

Journal of Social and Clinical Psychology, Vol. 26, No. 2, 2007, pp. 240–267

## **THREATENED EGOTISM OR CONFIRMED INADEQUACY? HOW CHILDREN'S PERCEPTIONS OF SOCIAL STATUS INFLUENCE AGGRESSIVE BEHAVIOR TOWARD PEERS**

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In this study, sociometric interviews were conducted to determine children's actual and perceived social status as well as reputation for aggressive behavior in 4th grade classrooms. From this larger sample, 94 children representing a wide range of both actual and perceived social status scores were identified and recruited to participate in an experimental paradigm designed to measure aggressive behavior in response to positive or negative feedback from a peer. The difference between actual and perceived social preference scores was operationalized as "egotism" (children with negative scores overestimated their status), and the Harter Self-Perception Scale was used to assess self-esteem. Consistent with prior literature, we found a positive association between egotism and generalized aggressive reputation in the classroom. In contrast to previous findings in the adult literature, however, we found that children with an overly *pessimistic* perception of their status (as apposed to an overly inflated view of self), behaved most aggressively in response to negative feedback from a peer in a controlled laboratory paradigm. Global self-esteem, on the other hand, was *positively* associated with retaliatory behavior in the negative feedback condition. Potential clinical implications of these results are discussed.

Recently, a great deal of attention has been focused on the role of narcissism (or "egotism") as an important factor in determining individual dif-

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The authors wish to acknowledge Gianna Marzilli and Kelly Morgen for their help in data collection process. We would also like to thank Brad Bushman, Saul Kassin, Steve Fein, and Bryce Babcock for their help in developing the experimental paradigm, and Susan Engel for her helpful comments on an earlier version of the manuscript. We gratefully acknowledge the support of faculty and administrators of the North Adams and Pittsfield Public Schools. Most importantly, we thank all of the parents and children who made this research possible.

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ferences in aggressive behavior. In the adult literature, there is now ample evidence linking narcissism to a wide range of violent behaviors in correlational studies (see Baumeister, Smart, & Boden, 1996). In addition, experimental studies have demonstrated that individuals who hold overly inflated views of themselves are particularly prone to aggress in response to social criticism (e.g., Bushman & Baumeister, 1998; Twenge & Campbell, 2003). Literature linking egotism and aggression in childhood is beginning to emerge, but currently consists exclusively of correlational studies. The goal of the current article is to address this gap by exploring the impact of one aspect of egotism (an inflated view of likeability) on aggressive responding in a controlled experimental paradigm.

### NARCISSISM AND AGGRESSION IN ADULTHOOD

A growing number of studies in the adult social psychology literature have revealed an association between inflated self-views and aggressive behavior across a range of contexts, including violent felonies (Baumeister, Smart, & Boden, 1996), sexual coercion (Bushman, Bonacci, van Dijk, & Baumeister, 2003), and refusal to forgive past transgressions of others (Exline, Baumeister, Bushman, Campbell, & Finkel, 2004). In addition, narcissism has been associated with aggression in experimental studies (e.g., Bushman & Baumeister, 1998). What is the theoretical basis for this association?

According to the "threatened egotism" model, individuals who hold unrealistically positive views of self feel threatened when they encounter disconfirming feedback from others. In an attempt to resolve the resulting distress while also maintaining their overly flattering view of self, these individuals attempt to combat the disconfirming feedback by aggressing against the evaluator who raised the threat. In this view, then, aggression results from a "mismatch" between two views of self: a complimentary self-appraisal and an external appraisal that is much less favorable.

While correlational designs linking aggressiveness to narcissism are consistent with this view, they do not directly test the causal notion that narcissism *triggers* aggressive responding in the face of criticism as an attempt to maintain an unjustifiably positive view of self. Experimental designs, however, have provided stronger support for this claim. Bushman and Baumeister (1998) found that negative feedback on a speech writing task elicited significantly more severe and aggressive retaliation from high narcissists than from other participants. Specifically, narcissists in an "ego threat" condition later chose to administer louder and longer noise blasts to their evaluator in the context of a competitive computer game. These results have been replicated using variations in

the type of ego threat, as well as the form of aggressive response (e.g., Stucke & Sporer, 2002; Twenge & Campbell, 2003). Taken together, these experimental data lend strong support to the premise that narcissism, in the context of critical feedback, increases the risk of retaliatory behavior in adult populations.

### NARCISSISM AND AGGRESSION IN CHILDHOOD

Although narcissism *per se* has rarely been assessed in childhood (see Barry, Frick, & Killian, 2003, for an exception), an important component of this construct—*inflated self-view*—has been extensively studied. Indeed, the peer relations literature demonstrates strong support for a link between unrealistically positive views of self and aggressive behavior. Using multiple combinations of peer-, self-, parent-, and teacher-ratings, studies have consistently demonstrated that aggressive children hold more positively biased views of themselves than their less aggressive counterparts (e.g., David & Kistner, 2000; Edens, Cavell, & Hughes, 1999; Hughes, Cavell, & Grossman, 1997; Hymel, Bowker, & Woody, 1993; Patterson, Kupersmidt & Griesler, 1990; Zakriski & Coie, 1996).

In addition to these cross-sectional studies, there is also some longitudinal evidence to support a link between overly positive self-perceptions and aggressive behavior. David (2002) measured the actual and perceived status of 3rd, 4th, and 5th graders at two time points, and found that positively biased self-perceptions predicted higher levels relational aggression over time. In a related study, Brendgen and colleagues (2004) found evidence for a curvilinear link between children's overestimation of their social acceptance in the peer group and future aggression. Extreme overestimation of social acceptance predicted an increase in aggression, although this curvilinear relation was only observed for moderately and highly aggressive children (Brendgen, Vitaro, Turgeon, Poulin, & Wanner, 2004).

### EGOTISM AND SELF-ESTEEM

A sticking point in the current literature involves the poorly understood role of self-esteem in the egotism-aggression equation. Experimental studies in the adult literature have largely failed to show a direct association between self-esteem and aggression; narcissism in particular (i.e., unfounded arrogance), as opposed to high self-esteem in general, has been found to increase the risk of retaliatory behavior in the context of critical feedback (e.g., Bushman & Baumeister, 1998; Twenge & Campbell, 2003). Similarly, Kernis and colleagues (1989) found no association between aggression and self-esteem *per se* in a naturalistic study, but

noted that individuals with both high and *unstable* self-esteem endorsed the highest level of anger and hostility on self-report measures (Kernis, Grannemann, & Barclay, 1989).

The picture emerging from the child literature is more mixed. While some studies have found no significant association between self-esteem and aggression (e.g., Rigby & Slee, 1993; Salmivalli, Kaukiainen, & Lagerspetz, 1999), others have documented a direct *negative* association, such that highly aggressive children report lower levels of self-esteem than their non-aggressive counterparts (e.g., Lochman & Lampron, 1986; Donnelan, Trzesniewski, Robins, Moffitt, & Caspi, 2005). Because narcissism was not directly assessed in these studies, however, it is impossible to tease apart the effects of healthy high self-esteem from grandiosity or an unjustifiably positive view of self.

In an attempt to address this issue, Salmivalli et al. (1999) measured aspects of both self-esteem and narcissism and found that highly positive self-evaluation in combination with a need for attention and difficulty accepting criticism (key features of egotism) was associated with increased bullying among adolescent boys. In contrast, Barry et al. (2003) found an interactive effect between narcissism and self-esteem, such that adolescents who reported high levels of narcissism and *low* levels of self-esteem had the greatest number of conduct problems according to self- and parent-report.

## THE CURRENT STUDY

In this study, we operationalized egotism as a tendency to *over*-estimate one's likeability in the eyes of peers, and then examined the egotism-aggression association in two ways. First, we attempted to replicate prior research demonstrating a positive association between overly confident self-views and a generalized aggressive reputation in the peer group. Second, we examined the association between egotism and a particular type of aggressive behavior – retaliation in response to provocation.

To this end, we adapted Bushman and Baumeister's (1998) experimental paradigm of "threatened egotism" for use with elementary school children. Participants received either positive or negative feedback from a supposed peer after delivering a "class speech" and were then given the opportunity to behave aggressively toward their evaluator. This paradigm allowed us to measure individual differences in children's tendency to retaliate in response to peer provocation, as well as in their interpretations of the evaluative feedback they received.

The study was designed to address three specific questions: (1) Does an overinflated view of self (egotism) contribute to children's use of aggressive behavior in a controlled experimental paradigm? (2) Is the associa-

tion between egotism and retaliatory behavior moderated by children's level of self-esteem? (3) In what ways do individual differences in egotism influence children's *interpretations* of the peer feedback they receive?

## PREDICTIONS

Based on prior research in the child literature, we expected to find a positive association between egotism (overestimation of peer status) and a generalized reputation for aggressiveness among peers. Our predictions for the controlled experimental paradigm, however, were more tentative. Consistent with the threatened egotism model, we predicted that children who held *over-inflated* views of themselves would behave most aggressively in the face of disconfirming feedback. We also speculated that global self-esteem might moderate the association between egotism and aggression. Given that the only experimental data supporting the threatened egotism model has come from adult samples, however, we recognized the possibility that the relations among egotism, self-esteem and aggressive behavior may operate differently among children.

We also predicted that social information processing biases might explain *how* children maintain inaccurate views of their social standing. Specifically, we expected children with overinflated views of self to view positive feedback as a particularly accurate reflection of their performance, and to rate the evaluator highly on a number of personal dimensions (e.g., intelligence, likeability). On the other hand, we expected these children to interpret *negative* feedback as less disapproving and/or less accurate, and to rate the evaluator more poorly on all dimensions. Conversely, we expected children who underestimated their social status to exhibit an opposite pattern of processing biases. We speculate that such perceptual distortions may be the mechanism by which children are able to maintain inaccurate views of self despite the contradictory evidence provided by peers over the course of their everyday experiences.

## METHOD

### PARTICIPANTS

Sociometric interviews were conducted at nine elementary schools in two New England public school systems. Interviews were conducted when participants were nearing the end of their 4th grade year. Of the 542 children in the 4th grade, 392 (73%) returned completed parental consent forms allowing them to participate in these interviews. Twelve percent of parents declined to have their child participate. The remaining children did not re-

turn completed consent forms despite repeated reminders. Thus the total sociometric sample consisted of 223 girls (57%) and 169 boys. Children's ages ranged from 9 to 11 years old, with a mean age of 9.52 years. The majority of the sample (89%) was European American, representing the racial demographics of the participating school systems as a whole.

### SOCIOMETRIC PROCEDURE

The sociometric interview was administered by class in a group format, and lasted approximately 20 minutes. Children were presented with a roster listing all of their grademates, and were asked to provide unlimited nominations of liked and disliked peers ("*Who are the kids you like most?*" "*Who are the kids you like least?*"). For each of these questions, the number of nominations received from grademates was counted for each child. These numbers were then standardized within school, yielding peer nomination scores for actual liking and actual disliking (Coie, Dodge, & Coppotelli, 1982). In addition, children were also asked to provide unlimited nominations of peers who they thought liked and disliked *them* the most ("*Who in your grade do you think likes you the most?*" "*Who in your grade do you think likes you the least?*"). The number of nominations each child provided was tallied and then standardized within school yielding a standardized *perceived* liking and *perceived* disliking score. Social preference scores were created from the standardized liking and disliking scores. *Actual* social preference was computed as standardized actual liking minus disliking scores, and *perceived* social preference was computed as standardized perceived liking minus disliking scores. Thus positive scores indicate greater actual or perceived liking relative to disliking. The reliability and validity of both actual and perceived social preference scores obtained in this manner has been well documented (see Bellmore & Cillessen, 2003; Bierman, 2004; Kupersmidt & Dodge, 2004; Zakriski & Coie, 1996).

In addition to measures of social preference, the peer nomination measure also assessed aggressive behavior. Overt aggression was assessed with a single item ("*Kids who are mean, start fights, or pick on other kids*"). The number of nominations each child received was tallied and standardized. Peer-rated aggression defined in this manner has demonstrated strong temporal stability and construct validity in prior research (Coie & Dodge, 1983, 1988), and has been widely used to identify aggressive subgroups of children.

Relational aggression was assessed with four items ("*When mad at a person, these kids get even by keeping that person from being in their group of friends*" "*These kids tell friends they will stop liking them unless their friends do what they say*" "*These kids try to keep certain people from being in their group*").

during activity or play time" "When mad at a person, these kids ignore those people or stop talking to them"). The nominations received for each item were summed and standardized. Because the four relational aggression items were highly correlated ( $\alpha = .93$ ), relational aggression was computed as the average number of nominations across each of the relevant items. Reliability and validity of this measure has been well established in previous research (e.g., Crick & Grotpeter, 1995, 1996).

## SELECTION OF EXPERIMENTAL PARTICIPANTS

Of the 392 children who participated in the sociometric procedure, 156 children were selected and recruited for participation in the experimental portion of the study. These children were recruited specifically on the basis of their actual and perceived social preference scores in order to maximize the likelihood of including over- and underestimators, as well as children with an accurate perception of their status among peers in the experimental sample. Specifically, children were selected for recruitment if they met criteria for one of the following groups: (1) High Accurates — Children with objectively high actual social preference scores ( $Z > 0.5$ ) and high perceived social preference scores ( $Z > 0.5$ ); (2) Low Accurates — Children with objectively low actual social preference scores ( $Z < -0.5$ ) and low perceived social preference scores ( $Z < -0.5$ ); (3) Under-estimators — Children with objectively high actual social preference scores ( $Z > 0.5$ ) and low perceived social preference scores ( $Z < -0.5$ ); (4) Over-estimators — Children with objectively low actual social preference scores ( $Z < 0$ ) and high perceived social preference scores ( $Z > 0.5$ ); (5) Average — Children with average actual and perceived social preference scores ( $-0.3 < Z < 0.3$  for both).

Families were contacted through letters and telephone invitations, and more than 60% of the recruited families agreed to participate. Our final interview sample consisted of 94 children (44 boys and 50 girls) roughly equally distributed across selection criteria groups. The sample was predominantly White (89%), and participants' age ranged from 9 to 11 ( $M = 9.52$ ,  $SD = .53$ ). To test for the possibility of selection bias, an ANOVA was conducted to compare the 94 children in the experimental study with all other children in the original sociometric sample from which they were selected. No significant differences between participants and nonparticipants were found for social preference (actual or

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1. A slightly more lenient criteria for low actual status ( $Z < 0$ ) was used to define the *Overestimator* group because adoption of the stricter criteria (in which the actual social preference was  $-0.5$ ) resulted in far too few potential participants.

perceived), aggression (overt or relational), or demographic variables, indicating the absence of selection bias.

### SELF-ESTEEM

Children completed the Self-Perception Profile for Children (Harter, 1982). For each item of this scale, children were presented with two opposing statements (e.g., "Some kids find it hard to make friends BUT for other kids it's pretty easy") and selected which statement was most like themselves. Next, they indicated whether their choice was *really true* or *sort of true* for them. Responses were scored on a scale of 1 to 4, with higher scores representing higher self-esteem. We summed children's scores across all 6 domains of self-esteem (social, conduct, academic, athletic, appearance, and global) in order to create a total score. This measure has established adequate psychometric properties in previous research (see Harter, 1982).

### EXPERIMENTAL PARADIGM

At the beginning of the study, parents provided informed consent (after reading a detailed description of the experimental paradigm) and children provided assent after reading a statement describing their rights as research participants. The paradigm was borrowed from Bushman & Baumeister's original protocol, but was adapted for use with elementary school children by making several small procedural changes. Our "downward extension" of the Bushman & Baumeister paradigm was pilot tested to ensure that typical 4th graders could understand all verbal/written instructions, complete the experimental tasks, and respond to the feedback questionnaire.

First, children were informed that a same-age, same-sex peer was participating in a similar interview in another location. This nonexistent peer played a key role in the experiment. Participants were told "One of the things we want to learn more about is how children form impressions of each other, especially when they don't know each other very well. As part of today's activities, you will have a chance to form an impression of another child, and he/she will form an impression of you. In addition, the two of you will have the chance to play a computer game with each other and win a prize."

Next, children engaged in a social presentation task (preparing a brief speech about themselves) to be reviewed by the other child. Speech writing was guided by a brief "fill-in-the-blank" questionnaire in which the children described themselves (e.g., favorite recess activity, ideas about how to make school more fun). Children were videotaped as they read

their speeches, and were told that a digital version of their speech would be transmitted to the other child to view and evaluate via "closed-circuit TV." Both the "fill-in-the-blank" and "closed circuit TV" methods have been successfully used in previous work with elementary school participants in lieu of live confederates (see Sandstrom, Cillessen, & Eisenhower, 2003).

Half of the children in each self-perception group were randomly assigned to the *Negative Feedback* group, in which they were presented with a moderately negative evaluation sheet purportedly written by the other child and faxed to the lab (i.e., poor numerical ratings, and a somewhat critical comment). The other half of the children in each self-perception group were assigned to the *Positive Feedback* group, in which they received high numerical ratings, and a positive comment.<sup>2</sup> In both conditions, the experimenter showed the rating form to participants, and also read the feedback aloud to ensure comprehension.

After receiving feedback, children were led to believe that they would have the opportunity to play a competitive reaction time task on the computer with the same peer. Children were told "In this game, whoever pushes the button slower in each round will hear noise through a pair of headphones. You will decide how loud the noise will be for the other child if he/she loses, and he/she will decide how loud the noise will be for you if you lose." The validity of this task as a measure of aggressive responding has been well established in previous research with adults (e.g., Bernstein, Richardson, & Hammock, 1987; Bushman & Baumeister, 1998; Giancola & Zeichner, 1995).

Before playing the game, children were given samples of the range of noise volumes available (from Level 0 to Level 10).<sup>3</sup> Next, a computer screen prompted children to choose the volume the other child would hear if he/she loses a round. Children were asked to provide five volume ratings, one for each round of play. The experimenter moved away from the computer so that children had privacy while making noise level selections on the computer screen. For the purposes of this study, the total number of times that children chose the loudest volume level across

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2. The hand-written feedback in the negative condition read: "From the way he looked reading this speech, this kid doesn't seem real sure of himself. I'd say he probably feels a little uncomfortable and nervous around other kids he doesn't know too well. I didn't really like his ideas about what he would do as Class President too much. They didn't seem like that much fun. That's about all I could tell about him." Feedback in the positive condition was written in the same format but the content was reversed to present praise rather than criticism.

3. Instructions for the competitive reaction time task and exposure to sample noise levels was provided *prior* to the speech task. This was done deliberately so that children could move immediately from receiving feedback to making noise level selections.

TABLE 1a. Descriptive Statistics from Field Sample (N = 392)

	<i>M</i>	<i>SD</i>	Minimum	Maximum
Actual Social Preference	.13	.93	-2.65	2.38
Perceived Social Preference	.00	1.00	-4.81	3.48
Overt Aggression	-.09	.92	-1.56	3.57
Relational Aggression	-.03	.90	-1.42	3.60
Status Accuracy	.13	1.22	-4.78	4.58

all five rounds was used as the primary measure of aggressive responding.

After making volume selections but before actually initiating the reaction time game, children were told "I need to ask you some questions about the feedback you received on your speech before we play the game." The feedback response form had three subscales (Valence, Source, and Accuracy). The Valence Subscale consisted of a single item that assessed children's overall perception of the feedback ("*What did the other child think of your speech?*"). The Accuracy Subscale consisted of four items that assessed the extent to which children believed the feedback accurately depicted their performance ("*How true do you think the feedback was?*" "*How much could a brand new kid learn about you from reading that feedback?*" "*How much did you agree with the feedback?*" "*How much did that kid get to know you by watching your speech?*"). The Source Subscale contained four questions that asked the child to rate qualities of the evaluator ("*How good is he/she at judging other kids' personalities?*" "*How smart is he/she?*" "*How nice is he/she?*" "*How much do you think you would like the kid who wrote this impression of you?*"). The content and format of the questions was borrowed from previous research (Swann, Griffin, Predmore, & Gaines, 1987), and modified for use with children. Questions were answered on a four-point scale ranging from very bad or not at all to very good, very smart, nice, or very much. The internal consistency of the two multi-item subscales was strong ( $\alpha = .85$  and  $.90$  for Accuracy and Source of Feedback, respectively).

After volume selections were made and the Feedback Response Form was completed, the participants were fully debriefed. Children were informed that the supposed peer who had evaluated their speech was fictional, and that the feedback (either negative or positive) was created by the experimenters in advance in order to learn more about how children respond to peer-based evaluations. All children received specific, positive feedback on their actual speeches, as well as a colorful water bottle that had been presented earlier as a prize that would be given to whoever won the computer game.

TABLE 1b. Descriptive Statistics from Experimental Sample ( $N = 94$ )

	<i>M</i>	<i>SD</i>	Minimum	Maximum
<b>Sociometric Nominations (Z scores)</b>				
Actual Social Preference	.10	1.03	-2.37	1.78
Perceived Social Preference	.06	1.38	-3.83	3.48
Overt Aggression	-.04	.96	-1.29	2.59
Relational Aggression	-.05	.86	-1.42	2.46
Status Accuracy	.04	1.51	-4.78	4.58
<b>Self Esteem</b>	110.86	17.08	64	139
<b>Experimental Variables</b>				
Aggressive Retaliation	.83	1.21	0	5
Perceptions about Valence of Feedback	2.77	1.24	1	4
Perceptions about Source of Feedback	3.20	.75	1.5	4
Perceptions about Accuracy of Feedback	2.76	.87	1	4

Note. All sociometric nomination scores are expressed as Z-Scores. They have non-zero sample means because the items were standardized by school in the larger field sample, and then a sub-sample was recruited for participation in experimental study. Status Accuracy is scored so that negative values represent an overestimation of status and positive values represent an underestimation of status. Aggressive Retaliation scores indicate the total number of times children chose the loudest volume level (out of 5 opportunities). Higher scores on Feedback Scores indicate a more positive perception of the evaluation, a more positive perception of the evaluator, and a greater tendency to perceive the evaluation as an accurate depiction of performance.

## RESULTS

### ANALYTIC STRATEGY

Although we recruited children for participation in the experimental portion of the study on the basis of categorical criteria (e.g., overestimators, underestimators) in order to ensure a wide range in the accuracy of their status perceptions, we opted to analyze our data using a more sensitive continuous measure of status accuracy. Specifically, we computed status accuracy scores by subtracting children's perceived social preference scores from their actual social preference scores. Thus children with negative status accuracy scores perceived their status to be higher than it actually was, while children with positive status accuracy scores perceived their status to be lower than it actually was. Children with status accuracy scores converging on zero exhibited close correspondence between actual and perceived social status scores.

### DESCRIPTIVE STATISTICS AND ZERO-ORDER CORRELATIONS

Descriptive statistics for both the sociometric sample ( $N = 392$ ) and the experimental sample ( $N = 94$ ) are provided in Tables 1a and b. As de-

TABLE 2a. Zero-Order Correlations Among Variables in Field Sample ( $N = 392$ )

	A	B	C	D
A Gender	—	.15**	-.28**	.06
B Status Accuracy		—	-.35**	-.24**
C Overt Aggression			—	.71**
D Relational Aggression				—

picted, there was sufficient variability in the measures to detect potential associations.

Table 2a depicts zero-order correlations among variables in the sociometric sample. Consistent with prior research, there was a strong positive correlation between overt and relational aggression, and boys received higher scores for overt aggression than did girls. Girls also showed a greater tendency toward underestimating their social status than did boys. We were particularly interested in whether an association between children's tendency to overestimate their acceptance among peers and their generalized reputation for aggression behavior could be replicated in the larger sociometric sample. As depicted in Table 2a, there was a significant negative association between status accuracy and both overt and relational aggression. Thus the more children overinflated their social acceptance, the higher their scores on both types of peer nominated aggression.

Table 2b depicts zero-order correlations among variables in the experimental sample. As was the case in the larger sample, children's scores on overt and relational aggression were strongly correlated, boys received higher scores for peer nominated overt aggression than did girls, and there was a negative association between status accuracy and peer nominated overt aggression. Notably, there was no significant association between children's generalized reputation for overt or relational aggression in the peer group and their tendency to engage in aggressive retaliatory behavior in the experimental paradigm. There was, however, a significant correlation between the type of feedback children received on their speeches and their tendency to aggress against the evaluator in the experimental paradigm. Children who received negative feedback engaged in more aggressive retaliation than did children who received positive feedback.

In addition, there were also significant correlations between children's perceptions of the feedback they received on the speech task, and their tendency to aggress against the evaluator in the experimental paradigm. Children who perceived the feedback as more negative, the evalu-

TABLE 2b. Zero-Order Correlations Among Variables in Experimental Sample (N = 94)

	A	B	C	D	E	F	G	H	I	J
A Gender	—	.16	-.31**	-.07	-.02	-.20	-.04	-.01	-.06	-.11
B Status Accuracy		—	-.26*	-.09	.03	-.13	.03	.04	.02	-.14
C Peer Nom. Overt Aggression			—	.70**	-.03	.12	-.01	.03	-.07	.02
D Peer Nom. Relational Aggression				—	-.10	-.05	-.11	-.07	-.17	-.12
E Type of Feedback					—	-.23*	.93**	.85**	.89**	.09
F Aggressive Retaliation in Lab						—	-.31**	-.31**	-.35**	.03
G Pcvd. Valence of Feedback							—	.87**	.92**	.10
H Pcvd. Source of Feedback								—	.86**	.10
I Pcvd. Accuracy of Feedback									—	.07
J Self-Esteem										—

Note. Gender is coded so that a higher value (1) represents girls. Status Accuracy is scored so that negative values represent an overestimation of status and positive values represent an underestimation of status. Type of Feedback is coded so that a higher value (1) represents positive feedback. \*  $p < .05$ . \*\*  $p < .01$

ator as less desirable, and the evaluation as a less accurate depiction of their actual performance engaged in a more aggressive retaliatory response. Interestingly, there were no significant associations between children's status accuracy and their perceptions of peer feedback in the experimental paradigm. There was, however, a significant correlation between the type of feedback children received and their perceptions of that feedback. Children who received objectively negative feedback were more likely to perceive the feedback as negative and inaccurate, and to perceive the evaluator as less desirable. Finally, self-esteem was not significantly associated with any of the other variables, including status accuracy. This suggests that children's tendency to overestimate their social status (our measure of egotism) is conceptually distinct from globally high self-esteem.

#### INTERACTION OF STATUS ACCURACY AND TYPE OF FEEDBACK IN THE PREDICTION OF AGGRESSIVE RETALIATION IN THE EXPERIMENTAL PARADIGM

Hierarchical regression analyses were used to test the potential interaction between egotism (status accuracy) and type of feedback in the prediction of retaliatory aggression. Given conflicting findings in previous research regarding the role of global self-esteem in the egotism-aggression link, we included self-esteem in the regression equation. Variables were entered into the model in three steps. Table 3 includes a summary of these analyses.

In the first step, Aggressive Retaliation was regressed on a block of variables that included Gender (entered as a covariate), Status Accuracy, Self-Esteem, and Type of Feedback.<sup>4</sup> Approximately 11% of the variance in Aggressive Retaliation was accounted for by the linear combination of these variables,  $F(4, 89) = 2.61, p < .05$ . Specifically, there was a significant effect of Type of Feedback on Aggressive Retaliation ( $\beta = -.24, p < .05$ ) such that children who received a negative evaluation responded more aggressively than children who received a positive evaluation. There was also a marginally significant effect of Gender on aggressive responding ( $\beta = -.19, p = .06$ ) such that boys responded more aggressively than girls.

In the second step, Aggressive Retaliation was regressed on a block of variables that included all two-way interactions between Status Accuracy, Self-Esteem, and Type of Feedback. An additional 10% of the vari-

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4. Dummy coding was used for both Gender (0 = boys, 1 = girls) and Type of Feedback (0 = negative, 1 = positive).

TABLE 3. Results of Hierarchical Regression Analyses with Status Accuracy, Self-Esteem, &amp; Type of Feedback as Predictors of Aggressive Retaliation in the Experimental Paradigm

	Step 1 $\beta$	Step 2 $\beta$	Step 3 $\beta$
Gender <sup>a</sup>	-.19	-.19*	-.19
Status Accuracy	-.10	.57	-.36
Type of Feedback <sup>b</sup>	-.24*	1.13	1.19
Self-Esteem	.02	.18	.19
Status Accuracy $\times$ Type of Feedback		-.31*	-.98
Status Accuracy $\times$ Self-Esteem		.73	.52
Type of Feedback $\times$ Self-Esteem		-1.4*	-1.46*
Status Accuracy $\times$ Type of Feedback $\times$ Self-Esteem			.66
$R^2$ for model	.11	.20	.21

Note. <sup>a</sup>Gender entered as a covariate; 0 (male), 1 (female). <sup>b</sup>Type of Feedback; 0 (negative), 1 (positive). \* $p < .05$ .

ance in Aggressive Retaliation was accounted for in this step,  $F(3, 86) = 3.49, p < .05$ . Specifically, both the Status Accuracy  $\times$  Type of Feedback and the Self-Esteem  $\times$  Type of Feedback interactions were significant. To understand the nature of these significant interactions, we followed the procedures for graphing regression lines recommended by Aiken and West (1991).

As can be seen in Figure 1a, there was a positive association between Status Accuracy and Aggressive Responding, such that children who tended to underestimate their peer status (low egotism) engaged in higher levels of aggressive retaliation. This association was particularly strong in the negative feedback condition; children who underestimated their peer status *and* received critical feedback from a peer confederate engaged in the highest levels of aggression.

Interestingly, self-esteem also moderated the association between type of feedback and retaliatory behavior. As can be seen in Figure 1b, there was a negative association between self-esteem and aggressive responding in the positive feedback condition, and a positive association between these variables in the negative feedback condition. Children with low levels of self-esteem engaged in moderately high levels of aggression regardless of the type of feedback they received. Children with high levels of self-esteem, however, varied their retaliatory behavior as a function of feedback. These children engaged in extremely low levels of aggression in response to praise, but very high levels of aggression in response to criticism. Children with high levels of self-esteem who received a negative peer evaluation engaged in the highest level of retaliatory behavior.

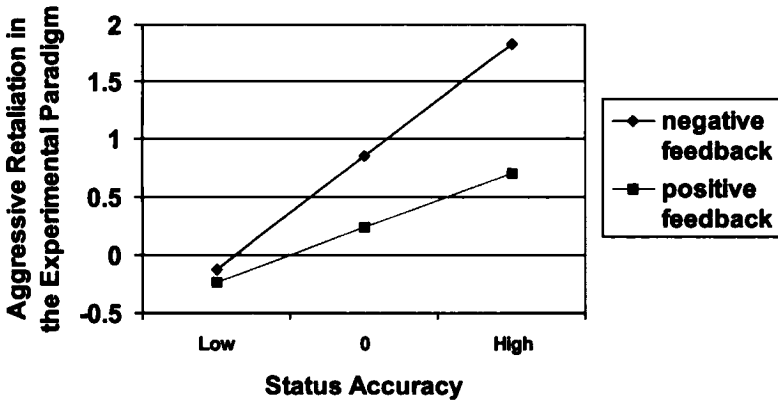


FIGURE 1a. Status accuracy moderates the association between type of feedback and aggressive retaliation in the experimental paradigm. Status Accuracy is scored so that low scores (negative values) represent an overestimation of status and high scores (positive values) represent an underestimation of status. Probe values of status accuracy used to produce the graph were -1.47 (1 SD below the mean), .04 (mean value), and 1.55 (1 SD above the mean)

In the final step of the hierarchical regression, Aggressive Retaliation was regressed on the three-way interaction between Status Accuracy, Self-Esteem, and Type of Feedback. This step did not result in a significant increment in explained variance,  $F(1, 85) = .60, ns$ .

**INTERACTION BETWEEN STATUS ACCURACY AND TYPE OF FEEDBACK IN THE PREDICTION OF CHILDREN'S INTERPRETATIONS OF PEER FEEDBACK IN THE EXPERIMENTAL PARADIGM**

Next, we used similar analyses to examine the potential interaction between children's perceptions of their peer status and the type of evaluation they received from a supposed peer on their interpretation of the feedback. We considered three separate dependent measures of feedback perception: Valence (extent to which the participant believed that the evaluator liked the speech), Source (extent to which the participant liked the evaluator), and Accuracy (extent to which the participant believed that the feedback accurately reflected his/her performance). Separate hierarchical regression analyses were conducted for each dependent measure. Main effects (Gender, Status Accuracy, Type of Feedback) were entered in Step 1. All two-way interactions were en-

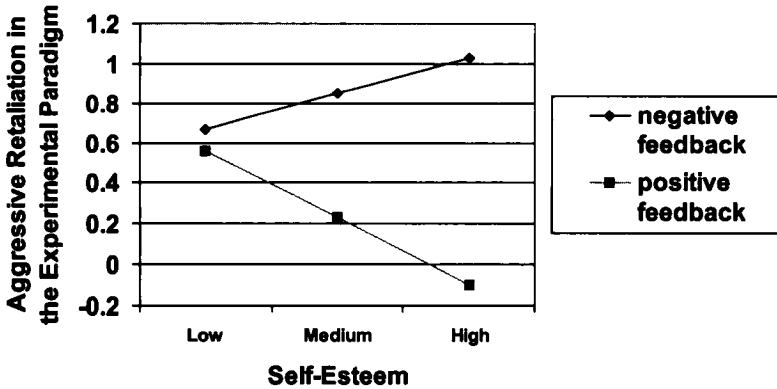


FIGURE 1b. Self-Esteem moderates the association between type of feedback and aggressive retaliation in the experimental paradigm. Probe values of self-esteem used to produce the graph were 93.78 (1 SD below the mean), 110.86 (mean value), and 127.94 (1 SD above the mean).

tered in Step 2, and the three-way interaction was entered in Step 3. Table 4 contains a summary of these regression analyses.

*Valence of Feedback.* In the first step, children's perceptions of the valence of feedback was regressed on a block of variables that included Gender, Status Accuracy, and Type of Feedback. Approximately 86% of the variance in children's perceptions of valence was accounted for by the linear combination of these variables,  $F(3, 90) = 187.38, p < .01$ . Specifically, there was a significant effect of Type of Feedback on children's perceptions of its valence ( $\beta = .93, p < .01$ ) such that children who received a positive evaluation believed that the evaluator liked their speech better than did children who received a negative evaluation. Neither Gender nor Status Accuracy explained significant variance in children's perceptions of valence of feedback. As shown in Table 4, the second and third steps revealed no significant effect for any of the two or three-way interactions.

*Accuracy of Feedback.* Approximately 71% of the variance in children's perceptions of accuracy was accounted for by the linear combination of Gender, Status Accuracy, and Type of Feedback,  $F(3, 90) = 116.63, p < .01$ . Specifically, there was a significant effect of Type of Feedback on children's perceptions of its accuracy ( $\beta = .89, p < .01$ ) such that children who received a positive evaluation viewed the evaluator's ratings as a more accurate depiction of their performance than children who received neg-

TABLE 4. Results of Hierarchical Regression Analyses with Gender, Status Accuracy, and Type of Feedback as Predictors of Children's Perceptions of Feedback in the Experimental Paradigm

	Step 1 $\beta$	Step 2 $\beta$	$R^2 \Delta$	Step 3 $\beta$	$R^2 \Delta$
<b>DV: Perceptions about Valence of Feedback</b>					
Gender <sup>a</sup>	-.02	-.03	.00	-.03	.00
Status Accuracy	.01	-.05		-.09	
Type of Feedback <sup>b</sup>	.93**	.92**		.92**	
Gender x Status Accuracy		-.07		.12	
Gender x Type of Feedback		.01		.01	
Status Accuracy x Type of Feedback		.00		.05	
Gender x Status Accuracy x Type of Feedback		.86		-.07	
$R^2$ for model	.86			.87	
<b>DV: Perceptions about Accuracy of Feedback</b>					
Gender <sup>a</sup>	-.04	-.03	.01	-.03	.00
Status Accuracy	-.01	-.10		-.15	
Type of Feedback <sup>b</sup>	.89**	.90**		.91**	
Gender x Status Accuracy		.02		.08	
Gender x Type of Feedback		-.03		-.03	
Status Accuracy x Type of Feedback		.11		.17	
Gender x Status Accuracy x Type of Feedback		.80		-.08	
$R^2$ for model	.80			.80	
<b>DV: Perceptions about Source of Feedback</b>					
Gender <sup>a</sup>	-.01	-.05	.00	-.05	.00
Status Accuracy	.03	-.03		-.01	
Type of Feedback <sup>b</sup>	.85**	.80**		.80**	
Gender x Status Accuracy		-.05		.02	
Gender x Type of Feedback		.08		.08	
Status Accuracy x Type of Feedback		.02		-.01	
Gender x Status Accuracy x Type of Feedback		.72		-.04	
$R^2$ for model	.72	.73		.73	

Note. <sup>a</sup>0 (male), 1 (female); <sup>b</sup>0 (negative feedback), 1 (positive feedback). \* $p < .05$ . \*\* $p < .01$ .

ative feedback. Neither Gender nor Status Accuracy explained significant variance in children's perceptions of accuracy of feedback. In addition, the second and third steps revealed no significant effect for any of the two or three-way interactions.

*Source of Feedback.* Approximately 72% of the variance in children's perceptions of valence was accounted for by the linear combination of Gender, Status Accuracy, and Type of Feedback,  $F(3, 89) = 77.18, p < .01$ . There was a significant effect of Type of Feedback on children's perceptions about the source of the feedback ( $\beta = .85, p < .01$ ) such that children who received a positive evaluation of their viewed the evaluator more favorably than did those in the negative feedback condition. Neither Gender nor Status Accuracy explained significant variance in children's perceptions of accuracy of feedback. Once again, the second and third steps revealed no significant effect for any of the two or three-way interactions.

## DISCUSSION

In this study, we examined the relation between egotism (defined as an overinflated view of one's likeability) and aggressive behavior among elementary school children. Specifically, we were interested in the extent to which the "threatened egotism" model could be used to accurately predict children's tendency to engage in aggressive retaliatory behavior in a controlled experimental paradigm. Although previous research has demonstrated a link between overestimation of status and a generalized reputation for aggressive behavior among children, there have been no experimental tests of the theory that egotism *leads* children to engage in retaliatory aggression in the face of ego threat. To this end, we exposed children to a social encounter in which they thought they were being evaluated by a same-age peer.

Before examining children's responses in the experimental paradigm, we first attempted to replicate prior research showing a positive association between egotism and a generalized reputation for aggressive behavior in the peer group (e.g., David & Kistner, 2000; Hughes et al., 1997). Our results were consistent with the existing literature; children who overestimated the extent to which they were socially accepted by their classmates received more peer nominations for engaging in both overt and relationally aggressive behavior.

Next, we turn our attention to children's behavior in the controlled experimental paradigm. Given that all previous research on egotism and aggression in childhood has relied on questionnaire-based measures, we were particularly interested in the relation between children's *reputation* for aggressive behavior as revealed by peer nominations, and their

tendency toward engaging in retaliatory behavior in the sort of controlled paradigm used in classic "threatened egotism" studies. Notably, there was no correlation between these measures. Two distinct interpretations can be drawn from this lack of association. First, the lack of convergence can be viewed as evidence that the lab paradigm lacks ecological validity. To the extent that peer nominations represent a "real world" measure of aggression, one could argue that the lab measure is not tapping into the same underlying construct. Alternatively, it is possible that the lab paradigm is tapping into a specific form of aggression (namely reactive aggression in response to ego threat), while the peer nomination measure assesses a much broader range of aggressive behaviors. We believe that the latter interpretation is more likely for a number of reasons.

First, the use of noise blasts in the context of a competitive reaction time task has been demonstrated to be a valid indicator of aggression with adults and undergraduates (see Bernstein et al., 1987; Bushman & Baumeister, 1998; Giancola & Zeichner, 1995), and there is no reason to believe, *a priori*, that an elementary school child's decision to "blast" a peer with noise would mean something fundamentally different. More importantly, the pattern of data gathered in the current study is consistent with the notion that noise blasts indicate an angry response. Specifically, it is clear that children who received negative feedback on their speeches (regardless of their level of status accuracy) actually perceived the feedback as less favorable and liked the evaluator less than did children who received positive feedback. In addition, children who received the negative feedback chose significantly louder noise blasts for their evaluators than did children who received positive feedback. In lieu of direct evidence of the validity of the noise blast paradigm, the fact that a variable which was *expected* to influence children's level of aggression (i.e., type of feedback) *did* in fact do so provides strong indirect evidence of validity.

We believe that the lab- and peer-based measures of aggression capture two different (but valid) aspects of a broad construct. The peer-based measure provides a generalized measure; it is a composite score gathered across multiple respondents, is based on the target child's interactions with a diverse group of others across multiple settings, and includes both proactive and reactive forms of aggressive behavior. The lab-based measure, in contrast, more narrowly focuses on reactive aggression instigated by ego threat. It involves a dyad, an interaction with a previously unknown partner, and a nonphysical threat. The lack of convergence between peer- and lab-based measures can be seen as evidence that aggressive behavior is highly context dependent, and that certain psychological processes may be operating in one context

but not the other (see Anderson, Lindsay & Bushman, 1999). Given that prior research on egotism and aggression in childhood has focused exclusively on peer- and teacher-based measures, we believe it is crucial to compare the results obtained in this manner with those obtained using the kind of lab-based paradigm commonly used among adults.

We now turn our attention to the results of the experimental manipulation. Do egotism and ego threat interact to predict aggressive responding among children in a manner analogous to adults? In contrast to predictions based on the threatened egotism model, we did not find support for the premise that children who overinflate their status are particularly prone to behave aggressively toward peers who criticize them in an experimental paradigm. Instead, our results suggest that an opposite pattern may hold sway; that is, children who characteristically *under*-estimate the extent to which they are viewed positively by peers may be the most prone to aggress in response to social criticism. Why might this be the case?

We speculate that children who underestimate their level of peer acceptance may also exhibit certain global social information processing patterns that predispose them to choose aggressive solutions to interpersonal challenges. First, it is possible that underestimation of status represents a more generalized tendency toward rejection sensitivity. Underestimators may be prone to anxiously or angrily *expect* rejection, and to be overly vigilant for even small signs of disapproval from peers. When these children receive external confirmation that they are, in fact, viewed poorly, they may be "wired" to respond more angrily and aggressively toward peers. Consistent with this "confirmed inadequacy" theory, Downey and colleagues (1998) demonstrated that children who angrily expected to be rejected by their peers in response to hypothetical vignettes actually reported greater distress in response to a mild rejection experience engineered in the lab than did children who did not hold such expectations. In addition, these "rejection sensitive" children behaved more aggressively at school and experienced increased interpersonal difficulties with their classmates over time than did their less sensitive counterparts (Downey, Lebolt, Rincon, & Freitas, 1998).

In addition to considering why children who underestimated their status engaged in higher levels of retaliatory behavior, it is also worth considering why children who overestimated their status did not. Interestingly, our data demonstrated that children who overestimated their social status responded to the peer evaluator with the same low level of aggression *regardless* of the type of feedback they received. This is in sharp contrast to the disproportionately greater aggressive response exhibited by narcissistic adults who receive critical peer feedback (e.g., Bushman & Baumeister, 1998; Twenge & Campbell, 2003). We can envision two distinct explanations for this apparent inconsistency.

First, it is possible that there is a developmental shift in the manifestation of egotism over time. Perhaps egotism is characterized primarily by a sense of grandiosity and self-aggrandizement in childhood, and only begins to take on aspects of entitlement and need for external validation in later adolescence and adulthood. In this case, elementary-school aged egotists might feel secure in their perception of themselves as socially successful regardless of peer feedback. To the extent that their ego is not invested in others' views, these children might not feel the need to aggress in order to thwart or rail against feedback that contradicts their positive self-image. Over the course of development, however, egotistical individuals may begin to require external validation of their grandiose views, resulting in disproportionately aggressive reactions to critical (as opposed to praising) feedback. Developmental research, especially studies using a combination of cross-sectional and prospective designs, could shed light on this hypothesis. In addition, future research could directly assess the associations between narcissism and individual differences in individuals' reactions to feedback (e.g., the extent to which they are affectively distressed by the evaluation process, and the degree to which they are actively motivated to avoid criticism and elicit praise from peers).

An alternative explanation for the disconnect between our findings and those reported in the adult literature may hinge on our operational definition of narcissism. Studies with adults have typically assessed narcissism via a structured questionnaire designed to tap a broad constellation of related characteristics including vanity, self-sufficiency, exploitativeness, entitlement, superiority, and authority (see Raskin & Hall, 1979; Raskin & Terry, 1988). Our study, in contrast, adopted a very narrow definition of narcissism – a tendency toward viewing one's social status in an overly positive light compared to objective peer ratings. Perhaps it is an inflated self-view in *combination* with other key variables, such as a strong sense of entitlement or exploitativeness, which triggers aggressive responding in the face of ego threat. In fact, recent empirical evidence with adult populations is beginning to highlight the importance of a sense of entitlement (rather than merely a sense of superiority) in the prediction of violent behaviors such as sexual coercion (Exline et al., 2004). In addition, there is also evidence that the *stability* of self-views plays an important role in aggressive responding among adults, such that people with high but unstable self-esteem report the highest tendencies toward hostility and anger (e.g., Kernis, Grannemann, & Barclay, 1989). Thus it is important for future research to include a broader operational definition of narcissism in childhood. By assessing a constellation of related constructs, we can begin to determine which characteristics might moderate the relation between

an overinflated self-view and aggressive responding in the face of ego threat.

One variable that has been posed as a potential moderator in the relation between egotism and aggression is global self-esteem (e.g., Barry et al., 2003; Washburn, McMahon, King, Reinecke, & Silver, 2004). The most dangerous form of egotism, according to this view, is one in which there is an underlying core of self-doubt and insecurity lurking beneath an overly confident façade. Our results did not support this premise; there were no significant interactions between status accuracy and self-esteem. Instead, we found a more direct association between self-esteem and aggression. Children with low levels of self-esteem engaged in moderately high levels of retaliatory behavior *regardless* of peer feedback. This finding is consistent with previous research demonstrating that children with low self-esteem are prone to externalizing problems such as conduct problems, delinquency, and antisocial behavior (e.g., Donnelan et al., 2005; Lochman & Lampron, 1986; Sprott & Doob, 2000). Interestingly, children with high levels of self-esteem appeared to be most sensitive to social feedback; while these children engaged in extremely low levels of retaliatory behavior in response to praise, they produced the highest level of retaliation in the face of peer criticism—even higher than those produced by children with low self-esteem. We speculate that this heightened response may be due to the fact that children with high self-esteem were particularly offended or disturbed by critical peer feedback, since it was so inconsistent with their globally positive view of self. Additionally, children with higher self-esteem may have had greater confidence in themselves, emboldening them to aggress against a critical peer without worrying about retaliation or other negative consequences.

Importantly, our data revealed that there was virtually no association between status accuracy and self-esteem; some children with globally high self-esteem held accurate perceptions of their social status, while others did not. Taken together, our results suggest that children who underestimated their social status (across all levels of self-esteem) and children with high levels of global self-esteem (across all levels of status accuracy) were particularly prone to retaliate in response to negative peer feedback. The fact that status accuracy and self-esteem emerged as independent constructs with diametrically opposite associations to retaliatory behavior highlights the importance of making a conceptual distinction between *inaccurate* self-perceptions (either unjustifiably positive or negative) and more global measures of self-esteem.

In addition to examining the relation between status accuracy and aggressive behavior among elementary school children, we were also interested in the extent to which status accuracy was associated with the

method in which children *process* the social feedback they receive from peers. We expected to find that children who held inaccurate perceptions of their social standing (either positive or negative biases) would distort peer feedback in ways that would allow them to maintain their inaccurate self-views. Surprisingly, we found no support for this premise. Children who received positive comments from a peer saw the feedback as more affirming and the source of the comments more favorably than did children in the negative condition, but self-perceptions of status did not appear to moderate this relationship. A number of potential explanations come to mind.

First, the feedback assessment sheet was administered immediately after children received comments about their speech from the supposed peer. If perceptual distortions emerge gradually rather than immediately, our paradigm may not have allowed enough time for children to distort the peer feedback to fit their self-views. Second, our assessment of children's evaluatory processes was somewhat narrow; children may distort aspects of social feedback that were not tapped here. Third, our paradigm was designed to provide children with feedback that could be clearly identified as positive or negative. In everyday peer encounters, however, social feedback is not always so clear (e.g., children may "slip" insults into a more benign overall message, or provide mixed signals to each other). It is possible that children *do* distort social information in characteristic ways when the feedback is sufficiently ambiguous to allow for multiple interpretations. Future research could address these issues by altering the content and timing of the feedback assessment, and by exposing children to a third condition in which they receive ambiguous feedback.

Taken together, our findings may have some interesting implications for the design and implementation of intervention programs designed to reduce aggressive behavior among elementary school children. The discovery that children who characteristically *under-estimate* their social status engage in high levels of retaliatory behavior when faced with negative feedback may come as a surprise to parents, teachers, and school administrators. Traditionally, such children would likely be overlooked as appropriate targets for social interventions, since they are not objectively disliked by their classmates and may appear to be well adjusted. It may be only in particular situations (i.e., when their underlying sense of insecurity and fear of inadequacy is met with behavioral confirmation from peers) that these children reactively lash out. Over time, however, this type of aggressive responding could lead to a self-fulfilling prophecy. Initially unfounded fears of peer disapproval (perhaps coupled with heightened rejection sensitivity) could lead children to aggress in the face of perceived criticism, ultimately triggering

*actual* peer rejection. While our data are far from conclusive, they raise speculation about the potential benefits of assessing children's *self-perceptions* of status, as well as their actual status, when screening potential targets for intervention programs designed to reduce externalizing behavior problems.

In addition to broadening our view of who may be a good candidate for intervention programs, our results also suggest that the *content* of these programs might need to be expanded. In addition to the traditional focus on prosocial skills training and anger management, our data suggest that a focus on children's self-perceptions (especially irrational beliefs about peer disapproval), might be an important component of a comprehensive intervention for a subset of aggressive children. That is, children who chronically underestimate their status and hold anticipatory fears of rejection might benefit from cognitive restructuring strategies designed to challenge their perceptual distortions and replace them with a more accurate self-portrayal.

In sum, we view this study as an exciting addition to a growing literature on the complex relations among status accuracy, positive biases, egotism, self-esteem, and aggressive responding among elementary school children. Major strengths of this study include its reliance on multiple sources of data, and its development of a novel experimental paradigm for assessing aggressive retaliation among children.

In addition to these strengths, we also recognize several limitations. First, we are aware that our relatively small sample size may have limited our ability to detect important patterns among variables, and also precluded us from examining potentially important gender differences. In addition, the results stemming from our largely White, middle-class sample may not be generalizable. The need for larger and more representative samples is clear. Second, we adopted a very specific working definition of egotism in the current study. Future research using a broader definition will be required in order to explore the role that characteristics such as entitlement and need for validation play in moderating the relation between inflated self-view and aggressive responding. Third, we found a discrepancy between peer-rated aggression and *in-vivo* aggression as measured by this paradigm; children who were viewed as highly aggressive by their peers did not necessarily engage in high levels of aggression in the lab. Future research will be required to sort out this discrepancy and to better understand what information each measure offers about aggressive behavior.

In addition, we have laid out a number of other design modifications that could build upon the results of the current study, including (1) assessment of individual differences in children's sensitivity to peer rejection or negative feedback, as well as the attributions they make about

such feedback, (2) variations in the form of peer feedback provided (including level of ambiguity), (3) variations in the source of peer feedback (including use of specific, known peers), and (4) implementation of longitudinal and cross-sectional designs to explore potential developmental shifts in the manifestation of egotism over time. Ultimately, a better understanding of how children's self-perceptions influence their peer interactions could be used to design more sensitive and effective intervention programs for socially vulnerable children.

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