

The Effects of Emotion Regulation, Attribution, and Delay Prompts on Aggressive Boys' Social Problem Solving

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Boys with aggressive behavior problems are frequently taught to “stop and think” before they act. In provocative situations, pausing to monitor their own feelings, to consider the feelings of others, or to delay their response is believed to reduce aggressive behavior. This study aimed to test these assumptions. Thirty-two highly aggressive boys in special education and 31 normal comparison boys were presented vignettes concerning provocation by a peer and given specific cognitive assignments. Participants were either asked to (1) monitor and regulate their own emotions, (2) consider the provocateur's emotions and intentions, (3) wait 10 s, or (4) answer a factual question. The cognitive assignments differentially affected response aggressiveness. Monitoring and regulation of own emotions reduced aggressiveness in the aggressive group. Considering the peer's emotions and intentions tended to decrease aggressiveness in the normal comparison group and increase aggressiveness in the aggressive group. Delay increased response aggressiveness in the aggressive group as well. Answering factual questions had no effect on response aggressiveness. Implications for cognitive-behavioral interventions for aggressive boys are discussed.

KEY WORDS: social cognition; aggressive behavior; emotion regulation.

Children with aggressive behavior problems are frequently taught to “stop and think” before they act. This instruction is presumably based on the assumption that aggressive children would be less aggressive if they thought more before they acted. Surprisingly, we know very little about the tenability of this assumption. Relations between children's thought processes in social situations and aggressive behavior have

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been studied extensively within the framework of the social information processing model (SIP; Crick & Dodge, 1994; Dodge, 1986). This model prescribes how social information should be processed to respond competently to social situations. According to the SIP model, relevant information must be encoded and represented accurately and an appropriate interaction goal must be specified. Multiple possible responses to the represented situation must then be generated, and from these the optimal response must be selected and executed.

The SIP model has been studied extensively in aggressive boys and to a lesser extent in girls. For this study we only discuss findings concerning boys. Aggressive boys have been found to differ from their nonaggressive peers in all steps of the SIP model when interviewed about problematic social situations. Compared to less aggressive peers, aggressive boys encode less relevant information (e.g., Matthys, Cuperus, & van Engeland, 1999). They also attribute more hostile intentions and glee, and less feelings of guilt or shame, to other children (e.g., Crick & Dodge, 1996; Lochman & Dodge, 1998; Orobio de Castro, Veerman, Koops, & Bosch, 2002; Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002). Aggressive boys say they become more angry and less sad, and know less adaptive ways to regulate their anger (Graham, Hudley, & Williams, 1992; Orobio de Castro, Veerman, Koops, & Bosch, 2002). They generate more aggressive responses (e.g., Crick & Dodge, 1996; Dodge & Price, 1994) and evaluate aggressive responses less negatively (e.g., Feldman & Dodge, 1987). They more often expect both their own responses and examples of prosocial responses to have negative relational consequences (Orobio de Castro, 2000) and more frequently explain their responses by referring to revenge, getting even, not being in control of their anger, and pursuing dominance over others, rather than affiliation (Erdley & Asher, 1996; Lochman, Wayland, & White, 1993; Orobio de Castro, 2000).

Some studies suggest that aggressive boys' responses to provocative social situations after "stopping and thinking" are indeed less aggressive than their spontaneous responses. Boys who are both aggressive and rejected by their peers tend to respond before processing all relevant information (Dodge & Newman, 1981). Their responses are more aggressive when they are spontaneously generated than when they are selected from multiple-choice alternatives (Lochman, Lampron, & Rabiner, 1989). In aggressive boys, aggressiveness of responses depends to a lesser extent on representation than in nonaggressive boys (Dodge & Somberg, 1987; Waldman, 1996). These findings suggest that aggressive boys' aggressive responses are partly due to fast, impulsive information processing.

The findings seem to indicate that aggressive boys' aggressive responses are usually not derived from thorough representation and selection of an optimal response from a number of generated responses, but from fast, automatic processing, where only part of the relevant information is encoded and represented, and a single response is executed without generation of—or selection from—multiple-response alternatives. Researchers from different fields have acknowledged the importance of this type of social information processing and named it automatic, preemptive, script-based, or precognitive (Frijda, 1993; Lochman & Lenhart, 1995; Rabiner, Lenhart, & Lochman, 1990).

Highly aggressive boys' own explanations of their aggressive behaviors (Orobio de Castro, 2000) suggest they feel that automatic, emotional processes determine their behavior when they are provoked. Their explanations seem consistent with what Fischer, Shaver, and Carnochan (1990) call an "emotion process." In emotional processing, rudimentary appraisal of an event as obstructing goal attainment automatically triggers an anger action tendency, that is, an increase of arousal, a tendency to behave aggressively, and a subjective experience of anger. The anger action tendency in turn triggers an aggressive response without the mediation of any complex reflective information-processing step such as representation of intent or response selection. From this perspective, it may indeed be beneficial for aggressive boys to "stop and think," as stopping the emotion process provides an opportunity to represent the information more thoroughly and to carefully select a response.

However, not all evidence supports this view. In most SIP studies, participants answer questions concerning all steps of the SIP model. Participants answer numerous questions concerning their encoding and representation *before* they are asked to generate a response (see Crick & Dodge, 1994, for an overview of procedures). Thus, they do not respond spontaneously, but are required to stop and think for quite a while before they respond to the situation at hand. Notwithstanding this extensive reflective process, they still respond more aggressively than other boys. Two studies comparing spontaneous and reflective response generation found aggressive participants' responses following reflection to be as aggressive as their spontaneous responses (Orobio de Castro, 2000; Rabiner et al., 1990). Theoretically, this is not surprising, as a core proposition of the SIP model is that aggressive behavior does not result exclusively from preemptive information processing, but rather from *different* information processing (Dodge, 1986). From this perspective, pausing to think would only allow aggressive boys more time to process information in a manner that contributes to aggressive behavior.

Thus, to "stop and think" does not necessarily reduce aggressive behavior. Whether stopping to think reduces aggressive behavior probably depends on the focus of cognitions after "stopping." In ambiguous provocative situations, pausing to monitor and regulate own emotions may decrease aggressive boys' response aggressiveness. However, given their tendency to attribute hostile intent and glee to peers more often than other children do, pausing to consider a peer's perspective may very well *increase* aggressive boys' tendency to respond aggressively, rather than decrease it.

For the same reason, the effect of delaying responses may increase response aggressiveness in aggressive boys. Research on the effect of response delay suggests that the effects of delay by itself (i.e., without further instruction on how to solve problems while the response is being delayed) may be less beneficial than expected. Children diagnosed with ADHD (attention-deficit hyperactivity disorder), strongly associated with aggressive behavior, tend to become irritated and worse at problem solving when their responses to laboratory tasks are delayed (Barkley, 1994). For these children, response delay may not reduce response aggressiveness.

Current cognitive-behavioral interventions for aggressive children like Promoting Alternative THinking Strategies (PATHS; Greenberg, Kusche, Cook, & Quamma, 1995), Anger Coping (Lochman & Lenhart, 1993), and Hudley and

Graham's attribution intervention (Hudley & Graham, 1993) include cognitive assignments such as monitoring and regulation of one's own emotions, reflection on peers' emotions and intentions, and response delay. Monitoring one's own emotions is thought to reduce response aggressiveness by stimulating emotion regulation before conflicts escalate (e.g. in Anger Coping). Representing peers' feelings and intentions is expected to induce consideration for others, and thereby to reduce aggressiveness (e.g. the PATHS curriculum). Response delay is also widely used to reduce aggressive behavior. Assignments like visualizing traffic lights or counting to 10 are used to let children take time to calm down and solve the social problem at hand before they respond (e.g. in PATHS). Given the popularity of the techniques described here, the study of their effects is important for the improvement of cognitive-behavioral interventions for boys with behavior problems. As the relation between each of these techniques and aggressive responding to provocation situations has—as far as we know—never been established, there is a chance that cognitive-behavioral programs include superfluous elements, or even elements that counteract the beneficial effects of other elements in the programs.

In this study, we aimed to assess whether aggressive responses to ambiguous provocations are differentially influenced for aggressive and nonaggressive boys by different prompts to “stop and think” before responding. As proposed earlier, we expected questions concerning own emotions and emotion regulation to decrease response aggressiveness in aggressive boys. We expected questions concerning a provocateur's feelings and intent to decrease response aggressiveness in nonaggressive boys, but to increase response aggressiveness in aggressive boys. We furthermore expected imposed response delays would increase response aggressiveness in aggressive boys. To test these hypotheses, the effects of the three types of prompts were contrasted.

If response aggressiveness does change following questions or delays, this change is not necessarily caused by these specific questions or delays. An alternative explanation for these changes in response aggressiveness might be that changes in response aggressiveness are caused simply by any prompt, independent of its content. The mere act of listening to a question and answering it may distract a boy from the provocative situation, and thereby reduce his tendency to aggress. Secondary aim of this experiment was to test this alternative explanation. To this end, the influence of factual questions on response aggressiveness was tested.

We do not claim to capture the entire scope of cognitive-behavioral programs with the techniques under study. This study is certainly not intended to be an evaluation of cognitive-behavioral programs, but rather to be a test of assumptions underlying specific tasks in these programs.

METHOD

Participants

Two groups of 7- to 12-year-old boys participated in the study. The Aggressive group consisted of 31 boys in special education for children with severe behavior problems. In The Netherlands, children are only referred to these schools if the

severity of their behavior problems significantly impairs social functioning and prohibits participation in regular education, according to parents, teachers, and diagnosticians. The second group consisted of 32 normal comparison boys (NC) in regular education.

Measures

Behavior Problems

Teachers filled out the Dutch version of the Teacher's Report Form ("TRF," Achenbach, 1991; for the Dutch version, see Verhulst, van der Ende, & Koot, 1997). The TRF contains 118 multiple-choice behavior items and 2 open-ended questions. For each multiple-choice item teachers indicate 0 if the problem statement is not true for the child, 1 if somewhat true, and 2 if very often true. Achenbach (1991) reported high 15-day test-retest reliability, 2-month stability, and validity for this instrument. Norms for Dutch children (Verhulst et al., 1997) were used to calculate *t* scores for behavior problems. Teacher ratings of behavior problems were chosen because teachers were considered best informed of behavior problems in interactions with peers.

Social Information Processing

Two parallel sets of four audiotaped vignettes (Orobio de Castro, 2000) were presented to participants in random order. All vignettes concerned being hindered by a peer whose intentions are ambiguous. This context is the most important source of social conflict at school for this population (Cuperus, 1997; Dodge, McClaskey, & Feldman, 1985). To obtain relevant and ambiguous vignettes, observations of boys at a psychiatric institution and consultation with staff were used to provide story themes. The vignettes obtained from these story themes were then tested in a pilot study of 12 vignettes with 15 boys in the psychiatric clinic and 20 boys from regular schools near the clinic. For each vignette, participants in this pilot indicated familiarity with the events, rated the extent to which they would experience negative affect, and attributed intent to the peer involved. Only the eight vignettes familiar to most participants, invoking self-reported negative affect, and with sufficient variance in representation of intent scores were used in this study. These eight vignettes concerned peers disrupting a videogame, breaking a self-made toy, spilling the participant's drink, jumping a queue to obtain a snack, distorting a self-made clay figure, cheating at a pinball game, upsetting a self-made hut, and spilling paint over a nearly finished painting. To assess social information processing, participants were asked questions directly after listening to each vignette. The exact questions asked depended on condition, and are described in the Procedure section.

Aggressiveness of responses was operationalized by coding responses to the question "what would you do now?" for each vignette. Aggressiveness of each generated response was coded as *physical aggression* (e.g., "punch him in the face"), *destructive aggression* (e.g., "throw his food on the floor"), *verbal aggression* (e.g., "dumbo"), *coercion* (comprising direct action, threats, and commands; e.g., "if you

don't fix it, I'll beat you up"), *solution attempt* (e.g., "Let's build a new one, and careful with the big logs!"), or *avoidance* (e.g., "I'd just go away, and if he asked where I went I'd say 'to play somewhere else'"). Participants' answers were coded by four graduate students who were trained by the first author. Coders did participate in a course concerning development of social cognition, but did not know the exact hypotheses of this study. Fifty percent of all answers were double-coded. Interrater agreement for coding was 88%, Cohen's kappa was .74. Disagreements were resolved by the first author.

In a pilot study (Orobio de Castro, 2000), groups of aggressive and comparison boys rated "meanness" of the above response categories. This study showed that a valid and reliable interval scale for response aggressiveness could be derived by weighting physical and destructive aggression with two points, verbal aggression and coercion with one point, and solution attempts and avoidance with zero points. This procedure was also used in this study. Each response to each vignette received a score of 0 (*solution attempt or avoidance*), 1 (*verbal aggression or coercion*), or 2 (*physical or destructive aggression*). From these scores, mean response aggressiveness scores were calculated for each mode in each condition, with a minimum of 0 (*solution attempts or avoidance in all vignettes*) and a maximum of 2 (*physical or destructive aggression in all vignettes*).

Verbal Intelligence

To obtain an indication of verbal intelligence, participants completed the Wechsler Intelligence Scales for Children—Revised (WISC-R research group, 1986) subtests Vocabulary and Information. These subtests correlate most highly with the verbal intelligence Kauffman factor derived from full administration of the Dutch version of the WISC-R (WISC-R research group, 1986).

Socially Desirable Answers

To assess possible tendencies to give socially desirable answers, participants filled out nine social-desirability items from the Dutch translation of the Social Anxiety Scale for Children (Dekking, 1977). Cronbach's alpha for the socially desirable answers scale was .74.

Procedure

Participants were individually tested in a quiet room at their schools. Participants were told they would listen to stories about events they could experience any day, and would be asked what they would do if the stories actually happened to them. Participants were asked to imagine they experienced the stories themselves. They were assured of the confidentiality of their answers, and it was emphasized that no wrong answers could be given.

Participants were randomly assigned to one of the four conditions SELF, OTHER, DELAY, or FACTUAL. Each condition consisted of a spontaneous mode and a prompted mode. In each mode, participants listened to one set of four

Table I. Example of a Provocation Vignette With Concomitant SIP and Emotion Questions in Each Mode of Each Condition

Vignette					
The computer Imagine: You and a boy in your class are taking turns at a computer game. Now it's your turn, and you are doing great. You are reaching the highest level, but you only have one life left. You never came this far before, so you are trying very hard. The boy you are playing with watches the game over your shoulder. He sees how far you have come. Then he shouts "Watch out! You got to be fast now!" and he pushes a button. But it was the wrong button, and now you have lost the game!					
Questions	Mode				
	Spontaneous ^a	Prompted			
		Self	Other	Delay	Factual
A) How do you feel when you lose the game?		X			
B) When you feel so [negative emotion at (A)], can you think of something that could make you feel better? What can you think of?		X			
C) How does the other boy feel when you lose the game?			X		
D) Why did he push the button?			X		
E) 10-s beep				X	
F) What were you playing?					X
G) What would you do now?	X	X	X	X	X

Note. X = question asked in this condition.

^aQuestions in the spontaneous mode were the same for all conditions.

vignettes. The order of sets was counterbalanced such that one set served in the spontaneous condition and one set served in the prompted condition for half of the participants. The spontaneous mode was the same for all conditions, whereas the prompted mode was different for each condition. Thus, the experimental design consisted of aggressive behavior problems as a between-participants factor with two levels (AGGRESSIVE/NC), condition as a between-participants factor with four levels (SELF/OTHER/DELAY/FACTUAL), and mode as a within-participants factor with two levels (spontaneous/prompted).

The exact questions asked about each vignette depended on condition and mode. Table I gives an overview of questions and conditions. In the spontaneous mode of each condition, participants were asked how they would react directly after listening to a vignette (Question G in Table I). In the prompted mode, participants listened to another four vignettes, and were again asked how they would react to each vignette. However, in between listening to a vignette and being asked how they would react, a condition-specific manipulation occurred.

SELF Condition

Participants in this condition were prompted to monitor their own emotions and to generate an emotion-regulation strategy. To this end, participants were asked how they would feel if they experienced the events in the vignette, and if they could think of anything that would make them feel better (Questions A and B in Table I).

OTHER Condition

Participants in this condition were prompted to consider the emotions and intentions of the provocateur, by answering questions about the provocateurs feelings and intentions (Questions C and D in Table I).

DELAY Condition

In this condition, rather than prompting participants to consider specific topics, their response was delayed. After listening to a vignette, participants in this condition were to wait for 10 s, before they were asked how they would react to the vignette. During the 10-s interval, participants listened to a taped 9.75-s 440-Hz tone, followed by a 0.25-s 880-Hz tone, that signaled the end of the delay. A beep was used to delay responses, because we considered a continuous sound the clearest way to prevent participants from answering as soon as a vignette ended. Participants were not instructed on what they should think or do during the delay, and were not informed of the reasons for the delay.

FACTUAL Condition

This condition was included to test the effect of answering questions per se—irrespective of their contents—prior to reacting to the situations. To this end, participants were asked a factual question about the vignette that was irrelevant to own and other's emotions and intentions, for example, "what were you playing?" (Question F in Table I).

All participants completed two WISC-R subtests during a break between the first and the second modes of the experiment. The socially desirable answers scale was filled out at the end of the experiment.

RESULTS

Preliminary Analyses

Mean age was significantly lower in the aggressive group ($M = 10$ years; $SD = 1$ year, 5 months) than in the NC group ($M = 11$ years, 1 month; $SD = 1$ year, 1 month), $t(1, 61) = 3.64$, $p = .001$. The mean WISC-R verbal intelligence score was significantly lower for the aggressive ($M = 91.7$, $SD = 10.4$) than for the NC group ($M = 103.3$, $SD = 12.5$), $t(1, 61) = 4.00$, $p < .001$. Age and verbal intelligence were not related to the dependent variables of response aggressiveness ($r_s < .22$, $p_s > .05$) and therefore not included as covariates in further analyses.

Behavior Problems

Behavior problems were assessed with the TRF questionnaire. The aggressive group had higher mean TRF scores than did the NC group for total problems, Aggressive, $M = 68.4$, $SD = 7.3$; NC, $M = 51.7$, $SD = 10.9$; $F(1, 61) = 51.20$, $p < .001$, externalizing problems, Aggressive, $M = 67.9$, $SD = 9.1$; NC, $M = 53.3$, $SD = 9.4$;

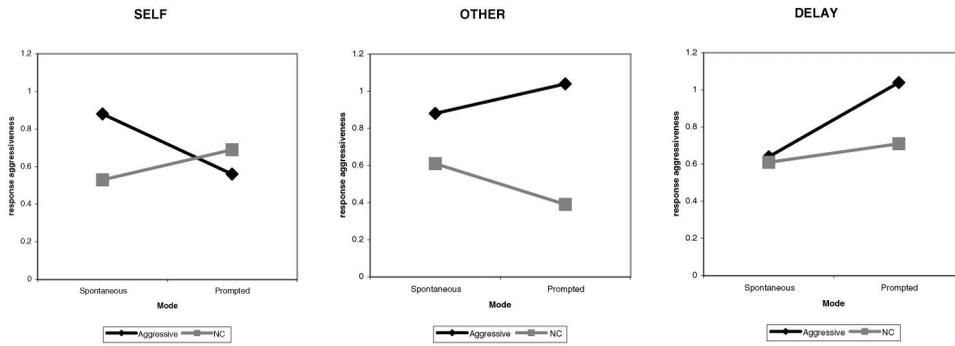


Fig. 1. Response aggressiveness by condition and mode for aggressive and comparison boys.

$F(1, 61) = 45.68, p < .001$, and aggressive behavior, Aggressive, $M = 70.5, SD = 10.8$; NC, $M = 56.3, SD = 6.3, F(1, 61) = 46.65, p < .001$.

Social Information Processing

Mean response aggressiveness scores for each group, in each mode of each condition, are shown in Fig. 1 and Table II. Over modes and conditions, boys with aggressive behavior problems responded more aggressively than NC boys, $F(2, 60) = 6.06, p = .004$.

The first study hypothesis was that conditions SELF, OTHER, and DELAY would have different effects on response aggressiveness in aggressive than in comparison boys. To test this expected interaction between status group, conditions SELF, OTHER, and DELAY, and the modes in these conditions, a $2 \times 3 \times 2$ MANOVA was conducted with group (Aggressive/NC) and condition (SELF/OTHER/DELAY) as between-participants factors and mode (Spontaneous/Prompted) as a within-participants factor. A significant main effect for group was found, $F(1, 43) = 5.05, p = .030$. This effect was qualified by a significant three-way interaction between

Table II. Response Aggressiveness by Group in Each Condition

Condition	Mode	Aggressive		NC	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Self					
Spontaneous		0.88	0.38	0.53	0.43
Prompted		0.56	0.58	0.69	0.44
Other					
Spontaneous		0.88	0.23	0.61	0.52
Prompted		1.04	0.13	0.39	0.53
Delay					
Spontaneous		0.64	0.48	0.61	0.45
Prompted		1.04	0.42	0.71	0.30
Factual					
Spontaneous		1.03	0.59	0.46	0.43
Prompted		10.28	0.63	0.58	0.41

Note. Aggressive = aggressive boys; NC = comparison boys.

group, condition, and mode, $F(3, 43) = 4.29, p = .020$. This interaction is shown in Fig. 1. No other main effects or interaction effects were found.

To disentangle the three-way interaction, we conducted separate 3×2 MANOVAs for each group, with condition (SELF/OTHER/DELAY) as between-participants factors and mode (Spontaneous/Prompted) as a within-participants factor. For the aggressive group, a significant interaction between condition and mode was found, $F(1, 21) = 7.45, p = .004$. Visual inspection of Fig. 1 suggests the prompts decreased aggressiveness in the SELF condition whereas the prompts *increased* aggressiveness in conditions OTHER and DELAY. Because only 8 participants participated in each condition, the nonparametric Wilcoxon sign test was used to test the simple effects. In the SELF condition, a marginally significant decrease in response aggressiveness was found in the prompted versus spontaneous mode, $Z = 1.63, p = .052$. In the OTHER condition, the prompt yielded only a trend towards an increase in response aggressiveness, $Z = 1.27, p = .101$. In the DELAY condition, response aggressiveness increased significantly, $Z = 2.12, p = .017$.

For the NC group the 3×2 interaction only approached significance, $F(1, 21) = 3.35, p = .08$. In this group, only a trend towards decreased response aggressiveness with the prompts in the OTHER condition was found, $Z = 1.41, p = .084$, whereas response aggressiveness did not change between spontaneous and prompted modes in conditions SELF and DELAY.

No support was found for the secondary hypothesis that mode would affect response aggressiveness in the FACTUAL condition, $F(2, 13) = 0.20, p = .66$.

Socially Desirable Answers

The mean socially desirable answers score was higher for the aggressive ($M = 2.42, SD = 1.88$) than for the NC group, $M = 1.19, SD = 1.82, t(1, 61) = 2.64, p = .01$, indicating that the less aggressive responses in the NC group were not caused by more socially desirable answers from these boys.

DISCUSSION

Responses to ambiguous provocations are influenced by questions concerning one's own emotions, questions concerning provocative peers' emotions and intentions, and by response delay. The effects of these questions and delays are different for highly aggressive boys in special education than for NC boys. As hypothesized, response aggressiveness in aggressive boys tended to decrease following questions concerning their own emotion and emotion regulation. Questions concerning the provocateur's feelings and intentions appear to have different effects for aggressive than for NC boys. Trends were found for decreased response aggressiveness in comparison boys and *increased* response aggressiveness in aggressive boys. Delaying participants' responses *increases* response aggressiveness in the aggressive group, rather than decreasing it. Merely distracting participants' attention by posing factual questions does not change response aggressiveness in either group.

These findings suggest that monitoring and regulating one's own negative emotions reduces aggressiveness in hypothetical provocative situations in boys with

aggressive behavior problems. Surprisingly, even though aggressive boys generate fewer strategies to regulate their emotions than do their peers, realizing they are angry and trying to generate strategies does seem to suffice to decrease response aggressiveness.

We see two plausible explanations for the effect of the SELF prompts on aggressive boys' response aggressiveness. First, prompts in the SELF condition may activate latent knowledge concerning emotion regulation in aggressive boys that they do not activate spontaneously. Second, the prompts concerning own feelings may help these boys consider the negative consequences of generated aggressive responses for their own emotional well-being. Given aggressive boys' negative outcome expectancies for social interactions, the implicit suggestion in the SELF prompt that they could do something that would make them feel better may be an eye opener. The mere suggestion that it may actually be possible to think of a response that would make you feel better may motivate aggressive boys to inhibit dominant aggressive responses and to try to generate better problem-solving responses.

Aggressive boys are often considered incapable or unwilling to take the emotional perspective of others. Parents, teachers, and councilors frequently appeal to this supposed lack of perspective taking by asking boys to take the perspective of their potential victim. The opposite trends for the two groups found in the OTHER condition suggest that, in ambiguous provocation situations, this course of action may be misguided. Perhaps aggressive boys *can* take the perspective of their antagonist, but hold an altogether different view of the antagonist's perspective than "we" do (e.g., Dodge, 1993). In the eyes of some aggressive boys, the antagonist set out to be mean, and enjoys his success. Because of this, merely asking aggressive boys to take their antagonist's perspective will probably not decrease their aggressiveness, but, if anything, increase it.

In evaluating aggressive boys' representations of the provocateurs' intent and emotions, it is important to realize that we presented ambiguous vignettes, so we do not know what the "real" intentions of the provocateurs in these vignettes were. Therefore, aggressive boys' attributions of hostile intent cannot be considered more "biased" or wrong than more benign attributions made by other boys. If aggressive boys' hostile expectations of other children's intentions are not changed, merely asking these boys to apply them will not reduce response aggressiveness.

Aggressive boys' response aggressiveness increased when we imposed a response delay by means of a 10-s beep. We hypothesized this increase would be caused by prolonged application of aggressive SIP. However, interviewers suggested an alternative explanation. They noted that some aggressive participants were annoyed by having to wait 10 s for no apparent reason, and having to hear a beep for 10 s after each vignette. This irritation may well have led these boys to respond more aggressively. In treatment settings, response delay is not imposed by a 10-s beep that seems pointless to clients, but rather by instructions ("stop and think") or symbols (like a red traffic light) that clients use purposefully. Therefore, the results of the delay condition in the present experiment cannot readily be generalized to treatment settings.

The effect of emotion-regulation techniques in the SELF and DELAY conditions possibly depends on boys' understanding of their purpose. Being forced to use an emotion-regulation technique (such as delay) without understanding the potential

benefits may have a detrimental effect. Thinking of an emotion-regulation technique oneself (as in the SELF condition) may have a beneficial effect. This difference seems important for cognitive-behavioral interventions. It is a reminder of the importance of not training aggressive boys to blindly follow "rules" such as counting to 10 or to "stop" in front of an imaginary traffic light, but to explain the objectives of the rules and to motivate boys to use them to control their anger. Merely training aggressive boys to "stop and think" may not reduce their aggressive behavior if they are not also trained in what to think and if they do not experience unambiguous positive social experiences that challenge their (possibly justified) negative expectations of others' intentions.

Throughout the experiment, aggressive boys responded more aggressively than their nonaggressive peers. This finding is consistent with results of a large number of studies. Remarkably, the aggressive boys gave *more* socially desirable answers to the social-desirability questionnaire than did their peers. The aggressive boys were referred to special education because of their severely aggressive behavior, are highly aggressive according to their teachers, and respond more aggressively to hypothetical vignettes than their peers. Yet they indicate on the social-desirability questionnaire that they behave more socially desirable than nonreferred boys. Possibly, boys referred for aggressive behavior may be unwillingly "trained" by teachers and group-care workers to give socially desirable answers, because such answers help to avoid or decrease sanctions following aggressive acts. Alternatively, their answers on the questionnaire may reflect unrealistically positive self-regard (Baumeister, Smart, & Boden, 1996). Irrespective of its causes, socially desirable answering by boys in the aggressive group may also have occurred in reaction to the social-information-processing questions. If so, established status group differences in response aggressiveness would be underestimates of actual group differences.

The relatively small sample sizes in this study are a serious limitation, particularly for the separate tests of mode effects within each condition for each group. The overall differential effect of prompts for aggressive and NC boys was clearly demonstrated, but the specific findings for each group within each condition were only marginally significant and based on small groups. These findings clearly need to be replicated with larger samples.

This study concerned only preadolescent boys. Given established sex and age differences in prevalence and kind of behavior problems (Coie & Dodge, 1998), the present findings cannot be generalized to other age groups or girls without further study. The coding system for aggressive responses used in the present study was designed and validated to assess the kinds of aggressive behaviors typically enacted by boys. Aggressive behavior by girls in this age group is more frequently relational (Crick, 1995). The present coding system would therefore have to be adapted for studies including girls. More fundamentally, if the different types of aggressive behavior displayed by boys and girls are indicative of different underlying processes, the effects of the different prompts used in this study may be quite different for girls than for boys. Possibly, the indirect relational aggression more frequently displayed by girls may require more planning than the direct physical or verbal aggression more frequently displayed by boys. If so, relational aggression by girls may differ less from spontaneous to prompted conditions than the aggressive responses by boys in this study.

We used hypothetical vignettes to assess malleability of response aggressiveness. Although it is tempting to apply the present results to actual aggressive behavior by aggressive boys in real-life situations, such generalizations are not warranted, as the relation between changes in actual behavior and changes in responses to hypothetical vignettes is not completely clear. Studies with boys in the same age group have demonstrated relations between aggressive responses to vignettes and actual aggressive behavior in comparable real-life situations (Dodge, 1980; Lochman & Dodge, 1998). These relations are, however, far from perfect. Moreover, these studies do not demonstrate that *changes* in responses to hypothetical vignettes are also associated with changes in actual behavior. Observation of actual aggressive behavior and specific experimental interventions are required to demonstrate the effects of the prompts used in this study on actual behavior.

We do not claim that the techniques studied here are exactly the same as techniques used in CBT programs. This study was not designed to test the effectiveness of these programs. These programs include a wider range of techniques and do not stop at reflection on own or other's emotions, but go on to challenge the actual contents of children's cognitions on these topics. Nonetheless, we do believe that studies on the specific effects of separate elements in these programs can point to directions for promising elements to be included in cognitive-behavioral interventions for aggressive behavior problems.

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