

# Support for the predictive validity of the SASC-R: Linkages with reactions to an in vivo peer evaluation manipulation

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## Abstract

The present study examined the predictive validity of the Social Anxiety Scale for Children-Revised (SASC-R) by investigating associations between children's social anxiety symptoms and their cognitive and behavioral reactions in response to an in vivo peer evaluation manipulation. Participants ( $N = 115$ ) ages 10–13, played a computer game based on the television show *Survivor* and were randomized to either a peer rejection (i.e., receiving the lowest total 'likeability' score from a group of peer-judges), a peer success (i.e., receiving the highest score), or a neutral peer feedback condition. Children reporting higher levels of social anxiety displayed more negative game-relevant performance expectations as well as more negative cognitive evaluations of both success and failure feedback. Moreover, regardless of feedback valence, children scoring higher on social anxiety reported greater reluctance to engage in game-related social activities. These findings provide support for the predictive validity of the SASC-R.

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With increasing age, peers assume greater importance in children's lives. By age 11, nearly 50% of children's social activities involve peers (Grusec & Lytton, 1988). Interactions with peers assist in the formation of accurate social perceptions and facilitate cooperative and competitive activities, including play and sports. Moreover, through both direct and vicarious experiences with peers, children acquire important skills in the cognitive, behavioral, and social domains,

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including learning how to share and to take turns, how to interact with others, and how to put other's interests before their own (Hartup, 1983, 1996).

While quality of children's peer relations has profound importance for both concurrent and later social and psychological adjustment, social anxiety—particularly when experienced in the context of peer relations—may hamper children's normal development and emotional well-being (La Greca & Stone, 1993). For instance, social anxiety restricts opportunities for friendship development, fosters disengagement from peer activities that are pivotal to normal development and socialization, and enhances avoidance from potentially anxiety-provoking social encounters (e.g., Beidel & Turner, 1998; Interbitzen-Nolan, Walters, & Bukowski, 1997). Moreover, social anxiety problems are linked to the onset and/or maintenance of other mental health problems and maladaptive behaviors, including depression (Interbitzen-Nolan & Walters, 2000), substance use (e.g., Pine, Cohen, Gurley, Brook, & Ma, 1998), and poor academic performance (e.g., Beidel, 1991).

During the past decade, increased recognition of the linkages between social anxiety symptoms and impairments in functioning has spurred the development of instruments to assess social anxiety and social phobia in youth. At present, one of the most widely used instruments is the Social Anxiety Scale for Children-Revised (SASC-R) (La Greca & Stone, 1993). The SASC-R is a self-report measure designed to assess the two major features of social anxiety as put forth by Watson and Friend (1969), namely fear of negative evaluation and social avoidance and distress.

Several studies have investigated the psychometric properties, reliability, and validity of the SASC-R (e.g., Ginsburg, La Greca, & Silverman, 1998; La Greca & Stone, 1993). Factor analysis of the SASC-R has yielded three separate factors, including: (a) Fear of Negative Evaluations (FNE), which reflects fears, concerns or worries with regard to negative evaluations from peers; (b) Social Avoidance and Distress-New (SAD-New), which reflects avoidance and distress with new situations or unfamiliar peers, and (c) Social Avoidance and Distress-General (SAD-General), which reflects generalized social distress, discomfort, and inhibition (La Greca & Stone, 1993). Internal consistencies and test-retest reliabilities for the sub-scales have been shown to be adequate (La Greca & Stone, 1993). Moreover, observed linkages between SASC-R subscales, children's self-perceptions, and peer-rated social standing in the peer group have provided evidence to support the construct validity of the instrument. For instance, highly social anxious children rated their global self-worth and level of social acceptance lower than their peers displaying low social anxiety (Ginsburg et al., 1998; La Greca & Stone, 1993). Finally, among children diagnosed with anxiety disorders higher levels of social anxiety were linked with more severe impairments in social and emotional functioning (Ginsburg et al., 1998).

While several studies have thus provided encouraging support for the reliability and the construct/concurrent validity of the instrument, to our knowledge no study has directly examined the predictive validity of the SASC-R. To the extent that social anxiety is a dispositional propensity to display anxious responding in social situations, adequate predictive validity presupposes at least a moderate degree of correspondence between the trait measure and thoughts and behaviors displayed when a child is actually faced with a salient social event in the real world. The present study was designed to provide information on the predictive validity of the SASC-R in a community sample of pre-adolescent children, by examining the linkage between children's scores on the SASC-R and their subsequent behavioral and cognitive reactions to an ecologically-relevant social evaluative challenge.

Toward this aim, we devised an experimental peer feedback manipulation based on the television show *Survivor*. Peer evaluation was selected as the domain of inquiry because fear of negative evaluation is of central importance in social anxiety. Moreover, peer praise and peer rejection likely rank as salient and personally relevant (i.e., ego-involving) events among socially

anxious children. Finally, recurrent negative feedback from peers figures prominently in the development and/or maintenance of several forms of psychopathology, including social anxiety disorder (e.g., Wells et al., 1995), externalizing behavior problems (e.g., Dodge et al., 2003), and depression (e.g., French, Conrad, & Turner, 1995; Nolan, Flynn, & Garber, 2003; Panak & Garber, 1992).

In brief, participants were led to believe that they were playing an Internet version of the Survivor Game against four same-sex players of comparable age (all of them were computerized confederates) from four different schools in the same area. They were informed that all players would be evaluated by a team of 16 same-age peer judges consisting of eight boys and eight girls. Specifically, each judge would give them a score between 0 and 100, with higher scores reflecting higher levels of perceived likeability. The objective of the game was to obtain the highest total (sum) score from the jury (i.e., ‘Survivor Champion’).

Since considerable evidence suggests that affective state may have a marked impact on a variety of social behaviors, including helping, problem-solving, and motivation (e.g., Frederickson, 2001; Isen, 1999b, 2000), we sought to increase the specificity of our findings for the SASC-R by controlling for the potential role of induced affect, both positive and negative. For that reason, participants were randomized to one of the following three peer evaluation feedback conditions: (a) success feedback (i.e., having obtained the highest total score), (b) failure feedback (i.e., having obtained the lowest total score), or (c) neutral feedback (i.e., having obtained neither the highest nor the lowest score). These feedback conditions were designed to induce positive mood change, negative mood change, and no change in mood, respectively.

Given their possible role in affecting children’s reactions to a peer evaluation challenge, level of depressive symptoms and participants’ actual social standing in the peer group were also included as control variables. We hypothesized that, above and beyond the effects of these other variables, children scoring higher on the SASC-R would be more likely to (a) anticipate negative outcomes from the social-evaluative task, (b) evaluate their actual (bogus) performance in a more negative fashion, and (c) report greater levels of behavioral avoidance and withdrawal.

## 1. Method

### 1.1. Participants

Participants were 115 children (61 boys, 54 girls) enrolled in 5th and 6th grade classes from two public elementary schools in the Netherlands, who were predominantly from a middle-class SES background. The participants were predominantly Caucasian (93.5%) and ranged in age from 10 to 13 years ( $M = 11.0$ ,  $S.D. = .59$ ). For the initial sample of 214 children, classroom teachers sent parent permission letters home with children. Of the 165 letters returned (77.1%), 142 parents (86.1%) gave their consent for their children to participate in the study, and 23 (13.9%) declined. Due to a logistic failure, we did not obtain social anxiety scores for 27 children. Consequently, the final sample included 115 children. We obtained verbal permission to perform the study from the principal of the school and each child’s teacher. Children were informed that they could decide not to participate at any time.

### 1.2. Procedure

In the first of two sessions, approximately 1 week apart, participants were administered the Social Anxiety Scale for Children-Revised (SASC-R; La Greca & Stone, 1993) and the Children

Depression Inventory (CDI, Kovacs, 1981) in their regular classrooms during school hours. Moreover, participants' social standing in their peer group was assessed via a commonly used procedure, which asks children to indicate whom among their classmates they like most and whom they like least (Coie, Dodge, & Coppotelli, 1982; Newcomb, Bukowski, & Pattee, 1993). During administration of the measures the classroom teacher remained in the room. A research assistant read the directions aloud and children were encouraged to ask for help if they had questions or encountered problems completing the questionnaires. At the end of the first session, which lasted approximately 40 min, children were informed that later that week they would participate in a computer-game. The second session was carried out in a quiet room on the school grounds. Participants were told that their class was selected to take part in an Internet computer-game called 'Survivor'. In reality, the game was a computer program written in Visual Basic designed to present the illusion of playing an on-line game with four other children.

### *1.3. Survivor Game*

Upon arrival, the participant was seated in front of a laptop computer equipped with a web-cam to have their photo taken. Participants were told that their picture would allow all the children playing the game to see what each of the other players looked like. Prior to the start of the game (Time 1), participants completed a baseline mood measure; i.e., the Dutch version of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). In an attempt to add both to the credibility and the attractiveness of the game, the opening bars of the hit 'Survivor' (produced by the band "Destiny's Child") were played at the start of the game. In addition, an eye-catching logo of the American TV-show appeared on the computer display.

The objective and rules of the game were presented on screen. Participants were encouraged to read the information, which was pre-tested on comprehensibility for children in this age-range, carefully in their own pace and click "continue" to progress to the next screen. Participants were informed that they would be playing against four same-sex players of comparable age (all of them were computerized confederates) from four different schools in the same area, and that all players would be evaluated by a jury consisting of 16 members, 8 boys and 8 girls. Specifically, participants were explained that each judge would give them a score between 0 and 100, with higher scores reflecting higher levels of perceived likeability. The objective of the game was presented as obtaining the highest total (sum) score from the jury (i.e., 'Survivor Champion').

After receiving this information, the computer displayed a screen announcing that in a moment pictures and names of all 16 judges would be presented one-at-a-time. The children whose pictures appeared were child actors from two different modeling agencies in the Netherlands. After viewing these children, participants were directed through a series of screens in which they were asked to answer a series of questions that would give the members of the jury and the other players information about them. Participants responded to questions about their favorite musical group, hobbies, future occupation, things they liked and disliked about themselves, a number of character traits (e.g., sense of humor, agreeableness, intelligence, trustworthiness), how they got along with other children, and their academic performance. Most of the questions were in a multiple-choice format but some (e.g., "what is your favorite musical group?") required an open-ended response. Participants were informed on screen that their picture (previously taken by a web camera) along with the biographical information from their answers to the personal questions would be transmitted over the Internet and viewed by the judges who would then give them a 'likeability' score ranging from 0 to 100.

Subsequent to answering all the biographical questions, participants were informed that pictures and descriptions of each of the other co-players would be presented one-at-a-time for review. Upon clicking “continue”, the picture of the first bogus co-player was displayed together with his or her self-description. The latter consisted of the alleged answers to the same questions that the participant had answered earlier. To enhance credibility of the confederate players, actual self-descriptions were taken from those of same-age children participating in another study. It should be noted that these participants gave their explicit consent to have this information viewed by other children, provided that the alleged self-description profiles would contain randomly combined personal information from at least three different children. Participants progressed through the game examining each of the confederate player profiles at their own pace.

Following the participant scrutinizing the last profile, children were presented with two probes designed to assess their expected performance. Specifically, children were asked to indicate on separate 5-point Likert scales the likelihood that they would receive the highest score and the likelihood that they would receive the lowest score. Then a message appeared on the screen indicating that the computer would now for every player add the scores from the judges to determine which player had received the highest total score and which player had received the lowest total score.

After a 5 s waiting period, the names of the players with the highest and the lowest score appeared in capital letters on the screen. In the *success* condition, the name of the participant was displayed as having obtained the highest total score; one randomly chosen alleged co-player’s name appeared as having obtained the lowest total score. Conversely, in the *failure* condition the name of the participant was displayed as having obtained the lowest total score, while one alleged co-player’s name appeared as having obtained the highest total score. In the *control* condition, the participant received neither the highest nor the lowest score.

Five second after receiving feedback (Time 2), participants were re-administered the PANAS via computer. Instructions emphasized the importance of rating how they felt *right now*. Subsequently, participants responded to a battery of game-specific probes via computer (see Section 2). These probes were designed to assess cognitive evaluations, and approach-avoidance behavior (e.g., ‘do you want to play again?’, ‘do you want to be interviewed about your performance in the Survivor Game?’).

Subsequent to completing these probes, a computer screen appeared announcing that before playing a second round participants would be offered the opportunity to obtain additional information about the judges. Participants were informed that during a fixed 5-min viewing period, they could spend as little or as much time as they wanted on looking over the individual profiles of each of the judges. Upon clicking “continue” an overview screen appeared containing pictures of all 16 judges, together with the scores they had allegedly given the participant. Participants had allegedly received high scores ( $M = 80$ ) from eight judges (four boys and four girls) and low scores ( $M = 40$ ) from the other eight judges (also four boys and four girls).

By clicking on the picture of a targeted judge, a separate screen appeared displaying the name and picture of the judge, as well as his or her self-description or ‘profile’. This profile contained personal information consisting of the alleged answers to a series of personal questions (e.g., ‘do you have pets?’, ‘what do you fear most in life?’, ‘how well do you get along with your parents?’, ‘do you have any siblings?’, ‘what is your favorite food?’, ‘what are your two best character traits?’, ‘on average, how much time per day do you spend watching TV’). Following the 5-min

post-feedback period, the participant was accompanied to an adjacent room where a female research assistant then debriefed the child thoroughly.

#### 1.4. Debriefing

Each child was thoroughly debriefed with the aim of removing any lingering effects of the false rejection feedback while playing the Survivor Game. During the debriefing, the child was informed that the judges, the co-players and the received feedback were entirely fictitious and that this deception was a necessary part of the procedure. At the conclusion of the debriefing, participants were urged to observe complete secrecy by not talking with their classmates about the Survivor Game until all the other children had finished playing. To increase adherence to this instruction, children were asked to sign a non-disclosure agreement and were then provided a choice of one of several possible small gifts for playing the game (e.g., a small tape recorder, a gift certificate worth about US\$ 3).

At the end of the debriefing, participants were encouraged to ask questions or voice their concerns. All children reported that they understood the purposes of the research, as well as the necessity of having been deceived. Most importantly, when asked, none of the participants made mention of any feelings of regret with regard to participation and none reported any objections to the procedure. The credibility of the deception manipulation was also assessed by asking each participant whether they had believed that they were playing against other players. With no exception, participants indicated that they had believed that the game was genuine. Finally, all participants reported that prior to playing they had not talked with classmates about the Survivor Game.

## 2. Measures

### 2.1. *Social Anxiety Scale for Children-Revised (SASC-R; La Greca & Stone, 1993)*

The Dutch version of the SASC-R (Koot & Mesman, 2001) is a self-report inventory consisting of 18 descriptive self-statements and 4 filler items. Each item is rated on a 5-point Likert scale, ranging from 1 (not at all) to 5 (all the time). The SASC-R is designed to assess social anxiety as originally put forward by Watson and Friend (1969), who distinguished between different aspects of social anxiety: fear of negative evaluation and social avoidance and distress. Items in the SASC-R are designed to tap the subjective experience of anxiety and its correlates, including avoidance and inhibition (La Greca & Lopez, 1998). Factor analysis of the SASC-R has yielded three separate factors, including: (a) Fear of Negative Evaluations (FNE; 8 items), which reflects fears, concerns or worries with regard to negative evaluations from peers (e.g., “I worry what other kids think of me”); (b) Social Avoidance and Distress-New (SAD-New; 6 items), which reflects avoidance and distress with new situations or unfamiliar peers (e.g., “I get nervous when I talk to new kids”), and (c) Social Avoidance and Distress-General (SAD-General; 4 items), which reflects generalized social distress, discomfort, and inhibition (e.g., “I feel shy even with kids I know very well”). Subscale scores are obtained by summing the ratings for the items constituting each subscale, with higher scores reflecting higher anxiety. The psychometric properties of these subscales (e.g., internal consistency, discriminant and concordant validity, test–retest reliability) have been shown to be adequate with unselected elementary school samples (La Greca, Dandes, Wick, Shaw, & Stone, 1998; La Greca & Stone, 1993). In the present sample, total scores ranged from 18 to 61 ( $M = 36.51$ ,  $S.D. = 9.36$ ), and did

not differ as a function of age, gender, or their interaction. Coefficient alpha for the SASC-R in this sample was .85.

### 2.2. Positive and Negative Affect Schedule (PANAS; Watson et al., 1988)

The 20-item Dutch version of the PANAS was administered to assess participants' changes in positive and negative affect. Briefly, positive affect reflects the extent to which a person feels enthusiastic, active, and alert. In contrast, negative affect is a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, fear, and nervousness. The two mood factors have emerged as distinctive orthogonal dimensions in factor analytic studies of affect (Watson et al., 1988). Respondents were presented a series of mood-related adjectives (e.g., distressed, ashamed) and asked to rate their current feeling state on a 5-point scale ranging from "very slightly or not at all" to "extremely". The wording was slightly modified for children. The English version of the PANAS has adequate internal consistency, test–retest reliability, convergent validity, and predictive validity (Watson & Clark, 1992). In the present sample, the reliability coefficient (coefficient alpha) was .83 for the negative affect subscale, and .82 for the positive affect subscale. The two subscales were unrelated ( $r = -.04$ ,  $p > .30$ ). Scores at baseline (Time 1) did not differ as a function of age, gender, or their interaction.

### 2.3. Children Depression Inventory (CDI; Kovacs, 1981)

The CDI is a 27-item self-report measure designed to assess the social, behavioral, and affective symptoms of depression in children. Each item consists of three sentences that describe a symptom of depression in increasing degrees of severity. The respondent chooses the sentence that best describes him or her during the past week. Each item set is scored from 0 (symptom absent) to 2 (symptom is present always or most of the time). The CDI has adequate discriminant and convergent validity, test–retest reliability, and internal consistency (Saylor, Finch, Spirito, & Bennett, 1984). Coefficient alpha in the present sample, using a Dutch translation of the instrument (Braet & Timbremont, 2002), was .77. Total scores ranged from 0 to 23 (median is 6; the top quartile (25.4%) obtained a score of 11 or higher). Scores were indicative of a non-clinical sample ( $M = 7.50$ ,  $S.D. = 6.13$ ), and did not differ as a function of age, gender, or their interaction.

### 2.4. Social standing in the peer group

Participants completed a widely used nomination-based sociometric questionnaire, in which they identified the three participating classroom peers whom they liked most and the three classroom peers they disliked most (see Newcomb et al., 1993). With these nomination data we computed two continuous scores for each participant. These scores included: (a) a measure of preference, by dividing the number of times each participant was nominated for the 'like most' question by the total number of participating children in the class, and (b) a measure of rejection, by dividing the number of times each participant was nominated for the 'like least' question by the total number of participating children in the class. Our measure of social acceptance (i.e., social standing in the peer group) was computed by subtracting the measure of rejection from the measure of preference. This figure was then multiplied by 100, yielding

scores ranging from  $-84.6$  to  $61.5$  ( $M = 2.56$ ;  $S.D. = 26.72$ ). These scores did not differ as a function of gender, age, or their interaction.

### 2.5. *Survivor Game outcome expectancies probe*

A two-item author-constructed measure was computer-administered prior to receiving feedback. These items assessed participants' expectations with regard to the outcome of the game. The specific questions included: (a) 'Do you think you will receive the highest total score?' and (b) 'Do you think you will receive the lowest total score'? Both items were rated on the same 5-point Likert scale, ranging from 1 (definitely yes) to 5 (definitely not). Children reported similar ratings of the likelihood that they would receive negative peer evaluation feedback ( $M = 3.31$ ,  $S.D. = .76$ ) and positive peer evaluation feedback ( $M = 3.30$ ,  $S.D. = .72$ ).

### 2.6. *Survivor Game behavioral reactions probe*

A four-item author-constructed behavioral reactions measure was administered subsequent to receiving the bogus peer feedback at Time 2. The items assessed the extent to which participants endorsed predominantly active, approach-oriented behavioral reactions versus more avoidant, passive, and blunting ones. The specific questions included: (a) "Do you want to be interviewed on your Survivor Game performance for the *Utrechts Nieuwsblad* (i.e., a local newspaper)?"; (b) "Next month, the Survivor Game team intends to arrange a party (i.e., a barbeque with music and swimming) for all 2006 Survivor Game contestants; would you like to attend this meeting?"; (c) "Would you like to play a second round of the game?"; and (d) "If you were to play a second round, would you prefer to play against former winners or former losers of the game?". The first three items were rated on the same 5-point Likert scale, ranging from 1 (definitely yes) to 5 (definitely not). Coefficient alpha for this scale was .75. Total scores on the scale were obtained by summing the ratings for the individual items, with higher scores reflecting higher behavioral avoidance tendencies. The final item was rated on a 5-point Likert scale, ranging from 1 (certainly against the winners) to 5 (certainly against the losers). Because this item did not fit well with the other three items in terms of coefficient alpha, we analyzed it separately.

### 2.7. *Survivor Game cognitive reactions measure*

A seven-item author-constructed measure was developed for this study to assess participants' cognitive evaluations of the peer feedback. The first four items were designed to assess the dimension of stability versus instability and were rated on a 5-point Likert scale (e.g., "If I would play the game again, but then against four other players, my total score would be" ... 1 = substantially higher, 2 = somewhat higher, 3 = about the same, 4 = somewhat lower, 5 = substantially lower). The next three items were designed to assess the dimension of global versus specific (e.g., "The outcome of the game is in line with my popularity in class" ... 1 = completely agree, 5 = completely disagree). This measure was administered after children had completed the behavioral reactions measure presented above. Because generality for both negative and positive events combines the stability and globality dimensions (e.g., [Toner & Heaven, 2005](#)), we created a single cognitive composite score for the success and failure conditions separately, with higher scores reflecting more negative/self-deprecating cognitive reactions. Coefficient alpha for this composite was .66 for the success condition, and .72 for the failure condition.



### 3. Results

#### 3.1. Equivalence of the experimental groups

Means and standard deviations for Time 1 (baseline) measures are presented in Table 1. To confirm that the randomization procedure resulted in comparable groups, baseline differences on all continuous measures were examined using a series of one-way ANOVAs. Our analyses revealed no significant between-group differences on any measure including the SASC-R and its three subscales, indicating that the randomization procedure had resulted in comparable groups.

#### 3.2. Effects of peer feedback on state mood

Means and standard deviations for Time 1 and Time 2 mood scores are presented in Table 2. Two planned contrasts were performed to examine the magnitude and direction of mood change – both positive and negative – elicited by success feedback and failure feedback, each relative to the neutral feedback control condition. In the first planned contrast, Success versus Neutral feedback was entered as the between subjects factor and residualized change from Time 1 (pre-feedback) to Time 2 (post-feedback) on the two subscales of the PANAS served as the dependent variables. The planned contrast comparing Failure versus Neutral feedback was tested using the same analytic approach as that outlined above for the Success versus Neutral feedback contrast.

Children in the success feedback condition showed a significantly greater pre- to post-feedback increase in positive affect, relative to children in the neutral condition  $F(1, 76) = 7.39$ ,

Table 1  
Means (and standard deviations) of baseline measures by condition and gender

Measure	Feedback condition						
	Success		Neutral		Failure		
	Boys ( <i>n</i> = 21)	Girls ( <i>n</i> = 18)	Boys ( <i>n</i> = 21)	Girls ( <i>n</i> = 19)	Boys ( <i>n</i> = 19)	Girls ( <i>n</i> = 17)	
SASC-R–FNE	<i>M</i>	15.95	18.11	16.38	17.53	16.74	18.29
	S.D.	6.66	5.19	5.97	5.21	5.92	5.77
SASC-R–SAD–New	<i>M</i>	11.38	10.89	10.33	10.84	10.32	12.29
	S.D.	3.34	3.05	3.68	4.05	2.98	2.59
SASC-R–SAD–General	<i>M</i>	8.86	8.61	8.57	8.16	8.84	8.35
	S.D.	3.00	2.55	2.75	2.52	3.96	2.23
SASC-R–Total	<i>M</i>	36.19	37.61	35.29	36.53	35.89	38.94
	S.D.	10.28	8.95	9.26	9.01	10.87	7.63
CDI	<i>M</i>	8.43	6.22	8.10	6.32	8.84	7.24
	S.D.	7.53	6.88	6.02	5.65	5.57	5.27
Social Acceptance Index	<i>M</i>	4.64	–.09	6.40	4.17	–.28	.73
	S.D.	26.69	31.08	23.03	27.62	28.26	28.39

Note: FNE, fear of negative evaluation; SAD–New, social anxiety and distress in new situations or with unfamiliar peers; SAD–General, generalized social anxiety; CDI, Children Depression Inventory.

Table 2

State Mood Indices at baseline (Time 1), and immediately post-feedback (Time 2) by condition and gender

State Mood Index		Feedback condition					
		Success		Neutral		Failure	
		Boys ( <i>n</i> = 21)	Girls ( <i>n</i> = 18)	Boys ( <i>n</i> = 21)	Girls ( <i>n</i> = 19)	Boys ( <i>n</i> = 19)	Girls ( <i>n</i> = 17)
PANAS-P Time 1	<i>M</i>	32.33	30.22	30.86	31.21	29.26	31.59
	S.D.	7.40	6.77	7.30	5.82	6.46	5.81
PANAS-P Time 2	<i>M</i>	33.57	33.61	29.90	31.11	24.42	23.41
	S.D.	6.90	6.98	9.09	7.41	5.53	5.78
PANAS-N Time 1	<i>M</i>	14.38	14.89	12.86	13.95	14.21	12.88
	S.D.	3.11	3.68	2.13	2.88	2.74	2.12
PANAS-N Time 2	<i>M</i>	14.81	13.22	13.19	13.37	15.53	15.41
	S.D.	3.11	3.15	3.14	2.87	3.81	3.95

Note: PANAS-P, PANAS positive affect subscale; PANAS-N, PANAS negative affect subscale.

$p < .01$ ; but for negative affect no significant between-group difference was observed. In contrast, children in the Failure feedback condition showed a significantly greater increase in negative affect,  $F(1, 73) = 8.90$ ,  $p < .01$ , and a significantly greater decrease in positive affect,  $F(1, 73) = 20.16$ ,  $p < .001$ , relative to children in the neutral condition.

### 3.3. SASC-R scores predicting children's reactions to the feedback manipulation

Children reported similar ratings of the likelihood that they would receive negative peer evaluation feedback ( $M = 3.31$ , S.D. = .76), and positive peer evaluation feedback ( $M = 3.30$ , S.D. = .72). Hierarchical regression analyses were performed for each of the two outcome expectancy probes. In each analysis, the two PANAS subscale scores at baseline (Time 1) were entered in Step 1. Gender, CDI depression score, and social acceptance score were entered in Step 2, and the three SASC-R subscale scores (i.e., FNE, SAD-New, and SAD-General) were entered together in Step 3. An identical analytic strategy was used to assess the influence of SASC-R Total Score, with the exception that participants' SASC-R Total Score was entered in Step 3, in place of their SASC-R subscale scores.

Children reporting higher scores on the SAD-General subscale rated the negative outcome as significantly *more* likely to occur,  $\beta = -.22$ ,  $R^2_{\text{change}} = .04$ ,  $F_{\text{change}} = 4.36$ ,  $p < .04$ . A similar finding was observed for SASC-R total scores,  $\beta = -.29$ ,  $R^2_{\text{change}} = .06$ ,  $F_{\text{change}} = 7.01$ ,  $p < .01$ . None of the other variables examined accounted for significant variance in endorsement ratings.

None of the three SASC-R subscales or the SASC-R total score was significantly associated with the anticipated likelihood of receiving *positive* feedback. However, the *positive* subscale of the PANAS accounted for significant variance in endorsement ratings,  $\beta = -.23$ ,  $R^2_{\text{change}} = .06$ ,  $F_{\text{change}} = 3.43$ ,  $p < .02$ . This finding indicates that children reporting higher levels of positive affect at baseline judged the positive outcome as significantly *more* likely to occur.

### 3.4. SASC-R scores predicting children's post-feedback behavioral reactions

Means and standard deviations for participants' behavioral reactions are presented in Table 3. For the three-item composite measure, we again conducted separate hierarchical

Table 3  
Self-reported behavioral and cognitive reactions after receiving Survivor Game feedback, by condition and gender

Reaction probes	Feedback condition					
	Success		Neutral		Failure	
	Boys ( <i>n</i> = 21)	Girls ( <i>n</i> = 18)	Boys ( <i>n</i> = 21)	Girls ( <i>n</i> = 19)	Boys ( <i>n</i> = 19)	Girls ( <i>n</i> = 17)
Avoidance behavior						
<i>M</i>	4.71	5.22	5.52	4.58	6.47	6.46
S.D.	2.70	2.60	2.46	1.98	3.24	3.02
Cognitive reactions						
<i>M</i>	19.29	20.33	N/A	N/A	17.74	18.29
S.D.	2.69	2.83			2.49	2.87
Preference to play against winners/losers <sup>a</sup>						
<i>M</i>	2.86	2.94	2.57	3.26	3.00	3.24
S.D.	.85	.24	.75	.56	.88	.66

Note: Higher scores denote more avoidance behavior and more negative cognitions. N/A, not applicable.

<sup>a</sup> Scores range from 1 (winners) to 5 (losers).

regression analyses for the SASC-R subscale scores, and the SASC-R Total Score. In these analyses, standardized residualized change scores on the PANAS-P and the PANAS-N were entered in Step 1. Gender, depression, and social acceptance score were entered in Step 2, and the SASC-R subscale scores were entered in Step 3. Finally, the interactions between positive and negative mood change and the targeted predictor variables (e.g., FNE by positive mood change, FNE by negative mood change, SAD-New by positive mood change, SAD-New by negative mood change) were entered in Step 4. An identical analytic strategy was used to assess the influence of SASC-R Total Score, with the exception that participants' SASC-R Total Score were entered in Steps 3 and 4, in place of their SASC-R subscale scores.

Children experiencing stronger increases in positive affect reported significantly stronger inclinations to engage in approach behaviors,  $\beta = -.24$ ,  $R^2_{\text{change}} = .06$ ,  $F_{\text{change}} = 3.49$ ,  $p < .01$ . Above and beyond this effect for mood change, scores on the SAD-General subscale and the SASC-R Total Score accounted for additional variance in endorsement ratings (for SAD-General,  $\beta = .22$ ,  $R^2_{\text{change}} = .03$ ,  $F_{\text{change}} = 4.17$ ,  $p < .05$ ; for SASC-R Total Score,  $\beta = .28$ ,  $R^2_{\text{change}} = .05$ ,  $F_{\text{change}} = 6.58$ ,  $p < .02$ ). Specifically, children reporting higher scores on the SAD-General subscale and those reporting higher SASC-R total scores displayed significantly more reluctance to engage in approach behaviors. None of the other variables examined accounted for variance in endorsement ratings.

Next, we examined the influence of the SASC-R and its subscales in predicting children's preference rating to play a second round of the game against previous winners versus previous losers. In this analysis, we used the same analytic approach as that reported above for the composite measure of approach behavior. None of the three SASC-R subscales nor the SASC-R total score was significantly associated with children's preference ratings. However, girls ( $M = 3.15$ , S.D. = .53) reported significantly more reluctance than boys ( $M = 2.80$ , S.D. = .83) to play against previous winners,  $\beta = .24$ ,  $R^2_{\text{change}} = .06$ ,  $F_{\text{change}} = 3.80$ ,  $p < .03$ . None of the other variables examined accounted for variance in endorsement ratings.

### 3.5. SASC-R scores predicting children's post-feedback cognitive reactions

Means and standard deviations for participants' cognitive reactions are presented in [Table 3](#). We examined children's cognitive reactions separately for the success and the failure feedback condition. In these analyses, we examined the effects of the same factors as reported above for the behavioral reactions, using the same analytic approach as described above.

Children reporting higher overall levels of social anxiety as assessed by the SASC-R were significantly more likely to display negative self-depreciating cognitive reactions in response to the positive peer evaluation feedback,  $\beta = .44$ ,  $R^2_{\text{change}} = .10$ ,  $F_{\text{change}} = 4.31$ ,  $p < .04$ . None of the other variables examined accounted for variance in endorsement ratings.

In response to failure feedback, children reporting higher levels of depressive symptoms were significantly more likely to construe the rejection experience in a more negative fashion,  $\beta = .41$ ,  $R^2_{\text{change}} = .12$ ,  $F_{\text{change}} = 5.06$ ,  $p < .04$ . Above and beyond this effect for depression, children reporting higher SASC-R total scores display a marginally significant tendency to endorse more negative cognitive reactions,  $\beta = .33$ ,  $R^2_{\text{change}} = .07$ ,  $F_{\text{change}} = 3.21$ ,  $p = .08$ . None of the other variables examined accounted for significant variance in endorsement ratings.

## 4. Discussion

The present study sought to extend previous research on the validity of the SASC-R. To our knowledge, this is the first study to investigate the linkages between SASC-R scores and thoughts and behaviors displayed in response to a salient and ecologically relevant (i.e., ego-involving) social event in real time. Data on participants' changes in state mood revealed that our peer evaluation feedback manipulation was successful in eliciting differential affective reactions in the expected direction as a function of feedback valence. Moreover, our debriefing interviews revealed that children were involved in the Survivor Game and that none of the participants reported being aware that the feedback they received was bogus. Taken together, these data suggest that the Survivor Game was successful in achieving its major objective of providing a credible and salient social event for the examination of the predictive validity of the SASC-R.

Several findings converge in providing evidence that children reporting higher scores on the SASC-R are more likely to experience negatively tuned cognitive processing when faced with a social-evaluative stimulus situation. First, above and beyond the effects of state mood, children with higher SASC-R scores anticipated more negative outcomes from the game, such that prior to receiving feedback they rated a negative outcome as significantly more likely to occur. Second, children scoring higher on the SASC-R were significantly more likely to evaluate their actual performance (i.e., the alleged feedback outcome) in a more negative fashion. Specifically, in response to success feedback, children with elevated social anxiety were less likely than their peers to evaluate the outcome in positive terms. Moreover, also in response to failure feedback, the cognitive evaluations/appraisals of children with elevated social anxiety evidenced more negativity than those of their peers. These results are in line with the influential cognitive model of anxiety advanced by Beck, Emery, and Greenberg (1985), and with findings reported by Spence, Donovan, and Brechman-Toussaint (1999), who observed that social phobic children, relative to controls, displayed a higher level of negative self-talk during social-evaluative tasks (e.g., a videotaped reading task).

Our findings are also consistent with the hypothesis that higher levels of social anxiety as assessed by the SASC-R are associated with higher endorsement of avoidant and withdrawal behavioral reactions subsequent to being exposed to a social-evaluative situation. Specifically,

regardless of the valence of the feedback outcome, children with higher scores on either the SAD-General subscale or the SASC-R total scale reported significantly more reluctance to engage in age-appropriate socialization experiences such as attending a party with unfamiliar peers, which may provide opportunities for practicing social skills and social learning.

Somewhat surprisingly, relative to the effects observed for the SASC-R, depressive symptoms exerted a negligible influence on children's thoughts and behaviors in response to the social stimulus situation. However, it should be noted that higher levels of depression were positively linked to construing failure peer evaluation feedback in a more negative fashion. One possible explanation for the observed discrepancies in the predictive effects of depression and social anxiety is that the stimulus situation was so clearly social-evaluative in nature that the effects of social anxiety may have muted or overridden those of depression. Importantly, these findings underscore the specificity of our findings for the SASC-R.

Our findings revealed few gender differences in how children reacted to the social-evaluative stimulus. However, regardless of feedback outcome, we observed that boys were more likely than girls to prefer playing a second round of the game against previous winners. This finding is in line with gender-based differences in interpersonal goals, with girls emphasizing connectedness and social inclusion, whereas boys stress competition and the achievement of instrumental goals (e.g., Blatt, 1998; Gilligan, 1982). Another contribution of the present study is the demonstration that increases in positive affect appear to promote social approach behavior. This finding adds to a growing body of work showing that positive affect facilitates a variety of adaptive social behaviors, including helping and generosity, thorough and efficient problem solving, and motivation (see Isen, 1999b, 2000, for reviews). Interestingly, we observed an asymmetry in the effects of positive and negative affect, such that increases in positive affect were linked to more reported approach behavior, whereas increases in negative affect were not associated with more avoidant behavior. This finding is in line with previous research showing that the effects of positive and negative affect often diverge considerably (e.g., Isen, Shaker, Clark, & Karp, 1978; Synder & White, 1982).

The ecological validity of our peer manipulation procedure deserves further comment. We acknowledge that our laboratory manipulation is not identical to the peer rejection and peer praise experiences that children in this age range typically encounter in their daily lives. However, exclusion from group activities is a primary exemplar of peer rejection (Buhs & Ladd, 2001; Coie, 1990). In addition, especially during the past decade, being evaluated while playing a game with unfamiliar peers has become widespread in television shows, and should by now probably be considered part of young adolescents' contemporary daily life.

Several limitations of the present study should be addressed in future work. First, our findings are based on a community sample of children, rather than a clinical sample with a diagnosed social anxiety disorder. Children's mean scores on the SASC-R suggest that social anxiety symptoms were relatively modest in magnitude. It is therefore an empirical question to what extent our findings can be generalized to children who meet criteria for a social anxiety disorder. Second, because all significant results are based on children's self-report, we cannot rule out the possibility that our findings are partly due to shared method variance. Future studies are needed that employ both multiple sources of information (e.g., peers, parents, teachers) as well as multiple assessment modalities (e.g., self-report, behavioral observation, physiological measures). Finally, we acknowledge that our relatively large number of regression analyses may have increased the Type I error rate. Hence, our findings, albeit largely consistent with a-priori hypotheses, should be viewed with some caution and require replication.

Notwithstanding these limitations, the findings of the present provide encouraging evidence to support the predictive validity of the SASC-R. Indeed, above and beyond the effects of several variables that might have constituted an alternative explanation for our findings (e.g., social standing in the peer group, depression), we observed theoretically meaningful associations between SASC-R scores and several relevant cognitive and behavioral criterion variables.

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