

## The Relations of Regulation and Negative Emotionality to Indonesian Children's Social Functioning

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The purpose of this study was to examine the relations of individual differences in regulation and negative emotionality to 127 third-grade Indonesian children's social skills/low externalizing problem behavior, sociometric status, and shyness. Parents and multiple teachers provided information on children's regulation, negative emotionality, and social functioning; peer sociometric information on liking and social behavior was obtained; and children reported on their self-regulation. In general, children's low socially appropriate behavior/high problem behavior and rejected peer status were related to low dispositional regulation and high negative emotionality (intense emotions and anger), and regulation and negative emotionality (especially teacher rated) sometimes accounted for unique (additive) variance in children's social functioning. Adult-reported shyness was related to low peer nominations of disliked/fights (although shy children were not especially liked), low adult-reported regulation, and (to a lesser degree) low teacher-rated negative emotionality. Findings are compared with work on regulation, negative emotionality, social competence, and shyness in other countries.

### INTRODUCTION

In the last decade, there has been considerable interest in the role of regulation and emotionality in the quality of children's social functioning (e.g., Saarni, 1990). A growing body of research supports the view that emotionality and regulation are associated with children's concurrent and long-term social competence and adjustment (Block & Block, 1980; Caspi, 1998, 2000; Eisenberg, Fabes, Guthrie, & Reiser, 2000; Pulkkinen & Hamalainen, 1995; Rothbart, Posner, & Hershey, 1995). However, most of this work has been conducted in the United States or other western, industrialized countries. The primary purpose of the present study was to examine the relations of individual differences in dispositional regulation and negative emotionality to quality of children's social functioning in a non-Western cultural environment—that of Java, Indonesia. As is discussed shortly, Java is an interesting place to study emotion regulation because it is highly prized in the culture.

Emotion-related regulation is the process of initiating, maintaining, modulating, or changing the occurrence, intensity, or duration of internal feeling states, emotion-related physiological processes, and the behavioral concomitants of emotion. The concomitants of emotion include facial and gestural reactions and other behaviors that stem from, or are associated with, internal emotion-related psychological or physiological states and goals (Eisenberg et al., 2000). Emotion-related regulation often can involve effortful control, a construct discussed by Rothbart and colleagues (e.g., Ahadi & Rothbart, 1994; Rothbart, Ahadi, & Evans, 2000). Effortful control is defined as “the ability to inhibit a dominant response to perform

a subdominant response” (Rothbart & Bates, 1998, p. 137). It involves both attentional regulation (e.g., the ability to voluntarily focus attention as needed) and behavioral regulation (e.g., the ability to inhibit behavior as appropriate). Effortful control (including attentional and behavioral regulation) has been related to low levels of, or better modulated, negative emotionality (Derryberry & Rothbart, 1988; Kochanska, Coy, Tjebkes, & Husarek, 1998); high levels of empathy, prosocial behavior, and conscience (Eisenberg, Fabes, Karbon, et al., 1996; Kochanska, Murray, & Coy, 1997; Kochanska, Murray, Jacques, Koenig, & Vandegest, 1996; Rothbart, Ahadi, & Hershey, 1994); and social competence and low levels of externalizing problems (e.g., Eisenberg, Fabes, Guthrie, et al., 1996; Eisenberg, Guthrie, et al., 1997; Rothbart et al., 1994; for a review, see Eisenberg et al., 2000). Moreover, low levels of attentional control sometimes have been linked to shyness (Eisenberg et al., 2001; Eisenberg, Fabes, & Murphy, 1995).

Individual differences in intensity and valence of emotion also appear to play an important role in quality of social functioning. These individual differences generally are viewed as rooted in temperament (e.g., Rothbart & Bates, 1998). If people experience strong negative emotions and cannot adequately modulate their emotion and control their expression, they are relatively likely to behave in inappropriate ways (e.g., “act out” anger) or may be socially withdrawn and shy (Asendorpf, 1987; Caspi et al., 1995; Eisenberg et al., 2001; Gottman, Katz, & Hooven, 1996; Lerner,

Hertzog, Hooker, Hassibi, & Thomas, 1988). For example, children who are moody and prone to negative emotions such as anger are less liked by peers (Coie & Dodge, 1988; French, 1988; Maszk, Eisenberg, & Guthrie, 1999; Newcomb, Bukowski, & Pattee, 1993; Stocker & Dunn, 1990). Moreover, shyness has been associated with internalizing negative emotions (e.g., sadness, anxiety) in both children and adults (Asendorpf, 1987; Eisenberg, Shepard, et al., 1998; Izard, Libero, Putnam, & Haynes, 1993; Leary, 1986). In contrast, relations between shyness and externalizing emotions such as anger generally have been nonsignificant (e.g., Eisenberg et al., 2001; Eisenberg, Shepard, et al., 1998), although positive relations also have been obtained between adults' reports of shyness and their reports of anger, contempt, and disgust (Izard et al., 1993). Thus, the relation between shyness and anger or other such displays of emotion is unclear. Moreover, in a culture that values the control of emotional experience and expression, shy individuals may not display their negative emotions, such as anxiety, in an attempt to conform with norms.

Although individual differences in negative emotionality and regulation are likely to be correlated, Eisenberg and Fabes (Eisenberg et al., 2000) have argued that they often provide some unique variance to the prediction of social competence and problem behavior. Consistent with this view, the prediction of social competence and problem behaviors is higher when both negative emotionality and regulation are considered (e.g., Eisenberg et al., 2001; Eisenberg, Fabes, Guthrie, et al., 1996; Eisenberg, Fabes, et al., 1997). Moreover, individual differences in regulation and negative emotionality sometimes interact when predicting social functioning, such that the combination of low effortful regulation and negative emotionality is especially problematic. For example, in samples of American children, children high in negative emotionality and low in regulation are most prone to externalizing problems or low social competence (Eisenberg, Fabes, Guthrie, et al., 1996; for a review, see Eisenberg et al., 2000). Findings of this sort are consistent with models in which individual differences in both restraint/regulation and negative emotionality jointly contribute to the quality of individuals' social functioning (e.g., Eisenberg et al., 2000; Weinberger & Schwartz, 1990).

Emotion regulation often is viewed as a social process rather than solely an intraindividual process (Campos, Campos, & Barrett, 1989; Walden & Smith, 1997). For example, the effects of different temperamental characteristics, including dispositional differences in regulation and negative emotionality, on children's socioemotional functioning depend partly on the fit between children's temperament and the so-

cial context in which they are embedded (Lerner, 1984). Because of culture's role in organizing meaning in a society (Super & Harkness, 1982; Whiting, 1980), what is considered competent behavior, or optimal regulation or emotional expressivity, is partly derived from cultural norms and values (Kitayama & Markus, 1994). For example, in Western, industrialized cultures, social inhibition, which is manifested in shy, withdrawn behavior, has been viewed as reflecting fearfulness and a lack of self-confidence, and is often regarded by adults as relatively socially incompetent and immature (Rubin & Asendorpf, 1993). Thus, it is not surprising that shyness has been associated with peer rejection and isolation in countries such as the United States and Canada (e.g., Rubin, Chen, McDougall, Bowker, & McKinnon, 1995; Rubin, Parker, & Bukowski, 1998). In China, however, shy behavior is believed to indicate social maturity and understanding, and shyness and sensitivity are positively associated with Chinese children's peer acceptance, leadership, and teacher-assessed competence (e.g., Chen, Rubin, & Li, 1995; Chen, Rubin, Li, & Li, 1999).

In the present study, we examined the relations of children's dispositional effortful regulation and emotionality (primarily negative emotionality) to their social functioning and sociometric status in Indonesia. Indonesian culture is a different context from that of the United States with regard to values and norms for appropriate social behavior. Hofstede (1991) rated the Indonesian society of Java as being on the extreme end of collectivism. Members of collectivist societies generally are concerned with the consequences of their behavior on other members of the group and they tend to show great willingness to engage in prosocial behavior for the good of the group (Triandis, 1995). Although the nature of collectivism undoubtedly varies somewhat across cultures (Triandis, 1995), maintaining personal relationships and interpersonal harmony with close others generally are key values in collectivistic cultures (Markus & Kitayama, 1991; Oyserman, 1993; Triandis, 1995). In general, anger and other negative emotions are reviewed as disrupting relationships and harmful. Thus, socialization in Indonesia would be expected to differ somewhat from socialization in individualist societies such as the United States, in which the emphasis tends to be on individuals' own needs, interests, and achievements, and independence and self-initiative. Children would be expected early on to learn to conform to group norms in terms of controlling the overt expression of negative emotion and emotionally driven negative behavior, so that they behave in a manner that promotes group harmony and avoids interpersonal conflict. Regulation of emotion and its expres-

sion in behavior, although important to social functioning in Western cultures, would seem to be even more important on Java.

Consistent with the aforementioned expectations, traditional Indonesian society has been described as emphasizing cooperation, conformity to authority, and harmonious relationships, that is, *rukun* (Koentjaraningrat, 1985). Geertz (1961) and Koentjaraningrat (1985) asserted that Javanese children are expected to be quiet, obedient, and respectful of their parents. According to Williams (1991), Javanese parents socialize obedience (i.e., *manut*) and helping, sharing, and empathizing with others (i.e., *tepaslira*) as ideal human virtues.

Moreover, social scientists working in Java have described Javanese society and customs in ways that are consistent with the view that the culture emphasizes sensitivity to others' needs, self-control, and control of the expression of emotion. For example, Koentjaraningrat (1985) noted that Javanese children were expected to be emotionally reserved, and Geertz (1961) reported an emphasis on politeness and self-control. Mulder (1989) argued that children are socialized to feel shame as a means of fostering conformity, self-control, and avoidance of conflict and confrontation. The ideal of community life is to experience harmonious community, which is based on the willingness to adjust one's behavior to the expectations and needs of others. Javanese believe that "to become human is to learn order, inwardly and outwardly so. To know order is to know the rules, at the very least as far as they regulate outward behavior" (pp. 26–27). A cardinal ethical command is "'to measure at oneself' (*tepa slira*) what one's words and actions will cause to the feelings of others or not to do to others that which one does not wish to have done to oneself" (p. 54). This includes "do" commands such as "do not irritate the others" and "be careful not to hurt the other's feelings" (p. 34). Mulder, in a later book (1996, pp. 102–103), further noted that "Emotion and feeling, intuition, empathy and sympathy, self-consciousness and appreciation of each other's dignity: these are the valid guides in interaction, along with the suppression of conflict, the denial of frustration, and the mastery of negative emotions." Similarly, professionals counseling in hospitals in Java have noted norms regarding the suppression of public expression of emotion and the stoic acceptance of suffering (Van Beek, 1987).

Javanese individuals may differ from Westerners in both the expression and experience of emotion. As already noted, on Java it generally is considered inappropriate to express negative emotions in an unregulated manner (Mulder, 1989). In addition, traditionally the Javanese believe that the experience of negative

emotion (e.g., anger) makes people sick and shortens their lives (Geertz, 1976; Wellenkamp, 1995a). Similar beliefs are held by the Balinese (who live on the island next to Java; Wikan, 1989) and people from Toraja, Indonesia (Wellenkamp, 1995b). Wikan (1989, pp. 294–295) reported that the Balinese believe that shaping emotions is a collective concern, not a matter of personal choice: "It is rigidly enforced by stringent moral sanctions, and requires an effort to sustain." Thus, in many parts of Indonesia, controlling the experience of emotion is believed to be essential for communal cooperation and good health.

The limited empirical work supports the argument that Javanese children and adults are expected to suppress their emotional displays. In a study of Indonesian children's play behavior with their mothers and older siblings, Farver and Wimbari (1995) found that mother-child play observed in the natural context and in the experimental procedure tended to be quiet and reserved compared with sibling-child play. Thus, Indonesian parents may impose their expectations with regard to the expression of emotion and regulation when they are interacting with their children. Farver and Wimbari (1995), like Williams (1991), argued that Javanese children are socialized to maintain harmonious social relationships, to mask their emotions, and to be obedient, prosocial, and empathic. Consistent with their assertions, French et al. (2000) found that youth in the United States reported more conflict in their friendships, whereas Indonesian youth reported more help-giving.

There also is limited research indicating that children's social competence has some of the same correlates as in Western cultures. In a study of social status and friendship, French, Setiono, and Eddy (1999) found that the relations between fifth graders' sociometric status and peers', teachers', and parents' ratings of aggression were similar in the United States and Indonesia. In general, aggression (which often involves negative emotion) was negatively related to positive sociometric ratings and positively related to negative ratings. Findings for social withdrawal, however, differed somewhat across the Indonesian and United States children. Positive sociometric ratings were negatively related to socially withdrawn behavior in the United States and to teachers' (but not peers' or parents') reports of social withdrawal in Indonesia; negative sociometric ratings were positively related to social withdrawal in the United States and were unrelated to negative sociometric ratings in Indonesia. Similarly, children's anxiety was negatively related to positive sociometrics and positively related to negative sociometric ratings in the United States, whereas only peer ratings of anxiety were associated with negative sociometrics in Java (and there were no associations for

positive sociometrics). Thus, social competence with peers was only weakly associated with low levels of social withdrawal and anxiety in Indonesia—a finding that is not very consistent with data on shyness and social withdrawal in the United States or with the positive relation between social competence and shyness found in China (e.g., Chen et al., 1995, 1999).

In the present study, we examined the relations of regulation and negative emotionality to multiple aspects of children's social functioning in an Indonesian population. We know of no other study on regulation and emotionality as predictors of children's social functioning in Indonesia. A multireporter, multimethod approach was used to examine the unique and additive relations of regulation and negative emotionality to the prediction of children's socially competent and externalizing problem behavior as rated by teachers, parents, and peers. In addition, prediction of shyness from individual differences in children's regulation and negative emotionality was examined. The goal was to see if obtained relations were similar to those obtained in research with Western children.

Because Javanese parents traditionally tend to socialize their children to be quiet, obedient, and controlled, regulation was expected to be a valued characteristic in Javanese children and, thus, related to high-quality social functioning (as viewed by adults and peers). In contrast, high negative emotionality, including the expression of anger, was expected to be associated with low social competence, problem behavior, and low sociometric status. This pattern of findings was expected to be at least as clear as in the United States because the suppression of emotional experience and expression is not as central to the culture in the United States.

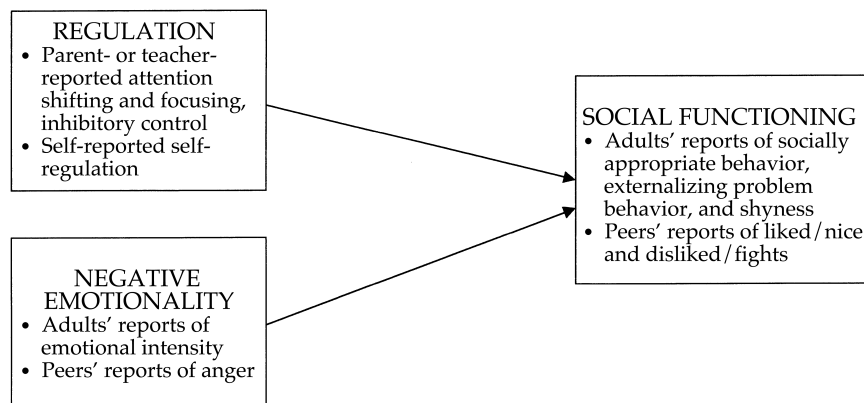
Based on prior work in China (Chen et al., 1995) and Indonesia (French et al., 1999), we were unclear as to what to predict with regard to shyness. Considering the findings in China—another collectivist society—and the value of constrained and polite behavior in Indonesia, shyness might be expected to be positively related to regulation in Javanese children. As previously discussed, however, French et al. (1999) did not find that social withdrawal was associated with high peer status in Indonesia, so shyness may not be as valued in Indonesia as in some other societies, at least in the peer context. China and Indonesian most likely differ in the ways in which they embrace collectivistic values, and also differ in terms of their primary religion. Based on the discrepancies in findings, we did not formulate clear hypotheses regarding the relation of shyness to regulation or negative emotionality (including anger).

As in the United States, we expected prediction of quality of social functioning to be stronger if both regulation and negative emotionality were considered—that is, we expected their effects to be additive (see Figure 1; Eisenberg et al., 2000). Based on prior findings, we also expected children who were both prone to negative emotions and unregulated to be the lowest in terms of quality of social functioning (i.e., we predicted interaction effects).

## METHOD

### Participants

Participants were 127 Indonesian children (58 females, 69 males; age:  $M = 109.41$  months,  $SD = 4.75$ ,  $range = 94$ – $132$ ) in three classrooms from a school in



**Figure 1** Joint effects of regulation and negative emotionality on children's quality of social functioning and a list of the measures of constructs. Interactions of regulation and negative emotionality also are predicted, especially for the prediction of social skills and problem behavior.

Bandung, Indonesia. Ninety-seven percent of the children lived in a two-parent household, 2% lived in a one-parent household, and 1% lived with other relatives. Ninety-six percent were Muslim and 4% were Christian. Many of the children were Javanese, a number were part Sundanese, and a few came from other islands such as Sumatera (Sumatra) and Celebes. In Bandung, and in this school, many children were of mixed heritage. The school was a private public school, rather than a government public school, which means that families pay tuition that is higher than for government-run schools. Thus, the sample was middle class and many of the parents were professionals (e.g., bank officials, doctors, lawyers, and businessman). About 50% of the mothers of children at this school worked, often in white-collar jobs.

### Procedure

The data were collected in Bandung, Indonesia, a city of over 1,000,000 that is about 180 kilometers from Jakarta on the island of Java. The city is a center for education and technological development (French et al., 1999).

All questionnaires were translated into Indonesian by Sri Pidada and back-translated by an Indonesian graduate student. Questionnaires were distributed to parents (124 mothers and 3 fathers), teachers, and children. Parents who agreed to participate were invited to the school on one of three Saturday sessions. The experimenter gave general instructions to parents, and most parents completed the measures at school. Parents who did not have time to complete the measures at the school took the questionnaires home and returned them later (18 parents never completed the questionnaires). Teachers completed measures of children's social functioning, regulation, and negative emotionality at home or after school. Teachers were given instructions as a group to ensure that they understood the items and the scales. For child measures, an experimenter read the items to the children individually. For peer nominations and sociometric measures, children individually nominated and ranked the four classmates they liked most and the four they liked least from a list of names of children in the classroom. Each child also nominated and ranked four classmates for each of the following: those who were most likely to fight, get angry a lot, and be nice to others.

Three teachers rated each child. Teacher 1 was the classroom teacher who taught the children 6 days a week and had known them for about 8 months at the time of data collection. Three different teachers served as Teacher 1, and each rated children from their own class (41–43 children were in each). Teacher

2 was the Islam religion teacher. Teacher 2 taught the children once a week, but had known most children since they were about 32 months old. In addition to teaching religion, Teacher 2 supervised children during recess and school field trips. Teacher 3 was the physical education teacher and the only male teacher rater. He taught the children once a week and had known them for about 8 months at the time of data collection. Teacher 2 and Teacher 3 had opportunities to observe children in both classroom and outdoor contexts. To increase the reliability of the various indexes (Epstein, 1979) and to reduce the number of measures, scores for teachers were combined for all scales, although we also looked at key associations across teachers (see below).

### Measures

Measures pertained to one of five constructs: children's social functioning (socially appropriate behavior and low externalizing problem behavior), shyness, emotionality, and regulation. Teachers and parents provided information on all constructs and children provided information on their own regulation and quality of peers' social functioning (fighting, prosocial behavior) and emotionality (anger). Scores on all measures were computed not only for Teachers 1, 2, and 3 combined (Teacher 1/2/3), but also for Teacher 1 alone (for social functioning) and for Teachers 2 and 3 combined (Teacher 2/3; for regulation and negative emotionality) so that analyses could be computed across teachers. Because (as is discussed below) the reliabilities for Teacher 1 measures of negative emotionality and regulation tended to be lower than those for Teachers 2 and 3, we opted to compute and use Teacher 2/3 measures of these constructs and Teacher 1 measures of social functioning (socially appropriate behavior and low externalizing problem behavior, shyness) when examining relations across teachers.

### Quality of Social Functioning

Teachers and parents reported on children's social skills (socially appropriate behavior), problem behavior, and shyness. Peers provided information on sociometric status, as well as children's problem behavior (fighting) and social skills (niceness).

*Social skills.* To assess children's social skills (i.e., socially appropriate behavior), parents completed four items adapted from Harter's (1982) Perceived Competence Scale for Children (e.g., "This child is usually well-behaved" versus "This child is not well-behaved"; Eisenberg, Guthrie, et al., 1997) using Har-

ter's 4-point response scale (i.e., they selected one of two statements and then indicated if the item was "really true" or "sort of true"),  $\alpha = .54$ . Although this  $\alpha$  was low due to the small number of items, the intercorrelations averaged .23 (and this measure was combined with others; see below). Teachers rated children's social skills using three items,  $\alpha = .74$ , .59, and .75 for Teacher 1, Teacher 2, and Teacher 3, respectively. An additional item was dropped for teachers because its inclusion in the scale lowered the  $\alpha$  ("Compared to other children this child's age, this child has very good social skills" versus "Compared to other children this child's age, this child does not have very good social skills"). Scores for Teachers 2 and 3 were correlated,  $r(125) = .39, p < .001$ , and were combined by averaging the three items for Teacher 2 and Teacher 3 before averaging the scale items. Separate scores were computed for Teachers 1 and Teacher 2/3, so that some analyses could be computed across teachers. In addition, scores for Teachers 1, 2, and 3 (Teacher 1's scores correlated .29 and .36 with those of Teachers 1 and 2) were standardized and averaged for analyses across type of reporter (i.e., with peer or teacher reports).

*Sociometrics.* Children were asked to select four peers (one after another) whom "you like the most" and four whom "you like the least" (i.e., dislike). Sociometric data were calculated in two ways: as continuous variables and as categorical variables (i.e., popular, unpopular, average, controversial, and neglected groups). When sociometric data were calculated as continuous variables, first choices were weighted (multiplied) by 4, second choices by 3, third choices by 2, and fourth choices by 1, separately for same-sex peers and other-sex peers. This is similar to methods used in the past (e.g., Eisenberg, Fabes, Karbon, et al., 1996; Hartup, Glazer, & Charlesworth, 1967). The weighted nominations were summed to compute scores for total number of being "liked most" and being "liked least" by all peers (i.e., same-sex and other-sex peers).

With regard to discrete sociometric status groups, five groups were formed using criteria similar to that outlined by Coie, Dodge, and Coppotelli (1982). The total numbers of ratings for being "liked most" and being "liked least" by all peers (unweighted) were standardized within classroom. The total score for being nominated "liked most" was subtracted from the total score for being nominated "liked least," then standardized, to arrive at a "social preference" score. A "social impact" score was calculated by summing the total score for liked most and liked least (standardized within the classroom), and then standardizing these scores. Similar to Dodge, Coie, Pettit, and Price (1990), an *SD* of .8 rather than 1.0 was used as a cutoff

in the classification. Specifically, children with a standardized social preference score greater than .8, a "liked most" score greater than 0, and a "liked least" score less than 0 were classified as popular ( $n = 19$ ). Children who scored less than  $-.8$  on their social preference score, less than 0 for "liked most," and greater than 0 for "liked least," were classified as rejected ( $n = 18$ ). Neglected status ( $n = 26$ ) was assigned to children who scored less than  $-.8$  on their social impact score, and less than 0 on "liked most" and "liked least." Controversial status ( $n = 10$ ) was assigned to children with social impact scores greater than 0, and scores for being liked most and liked least greater than .8. Children who scored between .8 above and below the mean on social preference and social impact scores were classified as average status ( $n = 53$ ).

*Prosocial behavior.* Children provided ratings on peers' prosocial behavior. They were asked to select four classmates, one after another, who "are really nice to others." First choices were weighted (multiplied) by 4, second choices by 3, third choices by 2, and fourth choices by 1 for same-sex and for other-sex nominations. The four weighted scores were summed and then standardized within classroom to arrive at separate scores for same-sex and other-sex nominations of being nice to others. A composite score of children's prosocial behavior was computed by averaging the standardized same-sex and other-sex nominations of being nice to others.

*Problem behavior.* Children were rated on problem behavior by parents and teachers using the Child Problem Behavior Checklist by Lochman and the Conduct Problems Prevention Research Group (1995), which contains a subset of items for the Child Behavior Checklist (Achenbach, 1991). As in Eisenberg, Fabes, Guthrie, et al. (1996) and Eisenberg et al. (2000), all 24 items were included (e.g., "teases other children," "breaks things on purpose," "defiant toward adults") except for one item pertaining to setting fires. Items were rated on a 4-point scale (1 = never, 4 = often). Alphas were .83, .93, .90, and .94 for parents, and Teachers 1, 2, and 3, respectively. Scores for the three teachers were correlated,  $r_s(127) = .41$  to  $.48, p_s < .001$ , and scores for Teachers 2 and 3 were standardized and averaged, as were scores for Teachers 1, 2, and 3. In addition, children were asked to nominate four peers who "fight a lot." These ratings were weighted, standardized, and combined in the manner described previously for the "nice" nominations.

*Shyness.* Parents and teachers also rated children on shyness on a 7-point scale using 13 items (e.g., "Acts shy around new people") adapted from the Child Behavior Questionnaire (CBQ; Rothbart et al., 1994). Some items were modified slightly for teachers because the

CBQ was designed for parents (Eisenberg, Fabes et al., 1997). Alphas for parents and Teachers 1, 2, and 3 were .88, .79, .91, and .79, respectively. Scores for the three teachers were significantly correlated,  $r_s(123) = .37$  to  $.41$ ,  $p_s < .001$ , and were standardized and averaged across both Teachers 2 and 3 and Teachers 1, 2, and 3.

### Emotionality

Ratings by parents and teachers were used to assess children's emotionality. In addition, children nominated peers who were "likely to get angry a lot."

*Adults' reports of emotional intensity and anger.* Parents and teachers rated children's emotional intensity (EI) with 12 items, adapted from Larsen and Diener (1987), that pertained to intensity of negative emotion (e.g., "When my child [this child] gets nervous or distressed, he/she gets very nervous/upset") and emotion in general ("My child [This child] responds very emotionally to things around him/her"). Items were rated on a 7-point scale (1 = never, 7 = always). In addition, children's anger was rated by parents (13 items) and teachers (11 items; e.g., "Gets angry when called in from play before he/she is ready to quit") using the anger/frustration subscale from the CBQ (Goldsmith & Rothbart, 1991; Rothbart et al., 1994). Items were rated on a 7-point scale (1 = extremely untrue, 7 = extremely true).

Alphas were acceptable, .68 or higher, for both scales except for Teacher 1,  $\alpha_s = .43$  for EI and .61 for anger. Both scales, however, pertained primarily to negative affect and when combined, the  $\alpha_s$  for parents and Teachers 1, 2, and 3 were .81, .64, .88, and .91, respectively. Thus, the items for these two scales (which were all rated on a 1–7 scale) were averaged. Correlations among teachers ranged from .22 to .32,  $p_s < .02$  to .001; thus, composites for Teachers 2 and 3 and for Teachers 1, 2, and 3 were computed by standardizing and averaging the teachers' scores. These scores were not used for Teacher 1 only. Although some items could tap into a variety of emotions, many tapped only negative emotion; thus, this measure is considered primarily an index of negative emotionality (especially externalizing negative emotions) and henceforth is labeled as such.

*Peer reports of anger.* Children nominated four children as most likely to get angry. Nominations were summed in the same manner as was described for the ratings of niceness or fighting.

### Regulation

Measures of children's regulation consisted of parents' and teachers' reports of children's attentional control and inhibitory control, as well as children's

self-reports of regulation. As for the other measures, composites of teacher scores were constructed so that it would be possible to look at relations across teachers (Teacher 1 with Teacher 2/3) and across reporters (e.g., Teacher 1/2/3 with parents' or peers' reports).

*Attentional control.* Parents and teachers rated children's attentional shifting and focusing using items from the CBQ (Rothbart et al., 1994). Because the CBQ was designed for parents, some items were slightly modified for teachers. Alphas for 10-item attention-shifting scales for parents and Teachers 1, 2, and 3 were .75, .70, .72, and .82, respectively. Two additional items that did not correlate with other items in the scale were dropped.

Parents rated seven items for attention focusing (e.g., "Has difficulty leaving a project he/she has begun")  $\alpha = .52$ ; two additional reversed items were dropped due to low item-scale correlations and parents' apparent difficulty with reversed items. Although this  $\alpha$  was low, when attention shifting and focusing were combined (see below), the  $\alpha$  was .75. Teachers rated the same seven items for attention focusing,  $\alpha_s = .61, .78, \text{ and } .83$  for Teachers 1, 2, and 3, respectively.

*Inhibitory control.* Parents and teachers also rated children on inhibitory control (e.g., "Can wait before entering into new activities if he/she is asked to") using the inhibitory control subscale of the CBQ (13 items for parents and for teachers),  $\alpha_s = .70$  for parents and .84, .89, and .85 for Teachers 1, 2, and 3, respectively.

*Child-reported self-regulation.* Children's self report of self-regulation was measured using 16 items from Rohrbeck, Azar, and Wagner's (1991) Child Self-Control Scale. Children responded using a 4-point response scale; they selected the statement that they resembled most (i.e., "Some kids find it hard to sit still" but "Other kids find it easy to sit still") and then indicated the degree to which they resembled the selected statement (i.e., "Sort of like these kids" or "Really like these kids"). Items were averaged to arrive at a composite for child-reported self-regulation,  $\alpha = .81$ . This measure tapped primarily inhibitory control.

### Data Reduction of Peer Assessments

Principle components factor analyses with a varimax rotation were conducted on the mean scores for the peer ratings of prosocial behavior, fighting, being liked, and being disliked. Prosocial behavior (.88) and being liked (.92) loaded on the first factor, whereas fighting (.89) and being disliked (.87) loaded on the second factor. Based on these factors, measures on the first factor were standardized and averaged to con-

struct a *positive sociometric composite*. The two indices were correlated,  $r(125) = .63, p < .001, \alpha = .78$  for the two items. The measures on the second factor were combined in a similar manner to construct a *negative sociometric composite*,  $r(125) = .55, p < .001, \alpha = .71$  for the two items. The high interrelations indicate that the children were not differentiating a lot between liking and nice or between disliking and fighting.

### Data Reduction of Adults' Reports on Social Functioning Data

Reports on social skills and problem behavior by parents or by Teachers 1, 2, and 3, were negatively related,  $rs(103, 125, 124, 125) = -.35, -.63, .49, \text{ and } -.72$  (within reporter),  $ps < .001$ , respectively. Thus, for each reporter, scores were standardized (after reversing problem behavior) and averaged to form a composite score for *social skills/low problem behavior*. These composites then were standardized and averaged across Teachers 1, 2, and 3 (social skills and problem behavior combined across teachers were correlated,  $-.74$ ) to use in analyses with parent- and child- (or peer-) reported data. Scores also were averaged across Teachers 2 and 3 to use in analyses with Teacher 1 data (to examine across-reporter relations). Scores for *shyness* were kept separate albeit standardized and averaged across the three reporters for most analyses.

### Data Reduction for Adult-Reported Regulation Data

The regulation data were reduced in a manner similar to that used in prior studies and the resulting composites were analogous to those used in prior research in the United States (e.g., Eisenberg, Fabes, et al., 1997; Murphy, Shepard, Eisenberg, Fabes, & Guthrie, 1999).

Attention shifting, attention focusing, and inhibitory control generally are all viewed as aspects of effortful regulation (Ahadi & Rothbart, 1994; Rothbart, personal communication, October 2000). Moreover, these three subscales factored on a single factor in four separate principle components factor analyses computed for parents and for each of the three teachers. Correlations among the three scales ranged from .45 to .50 for parents; from .51 to .73 for Teacher 1; from .64 to .70 for Teacher 2; and from .77 to .86 for Teacher 3. Thus, the three scales were standardized and averaged within each reporter. In addition, these composite scores were intercorrelated among teachers, with correlations ranging from .35 to .58. Thus, these scores were standardized and averaged across Teachers 2 and 3, as well as across Teachers 1, 2, and 3.

Consistent with the conceptual distinction between negative emotionality and regulation, scores for negative emotionality were kept separate from the regulation composite.

## RESULTS

### Descriptive Analyses

Outlier analyses were computed using the SPSS regression program (SPSS Inc., Chicago, IL). One child had extreme scores on ratings of liking, nice, and anger, and, therefore, the scores on these variables were dropped for that child. In addition, a number of variables were skewed; transformations were computed to improve the skew of scores for all the peer nomination scores and for Teacher 1/2/3 regulation, all teacher-reported measures of social competence/problem behavior, and parents' reports of shyness.

In preliminary analyses, gender and age differences in the major variables were examined.

### Correlations of Major Variables with Age

Age was significantly positively related only to peers' ratings of positive sociometrics,  $r(125) = .18, p < .045$ . Given the number of correlations, this finding may have been due to chance.

### Gender Differences in Social Functioning, Regulation, and Emotionality

Multivariate analyses were conducted to examine gender differences in measures of children's social functioning, emotionality, and regulation (*Ms* and *SDs* for males and females are given in Table 1). Separate multivariate analyses were computed for the data for parents (ratings of social skills/low problem behavior, shyness, regulation, and emotionality), Teacher 1 (social skills/low problem behavior, shyness), Teacher 2/3 (social skills/low problem behavior, shyness, regulation, emotionality), and peers (anger, positive sociometrics, negative sociometrics). The multivariate *Fs* were significant for the latter three:  $F(2, 124) = 11.66, F(4, 120) = 11.05, \text{ and } F(3, 122) = 8.03, ps < .001$ , respectively, with  $F(4, 104) = 1.83, p < .13$  for the parent multivariate. According to univariate tests, females scored higher than males on parent-reported social skills/low problem behavior,  $F(1, 107) = 6.28, p < .014$ . Teacher 1 also rated females higher on social skills/low problem behavior and lower on shyness than males,  $Fs(1, 125) = 8.47 \text{ and } 4.94, ps < .001 \text{ and } .028$ , respectively. Similarly, Teacher 2/3 rated females as higher on regulation and social skills/low problem behavior, and lower on negative emotionality than males,  $rs(1, 123) = 16.98, 39.67, \text{ and } 4.54, ps <$



**Table 1** Means of Major Variables by Gender

Variable	Girls	Boys
Adult report of social functioning		
Teacher 1 report <sup>a</sup>	.34 (.72)	-.29 (.94)
Teacher 2/3 report <sup>a</sup>	.45 (.74)	-.38 (.78)
Teacher 1/2/3 report <sup>a</sup>	.43 (.69)	-.36 (.72)
Parent report <sup>a</sup>	.23 (.73)	-.16 (.88)
Positive peer sociometrics <sup>a</sup>	.03 (.70)	-.08 (.65)
Negative peer sociometrics <sup>a</sup>	-.23 (.61)	.19 (.90)
Adult report of shyness		
Teacher 1 report	3.39 (.57)	3.65 (.69)
Teacher 2/3 report <sup>a</sup>	-.04 (.93)	.06 (.75)
Teacher 1/2/3 report <sup>a</sup>	-.11 (.78)	.08 (.75)
Parent report	2.85 (1.07)	3.16 (1.07)
Regulation/negative emotionality		
Teachers 2/3 regulation <sup>a</sup>	.31 (.82)	-.25 (.79)
Teachers 1/2/3 regulation <sup>a</sup>	.35 (.68)	-.29 (.77)
Teacher 2/3 emotionality <sup>a</sup>	-.16 (.89)	.18 (.74)
Teacher 1/2/3 emotionality <sup>a</sup>	-.19 (.77)	.19 (.67)
Child-reported regulation	3.38 (.42)	3.23 (.45)
Parent regulation <sup>a</sup>	.10 (.77)	-.07 (.84)
Parent negative emotionality	4.04 (.64)	4.25 (.60)
Peer-reported anger <sup>a</sup>	.03 (.81)	.10 (.72)

Note: Nontransformed means are presented for the measures. Values in parentheses are standard deviations.

<sup>a</sup>This measure is a composite of standardized measures (within or across reporters; see text).

.001, .001, and .035, respectively. Males also scored higher than females on negative peer sociometrics,  $F(1, 124) = 12.30, p < .001$ . Due to the gender differences, gender was partialled or controlled in many analyses.

### Interrelations of Parent, Teacher, and Peer Measures of Social Functioning

There generally were significant relations between reporters of quality of children's social functioning (see Table 2). When examining correlations between parent or peer data with teacher data (across type of reporter), teacher data were combined across all three teachers. When discussing correlations between teachers (within type of reporter), correlations were examined between Teacher 1 and Teacher 2/3 (correlations among teachers on the same variables were presented in the Method section). Patterns of correlations are emphasized when interpreting the results because of the possibility of chance findings (given the number of analyses).

### Correlations among Parents and Teachers for the Same Construct

Interrelations across raters were generally significant for social functioning and for shyness. Consis-

tent with the correlations among teachers for these measures (see discussion of this issue in the Method section), Teacher 1's and Teacher 2/3's reports of social skills/low problem behavior were positively related, as were Teacher 1's and Teacher 2/3's reports of shyness (see the bottom of Table 2). Across type of reporter, Teacher 1/2/3's and parents' reports of both social skills/low problem behavior and shyness were positively related. The correlations did not differ substantially by gender.

### Correlations between Similar Adult and Peer Measures

Recall that a positive sociometric composite was computed by averaging the standardized scores for peer nominations for being "nice" and "liked." A negative sociometric composite was computed in a similar manner for peer nominations for "fighting" and "disliked." Peers' ratings of positive sociometrics were positively related to parents' and Teacher 1/2/3's reports of social skills/low problem behavior, whereas peers' negative sociometrics showed the reverse pattern of correlations (see Table 2). The strength of these relations argues for the validity of these measures. Children rated as shy by Teacher 1/2/3 scored low on peers' positive and negative sociometrics; parent-reported shyness also was associated with low negative sociometrics.<sup>1</sup>

### Intercorrelations of Indexes of Emotionality and Regulation

With regard to within-reporter correlations, regulation and negative emotionality were significantly negatively related for both teacher 1/2/3 and parents,  $r_s(125, 107) = -.51$  and  $-.59, p_s < .001$ , respectively. Parental regulation was positively related to Teacher 1/2/3's reports of regulation and negatively related to Teacher 1/2/3's reports of negative emotionality,  $r_s(107) = .47$  and  $-.21, p_s < .001$  and  $.03$ , respectively. Parental negative emotionality was negatively related to Teacher 1/2/3's reports of regulation,  $r(107) = -.28, p < .003$ , and was not significantly re-

<sup>1</sup> Findings for the "nice" versus "liked" (and the "disliked" versus "fights") sociometric ratings were somewhat similar, although children rated as shy by Teacher 1/2/3 were rated as low in liking and fighting, but not as disliked or low in niceness,  $r_s(124, 125, 125, 124) = -.28, -.21, -.12, \text{ and } -.07, p_s < .001, .02, ns, \text{ and } ns$ , respectively. Parent-rated social skills/low problem behavior was significantly correlated with being liked by peers and being low in fighting, but not being nice or disliked,  $r_s(106, 107, 106, 107) = .21, -.19, .12, \text{ and } -.12, p_s < .03, .044, ns, \text{ and } ns$ , respectively.

**Table 2** Intercorrelations among Major Measures of Social Functioning across Reporters

Measures of Social Functioning	1	2	3	4	5	6
Parent ( <i>n</i> = 109)						
1. Social skills/low problem behavior		-.32***	.25**	-.10	.25**	-.19*
2. Shyness			.06	.35***	-.03	-.20*
Teacher 1/2/3 ( <i>n</i> = 127)						
3. Social skills/low problem behavior				.03	.35***	-.62***
4. Shyness					-.21*	-.19*
Peer ( <i>n</i> = 127)						
5. Positive sociometrics						-.36***
6. Negative sociometrics						

Note: Teacher 1's reports of social skills/low problem behavior correlated .53 and .14 with Teacher 2/3's reports of social skills/low problem behavior and shyness,  $p$ s < .001 and .11, respectively; analogous correlations for Teacher 1's reports of shyness with Teacher 2/3's reports of social skills/low problem behavior and shyness were -.08 and .44,  $ns$  and  $p$  < .001, respectively.

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

lated to teachers 1/2/3's reports of negative emotionality,  $r(107) = .14$ ,  $ns$ . Neither parental regulation nor parental negative emotionality was significantly correlated with peers' reports of children's anger. Peer-reported anger was positively correlated with Teacher 1/2/3's reports of negative emotionality, however,  $r(124) = .46$ ,  $p$  < .001. Children's own reports of regulation also were positively related to Teacher 1/2/3's reports of regulation,  $r(122) = .22$ ,  $p$  < .012, but were not related to parents' reports of regulation or negative emotionality or peers' reports of anger. Thus, there was some evidence of consistency of reports across respondents (i.e., parents and teachers, and teachers and peers), although relations between parents' and peers' reports of negative emotionality and regulation were nonsignificant.

### Relations of Measures of Emotionality and Regulation to Social Skills/Low Problem Behavior and Shyness

Adults' reports of quality of children's social functioning were generally related to their reports of children's regulation and emotionality, within and across reporters. Both zero-order and partial correlations controlling for gender are presented in Table 3. We focused on Teacher 1/2/3 (rather than Teacher 1 or Teacher 2/3) reports of social functioning when discussing correlations of teachers' reports with parent or child measures. To examine across teacher reports, Teacher 1 reports of social functioning are discussed in relation to Teacher 2/3 reports of regulation and negative emotionality. Clearly, the number of correlations is far greater than chance and the pattern of findings is emphasized.

### Within Reporters

In general, high regulation and negative emotionality were related to social functioning and shyness in within-reporter correlations, with the correlations ranging from small to moderate size. Parents' reports of regulation correlated with their reports of high social skills/low problem behavior and low shyness, whereas their reports of negative emotionality were negatively related to social skills/low problem behavior (but were unrelated to shyness; see Table 3). Similarly, Teacher 1/2/3's reports of regulation were positively related to their reports of social skills/low problem behavior and negatively related to shyness, whereas their reports of negative emotionality were negatively related to both variables. Peer-reported anger was positively and moderately related to negative sociometric scores.

### Across Teachers

Teacher 2/3's reports of regulation were positively related to Teacher 1's reports of social skills/low problem behavior and negatively related to Teacher 1's reports of shyness. Teacher 2/3's reports of negative emotionality were negatively related to Teacher 1's reports of social skills/low problem behavior and with low shyness, although the latter relation held only when the effects of gender were partialled, and was weak (see Table 3).

### Across Type of Reporters

Parents' reports of children's regulation were positively but modestly related to Teacher 1/2/3's reports of social skills/low problem behavior and peer positive sociometrics and negatively related to peer negative so-

Table 3 Zero-Order and Partial Correlations (Controlling Gender) between Measures of Social Functioning and Regulation or Negative Emotionality

Composites	Parent-Reported Regulation	Parent Negative Emotionality	Teacher-Reported Regulation	Teacher Negative Emotionality	Child-Reported Regulation	Peer-Reported Anger
Parent ( <i>n</i> = 109)						
Social skills/low problem behavior	.53*** (.53***)	-.47*** (-.45)***	.34*** (.27**)	-.13 (-.08)	.06 (.02)	.03 (.00)
Shyness	-.33*** (-.32***)	.14 (.12)	-.01 (.04)	-.17+ (-.21*)	.11 (.13)	-.20* (-.19+)
Teacher 1 ( <i>n</i> = 127)						
Social skills/low problem behavior			.52*** (.45***)	-.31*** (-.27**)		
Shyness			-.29*** (-.24**)	-.11 (-.18*)		
Teacher 1/2/3 ( <i>n</i> = 127)						
Social skills/low problem behavior	.32*** (.31***)	-.17+ (-.10)	.81*** (.77***)	-.66*** (-.64***)	.22* (.16+)	-.15+ (-.24**)
Shyness	-.12 (-.11)	.16 (.14)	-.25** (-.22*)	-.33*** (-.38***)	-.17+ (-.15+)	-.41*** (-.40***)
Peer ( <i>n</i> = 127)						
Positive sociometrics	.25** (.24*)	-.19* (-.17+)	.50*** (.50***)	-.20* (-.18*)	.07 (.05)	.05 (.04)
Negative sociometrics	-.26** (-.24*)	.09 (.04)	-.53*** (-.47***)	.56*** (.53***)	-.11 (-.07)	.52*** (.57***)

Note: Values represent zero-order correlations; values in parentheses represent correlations partialling gender. Correlations for Teacher 1 are examined only in relation to Teacher 2/3 data (for across-teacher findings). In all other correlations involving teacher regulation or negative emotionality, the Teacher 1/2/3 composite was used.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; + $p < .10$ .

ciometrics (see Table 3). Similarly, Teacher 1/2/3's reports of regulation were positively related to parents' reports of social skills/low problem behavior and peers' reports of positive sociometrics, and negatively related to peers' reports of negative sociometrics; these correlations sometimes were moderate in strength. Parents' reports of negative emotionality were negatively related to peer positive sociometrics. Teacher 1/2/3's reports of negative emotionality were at least marginally negatively related to parents' reports of children's shyness (this relation was significant when gender was partialled) and peer-positive sociometrics and positively related to peer-negative sociometrics. Generally, these relations across reporters for shyness were small in size.<sup>2</sup>

Child-reported regulation was positively related to Teacher 1/2/3's (but not to parents') reports of social skills/low problem behavior. Child self-reported regulation was not related to peers' positive and negative sociometrics or parents' reports. Peers' reports of children's anger were negatively related to parents' and Teacher 1/2/3's reports of shyness, at  $p < .053$  or better, and negatively related to Teacher 1/2/3's reports of social skills/low problem behavior (although the latter relation was only marginally significant in the zero-order correlation). Thus, findings for peer-reported anger and self-reported regulation generally were weak, albeit in the expected direction. Nonetheless, overall, there was some evidence, across as well as within reporters, of high regulation and/or low negative emotionality (especially the former) being associated with social skills/low problem behavior, positive peer sociometrics, and/or low negative peer sociometrics. Shyness tended to be related to low regulation and/or low negative emotionality, but relations were less consistent (especially for parents' reports of shyness).

<sup>2</sup> Peers' reports of liking were significantly correlated with parents' reports of high regulation and low negative emotionality, whereas analogous relations for peer nominations of niceness were not significant,  $r_s(106) = .27, -.19, .10,$  and  $-.04, p_s < .005, .047, ns,$  and  $ns,$  respectively. In contrast, Teacher 1/2/3's reports of regulation and low negative emotionality were related to peer reports of niceness,  $r_s(124) = .37$  and  $-.24, p_s < .001$  and  $.007,$  respectively; whereas peer ratings of liking were significantly related to teachers' reports of regulation but not negative emotionality,  $r_s(124) = .41$  and  $-.12, p_s < .001$  and  $ns,$  respectively. Peers' reports of disliking were at least negatively correlated with Teacher 1/2/3- and parent-reported regulation and positively related to Teacher 1/2/3's reports of negative emotionality,  $r_s(125, 107, 125) = -.48, .49,$  and  $-.17, p_s < .001, .001,$  and  $.076,$  respectively; analogous correlations were obtained for peers' reports of fighting,  $r_s(125, 107, 125) = -.46, .49,$  and  $-.27, p_s < .001, .001,$  and  $.005,$  respectively. None of these differences was significant.

### Sociometric Group and Differences in Emotionality and Regulation

The relations of adults' reports of children's emotionality and regulation to children's sociometric group status were examined with two 2 (gender)  $\times$  5 (sociometric status: rejected, neglected, average, controversial, and popular) multivariate analyses of variance. Parents' or Teacher 1/2/3's reports of regulation and emotionality were the dependent variables. Gender differences in dependent variables are not reported again.

For Teacher 1/2/3's reports, the multivariate  $F$  was significant for sociometric status group, Pillais  $F(8, 232) = 7.73, p < .001$ . The univariate effect of sociometric status was significant for Teacher 1/2/3's reports of both regulation and negative emotionality,  $F_s(4, 116) = 12.61$  and  $6.59, p_s < .001$ , partial  $\eta^2$  (eta squared) = .30 and .19, respectively. According to post hoc Newman-Keuls tests,  $p < .05$ , the rejected group was rated lower on regulation than all other groups; moreover, average children were lower than popular children on regulation. Rejected children also scored higher than neglected, popular, and average children on negative emotionality. The multivariate and univariate effects of group were not significant for the parent data, although the univariate effect for parent-reported regulation was marginally significant,  $F(4, 98) = 2.07, p < .09$ , partial  $\eta^2 = .026$ , and according to Duncan's tests, rejected children were less regulated than popular children.<sup>3</sup>

<sup>3</sup> Adults also rated children's sympathy with five items (e.g., "This child often feels sorry for others who are less fortunate"; Eisenberg, Fabes, et al., 1998); as for parents and Teachers 1, 2, and 3 = .77, .87, .64, and .69, respectively. Scores for Teachers 2 and 3 were correlated,  $r(114) = .19, p < .039$ . Although Teacher 1's reports of sympathy were not significantly related to Teacher 2's or Teacher 3's reports, Teacher 1's reports were significantly related to the combination Teacher 2/3's reports,  $r(125) = .22, p < .014$ . Thus, Teachers 1, 2, and 3's reports were standardized and averaged. Parent sympathy correlated with parents' reports of high regulation and low negative emotionality,  $r_s(103) = .28$  and  $-.24, p_s < .004$  and  $.013$ , respectively; the relation with Teacher 1/2/3's reports of regulation was marginal,  $r(103) = .17, p < .082$ . Teacher 1/2/3's reports of sympathy were positively related to Teacher 1/2/3- and parent-reported regulation and negatively related to Teacher 1/2/3- and parent-reported negative emotionality,  $r_s(125, 103, 125, 107) = .63, .34, -.20$ , and  $-.24, p_s < .001, .001, .025$ , and  $.012$ , respectively. Teacher 1's reports of sympathy were related to Teacher 2/3's reports of regulation,  $r(125) = .17, p < .05$ . Self-reported (child) regulation was positively correlated with Teacher 1/2/3's (but not to parents') reports of children's sympathy,  $r(122) = .30, p < .001$ . These findings are similar to those found in the United States (Eisenberg, Fabes, Murphy, et al., 1996, 1998; Murphy et al., 1999).

### Examination of Unique and Multiplicative Prediction by Regulation and Emotionality

The unique and multiplicative (i.e., interacting) effects of regulation and emotionality in predicting child outcomes were examined with regression analyses (see Table 4). In a series of separate hierarchical regression analyses, adults' reports of social skills/low problem behavior, shyness, or peer positive or negative sociometrics, were predicted by teachers' or parents' reports of regulation and emotionality, as well as with the multiplicative term for the interaction of regulation and emotionality. Teacher 1/2/3's reports of regulation and negative emotionality were used to predict parent or peer measures of social functioning (or vice versa for parent data) whereas Teacher 2/3's reports of regulation and negative emotionality were used to predict Teacher 1's measures of social functioning. Age and gender were entered in the first step; teachers' (or parents') reports of regulation and negative emotionality were entered in the second step, and the multiplicative term for the interaction of regulation and negative emotionality was entered in the last step. The latter step was significant in only one analysis (about the number expected by chance) and thus this finding was not examined. The lack of significant interactions is not surprising; power for teachers and parent predictors—given an estimated effect size of .03 (as in Eisenberg, Fabes, Guthrie, et al., 1996),  $\alpha = .05$ —was .49 and .43 (or .61 and .54 for an estimated effect size of .04).

### Teachers' Regulation and Negative Emotionality

As can be seen in Table 4, Teacher 1/2/3's reports of regulation and negative emotionality had unique effects when used to predict Teacher 1/2/3's reports of social skills/low problem behavior and peers' negative nominations. Teacher-reported social skills/low problem behavior generally was predicted by high regulation and low emotionality, whereas the reverse pattern was found for negative sociometrics. Teacher 1's reports of social skills/low problem behavior were uniquely predicted only by Teacher 2/3's reports of regulation. Only Teacher 1/2/3's reports of regulation predicted parent-reported social skills/low problem behavior and peer positive sociometrics when the unique effects of regulation and negative emotionality were examined.

Teacher 2/3's reports of low regulation and low negative emotionality both predicted unique variance in Teacher 1's reports of shyness; similar findings were obtained when Teacher 1/2/3's reports of regulation and negative emotionality were used to

**Table 4** Prediction of Social Functioning from Parents' and Teachers' Reports of Regulation and Negative Emotionality

	R <sup>2</sup> Change		Regulation		Negative Emotionality		F for Step 2	
	Parent	Teacher	Parent (β)	Teacher (β)	Parent (β)	Teacher (β)	Parent	Teacher
Social skills/low problem behavior								
Parent	.30***	.08*	.40***	.32**	-.22*	-.07	<i>F</i> (2, 104) = 24.51***	<i>F</i> (2, 104) = 4.57*
Teacher 1		.19***		.41***		-.11		<i>F</i> (2, 122) = 17.01***
Teacher 1/2/3	.08**	.51***	.33**	.57***	.12	-.32***	<i>F</i> (2, 104) = 6.30**	<i>F</i> (2, 122) = 138.10***
Shyness								
Parent	.11***	.05 <sup>+</sup>	-.38***	-.09	-.11	-.26*	<i>F</i> (2, 104) = 6.50***	<i>F</i> (2, 104) = 2.86 <sup>+</sup>
Teacher 1		.13***		-.37***		-.29**		<i>F</i> (2, 122) = 9.95***
Teacher 1/2/3	.03	.32***	-.05	-.53***	.15	-.61***	<i>F</i> (2, 104) = 1.62 <sup>+</sup>	<i>F</i> (2, 122) = 29.83***
Peer								
Positive sociometrics	.07*	.23***	.23*	.54***	-.06	.03	<i>F</i> (2, 103) = 4.15*	<i>F</i> (2, 121) = 19.33***
Negative sociometrics	.07*	.32***	-.32***	-.30*	-.14	.40***	<i>F</i> (2, 104) = 4.13*	<i>F</i> (2, 122) = 32.55***

*Note:* Parent reports of negative emotionality/regulation were examined only in relation to Teacher 1/2/3, not Teacher 1. Teacher 2/3's reports of regulation and negative emotionality were used in analyses in which the criterion variables were Teacher 1's reports (so the analyses are across reporter); Teacher 1/2/3's reports of regulation and negative emotionality were the predictors in all other analyses involving teacher regulation and negative emotionality. Age and gender were controlled on the first step; data presented are for the main effects of regulation and negative emotionality on the second step.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; <sup>+</sup> $p < .10$ .

predict their own reports of shyness. Parent-reported shyness was uniquely predicted only by Teacher 1/2/3's reports of low negative emotionality. As can be seen in Table 4, the βs were modest to moderate in size.

#### Parents' Reports of Regulation and Negative Emotionality

Parents' regulation and negative emotionality also were used to predict parents' and Teacher 1/2/3's reports of social/skills/low problem behavior and shyness, as well as peer sociometrics. As can be seen in Table 4, there were unique additive effects of the two variables when predicting parents' own reports of social skills/low problem behavior, with high regulation and low negative emotionality predicting high social skills. In contrast, only parents' reports of regulation predicted Teacher 1/2/3's reports of high social skills/low problem behavior, as well as high positive and low negative peer sociometrics and parents' reports of children's shyness. There were few unique effects of parents' reports of negative emotionality.

#### DISCUSSION

For the most part, the findings in the present study were consistent with those obtained in the United States and other Western countries (e.g., Caspi et al., 1995; Eisenberg et al., 2000; Pulkkinen & Hamalainen, 1995), which suggests that the processes involved in emotion regulation and its relation to social function-

ing are similar across diverse cultures. Teachers' and parents' reports of high regulation and/or low negative emotionality (i.e., intense emotions and especially anger) generally were associated with parents', teachers', and peers' reports of social skills/low problem behaviors. This pattern of findings was found across reporters and sometimes across settings (home versus school) as well. In addition, in some cases, teacher-reported negative emotionality and regulation, albeit correlated constructs, accounted for unique variance in quality of social functioning, especially as reported by teachers and peers. Thus, in Java as in the United States, children who were well regulated or low in negative emotionality (e.g., intense negative emotions and peer-reported anger) were viewed as socially skilled and/or adjusted by adults and peers. Although parental reports of negative emotionality sometimes correlated with measures of children's social functioning, the number of correlations were fewer than for teacher-report data and there were few unique effects of parent-reported emotionality (only for their own reports of socially appropriate behavior/low problem behavior) when regulation also was a predictor. Nonetheless, in general, the findings support the view that temperamental differences in children's effortful regulation and emotionality contribute to individual differences in social functioning in Indonesia as well as in Western cultures. The pattern of findings, however, was not so strong that one could conclude that these individual differences are stronger predictors of social functioning in Java than in Western cultures.

Unlike research performed in the United States, interaction effects generally were not obtained when predicting indexes of quality of social functioning from both regulation and emotionality. The sample size in this study was relatively small, and, thus, power to detect a relatively small effect size was weak. In the United States, the effect size for such findings in an elementary school sample was about .02 to .04, and power in the present study for a .03 effect size was less than .50. Moreover, measures of emotionality and regulation were moderately related, which would reduce the likelihood of obtaining interaction effects. It is possible that interactions effects would be apparent in a larger sample. It also is possible that regulation is so important in Javanese culture that, unlike in the United States (Eisenberg, Fabes, et al., 1997; Eisenberg, Guthrie, et al., 1997), it predicts outcomes equally well for unemotional and emotional children. Nonetheless, the findings for teachers' reports of negative emotionality and regulation partly support Eisenberg and Fabes' (Eisenberg et al., 2000) heuristic model in which individual differences in negative emotionality and regulation are important for the prediction of quality of social functioning.

The findings for sociometric status groups, like those for other measures of social functioning, generally were consistent with those in Western countries (Coie, Dodge, & Kupersmidt, 1990; Maszk et al., 1999; Newcomb et al., 1993). Children who were classified as rejected were rated lower by teachers on regulation than were all other sociometric groups. Further, rejected children were higher on negative emotionality than were popular, neglected, and average children. It appears that children who display more extreme negative and intense emotions (e.g., teacher-reported anger) and low regulation are rejected by their peers. Children who are more regulated and less negative are relatively likely to behave in a prosocial manner (Eisenberg, Fabes, Murphy, et al., 1996) and simply may be more pleasant in social interactions. Moreover, anger is likely to be linked to reactive aggression and other externalizing problems that can alienate peers (Coie et al., 1990; Newcomb et al., 1993).

Peers' reports of anger did not relate consistently to adult-reported social skills/low problem behavior, although they were positively related to negative peer sociometrics. The latter finding is consistent with data in different cultures indicating that aggression tends to be associated with negative and not positive peer evaluations (Chen et al., 1995; Coie et al., 1990; French et al., 1999). Peers' reports of anger were moderately correlated with teachers' reports of negative emotionality, suggesting that peers' perceptions were valid.

Adult-reported shyness was not consistently related

to adult-reported social skills/low problem behavior. Similar to French et al.'s findings (1999), however, teachers' reports of children's shyness were negatively related to peers' reports of liking and prosocial behavior combined (but only liking, when examined separately); peers also viewed teacher- and parent-rated shy children as low in negative sociometrics (disliked/fights). Thus, shy children appeared to be neglected by peers in their nominations (in fact, teacher-rated shy children were significantly more often neglected than controversial children in a multivariate analysis of variance). Shy children also were rated by adults as somewhat unregulated and were rated by teachers as low in intense emotions or externalizing negative emotions. Thus, in Indonesia, there seems to be some relation between social withdrawal in the classroom and low peer liking of a child, although shy children also were not disliked. Although shy children are viewed as low in effortful attentional and inhibitory control, they are not viewed as expressing much negative emotion. These findings clearly differ from those obtained in China (e.g., Chen et al., 1995) where shyness has been associated with positive peer status and teacher ratings. It is possible that the findings differ because Chen's measure of social withdrawal or shyness included peer nominations for sensitivity ("someone whose feelings get hurt very easily") and sadness (e.g., "someone who is usually sad") as well as shyness ("someone who is very shy"). Thus, the content of their scale differed somewhat from ours and, in the Chen et al. study (1995, 1999), peers, rather than teachers, reported on shyness. In future work, it will be useful to determine if it was the measure, the reporter, or cultural factors that were responsible for the different patterns of findings in this sample and in China. In any case, it does not appear from our data that shy children in Indonesia are well liked and regulated; if anything, as in the United States, the reverse seems to be true.

It is worth noting that there was considerable across-reporter consistency among parents, teachers, and peers with regard to their reports of children's social functioning. Moreover, adults' reports of children's shyness generally were significantly related, especially among teachers. There also was some agreement among parents, teachers, and children (self-reports) with regard to children's level of regulation. Some relations between variables were higher between teachers and peers than between parents and peers, quite possibly because peers and teachers observed children in the same setting.

The gender differences in children's regulation and social skills/low problem behavior were very similar to those often obtained in the United States (e.g.,

Eisenberg, Fabes, Murphy, et al., 1996; Eisenberg, Shepard, et al., 1998). In general, males were rated higher than females on intense and negative emotionality and negative sociometrics and were rated lower in regulation and social skills. The cross-cultural consistency in these findings could be due to either biologically based gender differences (e.g., in temperament) or consistencies across cultures in socialization (or both). Regardless, given that these gender differences likely contribute to how children are viewed by others, they may contribute to similar behaviors or outcomes in cultures as different as Java and the United States.

In conclusion, our results with regard to the patterns among regulation, negative emotionality, and social functioning in a sample of Indonesian children generally are consistent with data from children in the United States. Although Indonesia and the United States present very different socio-cultural contexts, initial findings support the view that it is useful to consider both individual differences in negative emotionality and regulation when predicting social outcomes for children. Of course, because the data were correlational, we cannot draw conclusions about causal relations. In addition, some of the correlations were modest in size. Moreover, the findings would likely differ if the measure of emotionality tapped emotions such as fear, guilt, or shame rather than primarily externalizing negative emotions. Finally, because there are many diverse ethnic groups in Indonesia, our findings may not apply to other ethnic and language groups in that country.

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