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# The Role of Maternal Behavior in the Relation between Shyness and Social Reticeance in Early Childhood and Social Withdrawal in Middle Childhood

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## Abstract

*The moderating effect of maternal behavior in the relations between social reticeance and shyness in preschool and subsequent social withdrawal was investigated. Eighty children (47 females) were judged for degree of social reticeance during play with unfamiliar peers at the age of four and mothers completed the Colorado child temperament inventory (CCTI). At the age of seven, the children were coded for degree of social withdrawal during peer play and mothers and children were observed during structured and unstructured activities. Two significant interaction effects indicated that maternal report of shyness was a positive predictor of age-seven social withdrawal when mothers lacked positivity; whereas observed social reticeance was associated with higher degrees of social withdrawal when mothers were highly negative. Maternal positivity and negativity differentially influenced the development of social withdrawal in childhood, such that maternal negativity is associated with poor social functioning in children who have an established history of social withdrawal; whereas maternal positivity is associated with better social outcome for preschoolers who are viewed as temperamentally shy.*

*Keywords:* social withdrawal; temperament; peer interaction; maternal behavior

## Introduction

The quality of maternal interactive behavior with infants influences the physiological and behavioral response to stress, including expression of fearfulness and positive sociability with novel partners (Hane & Fox, 2006). Additionally, recent work in gene-by-environment interactions provides powerful evidence for the importance of the rearing environment in the development of behavioral inhibition (e.g., see Fox, Hane, & Pine, 2007; Fox, Henderson, Marshall, Nichols, & Ghera, 2005). Such evidence places elucidation of the role of the environment in shaping social wariness at the forefront of the study of social development. The current study sought to extend this literature chronologically forward by considering ongoing child-by-environment

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transactions outside of the realm of infancy and early childhood and into the school-aged years. Specifically, here we considered the role of the quality of maternal behavior in moderating the associations between indices of social wariness in preschool and social withdrawal at the age of seven. We examined the differential role of maternal positive and negative interactive behavior at the age of seven in the relation between maternal reports of shyness and observed social reticence at the age of four and social withdrawal assessed during laboratory based peer interaction at the age of seven.

### *Social Reticence*

Social reticence is characterized by solitary onlooking and unoccupied behavior during peer interaction. Reticent preschoolers are anxious onlookers, carefully observing but not participating in the activities of their peers. It has been suggested that reticent preschoolers are experiencing a social 'approach-avoidance' conflict (Asendorpf, 1990, 1991; Coplan, Rubin, Fox, Calkins, & Stewart, 1994). That is, although they desire peer interaction, these children find that entering social situations elicits feelings of anxiety and a powerful need to avoid interaction. Coplan et al. (1994) found a significant relation between reticent behavior and overt indices of anxiety, including hovering and self-stimulation in four-year-olds. More recent reports (Rubin, Cheah, & Fox, 2001; Rubin, Coplan, Fox, & Calkins, 1995) have documented that high frequencies of reticent behavior are associated with the inability to regulate negative emotions. These findings suggest that preschoolers who display reticent behaviors wish to interact with their peers, but are unable to because of emotional dysregulation. As such, these children remain on the periphery of the social milieu (Coplan et al., 1994).

### *Social Solitude in Middle Childhood*

Researchers have described and extensively studied two types of social withdrawal in children of preschool age. As noted above, social reticence may represent a form of social withdrawal that is characterized by anxiety and a failure to cope successfully with an approach-avoidance conflict (Asendorpf, 1990, 1991; Coplan et al., 1994). Solitary-passive behavior (Rubin & Mills, 1988) is a more benign form of social withdrawal and in young children may represent constructive coping with social anxiety (Asendorpf, 1991; Henderson, Marshall, Fox, & Rubin, 2004). However, it has been suggested that a developmental phenomenon exists, such that when non-social constructive activity and exploration persists into middle childhood, its presence is indicative of social difficulties (Rubin, Burgess, & Coplan, 2002; Rubin & Coplan, 2004). A growing body of literature indicates that any form of solitude in school-aged children is problematic. By elementary school, the peer culture is a dominant force of socialization. School-aged children who are shy and do not interact with peers are rejected and victimized by peers and they report feeling lonely and express a more negative view of their own social skills and relationships (Hymel, Rubin, Rowden, & LeMare, 1990; Rubin, Chen, & Hymel, 1993; Rubin & Mills, 1988; for a review see Rubin et al., 2002). Hymel, Bowker, and Woody (1993) found that rejected-shy/withdrawn children were more likely to describe themselves negatively. Gazelle and Rudolph (2004) have found that among fifth and sixth graders, anxious solitary youth display maintenance or exacerbation of social avoidance and depression in the context of high exclusion. And Rubin and colleagues (Rubin, Wojslawowicz, Rose-Krasnor, Booth-LaForce, & Burgess, 2006) have recently reported that the friendships of shy, withdrawn fifth graders are likely to be with other

shy, withdrawn, and victimized peers and that the quality of their best friendships is poorer than those of their non-withdrawn counterparts.

Given the putatively negative developmental outcomes for elementary- and middle-school-attending shy *and* withdrawn children, we thought it important to examine the roles of preschool temperament and social reticence, and maternal behavior in the development of socially withdrawn behavior in middle childhood. Thus, in the present study, social withdrawal was defined as observed solitary behavior during peer interaction at the age of seven, and as such included *all* solitary behavior, whether the child was playing constructively in isolation or was onlooking and unoccupied.

### *Temperamental Origins of Social Withdrawal*

A growing body of research indicates that social withdrawal is the result of the interaction of temperamental predisposition and parenting (Rubin & Coplan, 2004). Temperamental factors implicated in the development of social withdrawal include negative reactivity to novelty (Fox, Henderson, Rubin, Calkins, & Schmidt, 2001; Kagan & Snidman, 1991); behavioral inhibition (Fox et al., 2005; Kagan, Reznick, & Snidman, 1988); maternal report of shyness (Henderson et al., 2004) and emotion dysregulation (Rubin et al., 2001). Fox and his colleagues (2001) revealed that children who showed a pattern of social reticence at the age of four were characterized by high degrees of negative reactivity in infancy. Additionally, social reticence is theoretically associated with a behaviorally inhibited temperament, and is empirically associated with temperamental emotional dysregulation in early childhood (Rubin, Burgess, & Hastings, 2002; Rubin et al., 2001). Henderson and her colleagues (2004) revealed that reticence at the age of four was associated with higher degrees of social fear in late infancy and maternal report of shyness at the age of four. The current work marks an effort to extend this literature chronologically forward, by exploring the extent to which maternal perceptions of temperamental shyness, or maternal perceptions of the child's behavior in reference to novel individuals, is predictive of social withdrawal in middle childhood. Importantly, the role of maternal perceptions in the development of social withdrawal may diverge from that of observed preschool behavior, as maternal impressions of the child's dispositions may alter how she parents (e.g., Mills & Rubin, 1990); this, in turn, may influence the developmental trajectory of social withdrawal.

### *Maternal Contributions to Social Withdrawal*

There is an emergent body of literature implicating parental control as a contributor to the perpetuation of socially inhibited or withdrawn behavior. Rubin et al. (2002) examined the role of parenting in the stability of behavioral inhibition from the age of two to four and showed that the relation between behavioral inhibition in toddlerhood and reticence at the age of four was significant and positive for those children whose mothers were psychologically over-controlling and derisive. Toddlers who were behaviorally inhibited but whose mothers were neither controlling nor derisive were not likely to be reticent during the preschool years. Rubin et al. (2001) found that preschoolers' socially reticent behavior was associated with high levels of maternal affectively positive controlling behaviors during an unstructured free play paradigm. Such over solicitousness during unstructured free play activity may be a form of psychological control (Barber, 1996), which is associated with problems of an internalizing nature in preadolescents and adolescents (Barber, 1996). Hence, maternal

behavior which serves to stifle child initiatives is associated with off-task, socially withdrawn behavior (Mills & Rubin, 1998).

Continuity of socially withdrawn behavior from early- to mid-childhood may depend, in part, on the quality of maternal behaviors, particularly those that are overly controlling and hostile. It is our contention that young, preschool-age children who are prone to withdrawal from social situations may be especially likely to continue with such a pattern of social withdrawal when their mothers suppress their social initiatives with hostile, derisive, and controlling behavior in middle childhood.

There is additional evidence that the trajectory that begins with maternal perceptions of shyness and culminates in social withdrawal in childhood is mitigated by maternal behavior, although the overall quality of the maternal behavior involved in the translation of temperamental risk to later social problems may be different from that which is involved in sustained social withdrawal across time. There is some evidence that temperamental negativity is associated with behavior problems of an externalizing nature when maternal behavior is characterized by the absence of positivity, more so than by the presence of negativity (Calkins, 2002; Pettit & Bates, 1989). We conjectured that the absence of maternal positivity is problematic for children at risk for internalizing problems as well, as there is evidence that positive parental behavior may preempt and hence inhibit the manifestation of child negativity (Holden, 1995), thereby creating opportunity for the child to benefit from parental instruction, henceforth reducing the occurrence of problematic behavior. One report by Stolz, Barber, and Olsen (2005) supports this notion, as they found that positive mothering was associated with less self-reported depression in middle school boys.

The infant parenting literature is laden with work focusing on the relevance of maternal warmth, sensitivity and/or positivity. And, work on infant temperament and parenting indicates that temperamentally negative infants who experience parenting characterized by high degrees of maternal sensitivity (Fish, Stifter, & Belsky, 1991), maternal responsiveness (Kochanska, Forman, & Coy, 1999) and mutually positive affect (Kochanska, 1998) experience more optimal social outcomes. Similar effects have been documented in the early childhood literature. Rubin et al. (2001) found that preschoolers' expressions of reticent behavior were predicted by the joint influence of emotion dysregulation and the lack of maternal guidance and control during a teaching task. Emotionally dysregulated children whose mothers provided little guidance and control during a structured task were more likely to be reticent during play with unfamiliar age-mates. Early and her colleagues (2002) found that maternal sensitivity moderated the relation between wariness at 15 months and inhibition during the transition to kindergarten, such that children who were wary as infants and whose mothers were highly sensitive were less likely to manifest inhibition, whereas children who were wary infants and who had insensitive mothers were significantly more likely to manifest inhibited behavior in the transition to kindergarten. Hence, a temperamental predisposition to be socially withdrawn may be overcome by maternal behavior that is appropriately supportive, sensitive, and affectively positive.

### *Hypotheses*

Given the extant literature revealing meaningful relations between parenting behavior and social withdrawal, we hypothesized the following: (1) maternal perceptions of temperamental shyness at the age of four will relate contemporaneously to preschool social reticence; (2) temperamental shyness at 4 years of age will predict subsequent

social withdrawal at the age of seven, for those children whose mothers engaged them with low degrees of positivity and high degrees of negativity—a non-significant relation was posited for children whose mothers manifested high degrees of positivity and/or low degrees of negativity; (3) social reticence at the age of four will predict social withdrawal at the age of seven; and (4) maternal behavior at child-age seven years will moderate the relation between four-year social reticence and social withdrawal at the age of seven, such that the children at greatest risk for subsequent social withdrawal will be those who displayed social reticence at the age of four and who experienced parenting characterized by the presence of negativity (maternal hostility and negative control) and a lack of positivity (maternal positive affect and positive control).

## Method

### *Participants*

Eighty children (47 females, 33 males) and their mothers, drawn from a larger group participating in a longitudinal investigation of temperament and social behavior from the ages of four months to seven years, participated in the study. The majority of participants were from intact families; demographic characteristics of this predominantly White and middle-class sample have been described in detail in previous reports (see Calkins & Fox, 1992; Fox, 1989; Fox et al., 2001). At the four-year visit, the participants were approximately 4.5 years of age ( $M = 4.57$  years,  $SD = .39$ ); at the seven-year follow-up, the children were approximately seven years of age ( $M = 6.99$  years,  $SD = .29$  years). Between the four- and seven-year assessments, 10.9 percent of the families did not continue their participation in the study. There were no significant differences between the children who dropped out and those who were retained in terms of temperamental shyness or non-social behavior at the age of four.

### *Procedure*

Children and their mothers who participated in previous assessments as part of a larger longitudinal study of temperamental reactivity were invited to return to the laboratory at the ages of four and seven years. At the four-year visit, mothers completed the Colorado child temperament inventory (CCTI; Buss & Plomin, 1984) during a laboratory visit as their children participated in an observational paradigm during which four children were assigned to quartets with three other unfamiliar, same-sex peers (see Fox et al., 2001; Rubin et al., 2001).

At the age of seven, participants again participated in a social quartet paradigm which was similar to the four-year social quartet and included unstructured free play in which the children were allowed to play undisturbed for 15 minutes. This seven-year peer quartet was followed, six to eight weeks later, by a visit to the laboratory by each child and his or her mother. The children and their mothers were videotaped in the laboratory in three distinct situations, including an unstructured free play session with toys (15 minutes); toy clean up (3 minutes); and a challenging origami paper-folding task.

### *Measures*

*CCTI* (Buss & Plomin, 1984; Rowe & Plomin, 1977). In order to obtain estimates of maternal report of preschool temperamental shyness, the *CCTI* was administered to the

mothers during the four-year laboratory visit. In its entirety, the measure consists of 30 items which assess multiple dimensions of temperament, including emotionality, activity level, distractibility, soothability, shyness, and sociability. The shyness composite is reported here, such that higher scores reflect higher degrees of shyness. Items on the shyness scale included: 'Child takes a long time to warm up to strangers'; 'Child makes friends easily'; and 'Child is friendly with strangers'.

*Play Observations.* Behaviors for the *first* free play session of the social quartet at age four were coded with Rubin's (2001) *play observation scale* (see also Rubin & Mills, 1988; Rubin et al., 1995). Ten-second intervals were coded for social participation (unoccupied, onlooking, solitary play, parallel play, conversation, and group play) and the cognitive quality of play (functional, dramatic, and constructive play; exploration; and games-with-rules). This free play interaction lasted 15 minutes and this resulted in approximately 90 coding intervals per child for the free play session. The codes for each combination of social participation and cognitive quality of play were mutually exclusive (e.g., the child could either be engaging in solitary play *and* exploration, *or* group play *and* dramatic). If the child engaged in more than one type of behavior during the 10-second interval, the behavior that the child engaged in for the majority of the interval was selected. However, several categories were allowed to be double-coded for: anxious behaviors, hovering behaviors, and aggressive behaviors. For example, the child could be coded as participating in unoccupied and engaging in anxious behaviors, or in group dramatic play with aggression).

For the purposes of this study, composites for *solitary-passive behavior* (solitary constructive + solitary exploratory behaviors) and *reticent behavior* (unoccupied + onlooking behaviors) were computed. Interrater reliability on a randomly selected group of children totaling 30 percent of the sample (eight quartets; 32 children) was calculated separately for the age four and seven quartet observations. For the four-year data, Cohen's  $\kappa$  was computed across four independent observers on a full variable matrix, and ranged between .71–.86. For the seven-year-olds, Cohen's Kappa between observer pairs ranged from  $\kappa = .84$  to  $\kappa = .88$ .

Given the evidence indicating that shy/solitary behavior in school-aged children places them at increased risk for peer rejection and victimization (Rubin, Bukowski, & Parker, 2006), a global index of social withdrawal at the age of seven was obtained by summing all instances of solitary behavior. As such, the frequencies of unoccupied and onlooking behaviors and solitary-exploratory and -constructive behavior from the age seven peer quartet were summed to obtain a global index of *social withdrawal*. This withdrawal score was slightly skewed and therefore transformed by taking the square root of the *social withdrawal* aggregate.

*Quality of Maternal Behavior.* Two independent observers who were blind to the hypotheses of the study and the temperament and play data rated maternal behavior during the free play, clean up, and origami episodes. An observational taxonomy was used to assess quality of maternal interactive affect and the affective quality of maternal control techniques (Booth, Rose-Krasnor, McKinnon, & Rubin, 1994). Maternal behavior was rated across five domains, including: Hostile affect; negative affect; negative control; positive affect; and positive control and guidance. Observers rated each of the above noted maternal behaviors on a three-point scale, with higher maternal behavioral ratings indicating greater manifestation of hostile affect, negative affect,

**Table 1. Rotated Factor Solution for Ratings of Mother-Child Interaction**

	Factor 1 Maternal negativity	Factor 2 Maternal positivity
<i>Free Play</i>		
Hostility	.445	-.314
Negative affect	.170	.289
Negative control	.650	.076
Positive affect	.123	.536
Positive control	.391	.206
<i>Clean Up</i>		
Hostility	.437	.004
Negative affect	-.089	-.046
Negative control	.570	.043
Positive affect	-.108	.808
Positive control	.293	.287
<i>Origami</i>		
Hostility	.273	-.055
Negative affect	.447	-.022
Negative control	.593	-.056
Positive affect	-.139	.699
Positive control	-.276	.312

*Note:* Values in the cells represent the factor loadings of each item on the factors generated from the rotated factor matrix following Varimax rotation.

negative control, positive affect, and positive control. Time sampling was employed, with each of the scales rated every minute across each of three distinct interaction sessions, including free play, clean up, and origami. The sum of the ratings for each scale was divided by the total number of one-minute time sample units to create an average score for each scale during each of the interactive episodes. Four independent observers overlapped on 20 percent of the sample and achieved interrater reliability coefficients ranging from .81 to .93.

The ratings obtained across the three interactive contexts were factor-analyzed (principle-component method) and, following varimax rotation, two factors were extracted. The first factor was defined by the presence of maternal negativity, and included loadings for high degrees of hostile affect and negative control during free play and clean up; and the presence of negative affect and control during the difficult origami task. A second factor, defined by the presence of *maternal positivity*, included loadings for high degrees of positive affect across all interactive contexts (see Table 1).

Two maternal composites were created based on this analysis, with items loading high on factor 1 used to create an index of *maternal negativity* and items loading high on factor 2 used to create an index of *maternal positivity*. Factor loadings less than .40 were omitted from aggregates. Table 1 provides a summary of the factor solution for the mother-child data.

**Table 2. Descriptive Statistics**

	<i>N</i>	<i>M</i>	<i>SD</i>
CCTI shyness (aged 4)	79	2.45	.80
Social reticence (aged 4)	83	.19	.15
Maternal negativity (aged 7)	79	-.03	.48
Maternal positivity (aged 7)	80	.01	.68
Social withdrawal (aged 7)	80	.49	.18

*Note:* CCTI = Colorado child temperament inventory (Buss & Plomin, 1984; Rowe & Plomin, 1977).

**Table 3. Interrelations among Key Variables**

Variable	Reticence	Shyness	Maternal negative	Maternal positive	Social withdrawal
Sex	-.02	-.07	-.23*	-.18	-.13
Reticence		.48**	.04	.02	.08
Shyness			.01	.09	.19
Maternal Negative				-.30*	-.18
Maternal Positive					.06

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

## Results

Table 2 contains the means and standard deviations for CCTI shyness, preschool socially withdrawn behavior at the ages of four and seven, and maternal behavior. Table 3 contains the correlations among the key variables in the study and child gender and reveals a significant correlation between sex and maternal negativity, indicating that boys were significantly more likely to experience maternal negativity than girls. In support of hypothesis 1, CCTI shyness at the age of four was significantly and positively related to social reticence at age four. Also, maternal positivity and negativity were significantly negatively correlated, such that mothers who engaged their children with high degrees of positivity were less likely to manifest negativity. Table 3 contains a summary of these correlations.

Given the significant relation between social withdrawal at the age of seven and child gender, correlations among the key variables entering into the tests of the hypotheses were examined separately for males and females and correlations that were significantly different for boys and girls are reported here. For boys, maternal negativity was negatively related to maternal positivity,  $r(29) = -.66$ ,  $p < .01$ ; whereas for girls no such relation was found,  $r(46) = -.05$ ,  $p > .05$ . Also, for boys, maternal negativity was significantly and negatively related to social withdrawal at the age of seven,  $r(29) = -.65$ ,  $p < .01$ ; whereas for girls no significant relation was found,  $r(46) = .05$ ,  $p > .05$ .

**Table 4. Summary of Regression Examining the Joint Effects of Shyness and Maternal Behavior on Social Withdrawal**

Variable	$R^2$	$\Delta R^2$	$F\Delta$ (1, 67)
Child gender	.03	.03	1.93
Shyness	.06	.03	2.46
Maternal negativity	.10	.04	3.05
Maternal positivity	.10	.00	<1
Child gender $\times$ shyness	.14	.04	3.47
Maternal positivity $\times$ shyness	.23	.09*	8.14*
Maternal negativity $\times$ shyness	.25	.01	1.08

Note: Values in column labeled  $\Delta R^2$  represent the incremental  $R$  for each variable entering into the regression equation and values in the column labeled  $F\Delta$  are the  $F$ -values associated with each  $\Delta R^2$ .

\*  $p < .05$ .

#### *Infant Temperament, Maternal Behavior, and Social Withdrawal*

In order to test hypotheses 2, we examined the predictive relations between maternal report of temperament at the age of four, maternal behavior at the age of seven, and social withdrawal at the age of seven using hierarchical multiple regression. Prior to testing the hypotheses and consistent with the recommendations of Aiken and West (1991), the continuous predictors entered into the regression equations were mean-centered. Child sex was used as a covariate in all tests of the hypotheses. Social withdrawal at the age of seven was regressed onto: Child sex, CCTI shyness, maternal positivity, maternal negativity, and the cross products of shyness by maternal behavior (positive and negative). See Table 4 for a summary of this analysis. No direct effects for shyness or maternal positivity or negativity were yielded. A significant interaction effect of maternal positivity by shyness was yielded. In order to clarify the nature of the interaction, graphical depiction of the effect was obtained as suggested by Cohen and Cohen (1983). As indicated by Figure 1, high shy preschoolers of low positive mothers were the most likely to be socially withdrawn at the age of seven. Children who were perceived as shy at the age of four and who had mothers who engaged them with high degrees of positivity did not demonstrate high frequencies of withdrawal at the age of seven. *Post hoc* regressions to examine the significance of each slope in Figure 1 were obtained based on the guidelines of Aiken and West (1991) for interaction effects involving two continuous variables. Results indicated that the relation between shyness at the age of four and social withdrawal at the age of seven was significant and positive when maternal positivity was low,  $\beta = .618$ ,  $t(69) = 3.60$ ,  $p = .001$ , and non-significant when maternal positivity was high,  $\beta = -.176$ ,  $t(70) = -.147$ ,  $t(69) < 1$ ,  $p > .05$ . We conducted additional *post hoc* analyses to probe this interaction effect using a between-groups approach as well. Specifically, we examined the partial correlation between shyness and social withdrawal (with child sex controlled) in children who received high degrees of maternal positivity (top 1/3 of the sample,  $N = 26$ ) and children who

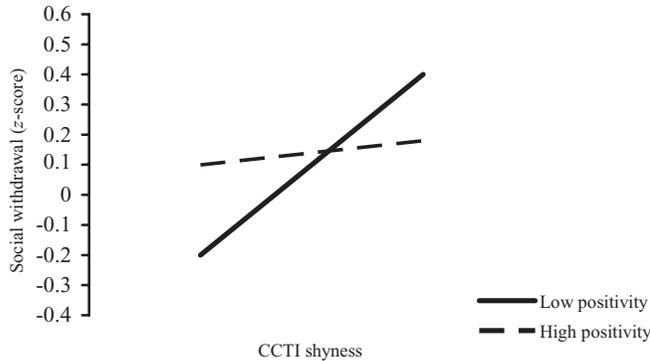


Figure 1. Joint Effect of Colorado Child Temperament Inventory Shyness and Maternal Positivity on Subsequent Social Withdrawal.

experienced low levels of maternal positivity (bottom 1/3 of the sample,  $N = 25$ ). Results of this approach revealed that the relation between shyness and social withdrawal was significant for children who experienced low degrees of maternal positivity,  $r^i = .54$ ,  $F(1, 20) = 8.14$ ,  $p < .05$  and non-significant for the children who experienced high degrees of maternal positivity,  $r^i = .22$ ,  $F(1, 22) = 1.35$ ,  $p > .05$ .

#### *Social Reticence, Maternal Behavior, and Social Withdrawal*

To examine the predictive relations between preschool reticence, maternal behavior at the age of seven, and social withdrawal at the age of seven, a hierarchical multiple regression analysis was computed. Social withdrawal at the age of seven was regressed onto: Child sex, reticence, maternal positivity, maternal negativity, the cross product of child gender by reticence, and the cross products of reticence by maternal behavior (positive and negative). See Table 5 for a summary of this analysis. No direct effects for preschool reticence or maternal behavior were yielded. A significant interaction of preschool reticence and maternal negativity on subsequent social withdrawal was yielded. In order to elucidate the nature of the interaction effect, graphical depiction of the effect was obtained as suggested by Cohen and Cohen (1983). As indicated by Figure 2, reticent four-year-olds were most likely to maintain a continued pattern of social withdrawal when their mothers engaged them with high degrees of negativity at the age of seven. Results of two *post hoc* simple slope regression equations (Aiken & West, 1991) indicated that the relation between preschool reticence and social withdrawal at the age of seven was positive when maternal negativity was high (+1 SD),  $\beta = .592$ ,  $t(69) = 1.66$ ,  $p = .10$  and non-significant when maternal negativity was low (-1 SD),  $\beta = -.434$ ,  $t(69) = -1.19$ ,  $p > .05$ . We conducted additional *post hoc* analyses of this interaction using a between-groups approach. Specifically, we examined the partial correlation between reticence and social withdrawal (with child sex controlled) in children who received high degrees of maternal negativity (top 1/3 of the sample,  $N = 26$ ) and children who experienced low levels of maternal negativity (bottom 1/3 of the sample,  $N = 25$ ). Results of this approach revealed that the relation between reticence and social withdrawal was significant for children who experienced high degrees of maternal negativity,  $r^i = .39$ ,  $F(1, 23) = 4.17$ ,  $p < .05$  and non-significant for

**Table 5. Summary of Regression Examining the Joint Effects of Social Reticence and Maternal Behavior on Social Withdrawal**

Variable	$R^2$	$\Delta R^2$	$F\Delta$ (1, 67)
Child gender	.02	.02	1.52
Reticence	.02	.00	<1
Maternal negativity	.06	.04	3.44
Maternal positivity	.06	.00	<1
Child gender $\times$ reticence	.08	.02	1.46
Maternal negativity $\times$ reticence	.15	.07*	5.05*
Maternal positivity $\times$ reticence	.17	.02	1.59

Note: Values in column labeled  $\Delta R^2$  represent the incremental  $R^2$  for each variable entering into the regression equation and values in the column labeled  $F\Delta$  are the  $F$ -values associated with each  $\Delta R^2$ .

\*  $p < .05$ .

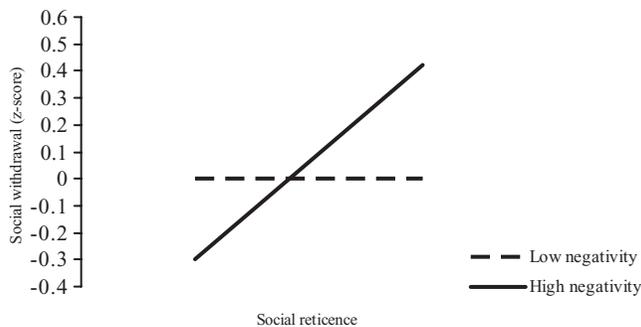


Figure 2. Joint Effect of Preschool Reticence and Maternal Negativity on Subsequent Social Withdrawal.

the children who experienced low degrees of maternal negativity,  $r^2 = .16$ ,  $F(1, 19) < 1$ ,  $p > .05$ .

## Discussion

In order to explicate the transactional nature of the development of social withdrawal from the preschool to middle childhood years, we examined the relative contributions of maternal positivity and negativity in the relations between indices of early and late social wariness. It was anticipated that the relation between preschool shyness and preschool non-social behavior and later social withdrawal would be both direct and indirect. This general hypothesis was supported, as continuity from the ages of four to seven was highly dependent upon quality of maternal behavior at the age of seven. And, importantly, the roles of maternal negativity and positivity in these relations depended upon the nature of the preschool indicator of risk (temperament vs. social behavior).

Taken together, these findings shed light on the differential function of parental negativity and positivity in the development of social withdrawal, a point turned to later in this discussion.

### *Preschool Social Behavior*

We hypothesized that social reticence at the age of four would foretell social withdrawal at the age of seven. This hypothesis was partially supported, in that reticence at the age of four and social withdrawal at the age of seven were positively correlated for girls only. This finding may be a function of the differences in the way males and females are socialized. For instance, there is some evidence that solitary passive play and shyness are viewed more negatively by teachers and parents when manifested by boys than girls (Coplan, Gavinski-Molina, Lagacé-Séguin, & Wichmann, 2001; Stevenson-Hinde, 1989). Hence, parents may socialize their boys toward more assertive behavioral repertoires, whereas more often overlooking withdrawn behavioral styles in girls. Such differential socialization may account for the greater degree of continuity in withdrawn behavior for girls relative to boys reported here.

We also expected that maternal behavior at the age of seven would moderate the relation between four-year social behavior and social withdrawal at the age of seven, with the greatest risk for subsequent social withdrawal occurring for those children who manifested social withdrawal early on and who experienced parenting characterized by the presence of negativity and, but to a lesser degree, a lack of positivity. Results of the regression analyses indicated that high degrees of maternal negativity, including hostility and negative control (e.g., indicating to the child that their performance on a challenging task is suboptimal and subsequently 'taking over' the task themselves) were associated with higher degrees of social withdrawal in children who displayed high degrees of reticence in early childhood. No evidence for maternal positivity as a moderator was found. It is possible that children who have a history of socially withdrawn behavior are particularly influenced by maternal behaviors that are negative because their history of social withdrawal has served to limit their social network, preventing them from experiencing positive social encounters with individuals other than caregivers. If exchanges with caregivers serve to increase trepidation about social exchanges, then the chance that the child will overcome the tendency to withdrawal without intervention is attenuated. This finding is consistent with Rubin and colleague's (2002) work, which showed that behavioral inhibition in toddlerhood and maternal derisiveness and psychologically overcontrolling behavior jointly predicted higher degrees of social withdrawal in early childhood. It is imperative to note that social withdrawal and maternal negativity were assessed contemporaneously and as such, the direction of influence between mother and child could not be determined. Children who had a history of social reticence may have elicited more negativity from their mothers, which, in turn, further exacerbated the pattern of withdrawal already in place, as socially wary behavior has been shown to evoke maternal behavior that limits the growth of independence during the preschool years (Hastings & Rubin, 1999; Rubin, Nelson, Hastings, & Asendorph, 1999). It is also plausible that the quality of the relationship between mother and child was negative well before middle childhood and that this suboptimal relationship influenced both the higher levels of reticence at the age of four and the presence of maternal negativity at the age of seven.

Additionally, the within gender correlations among the key variables in this study revealed that maternal negativity at the age of seven was associated with lower levels

of social withdrawal for boys only. This finding is somewhat perplexing given the significant interaction effect, which reveals that maternal negativity, when coupled with a previous history of social reticence, predicts increased social reticence. However, it is important to note that maternal negativity and social withdrawal were measured concurrently at the age of seven. It is plausible that boys who were low on social withdrawal were also high on externalizing behaviors during peer play and as such, the significant association between maternal negativity and low social withdrawal for boys may be because externalizing boys evoked more negativity from their mothers during the laboratory interaction session. However, future work, which examines the relation between externalizing behavior and low levels of social withdrawal are requisite in order to clarify this issue.

### *Maternal Perceptions of Shyness*

It was expected that maternal report of shyness on the CCTI would contemporaneously relate to socially withdrawn behavior. This hypothesis was supported by the significant positive correlation between shyness and social reticence. This finding is consistent with another report involving this sample, which showed that reticence at the age of four was associated with higher degrees of social fear in late infancy and higher ratings of shyness and internalizing problems at the age of four (Henderson et al., 2004). Because quality of parenting has been shown to be a key moderator in the relation between temperament and social outcome, we did not anticipate a direct effect for temperamental shyness at the age of four on subsequent social withdrawal. However, given the evidence that maternal positivity may serve as a buffer from negative social outcome for negatively reactive infants and young children, we hypothesized that maternal positivity moderated the relation between early shyness and later social withdrawal. This contention was supported, as a strong positive correlation between temperamental shyness and later social withdrawal was only evident for children who experienced parenting marked by low degrees of positive affect and positive control. The present data are supportive of the notion that maternal positivity may play a protective role for temperamentally shy children, given that children perceived to be shy by their mothers but who experienced high degrees of maternal positivity had social withdrawal scores that were at the sample mean for withdrawal.

It is important to note that the findings reported here regarding maternal positivity may be interpreted as discrepant from the findings of Rubin et al. (1999), which showed a contemporaneous association between maternal oversolicitous and social reticence at the age of four. However, the findings here are not necessarily contradictory to this previous report, as the variable of maternal positivity used here was derived based on a factor solution that indicated that maternal positive affect and positive control across interactive situations (structured and unstructured) shared common variance. The oversolicitous composite at the age of four examined maternal behavior during unstructured activity and included positive and negative control. The present report indicates that as children get older, generalized maternal positivity may head off social withdrawal for children whose mothers view them as shy. We did not examine direct associations between maternal behavior in one interactive context and social withdrawal in this study. However, given the evidence that maternal oversolicitous (Rubin et al., 2001) and highly sensitive (Park, Belsky, Putnam, & Crnic, 1997) behavior is associated with social withdrawal in certain children, this is an important point to query in future research.

We also hypothesized that maternal negativity would moderate the relation between temperament and social withdrawal, but this was not supported by the data. The lack of evidence for such an effect, when coupled with the significant findings with regard to maternal positivity, supports the literature examining the development of externalizing behavior problems, which has showed that temperamental negativity yields poor outcome when maternal behavior is characterized by the absence of positivity, more so than by the presence of negativity (Calkins, 2002; Pettit & Bates, 1989). The finding is also reminiscent of the infant literature, which shows that sensitive mothering is associated with better social outcomes for temperamentally difficult or extreme children (Fish et al., 1991; Kochanska, 1998; Kochanska et al., 1999). This report extends this literature and indicates, importantly, that positive maternal behavior may serve as a protective factor in the social development of children who have a history of shyness in early childhood. Children whose mothers viewed them as shy at the age of four who engaged their child in positive parenting behaviors at the age of seven may have fostered a sense of security and social efficacy in their children, which in turn translated into less withdrawn social behavior with peers. Indeed, the buffering effects of positivity may serve a protective function even when some degree of negativity is also experienced within the parent-child dyad. In the present report, maternal positivity and negativity competed for variance in the same regression models and, as such, the effect of maternal positivity on the relation between shyness and subsequent withdrawal is not dependant on degree of maternal negativity—that is, maternal negativity was controlled statistically. Hence, researchers interested in the development of socially wary behavior should carefully consider the co-occurrence of positive parenting behaviors while measuring more negative behaviors such as control and hostility.

### *Limitations*

The findings of this report must be interpreted in light of the limitations of the current study. Firstly, lack of evidence for the moderating role of maternal negativity (in the relation between temperament and social withdrawal); maternal positivity (in the relation between social reticence and social withdrawal); and three-way interactions involving gender may be a function of attenuated statistical power given the relatively small sample size. As well, the sample was largely middle class and generally well educated. Hence, the degree to which these findings generalize to samples of a different demographic nature is uncertain and awaits replication. Also, social behavior in the present report was examined in the context of peer play in a laboratory setting that may or may not generalize to social behavior in other settings. Finally, a growing body of evidence indicates that fathers (Rubin et al., 1999), the quality of interactions between mothers and fathers (Crockenberg, Leerkes, & Lekka, 2007), and early childcare settings (Watamura, Sebanc, & Gunnar, 2002) influence and are influenced by child temperament. Our focus herein on maternal behavior would be nicely complimented by future research that applies a similar approach to the development of social withdrawal by examining the influence of negative and positive behaviors manifested by other key caregivers and factors associated with the overall quality of the family milieu.

### *Summary and Conclusions*

The findings reported herein suggest that for school-aged children, generalized levels of maternal positivity may buffer the temperamental predisposition to develop a

socially withdrawn style of interacting with peers. In stark contrast are the analyses involving continuity in socially withdrawn behavior, which indicate that maternal negativity was associated with higher degrees of withdrawal in middle childhood. Hence, the function of maternal behavior was different across these two general trajectories. The presence or absence of maternal positivity is itself an important contributor to child social functioning in temperamentally shy preschoolers, with maternal positivity perhaps buffering temperamental risk before problem behavior becomes manifest. In contrast is maternal negativity, (itself either an antecedent of or a reaction to the problematic pattern), which exacerbates an existing deviant pattern of social behavior. Indeed, maternal hostility and negative control are particularly problematic for a child who already has established a behavioral pattern typified by a lack of social participation and anxiety. In another report drawn from the same sample, Fox and his colleagues (2005) provided evidence for a gene-by-environment interaction in the development of behavioral inhibition, such that children who were homozygous for the short 5-HTTLPR gene and whose mothers reported low levels of social support were significantly more likely to be behaviorally inhibited at the age of seven. The present report joins the Fox et al. report in affirming the critical role of the rearing environment in shaping the social outcomes of genetically or temperamentally vulnerable children. Hane and Fox have suggested that the effects of suboptimal caregiving environments may impact social behavior throughout the lifespan as a function of phenotypic plasticity (Hane & Fox, 2006, 2007). Hence, intervention efforts designed to educate parents about how to identify and cope with certain features of their child's behavioral repertoire may serve to improve social behavior concurrently and may also pay dividends for future social outcomes. Future research that examines the extent to which maternal negativity and positivity interact differentially with genes and early temperament are necessary in order to develop efficacious interventions which minimize socially withdrawn behavior by targeting the relevant dimensions of caregiver behavior that are particularly stifling for various types of socially wary children.

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