Effects of Aggressive Personality on Social Expectations and Social Perceptions

Karen E. Dill and Craig A. Anderson

University of Missouri, Columbia

Kathryn B. Anderson

Our Lady of the Lake University of San Antonio

and

William E. Deuser

University of Missouri, Columbia

Individual differences in aggressive reaction tendencies appear early in life and are stable across the life span. People who chronically interpret ambiguously aggressive behaviors as intentionally hostile are more likely to aggress against a provocateur than people without this hostile bias. Two studies used a Structural Equation Modeling approach to examine the effects of aggressive personality on hostile expectations and hostile perceptions in personally irrelevant social interactions. Study 1 demonstrated that aggressive personality was positively related to hostile expectations in the imagined outcomes of ambiguously aggressive story stems. Study 2 demonstrated that aggressive personality was positively related to hostile perceptions of observed dyadic interactions. This finding was not limited to the interpretation of ambiguous interactions, as has been found in the past. Results are discussed in terms of their applicability to understanding biased interpretations of everyday social interactions.

People differ greatly in their propensity to commit violence. Olweus (1979) found that individual differences in aggressive behavior appear by age 3 and remain stable over time. Indeed, the stability of aggression between early childhood and adulthood is only slightly lower than the stability of intelligence over the same period of time (Olweus, 1979). For example, in one study, aggressiveness was tracked in a group of school children over as many as 20 years. Aggressive reaction tendencies at age 8 or 9 accounted for 25% of the variance in tendencies measured 10 to 14 years later. In addition, considerable stability in aggressive behavior occurred from the teen years to early adulthood (Olweus, 1974). Interestingly, the stability of aggressive behavior has been demonstrated with females as well as males (see, for example Cairns, Cairns, Neckerman, Ferguson, & Gariépy, 1989).

Huesmann and Eron (1984; see also Huesmann, Eron, Lefkowitz, & Walder, 1984; Huesmann, Eron & Yarmel, 1987) have demonstrated similar temporal stability effects. They found that aggression in childhood predicted criminal records in adulthood. Aggressive behavior in childhood also predicted a decline in intellectual functioning later in life. Huesmann and Eron surmised that the decline in intellectual functioning occurred because of the early formation of aggressive scripts which lead to behaviors that are incompatible with intellectual development.

Aggressive reaction tendencies are also stable across situations. Olweus (1974) found evidence of cross-situational consistency in the overall level of agreement between multiple measures of aggression (e.g., teacher evaluations, peer evaluations, peer selection, criminal record, and ratings of observed behavior). More recently, Achenbach, McConaughty, and Howell (1987) conducted a meta-analysis to determine the degree to which ratings of behavioral and emotional problems (including aggression) in children and adolescents correlate across different types of raters and in different situations. Achenbach et al. (1987) also found a significant correlation among the ratings of a variety of informants (e.g., parents, teachers, mental health workers), but noted that the correlations were strongest for similar observers working in similar settings. These authors thus caution that the assessment of behavioral problems should take into consideration the variability of situations and informants involved.

Olweus rejected a strict situational approach to understanding aggressive behavior, but also rejected a strict trait conception of aggression. Like Mischel (1973; Mischel & Yuichi, 1995), Bandura (1977), Ross and Nisbett (1991) and other contemporary social/personality theorists, Olweus concluded that the person's construal of the situation is crucial to determining his or her behavior. Such construals are determined by both person and situational factors. Thus, both person and situation factors are important determinants of aggression.

Along these same lines, Dodge (1980) explored the relationship between individual differences in attributional style and aggressive behavior. In Study 1, boys classified as aggressive and nonaggressive by teacher assessments and peer nominations were randomly assigned to a benign, ambiguous, or
DILLETAL.

hostile provocation condition. Each of these three conditions involved a peer destroying the boy’s work on a puzzle, but the peer’s intent was varied by his comments. In the benign condition, the peer said, “I didn’t mean it.” In the hostile condition, he said, “I don’t want him to win . . . so . . . , I’ll mess it up.” In the ambiguous condition, the peer made no comment about why he destroyed the puzzle. Dodge found that hostile provocation led to similarly high aggression by both aggressive and nonaggressive boys. Likewise, the benign provocation produced similarly low aggression by aggressive and nonaggressive boys. The ambiguous provocation, however, produced relatively high levels of aggression by the aggressive boys and relatively low levels of aggression by the nonaggressive boys. In Study 2, Dodge found that boys classified as aggressive gave more hostile attributions for ambiguous hypothetical provocations than did nonaggressive boys. As a whole, these data suggested that chronically aggressive boys may have a “hostile attribution bias” and that this bias may contribute to their aggressiveness (cf., Nasby, Hayden, & dePaulo, 1979).

Dodge and Coie (1987) extended the earlier work by distinguishing between proactively and reactively aggressive boys. Proactively aggressive boys are those whose aggressive behavior is motivated by a desire for domination and who bully their victims without provocation. Reactively aggressive boys are those who lash out because they feel they have been intentionally provoked. Dodge and Coie likened proactive aggression to instrumental aggression and reactive aggression to angry, emotional, or affective aggression. They found that boys who show the hostile attribution bias are primarily reactive aggressors and that teacher ratings of reactive aggression were positively correlated with instances of observed reactive aggressive behavior.

The Social Information-Processing model (SIP) of Dodge and his colleagues (e.g., Dodge & Crick, 1990; Crick & Dodge, 1994) explicates how aggressive reaction tendencies are predicated by biased processing of social information. This model outlines how individuals encode and interpret social cues and assess and implement an appropriate response to those cues. Bias can creep into the processing of social information at a variety of levels. For example, an individual may fail to attend to relevant social cues such as facial expressions or may misattribute hostile intent to observed behaviors. Over time, a child may develop a hostile perception bias which, in turn, is linked to a tendency to select aggressive behaviors as appropriate responses to perceived provocations.

In short, some children may develop aggressive personalities which persist across time into adulthood, and which influence aggressive behavior in many settings. Our recent research has focused on the effects of various situational and personality factors on aggressive cognitions and affect (Anderson, Anderson & Deuser, 1996; Anderson, Deuser, & DeNeve, 1995). In this article, we examine the effects of aggressive personality on two types of aggressive thoughts in young adults, based on our General Affective Aggression Model.

PERSONALITY AND THE GENERAL AFFECTIVE AGGRESSION MODEL

Our General Affective Aggression Model (GAAM; e.g., Anderson, Anderson, & Deuser, 1996; Anderson, Deuser, & DeNeve, 1993) assumes that a variety of developmental and learning processes, such as those described by Dodge, Huesmann, and others, contribute to the creation of a hostile or aggressive personality. More importantly, these aggression-related individual differences, in conjunction with situational and context variables, are seen as influencing aggressive behavior via a series of psychological processes. In the first step, input variables influence cognition, affect and arousal. These effects subsequently influence appraisals of the current situation and of one’s own emotional state. Figure 1 displays this theoretical viewpoint. Of particular relevance to the research reported in this article is the hypothesis that people with aggressive personalities tend to view the world through blood-red tinted glasses. That is, they both expect and perceive more hostility and aggression than do their low aggressive peers in a variety of situations. As a consequence of these more hostile expectations and perceptions, aggressive people expect to be provoked more often, perceive more such provocations, and respond to them with more aggressive behaviors. This model is wholly compatible with the developmental models outlined earlier.

One particularly interesting pair of hypotheses from this view concerns the social expectations and social perceptions of high and low aggressive people when they are not personally involved in a situation. Do people with aggressive personalities display their particular slant on the world only when they are the “players” in the scenes, as in most prior research paradigms, or do these expectation and perception effects occur even when they are merely members of the audience? The present work looks at how individual differences in aggressive personality color expectations and interpretations of social interactions that are personally irrelevant.

COGNITIVE BIASES AS GENERAL SCHEMATA

In our view, the cognitive biases that are part of the aggressive personality are best seen as general schemata used by the individuals to perceive and understand social events in general, not just personally relevant events. In this sense, the cognitive biases are best seen as social theories (e.g., Anderson, Lepper, & Ross, 1980), implicit theories (e.g., Dweck, Chiu, & Yong,
Input Variables

Individual Difference Variables
- Traits (e.g., trait hostility)
- Attitudes towards violence
- Beliefs about violence
- Values concerning violence
- Skills (e.g., fighting)

Situational Variables
- Cognitive cues (e.g., guns)
- Discomfort or pain
- Frustration (e.g., failure)
- Attack (e.g., personal insult)
- Drugs, Exercise

Accessible Affects
- Hostile feelings
- Expressive-motor responses

Accessible Cognitions
- Hostile thoughts
- Aggression scripts

Appraisal Processes
- Interpretation of the situation (e.g., harm, intent, malice)
- Interpretation/experience of affect (e.g., anger at a target person)

Arousal
- Physiological
- Perceived (subjective)

Behavioral Choice:
- Agress
- Other

Fig. 1. Overview of the General Affective Aggression Model (adapted from Anderson et al., 1996).

and aggressiveness would predict the amount of aggression contained in the imagined outcomes of ambiguously aggressive social interactions. Specifically, we predicted that people who score high on these aggression-related individual differences would generate more aggressive content when writing story completions than would people who score low on these measures. Such story completions, we believe, represent what the writer thinks is likely or possible in the situation that is set up by the story stem. In this sense, the story completions represent the writer's expectations concerning people in general.

In Study 2, we tested the hypothesis that individual differences in irritability, aggressiveness and attitudes towards violence would predict the amount of aggression perceived in the behavior of actors in videotaped dyadic interactions. We included three different videotaped interactions—one non-aggressive, one ambiguously aggressive, and one highly aggressive interaction—to provide preliminary tests of boundary conditions of the biased interpretation effect for personally irrelevant social interactions.

Most earlier research on hostile biases has used peer recommendations or teacher evaluations to classify children as aggressive and nonaggressive. For example, the Dodge studies (1980) described earlier used second, fourth, and sixth graders who were classified as aggressive or nonaggressive by teachers or peers. The studies we report in this article build on and extend these earlier studies in several ways. First, we used recently developed self-report rating scales designed to measure different aspects of aggressive personality and attitudes rather than using peer or teacher nominations. Finding that irritability, trait aggression and positive attitudes toward violence predict the hostile attribution bias would add new information to the field and speak to the utility of these scales. Second, we used a normal young adult population. Third, we used complex interpersonal expectation and social perception contexts that do not personally involve the research participants. Finding hostile biases in these studies would demonstrate that the aggressive personality plays a role via the cognitive route to aggression, and that hostility biases generalize across age, personal involvement, personality measures, and judgment task.

TESTING THE BOUNDARIES OF HOSTILE ATTRIBUTION BIASES

As noted, important studies from the individual differences literature in aggression have found that hostile attribution biases make a difference when individuals are faced with an ambiguous provocation. Dodge found that interpretations of benign and hostile behaviors were not different for aggressive and nonaggressive boys. However, using a small sample of emotionally disturbed boys, Nasby et al. (1980) found that aggressive boys tended to
categorize still photos of social stimuli as negative and dominant more often than their nonaggressive counterparts. These differences held true across a variety of social stimuli. We were interested in the boundaries of the hostile attribution bias effect, so we specifically developed stimuli that were moderate in extremity. Our aggressive video, for example, contained no physical violence, but did contain insults (e.g., “You are so stupid!”) and an argument. Our neutral video contained a pleasant everyday conversation.

We were interested in the extent to which paper and pencil measures of aggression-related individual differences would predict assessments of the participant’s interpretations in personally irrelevant social interactions. In Study 1, we looked at individuals’ expectations in ambiguous personally irrelevant social interactions only. In Study 2, we looked at individuals’ perceptions of videotaped personally irrelevant social interactions that were neutral, ambiguous or aggressive in nature.

**STUDY 1**

**Method**

**Participants**

Two hundred one students, 146 females and 55 males, were recruited from the University of Missouri, Columbia introductory psychology subject pool and received course credit for their participation. Seventy-seven percent of the participants were freshmen, 15% were sophomores, and the remaining 8% were juniors and seniors.

**Materials**

Aggressive personality measures. Participants completed a questionnaire packet that included measures of trait irritability, physical and verbal aggressiveness, anger and hostility. Specifically, the two aggression-related individual difference scales used were the Caprara Irritability Scale (CIS; Caprara, Cinanni, D’Imperio, Passerini, Renzi, & Travaglia, 1985) and the Buss–Perry Aggression Questionnaire (AQ; Buss & Perry, 1992). These scales were presented in counterbalanced order. Participants also completed a demographic information sheet.

The CIS taps aggressive impulsivity, or the tendency to react quickly and impulsively to perceived provocations and frustrators. Highly irritable individuals are more likely to agree with statements such as, “It takes very little for things to bug me,” and “Whoever insults me or my family is looking for trouble.” Caprara (1982) found that irritable individuals who were provoked by insult chose higher levels of retaliatory electric shock than did their low irritatable counterparts. The coefficient α for the CIS was .81 and the test–retest reliability was .83 (Caprara et al., 1985).

Buss and Perry (1992) defined aggressiveness as a personality trait consisting of four subtraits. They proposed that physical and verbal aggression represent the behavioral component, anger represents the emotional or affective component and hostility represents the cognitive component of aggressive personality. Agreement with statements such as, “Given enough provocation, I may hit another person,” and “When people annoy me, I may tell them what I think of them,” yields higher physical and verbal aggression scores, respectively. Agreement with statements such as, “I flare up quickly but get over it quickly,” and “I wonder why sometimes I feel so bitter about things,” yields higher anger and hostility scores respectively. Buss and Perry (1992) showed significant correlations, ranging from strong to moderate, between peer nominations of aggressiveness and scores on these four aggression subscales for male college students. The coefficient α for the Aggression questionnaire was .89 and the test–retest reliability was .80 (Buss & Perry, 1992).

**Story completion task.** The story completion task was adapted from Rule, Taylor, and Dobbs (1987). Participants were presented with three story stems which Rule et al. (1987) deemed ambiguous with regard to aggressive content. The story stems were entitled, “The Car Accident,” “Persuading a Friend,” and “Going to a Restaurant” (see Rule et al., 1987, for complete story stems).

Participants were asked to complete each story by listing, in outline form, events that could happen next as the story progressed. Specifically, they were asked to indicate what the main character in the story might think, do, and feel next as the story progressed. Participants were asked to list a total of twenty unique possibilities. We focused our analyses on completions in the “thought” category because of our primary interest in schema-driven hostile expectation biases. To help participants understand the task, a neutral example story with example completions was presented to all participants with the task instructions. Our main dependent variable, aggressiveness of expected thoughts of the story characters, was derived from these story completions.

**Procedure**

Participants arrived at the lab individually where they were greeted by an experimenter and led to a cubicle to sign an informed consent statement. They were told that the experimenters were interested in how different people perform on a variety of cognitive tasks. Participants first completed the individual difference measures. Next, in keeping with the cover story, a distractor task was included (which was a simple computer reaction time task). The distractor task and the story completion task were presented in counterbalanced order such that approximately half of the participants completed the story completion task first, and the other half completed the distractor task first. Finally, each participant was debriefed and given participation credit.

**Coding of the Story Completions**

Story completions were coded for aggressive content by two graduate students. The coders discussed the responses of 10 of the 201 participants in order to resolve inconsistencies before coding the remainder of the data independently. The thought completions were coded into two categories: aggressive and nonaggressive thoughts. Using these two categories, we then calculated the proportion of aggressive thoughts in the story completions. The ratings of the two coders on this proportion variable were positively correlated (r = .70) and were therefore averaged: this average proportion of aggressive thought completions is our main dependent measure.

**Results and Discussion**

**Analysis Plan**

We first conducted a factor analysis on the AQ and CIS subscales to check our assumption that they all relate to a general factor that might be conceived as “aggressive personality.” We then used a Structural Equation Modeling (SEM) approach with maximum likelihood estimation, to test a model depicting the relationship between our variables of interest. SEM is a more
comprehensive method of data analysis than, for example, multiple regression, because it allows for testing hypotheses about relationships between observed and latent (unmeasured) variables. Instead of testing default models as is the case with standard ANOVA and multiple regression analyses, SEM allows researchers to specify their own model, a characteristic which allows for more flexibility and thoughtfulness on the part of the researcher (Hoyle, 1995). Another advantage of the SEM approach over more standard ANOVA and regression approaches is that putative causes can be isolated from measurement error and extraneous influences in SEM (Hoyle, 1995).

Subscales of the Instruments

Both the Buss–Perry Aggression Questionnaire and the Caprara Irritability Scale have distinct subscales. The AQ is comprised of the following four subscales: (1) physical aggression, (2) verbal aggression, (3) hostility, and (4) anger. The CIS has two types of items: (1) 20 irritability items, which describe hostile thoughts, feelings, and behaviors, and (2) 10 control items, which describe friendly thoughts, feelings, and behaviors. Although Caprara and his colleagues have treated the control items as fillers, we have reverse-scored and analyzed them in a number of recent investigations and have found them to be highly correlated with the 20 “real” irritability items. We believed it would be meaningful to use these subscales as indicators of our latent variables, which are described below.

Principal Components Analysis of the Individual Difference Measures

We were interested in the relationship between responses on each of the subscales. Therefore, the scores on the six subscales of the CIS and AQ were subjected to a principal components analysis. As expected, one strong component emerged containing all of the CIS and AQ subscales. We labeled this general component Aggressive Personality.

The Latent Variable Model

Figure 2 presents our conceptual model. This model proposes that the physical aggression, verbal aggression, anger, hostility, irritability and (reverse scored) friendliness subscales of the AQ and CIS all load on the latent factor of Aggressive Personality. Aggressive Personality produces the Hostile Expectation Bias, which we also include as a latent variable. Hostile Expectation Bias is indexed by the proportion of aggressive thoughts in the participants’ completions of the three story stems. One factor loading per latent variable was set to 1 to fix the metric of the latent variables. The effect of sex of subject was partialled out in all the models reported below. Note that we also ran these same models without partialling out sex effects; the results were almost identical.

Correlated Residuals

Modification indices indicated that the following residual terms should be allowed to correlate: (1) AQ physical aggression with CIS control items (reverse-scored), (2) AQ anger with CIS irritability, and (3) AQ physical aggression with AQ anger. However, because correlated residuals are best specified only if necessary for model fit, or if they consistently emerge, we modeled only the residual correlation between the AQ physical aggression and CIS control items (reverse scored) because this correlated residual pair appeared again in Study 2. Note that keeping the other two residual correlations improved the fit slightly, but was not necessary to achieve an acceptable model fit.

Hoyle and Panter (1995) suggest assessing model fit with both indices of absolute fit—the extent to which the fixed and free parameters of the specified model match those of the observed data matrix—and incremental fit—the degree to which the specified model is superior to an alternative model (e.g., the null model). Hoyle and Panter suggest reporting chi-square, Goodness of Fit Index (GFI), and two indices of incremental fit. In this article we report two indices of incremental fit from their list of suggestions: Bentler’s Comparative Fit Index (CFI; Bentler, 1990) and Bentler and Bonnet’s Non-normed Index (NNI; Bentler & Bonnet, 1980). Bentler and Bonnet (1980) as well as Hoyle and Panter (1995) suggest .90 as a minimum critical value for the three fit indices. Furthermore, Marsh and Hocevar (1983) suggest

1 The eigenvalues for the first four factors in Study 1 were 3.64, 0.78, 0.62, and 0.42.
that a ratio of chi-square to degrees of freedom less than 5 indicates an acceptable fit. The RMSEA measure is also included because it is thought to be generally robust to differences in sample size and model complexity; the maximum critical value for the RMSEA is .08.

The predicted latent model fit the data extremely well on all of these criteria ($\chi^2(25, N = 201) = 32.88$; GFI = .96; CFI = .99; NNI = .98; RMSEA = .04). Parameter estimates for all modeled paths were significant (all $p$s < .05). Figure 2 also includes the standardized parameter estimates. Of most importance for our theoretical model was the finding that Aggressive Personality significantly predicted Hostile Expectation Bias. A comparison of the model with and without the aggressive personality link revealed that the link was indeed a significant predictor, $\chi^2(1, N = 201) = 7.35$, $p < .01$; standardized parameter estimate = .33, standard error = 0.10. The correlation matrix and standard deviations for all measured variables are included in Appendix A.

Summary

In sum, the single factor model of Aggressive Personality fit well and predicted aggressive thoughts. The story completions of participants who scored high on the Aggressive Personality measures contained more aggressive thoughts than did the completions of low aggressive participants. Thus, the results of Study 1 indicate that aggressive personalities can lead people to expect more aggression even when they are not personally involved in the social interactions. In a sense, their story completions are much like the aggressive scripts discussed by Huesmann and his colleagues (Huesmann & Eron, 1984; Huesmann et al., 1984).

Do these expectations also color perceptions of real-time dyadic interactions? And is there a difference in how aggressive and nonaggressive individuals interpret personally irrelevant social interactions that are not ambiguous? Study 2 was designed to examine these issues.

STUDY 2

In addition to examining the aggressive personality effects on the perception of observed dyadic interactions, Study 2 was also designed to test the limits of the predicted hostile perception bias. Dodge (1980) found a marginal interaction between provocation condition (benign, ambiguous, hostile) and participant status (aggressive vs nonaggressive) on aggressive behavior. Pairwise comparisons revealed no differences in the aggressive reactions of participants classified by teachers and peers as aggressive and nonaggressive in the benign and hostile conditions. However, aggressive participants were significantly more retaliatory in the ambiguous provocation condition. For this study, we created three videotaped interactions which were shown in a pilot test to be neutral, ambiguously aggressive and clearly aggressive in content. Past work suggests that individual difference effects should be strongest in ambiguous circumstances, due to differences in processing of social information when intentionality is unclear. We were interested in finding out to what extent this pattern would hold true when individuals process information from personally irrelevant social interactions.

In addition to the two aggressive personality measures used in Study 1, we also included an individual difference measure of attitudes toward violence (Velicer, Huckel, & Hansen, 1989). We examined whether or not individual differences in attitudes toward violence would predict participants’ ratings of the aggressive content of the videotaped interactions.

Method

Participants

One hundred sixty-seven participants, 60 males and 107 females, were recruited from the University of Missouri, Columbia introductory psychology subject pool and received course credit for their participation. Eighty-two percent of the participants were freshmen, 14% were sophomores and the remaining 4% were juniors and seniors.

Materials

Again, the CIS and AQ were used in Study 2. An attitudes toward violence scale was included as well.

Attitudes toward violence. Velicer, Huckel, and Hansen (1989) proposed attitudes toward violence as a mediating variable between hostile feelings and aggressive behaviors. They improved and expanded upon what was then the only extant scale measuring general attitudes toward violence, the Violence Scale (Bardis, 1973) in their Attitudes Towards Violence Scale (ATVS). Factor analysis of the ATVS items revealed five distinct subscales: (1) penal code violence (e.g., "Capital punishment is often necessary"), (2) violence in war (e.g., "War can be just"), (3) corporal punishment of children (e.g., "A child's habitual disobedience should be punished physically"), (4) extreme interpersonal violence (e.g., "It is all right for a partner to shoot the other if they flirt with others"), and (5) intimate violence (e.g., "It is all right to coerce one's partner into having sex when they are not willing by giving the other alcohol or drugs"). Coefficient $r$s for the five subscales ranged from .74 to .90 (Velicer et al., 1989).

Videotaped interactions. Videotaped stimulus materials were created for this study. Four groups of actors performed several dyadic interactions which varied in aggressive content. Each video segment was filmed in the same "living room" setting with the couple seated on a sofa. The actors, all of whom were graduate students in psychology, were instructed that neutral interactions should contain no aggression, aggressive interactions should contain overt verbal aggression, and that ambiguously aggressive interactions should contain verbal behavior which could be interpreted as aggressive, but was not clearly aggressive.

From the 12 original interactions, nine segments were chosen by the experimenters for pilot testing. Each was approximately 2 min in length. Of these nine, three were designed to have no aggressive content, three to have ambiguous aggressive content, and three to have overt aggressive content. All aggression, whether ambiguous or straightforward, was verbal in nature.
ANOVAs performed on the ratings of the three selected videos indicated that the aggressive video was significantly more aggressive than the ambiguous video, F(1, 22) = 18.37, p < .0003, and that the ambiguous video was significantly more aggressive than the neutral video (F(1, 22) = 47.27, p < .0001); Ms = 5.96, 4.65, and 3.00, respectively. Note that the mean difference between the ambiguous and neutral videos (1.65) was slightly greater than the difference between the ambiguous and aggressive videos (1.31). Participants also answered the question, "How believable was the interaction?" for all nine videos using the same 7-point rating scales. Believability scores for the selected videos were all above the scale midpoint (Ms = 4.82, 5.13, 4.61, respectively).

In sum, one aggressive, one ambiguous, and one neutral video were selected from the set of nine based on aggressive content and believability ratings with the constraint that no two videos could feature the same pair of actors. Another neutral interaction was selected as a practice video; the two actors in this interaction did not appear in any of the three selected videos. Three videotape orders were created to control for order effects. In each, the practice video was presented first. The. remaining three segments were presented in one of three random orders. The final videotapes contained all four video clips separated by 4 min of blank tape, to allow participants time to complete the dependent measures.

Ratings of dyadic interactions. The dependent measure for the dyadic interactions consisted of a list of 28 adjectives for each of the two actors in each video clip. There were 10 aggression-related adjectives (bitter, irritated, mad, offended, angry, hostile, furious, cruel, mean, and aggressive), 10 positivity-related adjectives (cooperative, kindly, understanding, friendly, polite, good-natured, agreeable, tender, tame, and sympathetic), and 8 arousal-related adjectives (lively, energetic, active, excited, quiet, sluggish, dull, and inactive). Participants rated the degree to which each adjective described the behavior of each video actor using 7-point scales anchored at (1) "very slightly or not at all" and (7) "extremely." The final dependent measures were composites formed by averaging responses to the aggression-related adjectives for each video, collapsing across actor. The arousal and positivity adjectives were intended as distractor items.

Aggressive personality. Participants completed a questionnaire packet consisting of a demographic information sheet and the three aggression-related individual difference measures. Included in the questionnaire packet were measures of trait irritability (Caprara et al., 1985), attitudes toward violence (Velicer et al., 1989), physical and verbal aggression, anger, and hostility (Buss & Perry, 1992). Participants were randomly assigned to one of four orders of this questionnaire packet.

Procedure

Participants were run in small groups ranging in size from one to six. They were told that the study was about "beliefs and accuracy in person perception." Participants were greeted by the experimenter and seated in a chair facing a television set. They first completed an informed consent statement. They were told that they would be watching four short video clips of "different couples having a conversation in a naturalistic setting," and that they would be asked to make judgments about the people they saw in each video. After they watched each video segment, the television screen went black for 4 min while they completed the dyadic interaction rating sheet for the video they had just watched. After rating all four video segments, participants completed the individual difference questionnaire packet. Finally, each participant was debriefed and given participation credit.

Results and Discussion

Analysis Plan

We first conducted an exploratory factor analysis on the CIS, AQ, and ATVS subscales to check our assumption that the AQ and CIS factors all loaded on the Aggressive Personality latent variable (as in Study 1) and that the ATVS subscales all loaded on a separate factor. Subsequently, we used a Structural Equation Modeling (SEM) approach, with maximum likelihood estimation to test a model specifying the relations among the variables of interest.

Principal Components Analysis of the Individual Difference Measures

The two CIS and four AQ subscales were described in conjunction with Study 1. The ATVS scale is comprised of the following five subscales: (1) violence in war; (2) corporal punishment of children; (3) penal code violence; (4) extreme interpersonal violence; and (5) intimate violence. We were interested in the relations among responses on each of the subscales. The eleven subscales of the CIS, AQ and ATVS were subjected to a principal components analysis. As expected, two components emerged. One contained the CIS and AQ subscales, as in Study 1. The other contained the five ATVS subscales. We labeled these two components Aggressive Personality and Violent Attitudes, respectively.

The Latent Variable Model

Part of the latent variable model tested in Study 2 is a replication of the conceptual model proposed in Study 1. Specifically, we used the two subscales of the CIS and the four subscales of the AQ as indicators of Aggressive Personality, which in turn was specified as a causal latent factor linked to a latent factor labelled "Hostile Perception Bias." The Hostile Perception Bias latent factor was indexed by the hostility scores from the ratings of the three videotaped dyadic interactions. We predicted that Aggressive Personality would be positively related to perceptions of hostility in observed dyadic interactions. We expected this relationship to be strongest for the ambiguously aggressive social interaction. Conceptually, this is the same framework which successfully predicted amount of aggressive thoughts in imagined story outcomes in Study 1.

The model for Study 2 also included the attitude subscales. This model allowed Aggressive Personality and Violent Attitudes to correlate, and caus-

The eigenvalues for the first four factors in Study 2 were 3.95, 1.27, 0.87, and 0.55.
ally linked each of these latent individual difference factors to Hostile Perception Bias. One factor loading per latent variable was set to 1 to fix the metric of the latent variables. The effect of sex of subject was partialed out in all the models which follow. As in Study 1, parallel analyses in which sex was ignored yielded almost identical results.

**Correlated Residuals**

Modification indices indicated that the following residual terms should be allowed to correlate: (1) AQ physical aggression and CIS control items (reverse scored), (2) AQ verbal aggression and CIS irritability. Of these, only the link between the AQ physical aggression and CIS control items (reverse scored) was modeled because it was the only correlated residual that emerged in both studies. The other correlated residual pair was not necessary for model fit. In addition, modification indices were used to determine that these additional residual terms should be allowed to correlate: (1) Velicer war and Velicer corporal punishment; (2) Velicer extreme interpersonal violence and Velicer intimate violence. Since the Velicer scales were unique to Study 2, we modeled these correlated residuals involving the Velicer scale.

This model fit the data well ($\chi^2(71, N = 167) = 109.46; \text{GFI} = .92; \text{CFI} = .94; \text{NNI} = .93; \text{RMSEA} = .06$). However, close inspection of the results revealed that the path from the violent attitudes latent factor to the hostile perception bias factor was not significant. Indeed, dropping this path from the model produced only a minor increase in chi-square ($\chi^2(1, N = 167) = 0.20, p > .5$). This new model, with the Violent Attitudes - Hostile Perception Bias link removed, is presented in Fig. 3. This model also fit the data well ($\chi^2(72, N = 167) = 109.66; \text{GFI} = .92; \text{CFI} = .95; \text{NNI} = .93; \text{RMSEA} = .06$). Most importantly, the Aggressive Personality - Hostile Perception Bias path was significant, as predicted, $\chi^2(1) = 7.70, p < .01$ (standardized parameter estimate = .29, standard error = 0.16).

It is important to note that one conceptually different model is statistically identical to the one presented in Fig. 3. One could reasonably argue that the link between Aggressive Personality and Violent Attitudes should be a directional one, with personality being conceived as a cause of violent attitudes. The present data do not allow us to distinguish between these two models. In both models, however, the predicted path linking Aggressive Personality with Hostile Perception Bias is significant, as predicted. The correlation matrix and standard deviations for all measured variables are included in Appendix B.

**Boundaries of the biased-interpretation effect.** As shown in Fig. 3, Hostile Perception Bias predicted ratings of the aggressive content of neutral, ambiguous and aggressive personally-irrelevant social interactions. Building on past work, we predicted that the biased interpretation effect would be most pronounced in the ambiguously aggressive condition. The standardized path weights linking the Hostile Perception Bias factor to the three indicators of that latent factor, displayed in Fig. 3, reveal that the bias was strongest for the ambiguous and aggressive videos. Interestingly, highly aggressive individuals also tended to see somewhat more aggressive content in neutral social interactions. To clarify this relationship, we tested competing models against the model depicted in Figure 3. First, we compared the model in Fig. 3 to a model which forces the paths between Hostile Perception Bias and the neutral and ambiguous video ratings to be equal. As predicted, this "equal effects" model provided a significantly poorer fit than the model in which the ambiguous video link was allowed to be larger than the neutral video link ($\chi^2(1) = 21.81, p < .001$). A model which forced the paths between Hostile Perception Bias and the ambiguous and aggressive video ratings to be equal did not provide a significantly poorer fit than the Fig. 3 model ($\chi^2(1) = 0.4, p > .3$). These results suggest that aggressive personality can produce a hostile perception bias in both ambiguous and clearly aggressive settings, but that this bias is substantially reduced in clearly nonaggressive settings.
GENERAL DISCUSSION

This article provides support for the idea that the aggressive personality includes a generally hostile schema for social interactions. This schema influences the future expectations and concurrent perceptions of social interactions. Because our research participants were merely the "writers" (Study 1) or the "audience" (Study 2)—i.e., they were not personally involved—these data suggest that aggressive personality operates via the cognitive route shown in Fig. 1.

Interestingly, in Study 2 even the neutral and aggressive interactions loaded significantly on the Hostile Perception Bias factor. This finding attests to the power of the aggressive personality effect. Further analysis indicated that the ambiguous and aggressive paths are not statistically different from each other, but that the neutral path is significantly smaller than the other two paths. These results indicate there was a stronger effect of aggressive personality in the ambiguous and aggressive conditions. This finding adds new information to the field concerning the boundaries of the biased interpretation effect. It should be noted that we believe that in more extreme cases perceptions of the aggressiveness of dyadic interactions must converge for people who are high or low in aggressive personality. For instance, if the observed aggressive interaction consists of an argument that turns into a deadly knife fight, we would expect that even low aggressive observers would perceive the interaction as being extremely aggressive.

The present research also suggests that both the CIS and the AQ are meaningful measures of aggressive personality. Furthermore, the "friendliness" (reverse-scored) CIS control items loaded significantly on the same latent aggressive personality factor as the other CIS and AQ subscales in both studies and thus provided useful information in their own right. Finally, Study 2 found that the Velicer Attitudes Towards Violence subscales loaded on a correlated but nonetheless distinct Violent Attitudes latent factor. Moreover, this Violent Attitudes factor did not have a direct impact on the Hostile Perception Bias. Further research is needed to examine this somewhat surprising result.

The four main empirical contributions of the studies reported in this article revolve around the construct of aggressive personality in adults. First, we have demonstrated that these indicators of aggressive personality are predictive of people's expectations in ambiguously aggressive social situations. Second, we have demonstrated that these indicators of aggressive personality are predictive of people's perceptions of ongoing social interactions. Third, both of these effects emerged under conditions designed to eliminate personal involvement by the research participants. Finally, Study 2 provides new information about boundary conditions in the biased interpretation effect.

At a broader theoretical level, these results demonstrate the utility of our General Affective Aggression Model as a means of generating and organizing interesting theoretical predictions. Our model further suggests that it would be useful to see whether the aggressive personality effect might also operate via the affect route. Although our present results show such an effect via the cognitive route, they do not rule out the possibility that aggressive personality may also influence temporary affective states, such as state hostility. If such an effect occurred, aggressive personality might ultimately influence aggressive behavior through both hostile affect and cognitions.

Future research might also profitably investigate the aggressive personality effect by attempting to link, within the same study, the various psychological processes illustrated in Fig. 1. For instance, is the aggressive personality effect on aggressive behavior mediated by the hostile expectation and hostile perception biases? Additional research on these questions should improve our ability to understand affective aggression and to design interventions to reduce this societal problem.

APPENDIX A
Correlation Analysis

<table>
<thead>
<tr>
<th></th>
<th>Cp1</th>
<th>Cp2</th>
<th>Bp1</th>
<th>Bp2</th>
<th>Bp3</th>
<th>Bp4</th>
<th>Pt1</th>
<th>Pt2</th>
<th>Pt3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cp1</td>
<td>.880</td>
<td>.473</td>
<td>.594</td>
<td>.577</td>
<td>.577</td>
<td>.577</td>
<td>.065</td>
<td>.140</td>
<td>.165</td>
</tr>
<tr>
<td>Cp2</td>
<td>.473</td>
<td>.700</td>
<td>.657</td>
<td>.447</td>
<td>.499</td>
<td>.499</td>
<td>.156</td>
<td>.274</td>
<td>.301</td>
</tr>
<tr>
<td>Bp1</td>
<td>.580</td>
<td>.594</td>
<td>.567</td>
<td>.840</td>
<td>.850</td>
<td>.840</td>
<td>.049</td>
<td>.078</td>
<td>.073</td>
</tr>
<tr>
<td>Bp2</td>
<td>.594</td>
<td>.447</td>
<td>.507</td>
<td>.345</td>
<td>.483</td>
<td>.483</td>
<td>.100</td>
<td>.116</td>
<td>.184</td>
</tr>
<tr>
<td>Bp3</td>
<td>.749</td>
<td>.602</td>
<td>.574</td>
<td>.099</td>
<td>.166</td>
<td>.166</td>
<td>.052</td>
<td>.102</td>
<td>.129</td>
</tr>
<tr>
<td>Bp4</td>
<td>.577</td>
<td>.459</td>
<td>.435</td>
<td>.049</td>
<td>.166</td>
<td>.166</td>
<td>.052</td>
<td>.102</td>
<td>.129</td>
</tr>
<tr>
<td>Pt1</td>
<td>.065</td>
<td>.187</td>
<td>.073</td>
<td>.100</td>
<td>.052</td>
<td>.052</td>
<td>.820</td>
<td>.640</td>
<td>.750</td>
</tr>
<tr>
<td>Pt2</td>
<td>.140</td>
<td>.233</td>
<td>.138</td>
<td>.177</td>
<td>.078</td>
<td>.078</td>
<td>.640</td>
<td>.750</td>
<td></td>
</tr>
<tr>
<td>Pt3</td>
<td>.165</td>
<td>.270</td>
<td>.217</td>
<td>.116</td>
<td>.184</td>
<td>.184</td>
<td>.260</td>
<td>.102</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>-.142</td>
<td>-.274</td>
<td>-.419</td>
<td>-.182</td>
<td>-.109</td>
<td>-.183</td>
<td>-.217</td>
<td>-.210</td>
<td>-.131</td>
</tr>
<tr>
<td>Mean</td>
<td>3.22</td>
<td>4.18</td>
<td>2.68</td>
<td>3.51</td>
<td>2.73</td>
<td>2.87</td>
<td>.099</td>
<td>.049</td>
<td>.166</td>
</tr>
<tr>
<td>SD</td>
<td>.94</td>
<td>.92</td>
<td>1.14</td>
<td>1.21</td>
<td>1.15</td>
<td>1.16</td>
<td>.011</td>
<td>.10</td>
<td>.17</td>
</tr>
</tbody>
</table>

Note. N = 201, critical size for a correlation at p < .05 = .14, critical size for a correlation at p < .001 = .18. Cp1, Caprara irritability; Cp2, Caprara friendliness (reverse scored); Bp1, Buss-Perry physical aggression; Bp2, Buss-Perry verbal aggression; Bp3, Buss-Perry hostility; Bp4, Buss-Perry anger; Pt1, percentage of aggressive thoughts, Story 1; Pt2, percentage of aggressive thoughts, Story 2; Pt3, percentage of aggressive thoughts, Story 3. Sex is dummy coded, 1 = Female; 2 = Male.
### APPENDIX B

**Correlation Analysis**

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>V5</th>
<th>Cp1</th>
<th>Cp2</th>
<th>Bp1</th>
<th>Bp2</th>
<th>Bp3</th>
<th>Bp4</th>
<th>Hnt</th>
<th>Hab</th>
<th>Hagg</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>.819</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V2</td>
<td>.562</td>
<td>.886</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V3</td>
<td>.452</td>
<td>.460</td>
<td>.836</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V4</td>
<td>.298</td>
<td>.258</td>
<td>.538</td>
<td>.806</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V5</td>
<td>.201</td>
<td>.203</td>
<td>.338</td>
<td>.545</td>
<td>.555</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cp1</td>
<td>.233</td>
<td>.348</td>
<td>.293</td>
<td>.264</td>
<td>.165</td>
<td>.860</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cp2</td>
<td>.317</td>
<td>.344</td>
<td>.252</td>
<td>.273</td>
<td>.165</td>
<td>.563</td>
<td>.676</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bp1</td>
<td>.310</td>
<td>.454</td>
<td>.374</td>
<td>.275</td>
<td>.218</td>
<td>.471</td>
<td>.696</td>
<td>.862</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bp2</td>
<td>.137</td>
<td>.211</td>
<td>.084</td>
<td>.035</td>
<td>.110</td>
<td>.394</td>
<td>.402</td>
<td>.765</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bp3</td>
<td>.128</td>
<td>.209</td>
<td>.200</td>
<td>.175</td>
<td>.150</td>
<td>.740</td>
<td>.452</td>
<td>.435</td>
<td>.464</td>
<td>.801</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bp4</td>
<td>.165</td>
<td>.106</td>
<td>.082</td>
<td>.224</td>
<td>.109</td>
<td>.550</td>
<td>.307</td>
<td>.262</td>
<td>.239</td>
<td>.449</td>
<td>.790</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hnt</td>
<td>.076</td>
<td>.226</td>
<td>.092</td>
<td>.143</td>
<td>.171</td>
<td>.080</td>
<td>.042</td>
<td>.251</td>
<td>.213</td>
<td>.178</td>
<td>.046</td>
<td>.903</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hab</td>
<td>.058</td>
<td>.165</td>
<td>.092</td>
<td>.153</td>
<td>.176</td>
<td>.192</td>
<td>.122</td>
<td>.192</td>
<td>.082</td>
<td>.204</td>
<td>.130</td>
<td>.211</td>
<td>.896</td>
<td></td>
</tr>
<tr>
<td>Hagg</td>
<td>-.050</td>
<td>-.063</td>
<td>-.018</td>
<td>-.226</td>
<td>-.074</td>
<td>-.193</td>
<td>-.172</td>
<td>-.197</td>
<td>-.092</td>
<td>-.189</td>
<td>-.168</td>
<td>-.099</td>
<td>.547</td>
<td>.902</td>
</tr>
</tbody>
</table>

**Note**. N = 167, critical size for a correlation at p < .05 = .15, critical size for a correlation at p < .001 = .20. V1, Velicer war; V2, Velicer corporal punishment; V3, Velicer peer code violence; V4, Velicer extreme violence; V5, Velicer verbal violence; Cp1, Caprara irritability; Cp2, Caprara fightfulness (reverse scored); Bp1, Buss–Perry physical aggression; Bp2, Buss–Perry verbal aggression; Bp3, Buss–Perry hostility; Bp4, Buss–Perry anger; Hnt, hostility ratings of neutral video; Hab, hostility ratings of ambiguous video; Hagg, hostility ratings of aggressive video. Sex is dummy coded, 1 = Female; 2 = Male.

---

### REFERENCES


---

### APPENDIX C


---

### APPENDIX D


---

### APPENDIX E


---

### APPENDIX F


---

### APPENDIX G


---

### APPENDIX H


---

### APPENDIX I


---

### APPENDIX J


---

### APPENDIX K


---

### APPENDIX L


---

### APPENDIX M


---

### APPENDIX N


---

### APPENDIX O


---

### APPENDIX P


---

### APPENDIX Q


---

### APPENDIX R


---

### APPENDIX S


---

### APPENDIX T


---

### APPENDIX U


---

### APPENDIX V


---

### APPENDIX W


---

### APPENDIX X


---

### APPENDIX Y


---

### APPENDIX Z


