A theoretical distinction has been made between two types of childhood aggression that serve different functions. Reactive aggression is defensive, retaliatory, and in response to real or perceived provocation. Proactive aggression, on the other hand, is displayed to reach a goal, whether that goal involves material or territorial gain or social dominance. Throughout the years, researchers and theorists have used different labels to describe this distinction, including hostile/instrumental, retaliatory/predatory, and effectual/ineffectual. Each of these pairs of labels refers to the same idea, namely, that when children display aggression, their behavior sometimes is driven by defense and retaliation, whereas at other times, it is driven by a cool and deliberate purpose.

Researchers originally hypothesized that distinct groups of aggressive children existed, with one group displaying primarily reactive aggression and the other group displaying primarily proactive aggression (Dodge, 1991). However, most studies to date have suggested the two subtypes of aggression tend to co-occur, with most aggressive children displaying some degree of both reactive and proactive aggression. Thus, the reactive/proactive distinction may be more useful in describing the function of particular episodes of children's aggressive behavior than in describing aggressive children themselves.
Even though aggressive children do not divide cleanly into reactive and proactive groups, the distinction may still be quite useful, especially for understanding the relation between anger and aggression. Years ago, Averill (1982) stressed that all anger does not result in aggression, and that all aggression is not the result of anger. The second half of this idea, that aggression can have other catalysts besides anger, is reflected in the distinction between reactive and proactive aggression. The conceptualization suggests that some episodes of children's aggressive behavior are strongly driven by anger, whereas other episodes are calm, driven instead by the desire to achieve a goal. Thus, learning more about the distinction between reactive and proactive aggression is essential to developing a greater understanding of the complex relation between anger and aggression. This work will require a precise assessment of reactive and proactive aggression, one that is careful to separate the assessment of anger from aggression, particularly reactive aggression. Unfortunately, many previous measures of the subtypes of aggression have confounded the assessment of these two constructs.

For this reason, we begin our review with a brief history of the measurement of reactive and proactive aggression. Next, we review and critique existing empirical work in children and adolescents demonstrating that anger is positively related to reactive aggression, but not proactive aggression. Finally, we end with a discussion of the need for intervention programs that target children's reactive and proactive aggression separately and that stress learning anger regulation skills as a critical component of decreasing reactive aggression.

A HISTORY OF THE ASSESSMENT OF REACTIVE AND PROACTIVE AGGRESSION IN CHILDREN

The majority of studies of childhood reactive and proactive aggression have assessed the subtypes of aggression with a six-item questionnaire developed by Dodge and Coie (1987). The rating scale was originally developed for use by teachers, although it has since been used by parents and correctional facility staff as well. The scale includes three items indexing reactive aggression: (a) "When this child has been teased or threatened, he or she gets angry easily and strikes back"; (b) "This child claims that other children are to blame in a fight and feels like they started the trouble"; and (c) "When a peer accidentally hurts this child, such as by bumping into him or her, this child assumes that the peer meant to do it, and then overreacts with anger or fighting." Three other items index proactive aggression: (d) "This child gets other children to gang up on a peer that he or she does not like"; (e) "This child uses physical force, or threatens to use force, in order to dominate other children"; and (f) "This child threatens or bullies other children in order to get his or her own way."
In many ways, the psychometric properties of the scale are strong. In the original paper in which the scale was developed, intrascale correlations and coefficient alphas were high, suggesting strong internal consistency. More impressive were data regarding convergent validity. Observational data on children’s reactive and proactive aggression in playgroups over 5 consecutive days were collected, in addition to teacher ratings of the subtypes of aggression on these six items. Teacher ratings of reactive aggression correlated positively with directly observed reactive aggression, even after teacher ratings of proactive aggression were parcelled out; the complementary finding held for proactive aggression. In contrast, the correlations between teacher ratings of each subtype of aggression and observations of the other subtype of aggression were nonsignificant.

However, discriminant validity was weaker. In particular, in the development of the scale, items were retained that had factor loadings of greater than .40 on both the reactive and proactive subscales. In addition, in the original study, the eigenvalue of the proactive factor was only .74. Finally, in subsequent studies, confirmatory factor analyses have been equivocal regarding the replication of a two-factor structure, with the reactive and proactive items loading onto separate factors. In several studies, a two-factor model represented the best fit for the data (Fite, Colder, & Pelham, 2006 [parent report]; Poulin & Boivin, 2000 [teacher and parent report]; and Smithneyer, Hubbard, & Simons, 2000 [correctional facility staff report]). However, one study failed to replicate this two-factor structure (Roach & Gross, 2003 [teacher report]).

In our view, though, the most concerning issue is that two of the three reactive aggression items explicitly describe anger. In items (a) and (c), both anger and aggression are described side by side (“gets angry easily and strikes back,” “overreacts with anger or fighting”). It is difficult to interpret a finding showing that reactive aggression assessed via the Dodge and Coie (1987) scale is related to anger assessed via another method, when in fact the items in the scale describe anger as much as they describe aggressive behavior.

The next questionnaire measure to emerge was a teacher rating form by Brown and colleagues (Brown, Atkins, Osborne, & Milnamow, 1996). The psychometric properties of this scale were somewhat improved over the Dodge and Coie (1987) scale. However, the questionnaire suffered from many of the same difficulties with item wording, with several of the reactive-aggression items describing anger clearly but never actually mentioning aggressive behavior (e.g., “This child gets mad when she doesn’t get her way,” “This child gets mad when corrected,” “This child gets mad for no good reason”). In spite of the improved psychometrics, this scale never “caught on” with researchers, who continued to rely on the Dodge and Coie (1987) scale.

In the last 5 years, two new self-report measures of reactive and proactive aggression have appeared. The first measure was developed by Raine and
colleagues (Raine et al., 2006). It includes 11 items indexing reactive aggression and 12 items indexing proactive aggression. Internal consistency estimates for each subscale were strong, the authors provided compelling evidence that a two-factor model fit the data better than a one-factor model, and they replicated these results across two samples of 16-year-olds. However, our concerns with item wording continue. Many of the items on this questionnaire do not actually describe aggressive behavior at all, but rather simply anger (e.g., “Reacted angrily when provoked by others,” “Gotten angry when frustrated,” “Become angry or mad when you don’t get your way”). Thus, this confusion of anger and aggression continues, even with more recently developed measures. In our view, it is critical to remember that all angry feelings do not lead to aggressive actions, that anger is an emotion and aggression is a behavior, and that these two constructs require separate and careful assessment.

Fortunately, another self-report measure has recently emerged (Little, Brauner, Jones, Nock, & Hawley, 2003; Little, Jones, Henrich, & Hawley, 2003), and its authors have been much more careful in their separation of anger and aggression. This measure assesses two forms (overt and relational) and two functions (reactive and proactive) of aggression. Six items assess overt aggression, with no reference to function (e.g., “I’m the kind of person who hits, kicks, or punches others”). Six more items repeat these items, but with the phrase “to get what I want” added to assess proactive overt aggression. Similarly, six other items repeat the first six items, but this time with phrases such as “When I’m hurt by someone” added to assess reactive overt aggression. The same pattern is followed to create six items each to assess basic relational aggression, proactive relational aggression, and reactive relational aggression. These items were very carefully worded to avoid any mention of anger. To create scores for reactive aggression, reactive overt aggression scores are regressed on to overt aggression scores, and reactive relational aggression scores are regressed on to relational aggression scores; the resulting residuals representing “pure” reactive aggression are then averaged together. The same approach is used to create proactive aggression scores. Little and colleagues collected data on this scale from two large samples of 5th- through 10th-grade German adolescents. In both samples, a model with two forms and two functions of aggression fit the data better than other models, and internal consistency estimates were good. Furthermore, results were replicated across different ages and genders.

Clearly, this scale represents an advance over previous questionnaires, and we are eager to see it used more extensively in future studies. However, the fact that the scale has only been developed in a self-report format is a limitation, because it can only be used to assess the subtypes of aggression in older children or adolescents. Little and colleagues (Little, Brauner, et al., 2003;
Little, Jones, et al., 2003) claimed that only self-report measures are appropriate for determining a behavior’s function, because no one but the individual can know why he or she behaved in a particular way. However, we disagree. Observational studies of the subtypes of aggression have suggested that independent observers can reliably agree on the function of aggression (Boivin, Dodge, & Coie, 1995; Dodge & Coie, 1987; Hubbard, Dodge, Cillessen, Coie, & Schwartz, 2001; Price & Dodge, 1989), suggesting that parents, teachers, and peers may be able to do so as well. We consider the development of new teacher-, parent-, and even peer-report measures of reactive and proactive aggression that follow the format developed by Little and colleagues to be an important next step for the field.

QUESTIONNAIRE-BASED STUDIES OF ANGER AND REACTIVE VERSUS PROACTIVE AGGRESSION

The questionnaire measures of reactive and proactive aggression described previously have been used in a number of studies that support the hypothesis that childhood reactive aggression is related to difficulties with anger and its regulation, whereas proactive aggression is not. This conclusion has been supported in studies using the Dodge and Coie measure (de Castro, Merk, Koops, Verrman, & Bosch, 2005; Dodge & Coie, 1987; McAuliffe, Hubbard, Rubin, Morrow, & Dearing, 2006; Price & Dodge, 1989), the Brown and colleagues measure (McAuliffe et al., 2006), the Raine and colleagues measure (Raine et al., 2006), and the Little and colleagues measure (Little, Braun, et al., 2003; Little, Jones, et al., 2003). The validity of findings from the first three measures is questionable, given the confound between anger and reactive aggression that we described above in each of these questionnaires. However, our faith in these findings is greatly enhanced when they converge with results using the measure by Little and colleagues.

The findings are also quite robust in other ways. Throughout these studies, anger relates to reactive but not proactive aggression across diverse samples, including elementary-school children, lower class African-American boys, German adolescents, Dutch behavior-disordered boys, and antisocial adolescents. In addition, the finding holds up across different methodologies for assessing anger, including hypothetical vignettes, peer nominations, and self-report scales.

However, in all of these studies, anger was assessed in a trait-like way. None of the studies included observational measures of children's anger or measures of the physiological arousal that likely accompanies anger. The next section of our review is devoted to studies using these laboratory-based approaches.
LABORATORY-BASED STUDIES OF ANGER AND REACTIVE VERSUS PROACTIVE AGGRESSION

Theorists use terms such as “hot-headed” to refer to children engaged in reactive aggression and “cold-blooded” to refer to children engaged in proactive aggression. Thus, episodes of reactive aggression are thought to be characterized by high levels of physiological arousal. In contrast, episodes of proactive aggression are consistent with a profile of low physiological arousal (Dodge, 1991; Dodge & Pettit, 2003; Vitaro & Brendgen, 2005).

To date, only one study of the associations between the subtypes of aggression and physiological arousal has been published. This is also the only published investigation of the relations between reactive and proactive aggression and an observational measure of anger. In this project (Hubbard et al., 2002), teacher ratings of reactive and proactive aggression were gathered on 272 second-grade children. These children then participated in a laboratory procedure in which they lost a board game to a peer confederate who cheated. Physiological data on children’s skin conductance reactivity (SCR) and observational data on children’s anger expression were collected during each turn of the game. Findings revealed that reactive aggression, but not proactive aggression, was positively related to SCR and observed anger expression. Moreover, these relations held not only when SCR and anger expression were aggregated across the game, but also in terms of rate of increase over the time span of the game. That is to say, children higher in teacher-rated reactive aggression had steeper increases in their SCR and anger expression over the course of the game, whereas these increases were not related to proactive aggression.

Furthermore, the relations between observed anger and SCR were examined on a turn-by-turn basis over the course of the game. Higher levels of teacher-rated reactive aggression were associated with stronger turn-by-turn relations between children’s SCR and their observed anger, although these relations did not vary by children’s level of proactive aggression (Hubbard et al., 2004). Thus, reactive aggression in the classroom was related to a strong moment-by-moment connection between children’s physiological arousal and their anger expression in a laboratory-based peer interaction. These findings point to the importance of understanding more about the connection between children’s online physiological arousal and their anger expression. Some children may have a harder time keeping their physiological arousal from manifesting itself in observable anger (i.e., they have not mastered the display rules for expressing their angry feelings), and these difficulties may be related to reactive aggression.

This project was an important starting point in our understanding of the relations among children’s reactive and proactive aggression, their anger, and
their physiological arousal. However, more work is clearly needed in several areas. First, this study did not address the question of whether proactive aggression is characterized by lack of physiological arousal and anger. Second, the study relied on the same Dodge and Coie teacher-rating measure of reactive and proactive aggression critiqued above. Third, teacher ratings of classroom-based reactive aggression were related to physiological arousal and observed anger in a laboratory-based peer-provocation situation; however, aggression itself was not elicited or measured in the laboratory context. In future work, we need to assess children’s physiological arousal and observed anger during actual episodes of reactive and proactive aggression elicited through laboratory procedures. We would benefit from knowing more about whether children’s physiological and emotional profiles differ in the moment when they are engaging in episodes of reactive versus proactive aggression.

In our laboratory, we have recently pilot-tested procedures designed to meet these goals (Hubbard et al., 2008). Specifically, we have developed new laboratory-based measures of reactive and proactive aggression, with accompanying measures of physiological arousal and anger expression. Our sample for this pilot work consisted of 36 fourth- and fifth-grade boys and girls from diverse racial/ethnic groups.

The three laboratory tasks all involved computer-based picture exchanges with virtual peers designed to provide an opportunity for participants to display either reactive or proactive aggression. In each task, participants prepared computer art pictures while they believed that a virtual peer was preparing his or her own picture in another room. Each participant took part in all three tasks, with a different virtual peer each time. During the reactive aggression tasks, the participant sent his or her picture to the virtual peer, who criticized it and spoiled it (two reactive tasks were used, one involving low provocation from the virtual peer and one involving high provocation). The participant then had an opportunity to comment on the virtual peer’s picture and spoil it if he or she chose to do so. The proactive aggression task involved a similar picture exchange. However, in this case, the virtual peer was not provocative (he or she praised the participant’s picture and did not spoil it), but the participant increased his or her chance of winning a chosen prize if he or she spoiled the virtual peer’s picture. Thus, the reactive tasks involved peer provocation but no instrumental gain from aggression, whereas the proactive task involved no peer provocation but clear instrumental gain from aggression.

During each task, we collected the following measures: (a) behavioral aggression (amount participant spoiled the virtual peer’s picture), (b) observationally coded verbal aggression, (c) the physiological arousal measures of SCR and heart rate (HR), and (d) observationally coded angry facial expressions and angry verbal intonations.
We used these pilot data to provide preliminary information on two hypotheses. First, we hypothesized that children’s aggression would relate positively to their anger expression during the reactive tasks, but not the proactive task. Support for this hypothesis was found across all three laboratory tasks. In the low-provocation reactive task, verbal anger was positively correlated with behavioral reactive aggression, .34, p = .05, and with verbal reactive aggression, .52, p = .001. In the high-provocation reactive task, verbal anger was correlated with behavioral reactive aggression, .31, p = .07, and with verbal reactive aggression, .79, p = .0001. In contrast, no significant relations between anger and aggression emerged for the proactive task. These findings provide further support for the idea that reactive aggression is driven by and accompanied by angry feelings, and they provide initial empirical evidence that proactive aggression is marked by a lack of anger.

Our second hypothesis was that children’s aggression would relate positively to their physiological arousal (SCR, HR) during the reactive tasks, but that these relations would be negative during the proactive task. Strong support emerged for this hypothesis, as can be seen in Table 10.1. The higher children’s SCR and HR were in the reactive tasks, the more likely they were to engage in behavioral and verbal aggression during those tasks (five of eight correlations significant or marginal). Conversely, the lower children’s SCR and HR were in the proactive task, the more likely they were to engage in behavioral and verbal aggression during that task (three of four correlations significant). These results suggest not only that elevated physiological arousal is a primary mechanism driving reactive aggression, but that proactive aggression is actually marked by a notable absence of physiological arousal. Children with the lowest levels of physiological arousal during the proactive task were the most likely to aggress against the virtual peer in an attempt to improve their chances of winning a desired prize. These data provide the first empirical support of theory suggesting that proactive aggression is literally cold-blooded, in that it is displayed when children are particularly calm and unaroused.

In our view, more laboratory-based assessments of the subtypes of aggression and accompanying physiological and emotional processes are needed. Only through such time- and labor-intensive approaches will we deepen our understanding of the way in which anger and physiology differentially drive episodes of children’s reactive and proactive aggression. No other approach provides such rich, detailed, and in-the-moment information. That said, the research accumulated thus far provides compelling initial evidence to support the theory that differing emotional and physiological processes underlie reactive versus proactive aggression. Anger and physiological arousal appear to be hallmarks of reactive aggression, whereas proactive aggression is marked by a distinct absence of both these characteristics.
TABLE 10.1
Relations Among Measures of Reactive and Proactive Aggression and Measures of Physiological Arousal During Laboratory Tasks

<table>
<thead>
<tr>
<th>Type of aggression</th>
<th>Low-provocation reactive task</th>
<th>High-provocation reactive task</th>
<th>Proactive task</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SCR r p</td>
<td>SCR r p</td>
<td>SCR r p</td>
</tr>
<tr>
<td>Behavioral reactive aggression</td>
<td>.37 .03 ns</td>
<td>.28 .10 ns .35 .04</td>
<td>-.31 .07 ns</td>
</tr>
<tr>
<td>Verbal reactive aggression</td>
<td>.46 .01 ns</td>
<td></td>
<td>-.58 .0001</td>
</tr>
<tr>
<td>Behavioral proactive aggression</td>
<td></td>
<td></td>
<td>-.35 .04</td>
</tr>
<tr>
<td>Verbal proactive aggression</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. SCR = skin conductance reactivity; HR = heart rate; ns = nonsignificant; r = reactive; p = proactive. Blank cells indicate data are not applicable.
INTERVENTIONS FOR REACTIVE AND PROACTIVE AGGRESSION

In the preceding sections, we have reviewed and critiqued literature demonstrating that anger and physiological arousal drive episodes of children's reactive aggression, and that episodes of proactive aggression are marked by lack of emotion and arousal. Clearly, more work on the connection between anger and reactive aggression is needed, work that emphasizes observational and laboratory-based approaches as well as the development of new measures of the subtypes of aggression. However, as this work continues to progress, it will make sense to begin to consider the implications that it holds for intervention efforts aimed at aggressive children. This is the topic to which we turn in this final section of our chapter—how might research on the reactive-proactive aggression distinction influence intervention programs for aggressive children, and in particular, how does a focus on anger and its regulation fit into these programs?

In the 1970s and 1980s, efforts to intervene with aggressive children produced disappointing results (see Kazdin, 1987, for a review), at least partially because the interventions were usually short-term and involved only a single component (e.g., social skills training, parent management training). However, in the past decade, long-term, multicomponent interventions have been developed, and these treatments have shown more promise (for reviews, see Catalano, Arthur, Hawkins, Berglund, & Olson, 1998; Elliott, Hamburg, & Williams, 1998; Greenberg, Domitrovich, & Bumbarger, 2001).

These successes have brought some measure of hope to researchers invested in developing effective preventive treatments for aggressive children. However, there is general agreement that room for improvement exists in several respects. First, although these interventions have demonstrated effects on some constructs, these effects are by no means pervasive across all constructs assessed or even across different sources of data for the same construct. Furthermore, even those effects that are obtained are sometimes not maintained at future assessments. Finally, the amount of time, money, and labor required to obtain these effects is quite significant.

A long-term goal for our field is to develop intervention and prevention programs for aggressive children that demonstrate greater efficacy and, at the same time, that are cheaper, shorter, and easier to administer. Admittedly, this is a huge task. However, one possible pathway toward enhancing current intervention and prevention efforts for aggressive children may be to develop separate interventions targeting reactive aggression and proactive aggression. Separate interventions for the subtypes of aggression have been suggested by numerous researchers (e.g., Dodge, 1991; Dodge & Schwartz, 1997; Larson, 1994; Phillips & Lochman, 2003; Vitaro & Brendgen, 2005). These treatment
packages could target the specific correlates of each subtype of aggression. Empirical support for these differential correlates is growing quickly. In particular, beyond anger and physiological arousal, reactive aggression has shown unique associations with difficulty encoding social cues, hostile attributional biases, aggressive problem solving, peer rejection, peer victimization, and internalizing symptoms. In contrast, this literature suggested that proactive but not reactive aggression is positively related to self-efficacy about enacting aggressive behavior, expecting positive outcomes from aggression, valuing instrumental goals over social goals, and future delinquency (for a review, see Hubbard, McAuliffe, Morrow, & Romano, in press). The idea behind distinct interventions for the subtypes of aggression is that aggressive behavior may be decreased more effectively if the specific behavioral, social, social cognitive, emotional, and physiological underpinnings of each subtype of aggression are targeted separately.

Clearly, children are sometimes aggressive for reactive reasons, and at other times, their aggression is more proactively driven. However, a differentiated approach to the treatment of reactive versus proactive aggression may make sense even for those aggressive children who display high levels of both subtypes of aggression. The idea is that careful targeting of the mechanisms driving each subtype of aggression may enhance the efficacy of our intervention efforts with all aggressive children.

**Interventions for Reactive Aggression**

Within an intervention for reactive aggression, we would be wise to include a strong element of exposure to anger. Thus, after children have been taught basic skills for regulating their angry feelings, situations should be structured within the context of the intervention group that will purposefully elicit angry feelings in the children. Adult leaders can then encourage children to practice their developing anger regulation skills, while coaching and supporting as much as is necessary. The “taunting circles” that Lochman uses in his Coping Power program (Larson & Lochman, 2002) probably come closest to this concept of exposure to anger. Other examples would be to ask children to negotiate the allocation of scarce resources or to play competitive games. If a group of aggressive children must divide up too few snacks, decide who gets to play with a Gameboy first, or handle losing a game, the opportunity to practice anger regulation skills will arise almost without fail.

Exposing children to actual anger-inducing experiences provides them with an opportunity to practice their anger regulation skills online. Role plays and other forms of simulated practice are important in the initial stages of teaching children skills and techniques for regulating anger. However, in later stages, we should challenge children to use their emerging anger regulation skills online in situations in which they experience high levels of angry arousal.
Creating interventions that incorporate these types of anger-inducing situations will require substantial innovation, planning, foresight, and courage. And, clearly, opportunities for children to practice anger regulation skills online would need to be accompanied by considerable support, coaching, and scaffolding. We believe, though, that this sort of real-world practice is at the heart of what is missing from current approaches to teaching children how to regulate their anger. And, it may be the key to obtaining faster and longer lasting generalization of anger regulation skills from the treatment setting to home and school environments.

Why, then, have we shied away from exposing children to their strong, angry feelings in the context of our intervention programs? One possibility is that the taboo against anger that exists in our society is being perpetuated by the very researchers who study and treat children’s aggression. In spite of encouraging children to believe that “all feelings are okay,” many of us do not feel comfortable with children’s anger, especially if we feel responsible for it. We may even believe that the goal of our intervention programs is to prevent children from ever becoming angry, rather than teaching children adaptive ways of coping with the anger that they all experience. However, anger is remarkably normative in interactions between children and their peers (Snyder, Schrepferman, Brooker, & Stoolmiller, 2007). If children indeed experience anger many times a day, then our goal should be to help children learn effective and constructive ways to manage angry feelings, rather than pursuing the unrealistic goal of banishing angry feelings altogether.

It is also likely that we have avoided giving children full-fledged opportunities to practice their anger regulation skills in our interventions because we worry about the ethics and pragmatics involved in doing so. When children become angry, they are sometimes going to resort to aggression, no matter how much coaching and scaffolding we provide. How do we keep all of the children in our intervention groups safe under these circumstances? Many of us are already doing so. Anyone who has worked with groups of aggressive children has experience in planning for the disagreements and scuffles that inevitably result. Most of us use as much scaffolding, praise, and support as possible, but we also use as many time-outs and as much “safe holding” as necessary. We also make sure that our groups are adequately staffed to allow for individual attention when children require it. Planning for exposure to anger is not really any different from planning for these naturally occurring altercations; in fact, it is in some ways easier, because we can more readily predict when aggressive episodes may occur.

The risks involved in exposing children to anger are obvious. However, in our opinion, the benefits may well justify these risks. Only when children are placed in actual anger-provoking situations are they allowed the opportunity to practice their anger regulation skills, to learn that they can actually
control their angry feelings, and to experience the power of feeling angry but not resorting to aggression. In the cognitive–behavioral tradition, these experiences may fundamentally change the meaning of anger for aggressive children. Through success experiences such as these, aggressive children may learn that anger is something that they can control, not something that controls them. For all of these reasons, we suggest that interventions for aggressive children, and particularly interventions that target reactive aggression specifically, would do well to include greater exposure to angry feelings.

**Interventions for Proactive Aggression**

In contrast, interventions for proactive aggression would likely target the social-cognitive constructs that have been shown to relate uniquely to this subtype of aggression. Proactive aggression has been uniquely linked to positive outcome expectations for aggression, self-efficacy about enacting aggressive behavior, and valuing instrumental goals over social goals (Arsenio, Gold, & Adams, 2004; Crick & Dodge, 1996; Dodge & Coie, 1987; Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Hubbard et al., 2001; Smithmyer et al., 2000). Thus, children who often aggress proactively believe that they are “good at” aggression, they consider aggression to be an effective way of getting what they want, and they care more about meeting their own needs than getting along with others. Each of these cognitions should be included in an intervention to reduce proactive aggression. For example, interventions for aggressive children usually teach children appropriate strategies for achieving instrumental goals, such as negotiation and compromise, in the hopes that children will replace aggression with these socially competent behaviors. Beyond mastering these new skills, though, children may need help in reframing their social cognitions to support the newly learned strategies. They may need to be encouraged to think of themselves as competent negotiators and compromisers, and they may need to be pushed to realize that these approaches can be just as effective as aggression in achieving instrumental goals.

Beyond this focus on social cognition, interventions for proactive aggression should also include an emotional component. Previously, we have described findings indicating that children are particularly calm when they aggress proactively. These results suggest that interventions to reduce proactive aggression should target what Frick and colleagues refer to as callous-unemotional traits (e.g., Frick & Marsee, 2006; Frick & White, 2008). Specifically, programs should work on building empathy and compassion for others and more generally enhancing children’s moral development. For example, exercises in emotional perspective taking could be included. In addition, children could be provided with opportunities to perform altruistic acts for others, with the goal of enhancing their understanding of the personal satisfaction that comes
from caring about and helping others. Readers interested in similar interventions for reactive and proactive aggression for adults should consult the edited volumes by Cavell and Malcolm (2007) and Carr and McNulty (2006).

CONCLUSION

Throughout this review, we have suggested several future directions for researchers of the subtypes of aggression and anger in children to consider. Most important are two recommendations. First, we need more time- and labor-intensive observational and laboratory-based investigations of the subtypes of aggression and anger. Second, we need psychometrically strong and theoretically derived measures of reactive and proactive aggression in children, measures that do not confound assessment of reactive aggression with assessment of anger. Little and colleagues have paved the way in this regard, but development of teacher-, parent-, and peer-report measures that follow their lead are quite needed.

Yet, even with all that we still have to do, we are encouraged by all that we have learned thus far. Credible evidence is growing to suggest that reactive aggression is driven by anger and physiological arousal, but that proactive aggression is marked by a lack of anger and arousal. These findings may seem commonsensical and logically in keeping with theory. However, as our review suggests, conducting rigorous research to back up this theory is actually quite complex. However, we are making progress, and we will continue to do so, particularly if researchers undertake projects aimed at the goals described above. As evidence grows that reactive and proactive aggression are driven by very different emotional and physiological processes, our understanding of the nature of childhood aggression will grow as well.

As this work advances, it may make sense to consider developing interventions that separately target children's reactive versus proactive aggression. With an intervention for reactive aggression, we suggest that it will be especially important to include a focus on anger and its regulation. We look forward to work that increasingly applies what we are learning about relations between anger and the subtypes of aggression to treatments aimed at helping children manage their angry feelings and aggressive behaviors more effectively.

REFERENCES


