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Positive Parenting Interacts with Child Temperament and Negative Parenting to Predict Children's Socially Appropriate Behavior

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Abstract

This study examined the effects of parents' positive and negative affect and behavior while interacting with their preschool child and the moderating role of child temperament in predicting children's subsequent difficulty with socially appropriate behavior around school-entry. Independent observational measures were used to assess child temperament (dysphoria; exuberance) and parenting at age 3, and multi-informant reports of child socially appropriate behavior were collected at age 6 (N = 219). Hierarchical multiple regression analyses revealed that children's temperamental dysphoria moderated the relationship between positive parenting and later socially appropriate behavior. High- and low-dysphoric children trended in opposite directions; highly dysphoric children experienced greater difficulty with socially appropriate behavior as levels of positive parenting increased, whereas low-dysphoric children experienced less difficulty with socially appropriate behavior with higher levels of positive parenting. There was also an interaction between positive and negative parenting, whereby the combination of elevated positive *and* negative parenting predicted children's later difficulty with socially appropriate behavior. The findings suggest that positive parenting interacts with early child temperament and negative parenting to impact the development of children's socially appropriate behavior.

Keywords

child temperament; parenting; social behavior

Displaying socially appropriate behaviors is a key component to a child's early success and well-adjustment. For example, children with advanced social skills experience higher levels

of peer acceptance relative to their counterparts (Bandon, Calkins, Grimm, Keane, & O'Brien, 2010; Gest, Graham-Bermann, & Hartup, 2001; Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006) and greater academic success (McClelland, Morrison, & Holmes, 2000). Conversely, children who display less socially appropriate behaviors experience more peer rejection than their well-liked, socially appropriate classmates (Dubow, 1988) and greater academic difficulty (Bulotsky-Shearer, Fernandez, Dominguez, & Rouse, 2011). Thus, it is critical that children learn to display socially appropriate behaviors during the early school-age period, as this sets the stage for a range of socioemotional outcomes in middle childhood and beyond (Brownell & Gifford-Smith, 2003; Parker & Asher, 1987; Parker et al., 2006).

Parenting is a major influence on children's developing socially appropriate and competent behavior. Indeed, a number of studies have documented links between parenting variables, including behaviors (i.e., supportiveness, hostility; Domitrovich & Bierman, 2001) and emotional style and expressivity (i.e., positive and negative affect; Eisenberg, Cumberland, & Spinrad, 1998), on later child social adjustment and outcome. The research literature has focused most heavily on the impacts of negative parenting, including displays of negative affect (NA) (e.g., irritability, frustration, and distress) and hostility (e.g., anger, annoyance, discounting, and rejecting) on children's socioemotional development. For example, elevated parental NA (Repetti, Taylor, & Seeman, 2002), hostility (Domitrovich & Bierman, 2001; Harold, Elam, Lewis, Rice, & Thapar, 2012), and rejection (Dodge, Pettit, & Bates, 1994) have been linked with poorer socioemotional outcomes in children and adolescents both concurrently and longitudinally. Such observed outcomes include higher rates of antisocial behavior, aggression, peer avoidance, lack of prosocial behaviors (e.g., difficulty sharing with peers), and poorer overall social competence (Carson & Parke, 1996; Harold et al., 2012; Isley, O'Neil, Clatfelter, & Parke, 1999).

In contrast, positive parenting, conceptualized as positive affect (PA) and supportiveness/warmth, has received relatively less consideration (Karazsia & Wildman, 2009), although that is changing. There are cross-sectional links between parental PA and supportive parenting and social competence in children (Denham, Mitchell-Copeland, Strandberg, Auerbach, & Blair, 1997; Denham, Renwick, & Holt, 1991). Findings from longitudinal studies examining the association between positive parenting and child social functioning suggest that higher levels of parental positivity during the preschool years predicts fewer child behavior problems, greater social competence, and more positive social outcomes upon school-entry (i.e., 1st grade) (Green & Baker, 2011; Isley et al., 1999; Isley, O'Neil, & Parke, 1996; Lunkenheimer, Olson, Hollenstein, Sameroff, & Winter, 2011) and into adolescence, even when controlling for early adjustment (Pettit, Bates, & Dodge, 1997).

Child individual difference variables, such as temperament, may also play a role in the development of children's socially appropriate behavior. Temperament refers to early emerging biologically-influenced individual differences in reactivity and regulation that are relatively stable over time (Rothbart & Bates, 2006). A number of studies have reported relationships between child temperament and later social functioning (e.g., Coplan & Bullock, 2012; Newman, Caspi, Moffitt, & Silva, 1997; Sanson, Hemphill, Yagmurlu, & McClowry, 2011). For example, children with high levels of NA/irritability are at greater

risk for displaying later externalizing behavior problems, while children with high levels of fearfulness/inhibition and low surgency are more likely to exhibit subsequent internalizing symptoms, both of which are associated with later difficulty in social functioning (Sanson, Hemphill, & Smart, 2004). Additionally, children with elevated levels of surgency and affective intensity are more likely to demonstrate problematic externalizing behaviors in the classroom, such as hyperactivity and aggression (Berdan, Keane, & Calkins, 2008), and experience long-term peer rejection as a consequence of such behaviors (Bagwell, Molina, Pelham Jr, & Hoza, 2001).

The potential interplay between parenting and child temperament has been discussed frequently in the literature (Bates, Schermerhorn, & Petersen, 2012; Sanson et al., 2004), and there are some data suggesting that parenting and temperament have interactive effects on child outcomes (for a review, see Kiff, Lengua, & Zalewski, 2011), including social competence (Rispoli, McGoey, Koziol, & Schreiber, 2013). Most of this literature has focused on negative parenting characteristics and externalizing behavior outcomes for children. Moreover, differences in samples and methods limit conclusions. Associations among constructs have primarily been examined using cross-sectional designs, and temperament has been measured differently across studies (i.e., maternal-report, observational) and at different ages (i.e., infancy, early childhood, school-age).

Only a limited number of longitudinal studies have explored interactions between parenting and child temperament in predicting later child outcomes. Of these, almost all have focused on temperamental “difficulty”, anger/irritability, and low effortful control. For example, Crockenberg (1987) found that highly irritable infants were more likely to display externalizing behaviors in toddlerhood when exposed to highly punitive parents, compared to irritable infants exposed to low-punitive parents *and* low-irritable infants. Bradley and Corwyn (2008) reported that infants with difficult temperament were more likely to have behavior problems in first grade when parents exhibited low-sensitivity *or* provided fewer opportunities for productive activity (e.g., placing toys out for the child to play with) *and* less likely to experience subsequent externalizing problems when provided with more opportunities for productive activity, relative to children with easy or average temperaments. In a study of toddlers, Yaman and colleagues (2010) found that two-year-old children with difficult temperament *and* whose parents were low on positive parenting were more aggressive at age 3. However, toddlers with difficult temperament who had highly positive parenting were *not* significantly less aggressive than their peers with easy temperament at age 3. Moreover, children with an easy temperament showed the lowest level of later physical aggression with less positive parenting.

Several more recent studies have expanded the focus to include effortful control in addition to anger/frustration. Kochanska and Kim (2013) demonstrated that children who are characterized by low effortful control and anger proneness at 30 months of age but who had highly responsive mothers demonstrated more compliance and less externalizing behaviors at age 40 months. On the other hand, children with poor effortful control and proneness to anger who had non-responsive mothers had more externalizing problems and were less compliant. For children with easy temperament, there was no association with maternal responsiveness and later socioemotional outcomes. Additionally, Muhtadie, Zhou,

Eisenberg, and Wang (2013) examined interactions between early-elementary aged children's temperamental effortful control and anger/frustration and authoritative and authoritarian parenting styles on internalizing problems in later elementary school (i.e., 5th or 6th grade). They found a significant authoritarian parenting X effortful control interaction, whereby children with low effortful control were particularly susceptible to the adverse effects of authoritarian parenting relative to children with average and high levels of effortful control, as well as a significant authoritative parenting X anger/frustration interaction, in which highly angry/frustrated children benefitted from authoritative parenting at a similar rate to less angry children, but did significantly worse than low-angry children with low levels of authoritative parenting.

Thus far, there has been little interest in examining how other child temperament dimensions might interact with parenting characteristics to influence longitudinal outcomes. In a notable exception, Kochanska (1997) examined the development of conscience from toddlerhood to age 5, finding that more fearful children benefitted more from gentle maternal discipline, whereas less fearful children did better with higher maternal positivity.

In sum, it appears as though more temperamentally difficult or vulnerable children are more susceptible to the effects of negative parenting. However, there are mixed findings regarding whether these children are also more sensitive to the effects of better parenting (e.g., greater responsiveness; authoritative style) relative to their counterparts with average or easy temperaments.

As this brief review suggests, the literature on interactions between parenting and child temperament is still relatively limited, and many questions remain about the interplay between *specific* types of parenting and *specific* temperament dimensions during particular developmental periods on the subsequent development of young children's socially appropriate behavior. First, in light of the greater emphasis in the literature on the effects of negative relative to positive parenting, it may be particularly worthwhile to examine the role of positive parenting in influencing young children's subsequent socially appropriate behavior. In addition, most studies have focused on child externalizing outcomes; the role of parenting X child temperament interactions in predicting later child socially appropriate behaviors has received little attention. Finally, it is of particular interest to examine parenting X child temperament interactions on children's socially appropriate behavior around the transition into formal schooling, as this may have a significant influence on later socioemotional outcomes.

In this study, we examined the associations of parenting (positive and negative, as expressed in interactions with the child) and child temperamental exuberance and dysphoria at age 3 with parent and teacher reports of children's socially appropriate behaviors at age 6. Almost all models of temperament and personality include two dimensions of affective reactivity: surgency, positive affectivity, or extraversion and negative affectivity or neuroticism (e.g., De Pauw, Mervielde, & Van Leeuwen, 2009; Rothbart & Derryberry, 2002; Shiner & DeYoung, 2013). Thus, we chose to examine the closely corresponding temperament variables of exuberance and dysphoria. Based on previous literature, we hypothesized that negative parenting at age 3 would predict less appropriate social behavior 3 years later among both

dysphoric and exuberant children. In addition, we posited that positive parenting would predict more socially appropriate behavior regardless of temperament style, although we consider this exploratory due to the limited prior research on this question. Finally, following the broad pattern of interactions reported in the literature, we conjectured that children with more difficult or vulnerable temperaments (i.e., highly dysphoric; very high *or* low exuberance) would be more susceptible to the effects of negative parenting relative to their counterparts. That is, highly dysphoric children would exhibit less socially appropriate behavior with highly negative parenting than their less dysphoric peers. Likewise, very highly exuberant (high surgency / hyperactive) and low exuberant (withdrawn) children would have more difficulty with socially appropriate behavior with highly negative parenting relative to average-exuberant children.

Method

Participants

Recruitment—Families eligible for participation in the study had a 3-year-old child and at least one biological parent in the household, and lived within 20 miles of the university. The primary parent was required to speak English, and children with significant medical disorders or developmental disabilities were excluded.

Commercial mailing lists were used to recruit families. The demographic characteristics of the sample were similar to the surrounding county according to census data (see Olino, Klein, Dyson, Rose, & Durbin, 2010 for details). Five hundred thirty-seven parent-child dyads entered the study and completed separate laboratory observations of parenting and child temperament when the child was 3 years old. Of the initial sample, 415 parents completed questionnaires concerning their child's socially appropriate behavior at age 6. Participants' teachers were also asked to complete measures of the child's socially appropriate behaviors. Unfortunately, due to low teacher response rate, only a subset of teachers completed the measures ($N = 239$), including 20 participants for whom we did not obtain complete parent reports. Thus, the final sample consisted of 219 participants with complete parent and teacher reports of child social behavior at age 6. Informed voluntary written consent was obtained prior to participation. The study was conducted with full IRB approval, and participants were provided monetary compensation.

Demographics—The children in the sample ($N = 219$) were roughly half male (53.4%) and primarily White/European-American (89.5%). The mean ages of the children at the two assessments were 3.50 ($SD = 0.3$) and 6.01 ($SD = 0.4$), respectively. Most children were either in kindergarten (60.1%) or 1st grade (32.2%) at the time of the second assessment. The mean ages of the mothers and fathers were 36.0 ($SD = 4.1$) and 38.2 years ($SD = 5.0$) at the initial assessment, respectively. Almost all of the children's parents were married at the time of the first wave of assessments (94.7%). The sample was generally middle class, as measured by the Hollingshead's Four Factor Index of Social Status (Hollingshead, 1975; $M = 44.7$; $SD = 11.3$), and 59.2% of the mothers and 51.0 % of the fathers had a college degree or higher at the first assessment.

There were no significant differences between participants who were included in the analyses (N=219) and the remaining participants who initially entered the study but were not included in the analyses (N=318) on demographic variables (child age, sex, race/ethnicity, maternal or paternal education level, parental marital status, parental marital satisfaction, or socioeconomic status), positive or negative parenting, or the child temperament factors (all p 's > .05).

Procedure

In the first wave of data collection, which occurred when the children were 3 years old, child temperament and parenting were assessed using laboratory observation measures. The second wave of data collection occurred when the children were 6 years old, and included parents' reports of children's socially appropriate behaviors. With parental consent, teachers were also contacted to fill out a questionnaire about the child's social functioning at school.

Measures

Parenting—In the first wave of assessments, each child and one parent (207 [94.5%] mothers) participated in a 30-minute structured parent-child interaction session using a modified version of the Teaching Tasks battery (Egeland et al., 1995). The Teaching Tasks has demonstrated good reliability and validity in other samples. For example, in another study intraclass correlations (ICC) for interrater reliability ranged from $r_1=.69$ to $r_1=.83$, with a mean $r_1=.76$ (Weinfield, Ogawa, & Egeland, 2002). Moreover, the Teaching Tasks scales correlate with mother-reported parenting and predict children's later socioemotional and cognitive functioning (Zaslow et al., 2006).

The battery consisted of six standardized tasks that are designed to elicit individual differences in parenting. The interaction was video-recorded and later coded by raters blind to study hypotheses, using scales that have been employed in other studies (Weinfield et al., 2002). The tasks were as follows:

1. *Book Reading.* The parent read a short book with the child and then spent a few minutes discussing the book together afterwards.
2. *Wheels.* The parent encouraged the child to name as many things with wheels as possible.
3. *Blocks.* The parent tried to get the child to build larger square blocks using the smaller blocks.
4. *Matching.* The parent worked with the child to match pieces on a board so that pieces of the same shape were in columns and pieces of the same color were in rows; if the child was younger than 3 ½ years old, a different matching task was used in which the child matched color only.
5. *Maze.* The parent worked with the child to complete a maze by using knobs on an Etch-A-Sketch.
6. *Gift.* The parent presented the child with a small gift and then spent a few minutes looking at the toys together.

Parental affect (i.e., NA and PA) was coded based on the frequency and intensity of facial, vocal, and bodily cues. NA consisted of irritability, frustration, sadness, and distress, whereas PA reflected energetic and engaged involvement with the child, with displays of smiling, laughing, hugging, and general contentment. NA and PA were rated on three-point scales for each task and then averaged across tasks (PA $\alpha = .84$, interrater ICC = .66; NA $\alpha = .77$, ICC = .73; ICC $n's = 55$). According to Landis and Koch's (1977) guidelines, both ICCs are in the "substantial" range.

Behavioral aspects of parenting (i.e., supportive presence and hostility) were also coded. Supportive presence was coded based on parental expressions of positive regard and emotional support toward the child. Specifically, indices of supportive presence include acknowledging the child's accomplishments, encouraging the child with positive emotional regard, and otherwise letting the child know that the parent supports the child's ability to perform well on the tasks. Conversely, hostility reflects the mother's expression of anger, frustration, annoyance, discounting, or rejection directed at the child. A mother scoring high on this scale would clearly and openly reject or criticize the child or blame him/her for mistakes. Both supportive presence and hostility were rated on a 7-point scale from 1 (very low) to 7 (very high) and were averaged across tasks as above (Support $\alpha = .88$, interrater ICC = .85; Hostility $\alpha = .76$, ICC = .83; ICC $n's = 55$). Both ICCs are in the "almost perfect" range according to Landis and Koch (1977).

Two composite variables were created. The first reflected positive parenting (maternal PA and support; $r = .42$; $p < .001$) and the second reflected negative parenting (maternal NA and hostility; $r = .81$; $p < .001$). The positive and negative parenting scales were correlated $-.53$.

Child temperament—In a separate lab visit during the initial wave of assessments, each child was observed in a standardized set of 12 episodes from the Laboratory Temperament Assessment Battery (Lab-TAB; Goldsmith, Reilly, Lemery, Longley, & Prescott, 1995). The Laboratory Temperament Assessment Battery (Lab-TAB) has also consistently demonstrated strong psychometric properties in other studies. For example, research groups have demonstrated interrater reliability estimates for composite emotion variables ranging from .66 to .94 across episodes in a battery (Durbin, Klein, Hayden, Buckley, & Moerk, 2005), moderate stability from age 3 to age 7 (Durbin, Hayden, Klein, & Olino, 2007; Majdandzic & van den Boom, 2007), and convergent validity with home observations (Durbin et al., 2007) and parent-report temperament questionnaires (Pfeifer, Goldsmith, Davidson, & Rickman, 2002).

Episodes were selected to elicit a range of temperament-relevant behaviors. No episodes presumed to evoke similar affective responses occurred consecutively to avoid carry-over effects. The parent remained in the same room as the child during all episodes aside from *Stranger* and *Box Empty* (see below) but was instructed not to interact with the child aside from the *Pop-Up Snakes* episode. The child was allowed a brief play break between each of the episodes. All episodes were video-recorded and later coded by different coders who were not involved in coding the Teaching Tasks.

The episodes, listed in the order that they were administered, were as follows:

1. *Risk Room.* Child explored a set of novel and ambiguous stimuli, including a Halloween mask, balance beam, and black box.
2. *Tower of Patience.* Child and experimenter alternated turns in building a tower. The experimenter took increasing amounts of time before placing her or his block on the tower during each turn.
3. *Arc of Toys.* Child played independently with toys for 5 minutes before the experimenter asked the child to clean up the toys.
4. *Stranger Approach.* Child was left alone briefly in the room before a male accomplice entered, speaking to the child while slowly walking closer.
5. *Make that Car go.* Child and experimenter raced remote-controlled cars.
6. *Transparent Box.* Experimenter locked an attractive toy in a transparent box, leaving the child alone with a set of nonworking keys. After a few minutes, the experimenter returned and told the child that she had left the wrong set of keys. The child used the new keys to open the box and play with the toy.
7. *Exploring New Objects.* Child was given the opportunity to explore a set of novel and ambiguous stimuli, including a mechanical spider, a mechanical bird, and sticky soft gel balls.
8. *Pop-Up Snakes.* Child and experimenter surprised the parent with a can of potato chips that actually contained coiled snakes.
9. *Impossibly Perfect Green Circles.* Experimenter repeatedly asked the child to draw a circle on a large piece of paper, mildly criticizing each attempt.
10. *Popping Bubbles.* Child and experimenter played with a bubble-shooting toy.
11. *Snack Delay.* Child was instructed to wait for the experimenter to ring a bell before eating a snack. The experimenter systematically increased the delay before ringing the bell.
12. *Box Empty.* Child was given an elaborately wrapped box to open under the impression that a toy was inside.

Based on previous studies utilizing the Lab-TAB assessment (e.g., Durbin et al., 2007), the following temperament traits, emotional displays, and behaviors were rated: PA, fear, sadness, anger, behavioral inhibition (BI), inhibitory control, interest, activity, sociability, impulsivity, initiative, anticipatory PA, dominance, warmth, social interest, affiliation, assertiveness, clinginess, pushiness, hostility, noncompliance, avoidance, and social fear. With only a few exceptions, each variable was rated for all episodes.

Each display of facial, bodily, and vocal affect (PA, fear, sadness, anger) in each episode was rated on a 3-point scale (low, moderate, high). Ratings were summed separately within each channel (facial, bodily, vocal) across the 12 episodes, standardized, and summed across the three channels to derive total scores for each affect domain. The other behavioral variables were rated once per episode on a 4-, 5- or 10-point scale and summed across episodes. To reduce the number of temperament variables listed above, a principal components analysis

was conducted followed by an oblique rotation. Based on the eigenvalue > 1.0 rule (Kaiser-Guttman criterion) and inspection of the scree plot, five components were extracted, although only two components were of interest in this study (for a complete table of factor loadings, see Dougherty et al., 2011). Each factor was easily interpretable and included several theoretically relevant variables with loadings greater than .40 and few cross-loadings on multiple factors. Unit-weighted scores were derived for each child. In the few cases where there were cross-loadings, the item was assigned to the scale with the higher loading. The Dysphoria ($\alpha = .80$) and Exuberance ($\alpha = .88$) factors were used to assess children's trait emotional reactivity, as they represent temperamental affective reactivity. The Dysphoria factor consisted of anger, hostility, sadness, and pushiness, whereas the Exuberance component was composed of PA, anticipatory PA, interest, warmth, and activity (Dougherty et al., 2011). Interrater ICCs ($n = 35$) for Dysphoria and Exuberance were .88 and .92, respectively. According to Landis and Koch (1977), these values reflect "almost perfect" agreement. The two scales were not correlated ($r = .01$).

Child Socially Appropriate Behaviors—In the follow-up assessment approximately 3 years later, children's socially appropriate behaviors were measured using the socially appropriate behavior subscale of the Ratings of Children's Behaviors scale, developed by Eisenberg and colleagues (Eisenberg, Fabes, Guthrie, & Reiser, 2000; Eisenberg et al., 1997). The subscale includes four items, rated from 1–4, regarding whether the child is well-behaved, acts appropriately, gets into trouble, and has good social skills. Informants are asked to rate the child based on their "actual tendencies" to perform certain behaviors; there were no specifications regarding whom the behaviors are directed to (i.e., peers, siblings, parents).

Given the importance of collecting data from multiple informants in developmental research (Kraemer et al., 2003), the scale was administered to both the primary parent and the child's teacher. Internal consistency was adequate, especially considering the brevity of the scales: $\alpha = .71$ for parents and $\alpha = .87$ for teachers. Parent and teacher ratings were significantly associated ($r = .31$; $p < .001$) and were thus aggregated to create a composite scale ($\alpha = .80$ for the 8-item composite scale).

Results

Means and standard deviations of study variables, as well as bivariate correlations among them, are presented in Table 1. We conducted two separate hierarchical multiple regression analyses following Aiken & West's (1991) procedures to examine associations between parenting and child temperament at age 3 and child socially appropriate behaviors at age 6. We included the parenting variables in the same models to examine the unique effect of positive and negative parenting and their interactions with child temperament in predicting subsequent socially appropriate behaviors. The first model examined the roles of positive and negative parenting and child temperamental dysphoria in predicting child difficulty with socially appropriate behaviors. The second model examined the role of positive and negative parenting in conjunction with temperamental exuberance in predicting later problems with socially appropriate behaviors. To examine possible sex differences, each model also included interactions with child sex. Thus, both hierarchical regression models contained

four steps: the first step included the main effects for child gender, parental positive and negative parenting, and one of the two child temperament variables; the second step included six cross-product terms for each of the initial variables with one another; the third step included three additional cross-product terms that reflect three way interactions among the variables; and the fourth step included a four-way interaction between all of the variables. Finally, to increase parsimony, non-significant interactions were removed from the models and the analyses were run again (see Tables 2 and 3).

In the first model, there were significant main effects for child sex and child dysphoria in predicting difficulty with socially appropriate behaviors, as well as a significant positive parenting X child dysphoria interaction (see Table 2).⁵ Boys and children with greater dysphoria had more difficulty with socially appropriate behaviors. In addition, as shown in Figure 1, children with higher levels of dysphoria tended to exhibit greater difficulty with socially appropriate behaviors when their parent displayed a higher level of positive parenting, whereas problems with socially appropriate behaviors among low dysphoric children tended to decrease as a function of positive parenting. Neither slope was significant, indicating that the interaction was due to these associations running in opposing directions.⁶

The second analysis examined the association between child sex, parenting, child exuberance, and subsequent child difficulty with socially appropriate behaviors. There was a significant effect for child sex, with boys again experiencing more difficulty with socially appropriate behaviors relative to girls, and a significant two-way interaction between positive and negative parenting (see Table 3).⁷ Children who were exposed to higher levels of positive *and* negative parenting tended to have greater difficulty with socially appropriate behavior; in contrast, children with high levels of positive parenting and low levels of negative parenting tended to experience less difficulty with socially appropriate behavior. Again, neither slope was significant (see Figure 2).⁸

Discussion

While parenting is known to influence children's socioemotional adjustment (Domitrovich & Bierman, 2001; Eisenberg et al., 1998), there are still many questions that remain. Our current understanding is that positive parenting strategies are associated with healthier social functioning in children (e.g., Denham et al., 1997; Denham et al., 1991; Lunkenheimer et al., 2011; Pettit et al., 1997), whereas negative parenting predicts poorer socioemotional adjustment (Dodge, Pettit, & Bates, 1994; Domitrovich & Bierman, 2001; Harold et al., 2012; Repetti et al., 2002). However, there is increasing evidence that child characteristics may influence the interplay between parenting and child outcomes, including social competence (e.g., Stright, Gallagher, & Kelley, 2008). The current study builds on the literature in two ways. The first is by showing that early child characteristics influence the

⁵When examining parent and teacher reports separately, the results were similar. The only differences were that the main effect for dysphoria was reduced to a trend ($p = .07$) in the parent-only reports and the positive parenting X dysphoria interaction was reduced to a trend ($p = .08$) in the teacher-only reports. The pattern of findings in the interaction was the same.

⁶Results were the same in the untrimmed model that included child dysphoria.

⁷The results were similar when examining parent-reports separately. For teacher-report only, the positive parenting X negative parenting interaction reduced to a trend ($p = .07$).

⁸Results were the same in the untrimmed model that included child exuberance.

relationship between positive parenting and children's socially appropriate behavior around the time of school entry, with child dysphoria at age 3 moderating the relationship between positive parenting, also assessed at 3, and socially appropriate behaviors at age 6. Specifically, the relation of parental PA and warmth with children's socially appropriate behavior takes opposing directions depending on child temperamental negative affectivity: highly dysphoric children paired with parents who are high on PA and warmth tend to have greater difficulty with subsequent socially appropriate behavior relative to low-dysphoric children, who tend to experience less difficulty with highly positive parenting. The second is that early elevated positive and negative parenting interact to predict difficulty in socially appropriate behavior in children around the time of school-entry. Here, children who were exposed to high levels of both positive *and* negative parenting tended to experience greater difficulty with socially appropriate behavior at age 6. Although these findings were not hypothesized, they are potentially important. Together, they underscore the potentially problematic nature of positive parenting in highly dysphoric children *or* when combined with high levels of negative parenting in predicting a child's subsequent difficulty with socially appropriate behavior.

There are at least several possible explanations for why elevated positive parenting was associated with less socially skilled behavior for high-dysphoria children but with more socially appropriate behaviors for low-dysphoria children. The first is that parenting characterized by PA and supportiveness may positively reinforce children's social behavior. As high-dysphoric children display less socially adaptive behavior, these maladaptive patterns are reinforced. In contrast, low-dysphoric children exhibit more socially adaptive behavior, hence these more skilled behaviors are reinforced. A second explanation is that a subset of mothers with positive parenting are engaging in poor affective mirroring, responding to their child in ways that are inconsistent with the child's internal state. Poorly attuned parent-child social communication in preschool may lead to less socially appropriate behavior at school-entry, as children bring their experiences and expectations regarding interpersonal interactions into a larger and more challenging social sphere.

We also found an interaction between positive and negative parenting in predicting children's later difficulty with socially appropriate behavior. Preschoolers exposed to both elevated positive *and* negative parenting during the same laboratory interaction paradigm experienced the highest level of difficulty with socially appropriate behavior around the time of school entry. Thus, positive parenting did not buffer, but instead exacerbated, the relationship between negative parenting and difficulty with socially appropriate behavior as might be expected. It is plausible that children experience caregivers who exhibit highly levels of both PA/support *and* NA/hostility as inconsistent and unpredictable. Previous research indicates that an unpredictable parenting style is difficult for children and results in elevated rates of oppositional and aggressive behaviors (Wahler & Dumas, 1986). It is also possible that parents with high levels of emotional intensity are overly reactive and misinterpret their children's behaviors as socially inappropriate. However, as the pattern of findings was similar in parent-only and teacher-only reports, this is unlikely to be the sole explanation.

We observed a main effect for child dysphoria predicting later difficulty with socially skilled behavior. Anger and sadness are closely intertwined to compose dysphoria in young children (Dyson, Olino, Durbin, Goldsmith, & Klein, 2012). It is possible that the dysphoric children who experienced the most difficulty with socially appropriate behaviors tend toward more anger displays than sadness, whereas children with high levels of sadness may be more inclined towards social withdrawal.

We did not observe main effects of parenting on children's later socially skilled behavior. This was surprising given the research base, particularly on negative parenting predicting worse outcomes in children (e.g., Domitrovich & Bierman, 2001). However, as our parent-child interaction assessment was not specifically designed to elicit parental negative affect and hostility, but rather a range of parenting behaviors, our measure of negative parenting may not have been sufficiently sensitive. However, it was sensitive enough to detect a positive parenting X negative parenting interaction.

We also observed a main effect for child sex, in which boys demonstrated greater difficulty with socially appropriate behaviors. This is consistent with the literature; boys are more likely than girls to display behaviors consistent with hyperactivity and impulsivity, and independent raters have found that children with these qualities are significantly less socially competent (Grenell, Glass, & Katz, 1987).

Children with high levels of negative affectivity or dysphoria may be at risk for developing subsequent internalizing and externalizing psychopathology (Klein, Dyson, Kujawa, & Kotov, 2012). While this report does not examine associations between temperamental emotionality and psychopathology, the current findings raise the possibility that positive parenting may moderate this relationship and influence risk for later emotional and behavioral problems.

This study had a number of strengths, including a longitudinal design and multi-informant reports of child socially appropriate behavior from both parents and teachers. In addition, separate laboratory tasks allowed for independent and standardized measures of parenting and child temperamental emotionality. Lastly, we examined both positive and negative valenced emotional expression and behavior by both parents and children.

However, the study also had a number of limitations. Teacher-reports of child functioning were not available for many children, which reduced the sample size and raises the threat of sampling bias. However, we did not find any systematic differences between the participants included versus not included in the analyses and believe that the use multi-informant reports outweighed the reduction in sample size. Second, direct observations of the children's behavior were not available, although our inclusion of both parent and teacher report covers the most important child contexts. Third, we collected observational data on parenting with only the primary parent and did not assess co-parents, which limits our understanding of children's experiences with parenting at home. Fourth, age 3 child temperament and parenting were measured only once, hence stable and occasion-specific variance cannot be distinguished. However, previous findings suggest that parenting and child temperament measured via laboratory observation are moderately stable over time (e.g., Caspi, 2000;

Durbin, Hayden, Klein, & Olino, 2007; Weinfield et al., 2002). Fifth, we did not assess children's socially appropriate behavior at age 3, as the range of social interactions at this age are limited. In addition, teacher reports are critical for assessing children's social behavior, and many participants were not in school yet. Thus, we were unable to control for the possible effects of children's pre-existing socially appropriate behaviors, which may contribute to later behaviors. Sixth, our effect sizes were small, which highlights the likely role of additional variables and the necessity of exploring other processes that impact the development of children's socially appropriate behavior. Small effect sizes are typical in interaction analyses, however, as the main effects of the relevant variables have already been accounted for. Seventh, and related to the prior point, we did not assess other aspects of parenting (e.g., discipline strategies; expectation-setting; appropriate monitoring), which may be related to child social competence. It is possible that parenting practices may better explain the mechanisms operating in the relationship between child temperament and parenting, such that overly-lax or rigid parenting strategies may be highly associated with positive and negative parenting. These variables should be taken into consideration in future research. Finally, we used commercial mailing lists for recruitment, which may be associated with unknown biases, and the sample consisted largely of middle-class Caucasians from two-parent households, which may limit the generalizability of the findings.

Many of these limitations will be important to consider in future research. This study's findings raise the question of whether positive parenting, as measured by PA and supportiveness, is qualitatively different across individuals and contexts. Examining how and when positive parenting is beneficial or detrimental (e.g., intrusive positive emotional displays; positivity that is inconsistent with the child's emotional state) is critical in better understanding how parenting interacts with child individual differences. Additionally, it is plausible that negative parenting might be useful in some contexts, such as in teaching moments. Finally, further teasing apart the interplay between parenting and child temperament requires more complex research designs and analyses, as these associations are likely to be dynamic and reciprocal (Putnam, Sanson, & Rothbart, 2002).

In conclusion, this study indicates that there are non-additive effects of early parenting and temperament on later child socially skilled behavior around the time of school entry. The results also suggest that positive parenting, conceptualized as high PA and support, may not be as uniformly beneficial as is often assumed. Specifically, high positive parenting was associated with poorer subsequent socially appropriate behavior in temperamentally dysphoric children, as well as when it was combined with high negative parenting. This suggests that it may be useful for parenting interventions to be more closely tailored to the individual characteristics of family members to facilitate young children's social development, an important goal given the importance of healthy peer relationships at school entry for later socioemotional and psychological outcomes.

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Figure 1. Interaction of positive parenting (positive affect [PA] and support) on subsequent children's socially appropriate behavior, as moderated by child dysphoria.

Figure 2. Interaction of positive parenting on children's subsequent socially appropriate behavior, as moderated by negative parenting.

Table 1

Correlations, Means, Standard Deviations, and Ranges Among Study Variables (N = 219)

	Positive Parenting (PA + Support)	Negative Parenting (NA + Hostility)	Child Dysphoria	Child Exuberance	Child Socially Appropriate Behavior Difficulty
Positive Parenting	--	-.53***	-.10	.06	-.04
Negative Parenting		--	.20**	-.01	.04
Child Dysphoria			--	.01	.18**
Child Exuberance				--	-.04
Child Socially Appropriate Behavior Difficulty					--
Mean	.17	0	-.01	.02	12.03
Standard Deviation	1.52	1.90	.90	.97	3.79
Range	-4.98 – 4.18	-.80 – 16.59	-1.70 – 4.19	-2.39 – 2.66	8 – 25

 $p < .001$;**
 $p < .01$

Table 2
Hierarchical Regression for Parenting, Child Dysphoria, and Child Sex on Subsequent Child Socially Appropriate Behavior

Variable	B	SE(B)	β	R^2
Step 1				.10
Child Sex	-.291	.64	-.29***	
Positive Parenting	-.07	.25	-.02	
Negative Parenting	.03	.20	.01	
Child Dysphoria	.89	.36	.16*	
Step 2				.06
Child Sex	-.292	.62	-.30***	
Positive Parenting	-.07	.24	-.02	
Negative Parenting	.75	.35	.29*	
Child Dysphoria	1.22	.36	.22***	
Positive Parenting X Child Dysphoria	.53	.18	.21**	
Positive Parenting X Negative Parenting	.16	.08	.24 ^t	

 $p < .001$;

**
 $p < .01$;

*
 $p < .05$;

^t
 $p < .10$

Table 3

Hierarchical Regression for Parenting, Child Exuberance, and Child Sex on Subsequent Child Socially Appropriate Behavior

Variable	B	B(SE)	β	R^2
Step 1				.09
Child Sex	-.301	.65	-.30***	
Positive Parenting	-.07	.25	-.02	
Negative Parenting	.12	.20	.05	
Child Exuberance	-.04	.34	-.01	
Step 2				.02
Child Sex	-3.00	.64	-.30***	
Positive Parenting	.01	.25	.01	
Negative Parenting	.85	.36	.33*	
Child Exuberance	-.01	.33	-.001	
Positive Parenting X Negative Parenting	.21	.09	.31*	

 $p < .001$;

**
 $p < .01$;

*
 $p < .05$;

t
 $p < .10$