes (43 x 55 x 18 cm)
- 1 smaller cardboard box (6 x 24 x 32 x 15 cm)
- 2 plastic buckets (30 cm high, 29 cm in diameter at the top and 19 cm in diameter at the bottom)
- 2 pieces of cloth (170 x 130 cm; 100 x 100 cm)
- 3 hula-hoops (2 at 87 cm in diameter; 1 at 71 cm in diameter)
- 4 metal curtain rods (140 cm long)

Parent and child were asked to stay on the carpet for the construction task, and the camera was focussed on the carpet, with a wide angle so as to record the range of activities.

## Appendix D

### *Coding Criteria*

Aspects of the general guidelines and several definitions of the categories were used from Landry's coding scheme (Landry, 1997).

### *General Guidelines*

1. Only code parents' verbalizations (do not code child's verbalizations or non-verbal interactions).
2. If the parent pauses 3 seconds OR the child says something to the parent, begin coding a new utterance. Check the time on the computer screen for the 3 second rule.
3. If the parent's verbalization changes categories (see below), code as a new utterance.
  - For example: What should we do with the blanket? (scaffolding) - *no pause* - Here, put it on the box (directive).
4. If you are not clear as to what was said, code as 'other' and mark the time.
5. If parent is talking to self, code as other and write down what was said.
6. Categories for coding are as follows: Scaffolding, Directiveness, Inferred Directiveness, Maintaining, Restrictiveness, Positive Affect Maintaining, Positive Affect Independent. Global ratings for Flexibility/Responsiveness and Task Quality.
7. For the purposes of the current study, the variables of scaffolding and directiveness were of interest. Proportions were generated by placing the total number of scaffolding or directive utterances over the total number of utterances (Scaffolding + Directiveness + Inferred Directiveness + Maintaining + Restrictiveness + Positive Affect Maintaining + Positive Affect Independent) for each parent.

### *Scaffolding*

- An open ended question to the child that allows the child to take the lead in completing the task.
  - How should we do this?
  - What kind of house do you want to build?
  - What should we do with this box?
  - So what do you want to start with? What do you think would make a good house?
  - What do we need to make a house?
  - We are allowed to use any of these things here, what do you want to take?
  - What can we do so it doesn't rain on the bunny's head?
  
- If child can answer yes or no to the question, it was not coded as scaffolding but as maintaining or inferred directiveness, unless it was a question that involved an object without any specific direction or location to put it.
  - Maybe we could use a hoop?
  - Do we need a roof?

### *Directiveness*

- Directives were phrases that told the child what to do. They typically involved an object and a specific action or location
  - Put the box over there (pointing).
  - Get that stick.
  - Go over there.
  - Roll the playdough like this.

**\*\* The following categories were coded in order to calculate the denominator for the proportions of scaffolding and directiveness. They were not part of the current study; however, they are useful in further clarifying what was not coded as scaffolding or directiveness. Reliabilities were not calculated for these variables\*\***

### *Inferred Directiveness*

- Softened directives, where the parent asks the child to do something, or includes themselves in the request, but still does not provide options. Typically has an object and action, or specific location. Often in the form of a question, and often starts with *we, let's, let us, can*
  - Would you like to put the blanket over the box?
  - Can we put this over here?
  - I'm going to stack some more here along the back, like this.
  - I think we need to glue the sticks to the roof.
  - Why don't you put the horse in the house?

### *Maintaining*

- Parent follows and comments about what the child is doing. Offers support and answers the child's questions. Questions posed to child can typically be answered with a yes or no. Maintaining is different than scaffolding as it doesn't promote the child taking the lead or coming up with ways to complete the task. It is different than inferred directiveness because there is typically not a specific object and action or location in the question.
  - It's interesting
  - *In response to child's question or comment* – okay, uh-huh, do you think so, yes
  - Would you like some help?
  - Is anything touching the bunny?
  - Do you want mommy to do it?

### *Positive Affect Maintaining*

- Parent comments about what child is doing, but uses praise or term of endearment. There must be a reference to task or what child is doing.
  - Wow, you are very good at this.
  - You did a great job, sweetie.
  - Look how high you built that wall, give me a high five!
  - That's right.
  - Cool! (*in response to something child did on task*)

### *Positive Affect Independent*

- Parent says term of endearment to child, independent of task at hand.
  - You are so sweet.
  - Sweetheart, honey, baby, etc.
  - What a handsome boy you are.

### *Restrictiveness*

- Parent changes the behaviour or action that the child is doing with a negative statement. The tone of voice also provides some information. In general, more negative than directives. Purpose is to get the child to stop something that they are doing.
  - Don't do that.
  - Don't go off the mat.
  - You are not paying attention.
  - Listen to me!

### *Coding Data* (form is on next page)

Coding was separated into 1 minute segments to ease review and locating specific verbal interactions of the observation session. Coders placed a tally mark in the appropriate box, based on time and verbal category.



	Scaffolding	Maintaining	Directiveness	Inferred Direct	Restrictiveness	Positive Affect		# parent interact.	# child interact.	other
						Main.	Ind.			
0 00 to 0 59										
1 00 to 1 59										
2 00 to 2 59										
3 00 to 3 59										
4 00 to 4 59										
5 00 to 5 59										
6 00 to 6 59										
7 00 to 7 59										
8 00 to 8 59										
9 00 to 10 00										
TOTAL										

Flexibility \_\_\_\_\_ /5

Big House Little House Rating \_\_\_\_\_ /5

Notes: \_\_\_\_\_

## Appendix E

### *Reliability for Coding*

Coding was done by two research assistants. Training was done by the principle researcher and recordings from families that had incomplete data but intact observation sessions were used to establish reliability. One research assistant coded all fathers and mothers and a second research assistant coded 20 fathers and 20 mothers, for a total of 33% of the families coded for reliability purposes. Intraclass correlation coefficients, using an absolute agreement definition and a two-way random effects model, were calculated on the proportion of scaffolding and directiveness done by each of the parents. The following table presents the intraclass correlation coefficients for each variable and the corresponding confidence interval.

Variable	Intraclass Correlation	95% Confidence Interval	
		Lower Bound	Upper Bound
Maternal Scaffolding*	.781	.529	.907
Paternal Scaffolding*	.788	.536	.911
Maternal Directiveness*	.926	.709	.975
Paternal Directiveness*	.943	.793	.980

\*Proportion of each variable over the total number of utterances in the ten-minute session.

## Appendix F

### *Forms*

*F-1: Consent Form for Parents*SIMON FRASER  
UNIVERSITY

DEPARTMENT OF PSYCHOLOGY  
8888 UNIVERSITY DRIVE  
BURNABY, BC  
CANADA V5A 1S6



Office: RCB 7318  
Voice: 604-268-6668  
Fax: 604-291-3427

[www.psyc.sfu.ca](http://www.psyc.sfu.ca)

### Informed Consent By Participants in a Research Study

The University and those conducting this research study subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This research is being conducted under permission of the Simon Fraser Research Ethics Board. The chief concern of the Board is for the health, safety and psychological well-being of research participants.

Should you wish to obtain information about your rights as a participant in research, or about the responsibilities of researchers, or if you have any questions, concerns or complaints about the manner in which you were treated in this study, please contact the Director, Office of Research Ethics by email at [hweinber@sfu.ca](mailto:hweinber@sfu.ca) or phone at 604-268-6593.

Your signature on this form will signify that you have received a document which describes the procedures, possible risks, and benefits of this research study, that you have received an adequate opportunity to consider the information in the documents describing the study, and that you voluntarily agree to participate in the study.

Any information that is obtained during this study will be kept confidential to the full extent permitted by professional ethics. Knowledge of your identity is not required. You will not be required to write your name or any other identifying information on research materials. Materials will be maintained in a secure location. Any specific Professional Ethics that are used are described in the study information document (Form 5).

---

**Title: Parent-child interactions: contributions to the development of social competence in preschoolers**

Investigator Name: **Christine Phillips-Hing**

Investigator Department: **Psychology**

---

Having been asked to participate in the research study named above, I certify that I have read the procedures specified in the Study Information Document describing the study. I understand the procedures to be used in this study and the personal risks to me in taking part in the study as described below:

**Risks to the participant, third parties or society:**

This study poses no risks to the participating children or their parents. Parents will be asked to fill out routine questionnaires about demographic information, their child's temperament, language acquisition and social competency, and a questionnaire on parenting stress and marital relationships. Children and parents will engage in a teaching activity that is fun and non-threatening, and resembles many activities that would be done in the home. Children will be asked to name some pictures as well as point to pictures after they have been told a specific vocabulary word.

Families will receive a \$25.00 honorarium and teachers will receive a \$5.00 honorarium or gift certificate. Children will be able to select a small toy from a toy chest. The benefits of this study involve furthering knowledge of parent-child interactions and their impact on child development.

**Benefits of study to the development of new knowledge:**

This study will contribute to the understanding of father-child and mother-child interactions on a child's social development. Typically mother-child dyads have been the focus of research in parental influences of child development. In this study, father-child interactions will be observed in addition to mother-child interactions. This allows for a more systemic look at how parents and children interact.

**Procedures:**

Participants in this study are families whose oldest child is between the ages of 3 and 4 years. Information from fathers, mothers and the preschool-aged child will be collected. In addition, the child's preschool teacher or daycare worker will be asked to complete a questionnaire.

Fathers and mothers will be asked to fill out routine questionnaires about demographic information, their child's temperament, language acquisition and social competency, and a questionnaire on parenting stress and marital relationships. Mothers and fathers will also each be observed and video-taped while they play with their child and teach them some simple tasks.

Preschoolers will participate in the teaching tasks as mentioned above, in addition to completing a measure of language ability.

Preschool teachers or daycare workers of each child participant will be asked to complete a questionnaire about the child's social interactions in preschool or daycare. This questionnaire will be confidential and sent directly to the researcher.

---

I understand that I may withdraw my participation at any time. I also understand that I may register any complaint with the Director of the Office of Research Ethics or the researcher named above or with the Chair, Director or Dean of the Department, School or Faculty as shown below.

Department, School or Faculty: Chair, Director or Dean:  
**Psychology Dan Weeks**

**8888 University Way,  
 Simon Fraser University,  
 Burnaby, British Columbia, V5A 1S6, Canada**

I may obtain copies of the results of this study, upon its completion by contacting:

**Christine Phillips-Hing  
 or Dr. Arlene Young  
 Department of Psychology  
 Simon Fraser University  
 8888 University Drive  
 Burnaby, BC V5A 1S6**

I have been informed that the research will be confidential.

I understand that my supervisor or employer may require me to obtain his or her permission prior to my participation in a study of this kind.

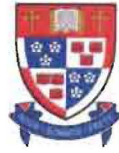
I understand the risks and contributions of my participation in this study and agree to participate:

The participant and witness shall fill in this area. Please print legibly

Participant Last Name:	Participant First Name:
<input type="text"/>	<input type="text"/>
Participant Contact Information:	
<input type="text"/>	
Participant Signature:	Witness (if required by the Office of Research Ethics):
<input type="text"/>	<input type="text"/>
Date (use format MM/DD/YYYY):	
<input type="text"/>	

*F-2: Consent Form for Minors***SIMON FRASER  
UNIVERSITY**

DEPARTMENT OF PSYCHOLOGY  
8888 UNIVERSITY DRIVE  
BURNABY, BC  
CANADA V5A 1S6



Office: RCB 7318  
Voice: 604-268-6668  
Fax: 604-291-3427

[www.psyc.sfu.ca](http://www.psyc.sfu.ca)

**Informed Consent for Minors: Consent by Parent or Guardian to Allow  
Participation in a Research Study**

---

**Titled: Parent-child interactions: contributions to the development of social competence in preschoolers**

**Investigator Name: Christine Phillips-Hing**

**Investigator Department: Psychology**

---

The University and those conducting this study subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This form and the information it contains are given to you for your own protection and to ensure your full understanding of the procedures, risks, and benefits described below.

**Risks to the participant, third parties or society:**

This study poses no risks to the participating children or their parents. Parents will be asked to fill out routine questionnaires about demographic information, their child's temperament, language acquisition and social competency, and a questionnaire on parenting stress and marital relationships. Children and parents will engage in a teaching activity that is fun and non-threatening, and resembles many activities that would be done in the home. Children will be asked to name some pictures as well as point to pictures after they have been told a specific vocabulary word.

Families will receive a \$25.00 honorarium and teachers will receive a \$5.00 honorarium or gift certificate. Children will be able to select a small toy from a toy chest. The benefits of this study involve furthering knowledge of parent-child interactions and their impact on child development.

**Benefits of study to the development of new knowledge:**

This study will contribute to the understanding of father-child and mother-child interactions on a child's social development. Typically mother-child dyads have been the focus of research in parental influences of child development. In this study, father-child interactions will be observed in addition to mother-child interactions. This allows for a more systemic look at how parents and children interact.

**Procedures:**

Participants in this study are families whose oldest child is between the ages of 3 and 4 years. Information from fathers, mothers and the preschool-aged child will be collected. In addition, the child's preschool teacher or daycare worker will be asked to complete a questionnaire.

Fathers and mothers will be asked to fill out routine questionnaires about demographic information, their child's temperament, language acquisition and social competency, and a questionnaire on parenting stress and marital relationships. Mothers and fathers will also each be observed and video-taped while they play with their child and teach them some simple tasks.

Preschoolers will participate in the teaching tasks as mentioned above, in addition to completing a measure of language ability.

Preschool teachers or daycare workers of each child participant will be asked to complete a questionnaire about the child's social interactions in preschool or daycare. This questionnaire will be confidential and sent directly to the researcher.

Your signature on this form will signify that you have received a document which describes the procedures, possible risks, and benefits of this research study, that you have received an adequate opportunity to consider the information in the document, and that you voluntarily agree to allow the minor named below to participate in the study.

**PLEASE PRINT:**

Name: \_\_\_\_\_

*(Parent, Guardian or other)*

who is the \_\_\_\_\_

*(relationship to minor)*

of \_\_\_\_\_

*(First name of minor)*

*(Last name of minor)*



I certify that I understand the procedures to be used and have fully explained them to:

---

*(Name of minor participant)*

and the participant knows that myself, or he or she has the right to withdraw from the study at any time, and that any complaints about the study may be brought to the chief researcher named above or to:

Department, School or Faculty:                      Chair, Director or Dean:

**Psychology**

**Dan Weeks**

**8888 University Way  
Simon Fraser University  
Burnaby, British Columbia  
V5A 1S6 Canada**

---

I may obtain copies of the results of this study, upon its completion by contacting the researcher named above or:

**Christine Phillips-Hing  
or Dr. Arlene Young  
Department of Psychology Simon Fraser University  
8888 University Drive  
Burnaby, BC V5A 1S6**

I certify that I understand the procedures to be used and that I understand the Study Information Document, and that I have been able to receive clarification of any aspects of this study about which I have had questions.

Last Name Parent or Guardian:

First Name Parent or Guardian:

---



---

Signature:

Witness if required:

---



---

Date (MM/DD/YYYY)

---

*F-3: Participant's Feedback Form*

DEPARTMENT OF PSYCHOLOGY  
8888 UNIVERSITY DRIVE  
BURNABY, BC  
CANADA V5A 1S6

SIMON FRASER  
UNIVERSITY



Office: RCB 7318  
Voice: 604-268-6668  
Fax: 604-291-3427

[www.psyc.sfu.ca](http://www.psyc.sfu.ca)

### Participant's Feedback

Completion of this form is **OPTIONAL**, and is not a requirement of participation in the study. However, if you have served as a participant in a project and would care to comment on the procedures involved, you may complete the following form and send it to the Director, Office of Research Ethics, Strand Hall, 8888 University Drive, Burnaby, B.C., V5A 1S6, Canada. All information received will be strictly anonymous, unless you wish your name to be made known to the researcher, as shown below.

Name of Research Study: **Parent-child interactions: contributions to the development of social competence in preschoolers**

Investigator Name: **Christine Phillips-Hing**

Investigator Department: **Psychology**

---

Did you sign an Informed Consent Form before participating in the project?

Yes  No

Were there significant deviations from the originally stated procedures?

Yes  No

If yes, please describe the nature of the deviation, and the date, place and time:

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Please make any additional comments you may have:

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---

---

**Completion of the Information Below is Optional**

Participant Last Name:

First Name:

Address:

Home Telephone:

Work Telephone:

Email:

Do you wish your feedback to be anonymous?  Yes  No

*F-4: Study Information Document*SIMON FRASER  
UNIVERSITY

DEPARTMENT OF PSYCHOLOGY  
8888 UNIVERSITY DRIVE  
BURNABY, BC  
CANADA V5A 1S6



Office: RCB 7318  
Voice: 604-268-6668  
Fax: 604-291-3427

[www.psyc.sfu.ca](http://www.psyc.sfu.ca)

**Information About the Study**

**Research study title:** Parent-child interactions: contributions to the development of social competence in preschoolers

**Place:** Simon Fraser University, 8888 University Drive, Burnaby, British Columbia

**Who are the participants (subjects) in this study?**

**What will the participants be required to do?**

Participants in this study are families whose oldest child is between the ages of 3 and 4 years. Information from fathers, mothers and the preschool-aged child will be collected. In addition, the child's preschool teacher or daycare worker will be asked to complete a questionnaire.

Fathers and mothers will be asked to fill out routine questionnaires about demographic information, their child's temperament, language acquisition and social competency, and a questionnaire on parenting stress and marital relationships. Mothers and fathers will also each be observed and video-taped while they play with their child and teach them some simple tasks.

Preschoolers will participate in the teaching tasks as mentioned above, in addition to completing a measure of language ability.

Preschool teachers or daycare workers of each child participant will be asked to complete a questionnaire about the child's social interactions in preschool or daycare. This questionnaire will be confidential and sent directly to the researcher.

**Overall Goals of Study**

The overall goal of the study is to research the impact of parent-child interactions on a child's social development.

**Risks to the participant, third parties or society:**

This study poses no risks to the participating children or their parents. Parents will be asked to fill out routine questionnaires about demographic information, their child's temperament, language acquisition and social competency, and a questionnaire on parenting stress and marital

relationships. Children and parents will engage in a teaching activity that is fun and non-threatening, and resembles many activities that would be done in the home. Children will be asked to name some pictures as well as point to pictures after they have been told a specific vocabulary word.

Families will receive a \$25.00 honorarium and teachers will receive a \$5.00 honorarium or gift certificate. Children will be able to select a small toy from a toy chest. The benefits of this study involve furthering knowledge of parent-child interactions and their impact on child development.

**Benefits of study to the development of new knowledge:**

This study will contribute to the understanding of father-child and mother-child interactions on a child's social development. Typically mother-child dyads have been the focus of research in parental influences of child development. In this study, father-child interactions will be observed in addition to mother-child interactions. This allows for a more systemic look at how parents and children interact.

**How confidentiality and anonymity will be assured if applicable:**

There will be no identifying information on the questionnaires. Families will be assigned a number and results will focus on the averages of all families members on the different measures. Video-tapes will be stored in a locked location until data collection and analysis is complete. Only researchers directly involved in this study will have access to the data.

**Approvals that may be required from agencies, communities or employers**

Statement of Professional Ethics if consent procedure 2b is chosen and any other information or contingencies that may be appropriate

**American and Canadian Psychological Associations Ethical Standards for Research with Human Participants**

**Persons and contact information that participants can contact to discuss concerns:**

**Christine Phillips-Hing  
or Dr. Arlene Young  
Department of Psychology  
Simon Fraser University  
8888 University Drive  
Burnaby, BC V5A 1S6**

*F-5: Consent to Release Information (from Parents to Teacher)***CONSENT TO RELEASE INFORMATION**

We, \_\_\_\_\_ authorize \_\_\_\_\_ at  
 (address) \_\_\_\_\_

\_\_\_\_\_

to complete the questionnaire about our child's social behaviours for the purposes of our participation in the research study: Parent-Child Interactions: Contributions to the Development of Social Competence in Preschoolers. We understand that the preschool teacher will send the questionnaire directly back to the researcher in a self-addressed and stamped envelope. This consent is valid until the questionnaire has been received from the teacher.

\_\_\_\_\_  
 Signature of Parent

\_\_\_\_\_  
 Signature of Researcher

\_\_\_\_\_  
 Date

\_\_\_\_\_  
 Date

*F-6: Teacher Consent Form*SIMON FRASER  
UNIVERSITY

DEPARTMENT OF PSYCHOLOGY  
8888 UNIVERSITY DRIVE  
BURNABY, BC  
CANADA V5A 1S6



Office: RCB 7318  
Voice: 604-268-6668  
Fax: 604-291-3427

[www.psyc.sfu.ca](http://www.psyc.sfu.ca)

**Teacher or Daycare Worker Consent to Participate Form**

**PARENT-CHILD INTERACTIONS: CONTRIBUTIONS TO THE DEVELOPMENT OF  
SOCIAL COMPETENCE IN PRESCHOOLERS**

Investigator: **Christine Phillips-Hing**  
Institution: **Department of Psychology, Simon Fraser University**

Simon Fraser University and those conducting this research study subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This research is being conducted under permission of the Simon Fraser Research Ethics Board. The chief concern of the Board is for the health, safety and psychological well-being of research participants.

Should you wish to obtain information about your rights as a participant in research, or about the responsibilities of researchers, or if you have any questions, concerns or complaints about the manner in which you were treated in this study, please contact the Director, Office of the Research Ethics by email at [hweinber@sfu.ca](mailto:hweinber@sfu.ca) or phone at (604) 268-6593.

Your signature on this form will signify that you have received a document which describes the procedures, possible risks, and benefits of this research study, that you have received an adequate opportunity to consider the information in the documents describing the study, and that you voluntarily agree to participate in the study.

Any information that is obtained during this study will be kept confidential to the full extent permitted by professional ethics. Knowledge of your identity is not required, and your responses on this questionnaire will not be shown to the child's parents.

Having been asked to participate in the research study named above, I certify that I have read the procedures specified in the Study Information Document describing the study. I understand that I am being asked to complete a questionnaire regarding the social competency of the above named child in my class. I understand that my responses will be kept confidential and will be sent directly to the researcher. I also understand that the parents of the above named child have signed a release form allowing me to participate in this study, and I have received a copy of this release form.

This study poses no risks to the participating preschool teachers and daycare workers. Teachers will receive a \$5.00 gift certificate or honorarium. The benefits of this study involve furthering the knowledge of parent-child interactions and their impact on child development. In particular important knowledge about father-child relationships and children’s social competency outside the home will be obtained.

I understand that I may withdraw my participation at any time. I also understand that I may register any complaint with the Director of the Office of Research Ethics, or the researcher named above, or with the Chair of the Psychology Department, Dr. Dan Weeks.

I may obtain copies of the results of this study upon its completion by contacting:

**Christine Phillips-Hing or Dr. Arlene Young**  
**Department of Psychology,**  
**Simon Fraser University**  
**8888 University Drive,**  
**Burnaby, BC V5A 1S6**

I have been informed that the research will be confidential.  
I understand that my supervisor or employer may require me to obtain his or her permission prior to my participation in a study of this kind.  
I understand the risks and contributions of my participation in this study and agree to participate.

Print: Teacher Last Name: \_\_\_\_\_

Teacher First Name: \_\_\_\_\_

Teacher Contact Information (School or Agency)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Teacher Signature

\_\_\_\_\_  
Witness Signature

\_\_\_\_\_  
Date



*F-7: Teacher Consent Form*SIMON FRASER  
UNIVERSITY

DEPARTMENT OF PSYCHOLOGY  
8888 UNIVERSITY DRIVE  
BURNABY, BC  
CANADA V5A 1S6



Office: RCB 7318  
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[www.psyc.sfu.ca](http://www.psyc.sfu.ca)

Dear Teacher or Daycare Provider,

The \_\_\_\_\_ family is participating in a study in Parent-Child Relationships and Child Social Development. They have come into our child development lab at Simon Fraser University and completed an observational measure and several questionnaires about their child. A critical piece to this study is a measure of how the child relates to peers and adults outside of the home. As (*child's name*) teacher, you have had a unique opportunity to observe him/her in a social setting, and we would greatly value your input on the enclosed questionnaire. With the information that you provide, we will be able to further our understanding of how a child's relationships with his/her parents (and of particular interest with his/her father) assists the child in developing social competence in settings outside of the home.

The \_\_\_\_\_ family has signed a Consent to Release Information form which I have enclosed in this package. I have also enclosed the questionnaire and a self-addressed and stamped envelope for you to return the questionnaire directly to me. The family understands that your responses on the questionnaire are confidential and will not be seen by them.

If you have any questions or concerns, please call Christine Phillips-Hing at (604) 268-6825 or e-mail at [cdp@sfu.ca](mailto:cdp@sfu.ca).

In appreciation of your time, and to assist you in filling out this form, please enjoy a coffee on us. Thank-you for your willingness to participate in our study,

---

Christine Phillips-Hing, M.A.  
Department of Psychology  
Simon Fraser University

*F-8: Thank-you Letter to Families*

Dear \_\_\_\_\_

Thank-you for participating in our research study. We are interested in knowing how father-child and mother-child interactions influence a child's social and language development. Previous research has clearly supported the importance of both fathers and mothers in a child's development, but we know a lot more about how this influence works for mother-child pairs. We are trying to understand how fathers influence their child's social and language development, and how they might do that differently than mothers. Father-child play, in particular, is thought to contribute to a child's development of relationships with peers.

In this study, you were asked to fill out several questionnaires. These will provide us with information about your child's temperament, his or her language abilities, and a sense of how you feel about parenting. One of you was asked to build a home for the large stuffed bunny with your child, and the other one was asked to build a home for the plastic farm animals. We observed these tasks to see if there are differences in fine or gross motor tasks for how parents play with their child, and to see if fathers and mothers structure the task differently, and interact with their child differently.

One of the reasons why there is so little research on fathers is because it is difficult to get fathers to participate in research studies. So, we are especially appreciative of the time your family has taken to participate in our study. It is through families like yours that we can further our understanding of how children develop and how to provide a supportive environment for them to reach their potential.

Sincerely,

---

Christine D. Phillips-Hing, M.A.  
Department of Psychology,  
Simon Fraser University  
8888 University Drive,  
Burnaby, BC V5A 1S6

*F-9: Receipt of Honorarium***Receipt of Honorarium**

We, \_\_\_\_\_, have participated in a study entitled, *Parent-Child Interactions: Contributions in the Development of Social Competence in Preschoolers*, conducted by Christine Phillips-Hing at Simon Fraser University. We received a \$25.00 honorarium for our participation.

\_\_\_\_\_

Date: \_\_\_\_\_

## Appendix G

*Number of Boys and Girls in Each Combination of Task Order and Parent Order and Means and Standard Deviations of Proportional Data for each Cell*

			Proportion of Scaffolding		Proportion of Directiveness	
	Task Order	Parent Order	Mother	Father	Mother	Father
Boys N=35	Gross/Fine n=18	Dad/Mom n=10	M = .05 Sd = .03	M = .03 Sd = .03	M = .11 Sd = .07	M = .21 Sd = .14
		Mom/Dad n=8	M = .06 Sd = .03	M = .04 Sd = .03	M = .09 Sd = .05	M = .15 Sd = .06
	Fine/Gross n=17	Dad/Mom n=9	M = .07 Sd = .06	M = .04 Sd = .05	M = .14 Sd = .10	M = .20 Sd = .10
		Mom/Dad n=8	M = .05 Sd = .03	M = .08 Sd = .06	M = .09 Sd = .08	M = .10 Sd = .06
Girls N=25	Gross/Fine n=13	Dad/Mom n=7	M = .05 Sd = .04	M = .05 Sd = .05	M = .09 Sd = .05	M = .13 Sd = .07
		Mom/Dad n=6	M = .10 Sd = .02	M = .06 Sd = .04	M = .09 Sd = .04	M = .10 Sd = .10
	Fine/Gross n=12	Dad/Mom n=5	M = .07 Sd = .04	M = .02 Sd = .02	M = .06 Sd = .01	M = .07 Sd = .05
		Mom/Dad n=7	M = .06 Sd = .02	M = .02 Sd = .02	M = .11 Sd = .09	M = .14 Sd = .07

## Appendix H

*Correlations of Main Variables*

Appendix H: Correlations of Main Variables

	Maternal Scaffold.	Maternal Direct.	Paternal Scaffold.	Paternal Direct.	PPVT-III	Child's Age	Social Comp. (Teacher)
Maternal Scaffolding	1.00	-.32*	.30*	-.25	.08	-.07	-.34**
Maternal Directiveness		1.00	-.25	.47**	-.23	-.12	-.01
Paternal Scaffolding			1.00	-.29*	.00	.13	.19
Paternal Directiveness				1.00	-.10	.01	.18
PPVT-III B Score					1.00	.10	.00
Child's Age						1.00	.23
Social Comp. (Teacher)							1.00
Attentional Focus (Mother)							
Attentional Focus (Father)							
Inhibitory Control (Mother)							
Inhibitory Control (Father)							
Mother's education level							
Father's education level							
Mother's age							
Father's age							

\* $p < .05$ ; \*\* $p < .01$ .

Appendix H: Correlations of Main Variables, continued

	Attentional Focus(M)	Attentional Focus(F)	Inhibitory Control(M)	Inhibitory Control(F)	Education Level(M)	Education Level(F)	Mother's Age	Father's Age
Maternal Scaffolding	.08	.18	.19	.08	.09	.05	.04	.02
Maternal Directiveness	-.15	-.13	-.17	-.09	-.14	-.08	.19	.14
Paternal Scaffolding	.08	.07	.08	.11	.27*	.19	-.27*	.01
Paternal Directiveness	-.16	-.26*	-.14	-.21	-.10	-.12	.15	-.06
PPVT-IIIB Score	.19	.16	.19	-.16	-.08	-.24	.26*	.27*
Child's Age	.01	.05	.27*	.10	-.01	.15	.09	.08
Social Comp. (Teacher)	.00	-.02	-.08	.05	.02	-.01	-.11	-.09
Attentional Focus (Mother)	1.00	.30*	.42**	.07	.07	.02	.12	.33*
Attentional Focus (Father)		1.00	.11	.53**	-.17	.08	-.05	.10
Inhibitory Control (Mother)			1.00	.13	-.14	-.07	.10	.14
Inhibitory Control (Father)				1.00	-.19	.13	-.16	-.11
Mother's education level					1.00	.43**	-.11	-.30**
Father's education level						1.00	.00	-.12
Mother's age							1.00	.71**
Father's age								1.00

\* $p < .05$ ; \*\* $p < .01$ .

## Appendix I

*Correlations between the Transformed Variables of Maternal and Paternal Scaffolding and Directiveness and the remaining Main Variables*



Appendix I: Correlations between Transformed Variables (T) and Remaining Main Variables

	Maternal		Paternal		PPVT-III	Child's Age	Social Comp. (Teacher)
	Scaffold (T)	Direct (T)	Scaffold (T)	Direct (T)			
Maternal Scaffolding (T)	1.00	-.29*	.31*	-.25	.13	.03	-.27*
Maternal Directiveness (T)		1.00	-.26*	.47**	-.28*	-.11	-.03
Paternal Scaffolding (T)			1.00	-.32*	.01	.11	.09
Paternal Directiveness (T)				1.00	-.12	.01	.21
PPVT-III Score					1.00	.10	.00
Child's Age						1.00	.23
Social Comp. (Teacher)							1.00
Attentional Focus (Mother)							
Attentional Focus (Father)							
Inhibitory Control (Mother)							
Inhibitory Control (Father)							
Mother's education level							
Father's education level							
Mother's age							
Father's age							

Note. (T) = square root transformation of proportions. \* $p < .05$ ; \*\* $p < .01$ .

Appendix I: Correlations between Transformed Variables (T) and Remaining Main Variables, continued

	Attentional Focus(M)		Attentional Focus(F)		Inhibitory Control(M)		Inhibitory Control(F)		Education Level(M)		Education Level(F)		Mother's Age		Father's Age	
	Focus(M)	Focus(F)	Focus(M)	Focus(F)	Control(M)	Control(F)	Control(M)	Control(F)	Level(M)	Level(F)	Level(M)	Level(F)	Age	Age	Age	Age
Maternal Scaffolding (T)	.04	.18	.18	.07	.07	.07	.10	.01	.01	.01	.01	.01	.01	.01	.02	.02
Maternal Directiveness (T)	-.19	-.15	-.17	-.06	-.06	-.06	-.13	-.09	-.09	-.09	-.09	-.09	.17	.10	.10	.10
Paternal Scaffolding (T)	.04	.06	.11	.09	.09	.09	.27*	.15	.15	.15	.15	.15	-.29*	.05	.05	.05
Paternal Directiveness (T)	-.19	-.28*	-.18	-.17	-.17	-.17	-.09	-.08	-.08	-.08	-.08	-.08	.13	-.08	-.08	-.08
PPVT-III B Score	.19	.16	.19	-.16	-.16	-.16	-.08	-.24	-.24	-.24	-.24	-.24	.26*	.27*	.27*	.27*
Child's Age	.01	.05	.27*	.10	.10	.10	-.01	.15	.15	.15	.15	.15	.09	.08	.08	.08
Social Comp. (Teacher)	.00	-.02	-.08	.05	.05	.05	.02	-.01	-.01	-.01	-.01	-.01	-.11	-.09	-.09	-.09
Attentional Focus (Mother)	1.00	.30*	.42**	.07	.07	.07	.07	.02	.02	.02	.02	.02	.12	.33*	.33*	.33*
Attentional Focus (Father)		1.00	.11	.53**	.53**	.53**	-.17	.08	.08	.08	.08	.08	-.05	.10	.10	.10
Inhibitory Control (Mother)			1.00	.13	.13	.13	-.14	-.07	-.07	-.07	-.07	-.07	.10	.14	.14	.14
Inhibitory Control (Father)				1.00	1.00	1.00	-.19	.13	.13	.13	.13	.13	-.16	-.11	-.11	-.11
Mother's education level							1.00	.43**	.43**	.43**	.43**	.43**	-.11	-.30**	-.30**	-.30**
Father's education level								1.00	1.00	1.00	1.00	1.00	-.00	-.12	-.12	-.12
Mother's age													1.00	.71**	.71**	.71**
Father's age																1.00

Note. (T) = square root transformation of proportion. \* $p < .05$ ; \*\* $p < .01$ .

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