Children’s Responses to Entry Failure: Attention Deployment Patterns and Self-Regulation Skills

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ABSTRACT. In this study the authors investigated associations among children’s observed responses to failure in an analogue entry situation, their attention deployment patterns, and skills and processes associated with self-regulation. Participants were 54 kindergarten and first-grade students who were either aggressive-rejected or low aggressive-popular based on peer nominations. Inhibitory control predicted the tendency to respond to entry failure by stopping and watching the group’s activity. Baseline vagal tone and other-directed attention predicted children’s tendency to change entry strategies after failure. Parent-rated attention skills moderated the relation between children’s attention deployment patterns during the entry task and their responses to entry failure. Children who engaged in more other-directed attention were less likely to turn to solitary play after entry failure but only if they had high or moderate levels of attentional control. Other-directed attention was related to repeating previous entry bids without modification after entry failure but only when children had high levels of attention problems.

Keywords: aggressive-rejected children, attention, emotion regulation, entry, self-regulation

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Entry into the ongoing play of others is a common but challenging task for most children (Corsaro, 1979, 1981; Putallaz, 1983; Wilson, 1999). Children’s ability to solve common social tasks such as entering others’ play is predictive of their social status with peers (Coie, Dodge, & Coppotelli, 1982; Putallaz, 1983; Putallaz & Gottman, 1981). Whereas most previous studies have focused on children’s ability to generate effective strategies for entering groups, the present study investigated children’s responses to entry failure. This is an important area for research because children’s initial attempts to enter the play of peers often fail, necessitating that they make multiple attempts before succeeding (Corsaro, 1979, 1981). Thus, children who are able to patiently persist in their entry attempts despite initial failure, for example, by repeating or modifying a previous strategy, should be more likely to succeed at this social task. The goal of the present study was to understand factors that influence children’s responses to failure in the entry context. More specifically, this study investigated the role of children’s attention deployment patterns and self-regulation skills in their responses to entry failure.

This study utilized a sample of children with and without significant social and conduct problems (i.e., aggressive-rejected children vs. low aggressive-popular children). Given the social difficulties exhibited by aggressive-rejected children, failure in the entry context may be particularly challenging for them (Bierman, Smoot, & Aumiller, 1993; Tryon & Keane, 1991; Volling, MacKinnon-Lewis, Rabiner, & Baradaran, 1993; Wilson, 2003, 2006). Further, previous research with the present sample found that compared to low aggressive-popular children, aggressive-rejected children had significantly more problems regulating attention, emotion, and behavior (Wilson, 2003, 2006). In the following sections we briefly review research related to the potential role of attention deployment patterns and self-regulation in children’s behavior in the entry context, especially their responses to entry failure.

Attention Deployment Patterns and Group Entry

Early research on entry situations indicated that children needed to be alert for opportunities to enter the play of others (McGrew, 1972; Washburn, 1932). Further research suggested that children were more likely to be accepted into the ongoing activity of a group if they used entry bids that communicated an understanding of the group’s frame of reference (i.e., their present play theme; Phillips, Shenker, & Revitz, 1951; Putallaz, 1983). Thus, children must pay attention to the play and conversations of group members so that they can gain an understanding of the group’s present activity and generate relevant entry bids (Phillips et al.; Putallaz, 1983; Wilson, 1999, 2006). For example, if group members are pretending to have a picnic, children trying to enter this group would likely be more successful if they made comments or approached the group with items related to this play theme. In addition, Corsaro (1979, 1981) suggested that children’s tendency to continue monitoring group members’ activities after initial failure should facilitate
their ability to acquire relevant information for subsequent entry attempts. Thus, it appears important for children’s eventual success at entry that they direct their attention toward the group’s activities so they can gather information for future bids.

Very little research has investigated children’s responses to entry failure. The limited research in this area suggests there are individual differences in children’s ability to persist in pursuing group entry after failure, as well as the quality of their subsequent entry behaviors (Corsaro, 1979, 1981; Putallaz, 1983; Wilson, 1999, 2006). Some children appear able to patiently persist in their attempts without becoming overtly upset whereas others express sadness, frustration, or anger and withdraw from making further attempts (Corsaro, 1979, 1981; Feldman, Christenson, & O’Neal, 1980; Wilson, 1999, 2006). One factor that may help differentiate between children’s responses to failure in the entry context is their self-regulation ability.

Self-Regulation

Self-regulation is a broad construct that encompasses the regulation of interrelated components of behavior, emotion, and physiological arousal. Although it is difficult to completely parse out each individual aspect of self-regulation, as they are strongly linked together, previous research has begun to examine and clarify different aspects of self-regulation, which has allowed for greater insight into its complexities and possible directions for future interventions. For example, self-regulation includes active strategies such as averting attention away from a distressing event and inhibiting situationally inappropriate behavior (Diamond, 1990; Posner & Rothbart, 2000). Self-regulation has also been linked with the ability to regulate emotional and physiological arousal associated with frustrating events. For example, some research has linked self-regulation to physiological indices such as vagal tone, a measure of parasympathetic influence on the heart (Fox, 1989; Gottman & Katz, 2002). The following sections review research on several different aspects of self-regulation and discuss how these may be associated with children’s responses to failure in the entry context. We start by focusing on an especially important aspect of self-regulation, the ability to regulate attention.

The Ability to Regulate Attention and Children’s Responses to Entry Failure

Although no previous studies have examined links between children’s ability to regulate attention and their responses to entry failure, significant research indicates that children’s attention skills are related to their ability to regulate emotion and behavior (Derryberry & Rothbart, 1988; Eisenberg et al., 1993; Eisenberg et al., 2000; Rothbart & Derryberry, 1981; Wilson, 2003, Wilson, Derryberry, & Kroeker, 2007). Attentional control, a temperamental variable consisting of adult reports of children’s skill at focusing and shifting attention (Rothbart, Ahadi, &
Hershey, 1994), has been associated with less intense expression of negative emotions and constructive management of anger (Eisenberg et al., 1993; Eisenberg et al., 2000).

Substantial research also links attention problems with an inability to control aggression (American Psychiatric Association, 2000; Kellam et al., 1991; Lahey, Green, & Forehand, 1980). In an epidemiological study, Kellam et al. found that teacher report of first-grade students’ attention problems predicted concurrent and subsequent conduct problems in boys. In addition to attention, it is likely that a number of other self-regulation processes facilitate children’s responses to entry failure. These other important aspects of self-regulation include the ability to regulate behavior and emotion-related arousal.

Regulation of Behavior: Inhibitory Control

The ability to resist engaging in well-learned but inappropriate responses facilitates children’s ability to deal with challenging situations in a flexible manner (Diamond, 1990). For example, in entry situations children must inhibit the impulse to rush into the group’s activity until they understand their play theme and generate a related bid (Phillips et al., 1951; Putallaz, 1983).

Regulation of Emotion and Physiological Arousal

Falling reactivity. Similar to the ability to regulate attention and behavior, it is likely that the ability to self-soothe negative emotion and associated physiological arousal plays a role in children’s responses to entry failure (Rothbart & Derryberry, 1981). Derryberry and Rothbart (1988) described the temperamental characteristic of falling reactivity as “the rate at which general arousal decreases from its peak to its normal levels of intensity” (p. 966). Children who are able to modulate their arousal should be better able to remain engaged in their attempts to enter others’ play despite previous failures. Conversely, children with slow rates of recovery may need to disengage from a distressing situation in order to calm themselves. In addition to adult reports of children’s ability to regulate arousal, the present study also investigated a physiological measure associated with this ability, vagal tone.

Vagal tone. Vagal tone, a measure of parasympathetic influence on the heart, is related to variability in heart rate due to respiration or respiratory sinus arrhythmia (RSA). Individual differences in vagal tone appear to stabilize in middle to late infancy and reliably predict a number of positive social and behavioral outcomes by early childhood (Beauchaine, 2001). High baseline levels of vagal tone have been positively associated with the ability to regulate physiological arousal (Porges, Doussard-Roosevelt, Portales, & Greenspan, 1996), attention processes (Linnemeyer & Porges, 1986; Suess, Porges, & Plude, 1994), and emotion (Eisenberg et al., 1995; Fabes, Eisenberg, & Eisenbud, 1993; Fox, 1989), as well as successful adaptation to novel social situations (Eisenberg et al.; Fox; Fox &
Field, 1989). During periods of environmental challenge, individuals with high baseline vagal tone appear better able to react appropriately and return rapidly to baseline levels of functioning through self-soothing or self-regulation (Porges, 1995, 1996).

**Additive and Multiplicative Models for Predicting Children’s Responses to Entry Failure**

We know of no other research that has investigated attention deployment patterns and self-regulation skills in the same study or attempted to understand how they relate to children’s behavioral responses to a challenging social event such as entry failure. We were especially interested in the contributions of attention deployment patterns and self-regulation skills related to attention because these variables represent two important ways in which attention may facilitate children’s ability to succeed at social tasks such as entering the ongoing play of others. It is likely that these two aspects of attention each explain significant unique variance in children’s responses to entry failure. To succeed at entry, children need to attend to the entry context so that they can generate bids that communicate an understanding of the groups’ play (Putallaz, 1983). Further, children’s ability to control attention processes should enable them to cope more effectively with entry failure (Eisenberg et al., 1996; Eisenberg et al., 2000). Multiplicative models of the influence of attention-regulation skills and attention deployment patterns may also apply. Children’s ability to control attention processes should facilitate their ability to stay engaged in their entry attempts despite previous failures and benefit from their observations of group members’ play. Conversely, poor attention skills may interfere with children’s ability to benefit from their observations of the group’s play. Children with attention problems may fail to attend to relevant aspects of the entry situation that could assist them in generating relevant bids. They may also become distracted from their primary goal of entering the group and focus instead on negative cognitions related to their initial failure. In naturalistic situations such as at school or other settings, children with attention problems also may try to join a different group or participate in another activity after experiencing entry failure.

**Previous Success in Peer Settings**

A final factor that may influence children’s responses to entry failure is their previous history in peer settings. Substantial research indicates that aggressive-rejected children have significant problems in their peer relationships, including difficulties in the entry context (Tryon & Keane, 1991; Volling et al. 1993). Previous research with the present sample found that compared to low aggressive-popular children, aggressive-rejected children used less effective entry strategies, engaged in more intrusive entry bids, and delivered their bids in socially inappropriate ways (Wilson, 2006). The entry bids of aggressive-rejected children also
became more aggressive over the course of a 6-min analogue entry session where their bids were consistently ignored by group members. Although no research to date has investigated the entry success of aggressive-rejected children in a naturalistic setting, research with rejected children suggests that they experience more entry failure and require more attempts before succeeding at entry (Putallaz, 1983; Putallaz & Gottman, 1981). Given research that these children have difficulty with peers and the regulation of attention, emotions, and behavior, we expected that they would be more likely to engage in less effective responses to entry failure such as repeating previous entry bids without modification (Wilson, 2003, 2006; Wilson et al., 2007).

The Present Study

In the present study we used an analogue entry task in a laboratory setting. Analogue tasks have been used in previous research to examine children’s responses to a number of important social tasks such as entry and conflict resolution (Dodge, Schlundt, Schocken, & Delugach, 1983; Hubbard, 2001; Putallaz, 1983). Analogue situations have a number of advantages over naturalistic settings. For example, these situations permit researchers to observe important but rare events. Analogue situations also provide researchers with greater experimental control over the behavior of group members so that children’s responses to entry failure can be understood. Further, details about children’s attention and entry strategies can be documented and may provide insight into important aspects of their peer-related social competence (Dodge et al.).

Children’s behavioral responses in the first 5 s after they experienced entry failure were documented. The creation of categories for children’s responses to entry failure was informed by previous research as well as preliminary coding completed on a small pilot sample of six children. The results of the pilot study indicated that the categories formed were mutually exclusive and exhaustive of children’s responses (see Table 1). Two dimensions were used to categorize children’s responses to entry failure. The first dimension involved whether children continued to pursue entry after experiencing failure or withdrew from making additional entry attempts, at least on a short-term basis. Corsaro (1979) suggested that children who persisted after their initial entry bids failed were more successful at entry than those who disengaged from further attempts. The second coding dimension concerned the type of response made by the child. For children who withdrew from making a subsequent entry attempt after failure (at least in the subsequent 5 s), we differentiated between three different responses: (a) stopping and monitoring the group’s activity, (b) averting their gaze away from the entry context, and (c) engaging in solitary play. Based on previous research, we believed that stopping and monitoring the group’s activity after failure would facilitate children’s ability to generate subsequent relevant entry bids and thus facilitate their eventual success at entering groups in naturalistic entry situations (Corsaro, 1979).
TABLE 1. Codes for Children’s Responses to Entry Failure

<table>
<thead>
<tr>
<th>Responses related to a continuation of entry attempts after failure</th>
<th>Codes related to withdrawal from making future entry attempts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeating previous entry strategies. This code was used when children repeated an entry attempt despite having been previously ignored after making a similar attempt. For example, an entering child might state that their brother had a robot similar to the one used in the entry situation and simply repeats this statement without modification on the subsequent bid for entry.</td>
<td>Wait and watch. This code was used when children stopped their activity after being ignored and watched the activities of others for at least 3 s. This behavior indicates disengagement from the entry attempt but a continued interest in the group’s activity. It may be that the child is watching for more information about the group’s activity that could be used in another attempt.</td>
</tr>
<tr>
<td>Changing entry strategies. This code was used when a child continued to attempt entry after being ignored but made some modification in his approach. For example, a child might give information after asking a question.</td>
<td>Gaze aversion. This code was used when children averted their gaze away from the confederates and did not play with their own toys after being ignored.</td>
</tr>
<tr>
<td>Codes related to withdrawal from making future entry attempts</td>
<td>Solitary play. This code was used when children turned their attention away from the confederates’ play area and began playing with their own toys.</td>
</tr>
</tbody>
</table>

We also reasoned that gaze aversion involving brief periods of shifting attention away from a distressing event should enable children to calm any arousal associated with failure while allowing them to continue monitoring group members’ activities for future opportunities to enter. In contrast, we believed that although engaging in episodes of solitary play might help children calm arousal, it might also lead them to become engrossed in their own activities and interfere with their ability to watch for future opportunities to join the play of others (Wilson, 1999).

We also contrasted two different ways that children might continue pursuing group entry after failure: repeating a previous entry strategy without modification or changing their entry strategy. We reasoned that strategies involving simply repeating a previously used entry bid without modification would be less effective than changing strategies after entry failure. Previous research has conceptualized changing strategies as an adaptive response to failure in analogue entry situations where children receive no feedback from peers (Wilson, 1999).

Hypotheses

The goals of the present study were to investigate the degree to which children’s status as aggressive-rejected or low aggressive-popular, their attention deployment patterns, and their ability to regulate attention, behavior, emotion, and physiological arousal would predict their behavioral responses to entry failure.
We hypothesized that, compared to low aggressive-popular children, aggressive-rejected children would be more likely to repeat previous entry bids without modification after entry failure (Hubbard, 2001; Wilson, 2003).

Based on previous research, we hypothesized that children’s self-regulation skills, especially their ability to regulate attention, would be positively associated with their continued engagement in the entry context after entry failure. This hypothesis was based on research indicating that attention skills are related to the ability to regulate negative emotions (Eisenberg et al., 1993; Eisenberg et al., 1997; Kellam et al., 1991). We also hypothesized that attention deployment patterns, as observed in the entry situation, would predict children’s behavioral responses to entry failure. It was expected that children who tended to direct their attention toward relevant aspects of the entry situation (e.g., at the confederates or toys used by confederates in their play) would be more likely to use adaptive responses to entry failure such as changing their entry strategies after their previous bid failed. Further, we investigated whether children’s self-regulation skills, especially their ability to regulate attention, would moderate the relation between their observed attention deployment patterns and their behavioral responses to entry failure. For example, we reasoned that children who directed their attention toward the behavior of group members would be better able to continue pursuing entry and generate effective entry strategies if they also had good attention skills.

Regarding the influence of behavioral and physiological regulation, we hypothesized that children’s ability to regulate their behavior or their inhibitory control would facilitate children’s ability to suppress impulsive responding after entry failure. Given the assumption that falling reactivity indexes children’s ability to self-soothe emotional and physiological arousal, we predicted it would be related to children’s ability to stay engaged in the entry context after entry failure. Similarly, we expected high vagal tone would be related to responses to entry failure involving continued and flexible engagement in pursuing entry because it has been associated with emotion regulation and successful adaptation to novel social situations (Fox, 1989; Fox & Field, 1989; Porges, Doussard-Roosevelt, & Maita, 1994).

Method

Participants

Children were recruited from 11 rural low- to middle-class elementary schools in the Pacific Northwest. The initial sample included 778 kindergarten and first-grade students with parental consent participated in individual sociometric interviews (consent rate = 76%). During a nomination procedure (Coie, & Dodge, 1988; Coie, Dodge, & Coppotelli, 1982), children pointed to the photographs of three classmates who they liked to play with the most (positive nominations [PNs]), liked to play with the least (negative nominations [NNs]; Alain & Begin,
1987; Dorvel & Begin, 1985), and who fought a lot and said mean things. Before starting the assessment with classmates’ photographs, children practiced the nomination procedure with pictures of food items (Asher, Singleton, Tinsley, & Hymel, 1979; Dorvel & Begin). Coie et al.’s (1982) criteria were used to determine children’s social status. Frequency counts of children’s PNs and NNs were created and standardized. Standardized NNs were subtracted from PNs and the difference was standardized to create a social preference score for each child. Children were considered to be rejected by peers if they had social preference scores that were one or more standard deviations below the group mean and their standardized PNs were less than zero and standardized NNs were greater than zero. Children with social preference scores one standard deviation or greater than the group mean, standardized PNs greater than zero, and standardized NNs less than zero were classified as popular with peers. Low aggressive children had standardized aggression scores that were less than zero and high aggressive children had scores of 0.80 standard deviations or more (French, 1988; Hecht, Inderbitzen, & Bukowski, 1998). Social status and aggressiveness were calculated separately for boys and girls to ensure that approximately the same number of children from each sex would be identified (Asher & Renshaw, 1981).

Parents of children categorized as rejected or popular from the initial sample and who were also either high or low on aggressiveness were contacted about participation (consent rate = 86.4%) resulting in a final sample size of 54 categorized in the following four groups: (a) aggressive-rejected boys (n = 13), (b) aggressive-rejected girls (n = 14), (c) low aggressive-popular boys (n = 13), and (d) low aggressive-popular girls (n = 14). Ethnicity of the final sample was predominately Caucasian (n = 51), and two students were Hispanic American and one was African American.

Materials

Equipment for the entry setting included three chairs, a rectangular table, and a range of basic and attractive toys. For example, the confederates had a toy electric robot, and the confederates and the target child each had an assortment of blocks, toy food items, and a toy doctor kit and medical equipment. Equipment for collection of cardiac information included a Vagal Tone Monitor (Delta Bio-metrics, Inc, Bethesda, MD; Porges, 1985), an audio recorder and headset, and an audiotaped story.

Procedures

Home visit. During a visit to their home, an astronaut and space theme was used to explain the collection of physiological data to children. Children viewed books featuring astronauts and a toy animal was used to demonstrate the placement of electrodes for the physiological recording that would occur during the laboratory
visit (Gottman & Katz, 1989). Parents completed a set of questionnaires on their own before coming to the university for the entry session.

**Entry situation.** The entry situation involved two first-grade boys or girls (matched to the sex of participants) who served as confederates of the experimenter. A total of eight confederates (4 boys and 4 girls) were trained in the entry session procedures and rotated positions based on availability. Confederates were unacquainted with participants and blind regarding their status (i.e., aggressive-rejected or low aggressive-popular) and the goals of the study. Confederates were trained to ignore the behavior of the entering child and to change their play activity every 2 min. The behavior of the confederates was monitored through a one-way mirror. Similar entry situations were used by Putallaz (1983) and Wilson (1999). Sessions were videotaped for later coding.

After an initial introduction to the confederates, the participant completed a short questionnaire in an adjacent room. The two confederates were playing with a toy robot when the participant re-entered the playroom. All children were reminded they had just met and were instructed to play until the researcher had completed some work in a nearby room. A “bug in the ear,” a small portable audio receiver (Series C-60, Bogen Communications, Ramsey, NJ), was used to cue one of the confederates when to begin each of the following segments: (a) play with the robot, (b) doctor the robot, (c) feed the robot, (d) search for a missing pepperoni pizza to feed the robot, and (e) accept participant into confederates’ play. All but the last entry segment were 2 min in length. The final segment involved group acceptance and 6 min of free play.

**Preparation for the physiological recording.** After the entry session, the confederates left the laboratory while the participant spent approximately 5 min talking with his or her parent about the entry session. Subsequently, the researcher and parent led the participant to an adjacent room for the physiological recording. In the presence of the parent, the researcher placed three pediatric electrodes in an inverted triangular pattern on the child’s chest (i.e., one was placed below each clavicle and the third on the bottom left rib bone). The disposable electrodes were filled with conductive paste and attached to the skin using small adhesive collars. The electrodes were connected to an electrocardiogram (ECG) preamplifier and the output was run through a Vagal Tone Monitor (Porges, 1985) for R-wave detection. The monitor creates a data file containing cardiac interbeat intervals (IBIs; in milliseconds) that is read into a computer for subsequent editing and analysis. After the electrodes were in place, the parent waited in an adjacent room until the end of the session. An event marker on the Vagal Tone Monitor signified the beginning and ending of the story. Although several cognitive tasks were completed during this session, only information related to the baseline condition is reported in the present article (for further information, see Wilson, 2003, Wilson, Petaja, & Mancil, in press).
Baseline cardiac information. During the collection of baseline cardiac information, the child listened to a 6-min audiotaped story about a mouse that explores its neighborhood. The emotional content of the story was neutral and it was read in a monotone voice. Although this was not a true baseline, given that the child was engaged with an external stimulus, it was useful for keeping the child physically still and has been used successfully by other researchers with young children (e.g., Calkins, 1997; Gottman & Katz, 1989).

Measures

Behavioral responses to entry failure. Children’s behavioral responses to entry failure were defined as their immediate (within 5 s) response after the confederates ignored their entry bid. Codes included (a) repeating their last entry strategy without modification, (b) changing entry strategies, (c) stopping their own play and monitoring the group’s activity (wait and watch), (d) engaging in solitary play, and (e) engaging in gaze aversion (looking away briefly from the confederates’ play while not engaging in any other activity). If the child engaged in more than one behavior during this period, the behavior that dominated during the 5 s was documented. Table 1 presents a brief summary of each code. Undergraduate psychology students were trained to code participants’ responses to entry failure over a 10-week period and began coding when interrater reliability reached .85 (percentage agreement). The mean interrater reliability for these behavioral responses was .83, ranging from .74 to .90 (Kappa value). Discrepancies in the identification of episodes and coding were resolved through review and discussion.

Attention problems. Children’s attention problems were assessed through parent report from the attention problems subscale from the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1981).

Attentional control. Parent reports from the attention shifting (13 items) and focusing (13 items) subscales of the Child Behavior Questionnaire (CBQ; Rothbart et al., 1994) were combined to construct a measure of attentional control. Responses on the CBQ are rated on a Likert-type scale, 1 = extremely untrue of your child to 7 = extremely true of your child. Cronbach’s alpha values for the parent report were .81 for focusing and .77 for shifting.

Ability to self-soothe physiological arousal and inhibit behavior. Parent reports of children’s ability to self-soothe physiological arousal after emotional events and inhibit inappropriate behavior were gathered via the falling reactivity and inhibitory control subscales of the CBQ, respectively (Rothbart et al., 1994). Cronbach’s alpha values were .71 for falling reactivity and .78 for inhibitory control.
Attention deployment patterns during the analogue entry situation. The direction of children’s visual attention during the analogue entry situation was assessed every 5 s throughout the session (Wilson, 1996). The direction of children’s attention was coded as being either oriented (a) toward the confederates or their toys (other-directed attention), (b) toward self or own toys (self-directed attention), or (c) toward some other place in the room (other). Two undergraduates were trained over a 3-week period to complete coding for the attention deployment variables. Reliability assessments were calculated on 20% of the data. The mean reliability for gaze was .91 (Kappa value).

Physiological Measures

Cardiac interbeat interval. Cardiac IBI was measured on a beat-by-beat basis by a digital computer at the resolution of 1 ms and averaged over 1 s. IBI was determined by measuring the time interval between successive spikes (R-waves) of the ECG. It is equivalent to a measure of heart rate (i.e., heart rate = 60,000/IBI in ms) but has certain distributional advantages for parametric analysis. The time between intervals was in milliseconds, with an accuracy of 1 ms.

Quantification of cardiac data. MX-Edit software (Delta-Biometrics, Bethesda, MD) was used to visually display the heart period data, edit outliers, and quantify the heart period (i.e., IBIs) and vagal tone (Porges, 1985). Heart period (IBIs) and vagal tone were calculated for sequential 30-s epochs. The mean of the epochs was used in analyses.

Vagal tone. A detrending algorithm was used to isolate variability in heart rate associated with respiration (i.e., RSA) from the heart rate pattern variance associated with the complex changing level and oscillations slower than RSA. It included resampling of the heart period data every 250 ms, a moving polynomial filter (third order, 21 point), and a band-pass filter (.24–1.04 Hz).

Results

Correlations and hierarchical regression were used to analyze data. Alpha levels were set at .05. Means and standard deviations for children’s behavioral responses to entry failure, attention skills and inhibitory control (as reported by parents), observed attention deployment, and vagal tone are presented in Tables 2 and 3.

Associations between Children’s Self-Regulation Skills and Their Responses to Entry Failure

Preliminary analyses. Because preliminary analyses indicated that children’s sex was not related to their responses to entry failure, sex was not included as a variable
TABLE 2. Means and Standard Deviations for Attention Skills, Observed Attention, Temperament, and Physiology, by Status

<table>
<thead>
<tr>
<th>Child characteristic</th>
<th>Total</th>
<th>LA-P</th>
<th>A-R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Attention skills–parent report</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Att control</td>
<td>4.49</td>
<td>0.53</td>
<td>4.66</td>
</tr>
<tr>
<td>Att problems</td>
<td>53.58</td>
<td>5.27</td>
<td>51.67</td>
</tr>
<tr>
<td>Attention–observed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other-directed</td>
<td>0.52</td>
<td>0.24</td>
<td>0.51</td>
</tr>
<tr>
<td>Self-directed</td>
<td>0.43</td>
<td>0.23</td>
<td>0.44</td>
</tr>
<tr>
<td>Around room</td>
<td>0.05</td>
<td>0.07</td>
<td>0.04</td>
</tr>
<tr>
<td>Temperament</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Falling reactivity–parent report</td>
<td>4.90</td>
<td>0.64</td>
<td>4.79</td>
</tr>
<tr>
<td>Inhibitory control–parent report</td>
<td>4.83</td>
<td>0.76</td>
<td>5.09</td>
</tr>
<tr>
<td>Vagal tone</td>
<td>6.15</td>
<td>0.99</td>
<td>6.17</td>
</tr>
</tbody>
</table>

Note. LA-P = low aggressive-popular; A-R = aggressive-rejected; Att = attention. 
*p < .10. *p < .05. **p < .01. ***p < .001.

in our primary analyses. Correlations among children’s responses to entry failure and their self-regulatory skills are presented in Table 4. Because of the high negative correlation between other-focused and self-focused attention (rnbsp;= –.99), self-focused attention was eliminated as a variable in the present study. In addition, children’s tendency to direct attention to other areas around room was

TABLE 3. Means and Standard Deviations for Responses to Entry Failure by Status

<table>
<thead>
<tr>
<th>Response to failure</th>
<th>Total</th>
<th>LA-P</th>
<th>A-R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Change strategies</td>
<td>0.23</td>
<td>0.21</td>
<td>0.24</td>
</tr>
<tr>
<td>Wait and watch</td>
<td>0.42</td>
<td>0.32</td>
<td>0.48</td>
</tr>
<tr>
<td>Solitary play</td>
<td>0.23</td>
<td>0.25</td>
<td>0.20</td>
</tr>
<tr>
<td>Repeat strategies</td>
<td>0.05</td>
<td>0.10</td>
<td>0.05</td>
</tr>
<tr>
<td>Gaze aversion</td>
<td>0.09</td>
<td>0.13</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Note. Means for responses to entry failure represent proportions of strategies (i.e., total strategies for each category over the total number of entry attempts made). LA-P = low aggressive-popular; A-R = aggressive-rejected.
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
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<tbody>
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<td>1. Inhibitory control</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td>—</td>
<td>—</td>
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<tr>
<td>2. Attentional control</td>
<td>.76∗∗</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td>—</td>
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<td>3. Attention problems</td>
<td>−.57∗∗</td>
<td>−.55∗∗</td>
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<td>—</td>
<td>—</td>
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</tr>
<tr>
<td>4. Falling reactivity</td>
<td>.18</td>
<td>.07</td>
<td>−.11</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td>5. Other-directed Att</td>
<td>−.16</td>
<td>−.05</td>
<td>.17</td>
<td>−.07</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td>—</td>
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<tr>
<td>6. Self-directed Att</td>
<td>.15</td>
<td>.02</td>
<td>−.16</td>
<td>.10</td>
<td>−.99∗∗</td>
<td>—</td>
<td>—</td>
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<td>7. Att around room</td>
<td>.09</td>
<td>.11</td>
<td>−.07</td>
<td>.20</td>
<td>−.13</td>
<td>.09</td>
<td>—</td>
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<td>—</td>
<td>—</td>
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<tr>
<td>8. Baseline vagal tone</td>
<td>−.19</td>
<td>−.13</td>
<td>.18</td>
<td>−.21</td>
<td>.27†</td>
<td>−.27†</td>
<td>−.20</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td>—</td>
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<tr>
<td>9. Changing strategies</td>
<td>−.06</td>
<td>.04</td>
<td>−.13</td>
<td>−.05</td>
<td>.55**</td>
<td>−.55**</td>
<td>−.10</td>
<td>.31*</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>10. Wait and watch</td>
<td>.33*</td>
<td>.25</td>
<td>−.16</td>
<td>.20</td>
<td>−.12</td>
<td>.14</td>
<td>−.07</td>
<td>−.11</td>
<td>−.34*</td>
<td>—</td>
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</tr>
<tr>
<td>11. Solitary play</td>
<td>−.27*</td>
<td>−.36**</td>
<td>.12</td>
<td>−.02</td>
<td>−.47**</td>
<td>.48**</td>
<td>.01</td>
<td>−.18</td>
<td>−.24†</td>
<td>−.40</td>
<td>—</td>
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<td>—</td>
</tr>
<tr>
<td>12. Repeating strategies</td>
<td>−.08</td>
<td>−.11</td>
<td>.39**</td>
<td>−.04</td>
<td>.32*</td>
<td>−.37**</td>
<td>.01</td>
<td>.08</td>
<td>−.05</td>
<td>−.28*</td>
<td>−.25†</td>
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<td>—</td>
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<tr>
<td>13. Gaze aversion</td>
<td>−.04</td>
<td>−.00</td>
<td>.16</td>
<td>−.25†</td>
<td>−.05</td>
<td>.02</td>
<td>−.01</td>
<td>.04</td>
<td>−.33</td>
<td>−.27</td>
<td>−.25†</td>
<td>.46∗∗</td>
<td>—</td>
</tr>
</tbody>
</table>

*Note. Att = attention.  
†p < .10. *p < .05. **p < .01. ***p < .001.
also eliminated as a variable from analyses because it accounted for only 5% of children’s attention deployment patterns.

A series of hierarchical regression analyses was used to determine the degree to which children’s status, self-regulatory skills, and attention deployment patterns accounted for significant variance in their behavioral responses to entry failure. Predictor variables for each analysis were selected based on previous research and correlations between variables. Table 5 presents the standardized regression coefficients $\beta$, $R^2$, adjusted $R^2$, change in $R^2$, and the semipartial correlations ($sr^2$) after entry of each variable for all regression analyses. Status was entered first for all analyses, children’s self-regulation skills were entered on the second step, other-directed attention was entered on the third step, and the interaction between the self-regulation variable and attention deployment were entered on the fourth step.

**Wait and watch.** Status, entered on the first step, did not account for significant variance in children’s tendency to wait and watch the confederates’ activities after entry failure ($R^2 = .03$), $F_{inc}(1, 51) = 1.72, ns$. On the second step, inhibitory control explained significant variance ($R^2 = .11$), $F_{inc}(1, 50) = 4.56, p < .05$. Inhibitory control made a positive contribution to children’s tendency to wait and watch the confederate’s play, explaining 8% unique variance. Neither other-directed attention ($R^2 = .12$), $F_{inc}(1, 49) = 0.31, ns$, nor the interaction between other-directed attention and inhibitory control ($R^2 = .14$), $F_{inc}(1, 48) = 1.28, ns$, predicted significant variance in children’s tendency to wait and watch group members after entry failure.

**Solitary play.** Status did not explain significant variance in children’s tendency to engage in solitary play after entry failure ($R^2 = .01$), $F_{inc}(1, 51) = 0.55, ns$. On the second step, attentional control made a significant contribution to children’s tendency to turn to solitary play ($R^2 = .13$), $F_{inc}(1, 50) = 6.82, p < .01$. Other-focused attention, entered on the third step, explained an additional 24% unique variance ($R^2 = .37$), $F_{inc}(1, 49) = 18.19, p < .001$. Parent report of attentional control and other-focused attention both made negative contributions to children’s use of solitary play. The interaction between attentional control and other-focused attention, entered on the fourth step, also explained significant variance (5%; $R^2 = .42$), $F_{inc}(1, 48) = 4.33, p < .05$. We plotted this interaction using Aiken and West’s (1991) procedures. As seen in Figure 1, other-directed attention during the entry task predicted children’s use of solitary play after entry failure but only for children with low and moderate levels of attentional control.

**Repeating entry strategies.** Social status, entered on the first step, did not predict significant variance in children’s tendency to repeat their previous entry strategy without modification after their entry attempt failed ($R^2 = .001$), $F_{inc}(1, 51) = 0.06, ns$. On the second step, attention problems explained significant variance
### TABLE 5. Sequential Regressions of Child Characteristics on Emotion Regulation Strategies

<table>
<thead>
<tr>
<th>Variable</th>
<th>( \beta )</th>
<th>( R^2 )</th>
<th>( R^2 )</th>
<th>( \Delta R^2 )</th>
<th>( s_{\beta}^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wait and watch</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Social status</td>
<td>0.181</td>
<td>0.033</td>
<td>0.014</td>
<td>0.033</td>
<td>0.181</td>
</tr>
<tr>
<td>2. Inhibitory control</td>
<td>0.129</td>
<td>0.114</td>
<td>0.078</td>
<td>0.081*</td>
<td>0.284</td>
</tr>
<tr>
<td>3. OtherAtt-Obs</td>
<td>-0.108</td>
<td>0.119</td>
<td>0.065</td>
<td>0.006</td>
<td>-0.075</td>
</tr>
<tr>
<td>4. InhCXOther</td>
<td>-0.219</td>
<td>0.142</td>
<td>0.070</td>
<td>0.023</td>
<td>-0.151</td>
</tr>
<tr>
<td><strong>Solitary play</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Social status</td>
<td>-0.104</td>
<td>0.011</td>
<td>-0.009</td>
<td>0.011</td>
<td>-0.104</td>
</tr>
<tr>
<td>2. AttC</td>
<td>-0.366</td>
<td>0.129</td>
<td>0.095</td>
<td>0.119*</td>
<td>0.119</td>
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<tr>
<td>3. OtherAtt</td>
<td>-0.486</td>
<td>0.365</td>
<td>0.326</td>
<td>0.236*</td>
<td>0.236</td>
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<td>4. AttCXOtherAtt</td>
<td>0.215</td>
<td>0.418</td>
<td>0.369</td>
<td>0.053*</td>
<td>0.053</td>
</tr>
<tr>
<td><strong>Repeating entry bids</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Social status</td>
<td>-0.035</td>
<td>0.001</td>
<td>-0.018</td>
<td>0.001</td>
<td>-0.035</td>
</tr>
<tr>
<td>2. AttP</td>
<td>0.444</td>
<td>0.168</td>
<td>0.134</td>
<td>0.166**</td>
<td>0.166</td>
</tr>
<tr>
<td>3. OtherAtt</td>
<td>0.253</td>
<td>0.230</td>
<td>0.182</td>
<td>0.062†</td>
<td>0.062</td>
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<tr>
<td>4. AttPXOtherAtt</td>
<td>0.392</td>
<td>0.358</td>
<td>0.304</td>
<td>0.128**</td>
<td>0.128</td>
</tr>
<tr>
<td><strong>Changing entry bids</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Social status</td>
<td>0.088</td>
<td>0.008</td>
<td>-0.014</td>
<td>0.008</td>
<td>0.088</td>
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<tr>
<td>2. Vagal tone</td>
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<td>0.105</td>
<td>0.065</td>
<td>0.097*</td>
<td>0.312</td>
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<tr>
<td>3. OtherAtt</td>
<td>0.438</td>
<td>0.296</td>
<td>0.248</td>
<td>0.191**</td>
<td>0.437</td>
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<tr>
<td>4. VagalXOtherAtt</td>
<td>-0.010</td>
<td>0.296</td>
<td>0.231</td>
<td>0.020</td>
<td>-0.020</td>
</tr>
<tr>
<td><strong>Gaze aversion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Social status</td>
<td>-0.046</td>
<td>0.002</td>
<td>-0.017</td>
<td>0.002</td>
<td>-0.046</td>
</tr>
<tr>
<td>2. FallReac</td>
<td>-0.053</td>
<td>0.072</td>
<td>0.034</td>
<td>0.070†</td>
<td>-0.264</td>
</tr>
<tr>
<td>3. OtherAtt</td>
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<td>0.076</td>
<td>0.020</td>
<td>0.251</td>
<td>-0.069</td>
</tr>
<tr>
<td>4. FallReacXOtherAtt</td>
<td>-0.050</td>
<td>0.082</td>
<td>0.006</td>
<td>0.311</td>
<td>-0.077</td>
</tr>
</tbody>
</table>

Note. \( s_{\beta}^2 \) = semipartial correlations; OtherAtt = observations of other-directed attention; AttC = parent report, child attentional control; AttP = parent report of child attention problems; AttCXOtherAtt = interaction between attentional control and other-directed attention; AttPXOtherAtt = interaction between attention problems and other-directed attention; VagalXOtherAtt = interaction between vagal tone and other-directed attention; FallReac = parent report of falling reactivity; FallReacXOtherAtt = interaction between falling reactivity and other-directed attention.

\( p < .10. \; ^* p < .05. \; ^{* *} p < .01. \; ^{* * *} p < .001. \)

(17%; \( R^2 = .17 \)), \( F_{inc}(1, 50) = 9.79, p < .01 \). There was a trend for other-focused attention, entered on the third step, to explain significant variance (6%; \( R^2 = .23 \)), \( F_{inc}(1, 49) = 3.88, p = .06 \). On the fourth step, the interaction between attention problems and other-focused attention was significant and explained an additional 13% unique variance in children’s tendency to repeat entry bids after failure.
(\(R^2 = .36\)), \(F_{inc}(1, 48) = 9.38, p < .01\). The plot of this interaction indicated that high levels of other-directed attention predicted repeating previously used entry bids after failure but only for children with high levels of attention problems. Children with high levels of other-directed attention and moderate or low levels of attention problems were not more likely to repeat previously used entry bids (see Figure 2).

**Changing entry strategies.** Social status was entered on the first step and did not account for significant variance in children’s tendency to change their entry bids after entry failure (\(R^2 = .008\)), \(F_{inc}(1, 51) = 0.36, ns\). Baseline vagal tone was entered on the second step and explained significant unique variance (\(R^2 = .11\)), \(F_{inc}(1, 50) = 4.88, p < .05\). Children’s tendency to direct attention toward the confederates and their toys during the entry situation explained an additional 19% of the variance in children’s tendency to change entry bids (\(R^2 = .30\)), \(F_{inc}(1, 49) = 11.94, p < .001\). Together baseline vagal tone and other-focused attention explained 30% of the variance in children’s tendency to change entry strategies. Both factors made positive contributions to children’s use of this strategy. The interaction between other-focused attention and vagal tone entered on the fourth step was not significant (\(R^2 = .30\)), \(F_{inc}(1, 48) < 0.001, ns\).

**Gaze aversion.** Status did not account for significant variance in children’s gaze aversion after entry failure (\(R^2 = .002\)), \(F_{inc}(1, 51) = 0.11, ns\). After controlling
for status, there was a trend for falling reactivity to account for significant variance (7%; $R^2 = .07$), $F_{inc}(1, 50) = 3.74, p = .06$. Falling reactivity made a negative contribution to children’s tendency to use gaze aversion. Neither other-directed attention ($R^2 = .08$), $F_{inc}(1, 49) = 0.25, ns$, nor the interaction between other-directed attention and falling reactivity ($R^2 = .08$), $F_{inc}(1, 48) = 0.31, ns$, explained significant unique variance.

**Discussion**

The results of this study support the central role of self-regulation processes and attention deployment patterns in children’s responses to entry failure. Children with better self-regulation skills were generally better able to continue pursuing entry even after their initial entry bids were ignored by the confederates. In the present study, we also documented two aspects of attention that we reasoned would support children’s continued engagement in the analogue entry situation: (a) children’s general attention deployment patterns during an analogue entry situation and (b) children’s ability to regulate attention processes. In general, higher levels of other-directed attention predicted children’s continued attempts to join the play of others. Previous research suggests that directing attention toward relevant aspects of the entry context facilitates children’s ability to enter
others’ play (Corsaro, 1979). We found that even after accounting for children’s status and vagal tone, the tendency to deploy attention toward the activity of the confederates predicted unique variance in their generation of new entry strategies after entry failure. Modifying previous entry strategies has been viewed as an adaptive approach to failure in analogue entry situations (Wilson, 1999).

The association between other-directed attention deployment patterns and children’s tendency to repeat previous entry bids after failure was more complex. This relation was moderated by children’s attention problems. Deploying attention toward the confederates’ activities was associated with higher rates of repeating previous entry bids after failure, but only for children with high levels of attention problems. Given their pattern of other-directed attention, these children appeared motivated to play with the confederates. However, directing attention toward the confederates did not facilitate their ability to generate new entry bids. It may be that these children were not able to benefit from watching the play of the confederates because they were distracted from relevant aspects of the entry situation. For example, they may have been distracted by negative cognitions regarding their previous entry failure or they may not have been able to use the information they gathered in an appropriate way. It is also possible that these children were flooded with negative affect after their initial failure, which could have interfered with their ability to engage in flexible problem-solving and strategy selection (Gottman, 1991). Additional research is needed to further clarify these findings.

Children’s attentional control, a temperamental characteristic linked to the regulation of emotion and behavior, also played a moderating role in children’s responses to entry failure. Although we found that children with lower levels of other-directed attention were generally more likely to engage in solitary play after entry failure, children’s attentional control moderated this relation. Children with low levels of other-directed attention were more likely to turn to solitary play after failure when they also had low or moderate levels of attentional control. Children with high attentional control did not show this pattern. Thus, attentional control appeared to facilitate children’s ability to stay engaged in the entry context despite previous failures. Children with high levels of attentional control may have been better able than other children to regulate their negative emotions after entry failure and this facilitated their ability to stay engaged in their entry attempts. This interpretation is consistent with Eisenberg and colleagues’ (Eisenberg et al., 1993; Eisenberg et al., 1997; Eisenberg et al., 2000) finding that attentional control was related to children’s emotion regulation skills. These findings also extend previous research by suggesting that attentional control is meaningfully related to children’s responses to emotion-eliciting situations such as entry failure.

In addition to assessing the role of attention processes in children’s responses to entry failure, we also investigated the contribution of other regulatory systems. Two factors previously linked to children’s ability to calm arousal, baseline vagal tone and temperamental falling reactivity, proved influential. Baseline vagal tone, together with other-focused attention, predicted children’s tendency to generate
a new entry strategy after entry failure, a putative adaptive response to entry failure (Wilson, 1999). Vagal tone has previously been positively associated with children’s positive adaptation to novel social situations and emotion regulation skills (Fox, 1989; Fox & Field, 1989). The present study extends earlier research by showing that vagal tone is also related to children’s adaptive responses to failure in a challenging social situation frequently encountered by children. This is consistent with Fabes et al.’s (1993) finding that children with high heart rate variability, an index related to vagal tone, were less likely to avert their gaze away from a film about another’s distress, presumably because they were able to regulate their arousal.

It is interesting to note that we found vagal tone was related to children’s positive adaptation to entry failure (i.e., changing entry strategies), but it was not related to other measures that might logically be linked with emotion regulation such as children’s attention problems or attentional control. These latter findings could be due to low power and our small sample size. Alternately, although research suggests that baseline vagal tone is related to emotion regulation skills, it could be that measuring vagal tone at baseline did not tap into certain aspects of participants’ emotion regulation experiences. Perhaps assessing vagal tone during the entry situation or documenting changes in vagal tone in response to a stressor would have provided a better link to children’s emotion regulation skills (Beauchaine, 2001). Further, although vagal tone did not relate to adult reports of children’s attention skills, there was a trend for it to relate to observations of children’s other-directed attention. Children with higher baseline vagal tone tended to engage in higher levels of other-directed attention. Previous research has linked baseline vagal tone with emotion regulation and the ability to act adaptively in novel social situations (Fox, 1989; Fox & Field, 1989). It is possible these children had greater physiological resources to continue monitoring the confederates’ play despite their previous entry failures. It could also be that these children had stronger prosocial tendencies or motivation for social affiliation than other children that may foster other-directed attention.

Similarly, falling reactivity, a parent-report measure of children’s ability to calm their physiological arousal, made a negative contribution to children’s tendency to engage in gaze aversion after entry failure, although this was only a statistical trend. Children who had difficulty soothing their own arousal, according to parent report, were more likely to respond to entry failure by briefly averting their gaze away from the entry context. Previous research suggests that averting gaze away from distressing events is related to reductions in heart rate (D. Derryberry, personal communication, May 10, 1995; Rothbart & Derryberry, 1981).

A final regulatory system associated with children’s responses to entry failure was inhibitory control. Children with high levels of parent-reported inhibitory control were more likely to wait and watch the activities of the confederates after entry failure. Pausing before responding to entry failure provides time for children
to reflect on the play theme of peers, potentially increasing the flexibility and
the relevance of their subsequent response (Corsaro, 1979; Diamond, 1990). In
naturalistic entry settings, impulsive responding without reflecting on the group’s
activity may result in the use of inappropriate strategies and could lead to continued
rejection by peers (Putallaz, 1983). It seems likely that inhibitory control plays
a prominent role in children’s ability to respond adaptively in challenging social
situations.

Contrary to our expectations, aggressive-rejected children’s responses to en-
try failure did not differ significantly from those of low aggressive-popular chil-
dren. One potential reason for this finding may relate to the way we catego-
rized children’s responses to entry failure. We used broad categories such as
engagement versus disengagement in the entry task, which did not capture other
qualities such as children’s affective tone. A second explanation relates to the
nature of aggressive-rejected children’s deficits; it may be that these children
have the same general strategies in their behavioral repertoire but lack the nec-
essary underlying regulatory skills to support them such as the ability to manage
attention effectively and inhibit inappropriate behavior. Previous work with the
present sample found that aggressive-rejected children had substantial difficulty
managing attention, emotions, and behavior and tended to use more disruptive-
aggressive entry strategies after encountering failure in this context (Wilson, 2003,
2006).

This study had a number of strengths as well as limitations. A major limitation
of the present study was its small sample size, which may have limited our ability
to detect some associations between regulatory processes and children’s responses
to entry failure. Another limitation was that the study utilized an extreme-groups
design. Although useful for detecting group differences and investigating the role
of attention in an at-risk group of children, it was not possible to determine if the
responses of these children were related to their aggression or their social prob-
lems. Additional research with aggressive- and rejected-only children is needed
to disentangle the contribution of these different factors.

One of the strengths of this research is that it incorporated behavioral obser-
vations of children’s attention and responses to a challenging social task. Further,
little empirical research has attempted to identify the processes and strategies
children use during emotion-eliciting events (Wilson, 1999) or relations between
children’s responses and their regulatory skills or characteristics (Kokkonen &
Pulkkinen, 1999). The identification of early predictors, such as deficits in cer-
tain regulatory skills, could aid in targeting children most at risk for continuing
problems. Further, this knowledge could be used to tailor intervention efforts
for children based on their regulatory profile. For example, based on the re-
results of the present study, aggressive-rejected children should benefit from be-
havioral training related to inhibitory control and the effective management of
attention.
ACKNOWLEDGMENTS

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AUTHOR NOTES

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