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The Facets of Hostile Attributional Bias: The Importance of Aggression Subtypes and Provocateur Motivation

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The Facets of Hostile Attributional Bias: The Importance of Aggression Subtypes and Provocateur Motivation

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Abstract

The current study examined the association of hostile attributional bias (HAB) with the functions (proactive and reactive) and subtypes (reactive relational and reactive overt) of aggression as well as with perceived provocateur motivation (proactive or reactive) in a high school sample (mean age = 16.51; 50% male; 31% Caucasian). Revisions to a measure of HAB were made both in administration (adding animations/narration) and content (adding perceived provocateur motivation questions). Results indicated that the animation/narration measure showed comparable internal consistency reliability to the written and displayed an increased ability to predict total aggression. However, a unique relationship between HAB and reactive aggression was not found, nor was HAB for specific provocation scenarios (i.e., relational or overt) uniquely associated with the reactive subtypes of aggression. Proactive motives, when controlling for reactive ones, were correlated with HAB, anger to provocation, and aggression. The opposite was not found. Theoretical and clinical implications are discussed.

Keywords: hostile attributional bias, aggression, measurement, provocateur motivation.

And I, who gazing outward, stood intent
Saw mud-stained people in the swampy pit
All bare and in their wrath malevolent
Each other not with hands alone they hit

Take a moment to ponder the above description of the wrathful in the fifth circle of hell from Dante Alighieri's *The Inferno* (as translated by Chipman, 1961). Are these words merely one man's lampooning of the hypocritical and corrupt leaders of his time, or could they be applied to more universal human experiences, say middle and high school? In reviewing the amount of psychological studies on aggression development between elementary school age and adolescence (for a review see Tremblay, 2000), it seems that a lot of researchers have found the latter idea worth consideration.

Current research in this area suggests that there is an array of forms aggression can take as well as various reasons children and adolescents may choose to aggress (for a review see Little, Jones, Henrich, & Hawley, 2003). Furthermore, studies on bullying and victimization in schools suggest that not only are the consequences of being a target lasting (Boivin, Hymel, & Hodges, 2001; Storch & Esposito, 2003), there are also enduring effects of being an instigator (Pope & Bierman, 1999; Snyder, Brooker, Patrick, Snyder, Schrepferman, & Stoolmiller, 2003). These effects include, but are not limited to declines in academic performance (Olweus, 1978), greater reports of loneliness and/or social dissatisfaction (Bukowski & Sippola, 2001), and even symptoms of posttraumatic stress disorder (Storch & Esposito, 2003) for victims, and an increased risk for future antisocial behaviors (Snyder et al., 2003), and potentially increased peer rejection (Pope & Bierman, 1999) for bullies. It is worth noting here that bullying and aggression are two separate and distinct constructs with bullying involving repeated acts of aggression often against a weaker target (Roland & Idsøe, 2001). Still, these bodies of research often run in parallel and boil down to a pair of seemingly obvious conclusions. First, kids *are* aggressive, and

in many ways. Second, the effects of aggression, especially a specific version of it, can be extremely serious for both victims and aggressors. Reaching the ultimate goal of designing an effective intervention to deal with aggression in youth demands a complete and comprehensive understanding of this multifaceted construct.

Aggression: Forms, Functions, and Subtypes

The term "aggression" encompasses a wide variety of behaviors and motivations. From spreading nasty rumors about a girl because she called you 'fat' to breaking a boy's nose so he'll give you his lunch money, the term 'aggression' can account for any number of harms (Little et al., 2003). In order to effectively curb the risks associated with both giving and receiving aggression, a much clearer understanding of this construct as a whole, as well as its array of more specific incarnations is necessary. Additionally, and perhaps more importantly, the specific mechanisms that underlie each form and function must also be more clearly illuminated if effective interventions are to be designed and implemented.

The first step towards understanding a phenomenon is learning the most basic definition. Buss (1961) defined aggression as "a response that delivers noxious stimuli to another organism." Later, Coie and Dodge (1998) supported a more socially defined version of aggression: acting with intent to harm. Although this definition has been difficult to utilize in studies with infants and nonhuman animals (Kagan, 1974; Tremblay, 2000), it is apparently suitable for most aggression development research, especially that with an emphasis on the social-cognitive aspects of aggression (e.g., Crick & Dodge, 1994; Hughes, Meehan, & Cavell, 2004). There has been much debate over which definition is "correct" and the simplest solution appears to follow Bandura's (1973) advice, using a more specific definition tailored to the

research question at hand (Tremblay, 2000). The first step in following this advice, then, is to break the aggression construct down further into its specific forms, functions, and subtypes.

In terms of the forms aggression can take, there is evidence for two major categories. Overt aggression, which has been defined as verbal and physical behavior that is directed at and individual with intent to harm the target (e.g., Buss & Perry, 1992; Coie & Dodge, 1998) and consists of actions such as hitting, kicking, threatening, teasing (to the person's face), and biting. A great deal of what may now be considered the pioneering work of socially-learned aggression (e.g., Bandura, 1973; Dodge, 1980) examined this form exclusively. In relational aggression, the other form, the intent is to harm individuals through their social relationships (Crick & Grotpeter, 1995). Emerging more recently in the contemporary research, this construct accounts for actions that are often more covert such as purposeful exclusion, ostracism, spreading rumors and gossiping. Although relational aggression can involve some direct confrontations such as deliberately not speaking to a person, the heart of this construct lies in harm caused through manipulation of social standing. There has been much debate surrounding the term relational aggression when describing these behaviors. Other researchers have referred to these actions as indirect (e.g., Lagerspetz, Björkqvist, & Peltonen, 1988) and social (e.g., Galen & Underwood, 1997). Although the researchers attached to one of these specific terms will be quick to argue their importance as unique constructs, Bjorkqvist (2001) has asserted that these definitions, though fitted with different names, refer to the same phenomenon: aggression carried out through social manipulation. For the purposes of consistency, this form of aggression will be referred to as 'relational' for the duration of this paper.

Research has consistently shown that, although these constructs are often moderately correlated (e.g., Crick & Grotpeter, 1995), they are in fact distinct from one another (for a review

see Card, Stucky, Sawalani, & Little, 2008). In a longitudinal confirmatory factor analysis, Vaillancourt, Brendgen, Boivin, & Tremblay (2003) found evidence for this two-factor model over three 2-year time periods in a sample of Canadian children (ages ranged from 4-7 at the beginning and 8-11 at the end). They found that this model was stable across time, cohort, and gender, and that children appeared to show stable patterns of aggression (i.e., those that were originally more relationally aggressive at Time 1 showed more relational aggression at Time 2 and Time 3). Additionally, Grotpeter & Crick (1996) performed a factor analysis on a peer nomination measure designed to distinguish the two forms of aggression from each other as well as from prosocial behavior. They found that the items on this measure loaded cleanly onto the three separate categories. In addition to factor analysis, many other unique differences between the forms have been found.

Perhaps the most notable distinctions between overt and relational aggression have been made in terms of gender (Hadley, 2003). For example, Crick, Bigbee, & Howes (1996) found that relational aggression was more strongly associated with anger and intent to harm for girls, but physical aggression was more strongly associated for boys. Crick (1997) also argued that relational aggression is more typical of girls than boys. This supposition has been somewhat supported by numerous follow-up studies. Most notably, Werner & Crick (2004) found that higher levels of rejection and friends' relational aggression predicted increases in relational aggression for girls only. They found similar results with physical aggression for boys. In a recent meta-analysis of 148 studies on relational and overt aggression, Card et al. (2008) found that the effect of gender on overt aggression ($r = .29$) was much larger than the effect of it on relational aggression ($r = -.03$), which they deemed significant but negligible. They also found that the strength of the gender effect varied by who was reporting the aggression, with stronger

overt differences reported by peer nominations, and stronger relational differences reported by parents and teachers. They speculated that this result might be because boys and girls may actually engage in more similar rates of relational aggression (as self-reported). They argued that third-party observers could impose a stronger gender difference in their reporting of aggression as a result of well-developed gender schemas that perpetuate the notion that girls are much more relationally aggressive than boys.

In addition to gender differences in the forms of aggression, outcome distinctions have also been found. Crick & Grotpeter (1995) found that the relationally aggressive children in their study were significantly more rejected, reporting significantly higher levels of loneliness, depression and isolation than nonaggressive peers. In a longitudinal study, Crick (1996) also found that relational aggression uniquely predicted social maladjustment (defined as rated as 'disliked' by peers and 'not accepted by peers' by teachers) beyond that predicted by overt aggression alone. Again, though, the Card et al. (2008) meta-analysis results suggest that the effects of aggression type on problems in peer relations is stronger for overt than for relational aggression. These varying findings may be reconciled by another Crick (1997) study, which found that children who engaged in gender nonnormative aggression (i.e., relationally aggressive boys and overtly aggressive girls) displayed more social maladjustment than those who utilized the gender normative form of aggression.

Beyond the outward manifestations aggression can take, different internal motivations that can drive those forms have also been distinguished. Currently there are agreed upon functions that aggression can serve. First distinguished by Pulkkinen (1969) as "offensive" and "defensive" aggression, and more recently described by Dodge & Coie (1987) as proactive and reactive, the two functions of aggression work to explain why an individual is aggressive.

Proactive aggression, also referred to as instrumental aggression, is deliberate and controlled by a mechanism of reinforcement. In other words, proactive aggression is involves a positive gain for the aggressor (e.g., money, social dominance, etc.). Reactive aggression, on the other hand, does not involve any reinforcement and, instead, is often a hostile response to perceived provocation from another. In the current research, it is often helpful to distinguish these functions by asking the question "Was the aggression provoked?" In the case of the reactive subtype, the answer is yes. The goal of reactive aggression is best conceptualized as person-directed, while that of proactive aggression is object-directed or goal-directed (Dodge, Lochman, Harnish, Bates & Petit, 1997).

As with the forms of aggression, the functions are also highly correlated. Card and Little's (2006) meta-analysis of 42 studies of the functions of aggression in child and adolescent samples yielded an average (median) correlation of $r = .68$. Still, the functions have been shown to be unique and separate constructs in factor analytic studies (e.g., Day, Bream, & Pal, 1992; Poulin & Boivin, 2000) as well as an array of other empirical investigations that will be detailed shortly. The high correlation between proactive and reactive aggression may be due to an asymmetrical overlap in the functions (i.e., some individuals are both proactively and reactively aggressive, some are only reactive, and very few are exclusively proactive; e.g., Camodeca, Goossens, Terwogt, & Schuengel, 2002) In 1997, Dodge et al. found that children classified as reactive, proactive, pervasive (combined proactive and reactive), and nonaggressive showed unique profiles in an analysis of developmental history, adjustment in peer relations, and social information processing (SIP) patterns. Specifically, they found that proactively aggressive children anticipated positive outcomes for aggressive behavior and that reactively aggressive children showed inadequate encoding and problem-solving processing patterns. They also found

that reactively aggressive children had histories of physical abuse, earlier onset of problems and more problems in peer relations. In a recent meta-analysis, Card & Little (2006) found that, like the forms of aggression, the functions are also moderately correlated. Still, they found unique associations for the functions. Proactive aggression did not appear to correlate strongly with any of their outcomes. Reactive aggression, however, was more strongly correlated with internalizing problems, emotional dysregulation, low peer acceptance, high peer rejection, and more peer victimization. Here, then, it is important to note the effects of the functions of aggression on social maladjustment. This relationship has been a central focus in the current bullying/victimization literature.

Some of the more notable research on the aggression of bullies has examined differences in the functions of aggression and bully/victim status. Roland & Idsøe (2001) found that both proactive and reactive aggression were associated with bullying others and being bullied at the fifth grade level, but that the relationship between proactive aggression and bullying others was much stronger than that for reactive aggression at the eighth grade level. These results are similar to those found by Camodeca et al. (2002). Their results suggested that although bullies were shown to be both reactively and proactively aggressive, predominantly reactively aggressive individuals were much more likely to be stable victims or bully-victims. The term bully-victim, greatly elaborated by Schwartz, Proctor, & Chien (2001), describes individuals who are prone to more aggressive and hostile behaviors and are both victimized and aggressive. These children appear to be at greater risk for social rejection, so this construct may offer a good explanation for the stronger association of social maladjustment with reactive aggression.

In most of the current literature, distinctions have only been made between either overt/relational aggression (e.g., Crick, 1996; Werner & Crick, 2004) or proactive/reactive

aggression (e.g., Dodge, et al., 1997; Roland & Idsøe, 2001). However, in their examination of both the forms and functions of aggression, Little et al. (2003) assert that the two are indeed separate from one another. They argue that relational and overt aggression are "pure forms" that have directly observable indicators (i.e., distinct behaviors). Reactive and proactive aggression, referred to as "second-order constructs" are not distinguished by behaviors and therefore not directly observable. Simply put, the forms of aggression can be defined by behavior whereas the functions are distinguished based on unobservable, internal motivations. These two facets of aggression exist separately from one another and, as a result, every aggressive act will be comprised of both: an action and a motivation, a form and a function. A much more recent series of investigations (e.g., Marsee & Frick, 2007; Ostrov & Crick, 2007) have examined these combinations. Often described as cross products of the forms and functions, research suggests that there are four specific subtypes of aggression. Each subtype consists of an outward manifestation (overt or relational) and an internal motivation (proactive or reactive). In other words, each contains both form as well as function (proactive overt, reactive overt, proactive relational, and reactive relational).

Based on the minimal amount of information present on these subtypes, they do in fact appear to be legitimate constructs with unique associations. For example, Bailey & Ostrov (2008) found specific gender effects for the subtypes of aggression, with males reporting significantly more reactive physical and proactive physical aggression than females. Marsee, Weems, & Taylor (2008) found distinct relations between the subtypes, gender, and internalizing problems. Specifically, they found that the relationship between anxiety and reactive relational aggression that was particularly strong for boys. Marsee & Frick (2007) noted unique cognitive and emotional correlates for these subtypes in a sample of detained girls as well. Their results

suggested that the reactive subtypes of aggression were uniquely associated with poor emotion regulation, while the proactive subtypes (especially proactive relational aggression) were uniquely associated with callous-unemotional traits and biased outcome expectations. This last finding in particular lends some strong support to the social-learning theory of aggression development, which posits that different mechanisms for processing social information are linked to different types of aggression (Crick & Dodge, 1994).

Social-Information Processing and Aggression

A major commonality among most of the aggression literature is the role of social-learning theory and aggression development. Time and again it seems that social-information processing (SIP) mechanisms have been useful in distinguishing the forms, functions, and even subtypes of aggression from one another. Within the social-learning theory of aggression, research examining the role of SIP is extensive (Yoon, Hughes, Guar, & Thompson, 1999) and does appear to suggest that aggressive individuals utilize social reasoning differently from their peers (Harvey, Fletcher, & French, 2001).

The hallmark model of SIP in aggressive youth appears to be the one proposed Dodge (1986) and then reformulated by Crick & Dodge (1994). The model consists of six transactional stages: Encoding of Cues, Interpretation of Cues (Attributions of Intent), Goal Orientation, Response Generation, Response Decision (Response Evaluation), and Behavioral Enactment. Since its first presentation, researchers have shown time and again that these various processes play a substantial role in psychopathology in general (e.g., Vasey, Dangleish, & Silverman, 2003) and particularly in aggressive behavior (e.g., Dodge et al., 2002). Research following the proposal of this six-stage SIP model has consistently shown that aggressive youths show distinct SIP deficits. Numerous studies have demonstrated differences in aggressive individuals'

encoding of cues (e.g., Dodge & Tomlin, 1987), interpretation of intent (e.g., Dodge, 1985), goal orientation (e.g., Crick & Dodge, 1989), response generation (Quiggle et al., 1992), and response evaluation (i.e., outcome expectations; Bandura, 1977).

Furthermore, additional studies have also shown that these SIP mechanisms can be differentially related to the relational and overt forms (e.g., Crick, Grotpeter, & Bigbee, 2002; Crick & Ladd, 1990) and the proactive and reactive functions (e.g., Camodeca & Goossens, 2005; Gifford-Smith & Rabiner, 2004) of aggression. For example, Crick & Werner (1998) found that both boys and girls who exhibited specific forms of aggression evaluated those forms as the most positive response to either type of provocation (i.e., relationally aggressive children were more likely to favor responding with relational aggression to either relational or overt provocations and vice versa for overtly aggressive children). Their results indicated that, depending on the type of aggression a particular individual favored, they were more likely to utilize it in a conflict situation (regardless of the nature of the conflict) and expect more positive results. Additionally, they found an overall effect of gender where girls evaluated relational aggression more positively (i.e., they expected to receive more positive outcomes as a result of engaging in this type of aggression) while boys favored overt aggression. Dodge & Coie (1987) also found evidence of specific hostile attributions of intent and intention-cue detection deficits in only reactively aggressive individuals. Other studies (e.g., Crick & Dodge, 1996; Smithmyer, Hubbard, & Simons, 2000) have suggested that proactive aggression is associated with positive outcome expectations for aggression and more positive evaluations of outcomes obtained through aggression.

Within the subtypes of aggression, the specific relations of these SIP mechanisms have yet to be clearly delineated. Bailey & Ostrov (2008) were able to demonstrate evidence of

situation specific hostile attributions for only reactively aggressive individuals and Marsee & Frick (2007) demonstrated unique relationships for outcome expectations and the proactive subtypes. Overall, these preliminary investigations do suggest that SIP mechanisms can differ based on an individual's predominant subtype of aggression. In order to tease apart these unique associations, however, much more research appears to be necessary.

Considering this wealth of findings, as well as many yet-to-be answered questions (particularly within the subtypes of aggression), it seems logical that the treatment of aggression should involve an assessment of these various SIP mechanisms in order to design more individualized, effective interventions (Bijttebier, Vasey, & Braet, 2003). Of the various SIP deficits that have been investigated in the contemporary aggression literature, one of the most widely studied and, potentially, one of the most important is the Hostile Attributional Bias (HAB).

HAB and Aggression

The concept of HAB emerged well before the Crick & Dodge (1994) SIP model was proposed (e.g., Dodge & Frame, 1982; Dodge & Newman, 1981), and since then has continued to be a staple in the social-learning theory of aggression. Most commonly defined as the tendency to interpret an ambiguous provocation as intentional and negative (e.g., Dodge, 1980), HAB is a deficit in the second stage in Crick & Dodge's SIP model. At this step individuals assess the situation and decide whether or not the provocateur was acting intentionally. The first studies of this construct (focusing solely on the overt form of aggression and often using only boys in their samples) consistently found that aggressive individuals were much more likely to interpret ambiguous situations as intentional (i.e., show greater HAB) than their nonaggressive peers (e.g., Dodge & Frame, 1980; Dodge, Murphy, & Buchsbaum, 1984; Dodge & Newman,

1981). Additionally, some of these early findings suggest that HAB is predictive of retaliatory aggression (Dodge, 1980). Thus it seems that HAB may play a causal role in the development of aggression in childhood and adolescence. Since then, countless studies have followed, examining the potential effects of HAB on the different forms, functions, and even subtypes of aggression. Overall, the results of this research suggest that HAB has specific relationships with both the forms and functions of aggression and, potentially, the subtypes as well.

When investigated in relational and overt aggression, the nature of individuals' HAB appears to depend on their dominant form used. Crick et al. (2002) found that children were more likely to exhibit HAB for only certain situations, depending on the form of aggression used in a series of hypothetical stories. Their results suggest that relationally aggressive individuals are more hostile towards ambiguous relational provocations (e.g., hearing two classmates talk about a party you have not been invited to) and overtly aggressive individuals are more hostile towards overt provocations (e.g., getting bumped from behind and falling into a puddle). Additionally, Crick (1995) found that relationally aggressive individuals reported significantly higher levels of distress for relational provocation situations. She posited that this distress may have been what led participants to interpret the situation as hostile or that responding to this situation aggressively may be their way of coping with that distress. Her second suggestion is very interesting because it alludes to a defensive response to provocation where HAB is concerned. This supposition has been strongly supported by HAB research focusing on the proactive and reactive functions of aggression

Between the proactive and reactive functions of aggression, HAB appears to be more strongly associated with the latter. Dodge & Coie (1987) found that only boys rated high on reactive or a combination of reactive and proactive aggression showed hostile interpretations of

intent when presented with videotapes depicting situations of victimization where the provocateur's intent was ambiguous. They also demonstrated that HAB was positively correlated with the rate of reactive, but not proactive, aggression observed during the boys' free play. These results support Dodge's (1980) earlier argument regarding the link between HAB and aggressive responding. In this case, though, the response was only reactive in nature, not proactive. In a study designed to replicate these results in a mixed gender sample, Crick & Dodge (1996) found that reactively aggressive children did indeed attribute more hostile intentions to ambiguous peer provocations. They also demonstrated that this bias was not present in proactively aggressive individuals as have several other studies (e.g., Dodge, Coie, Petit, & Price, 1990; Katsurada & Sugawara, 1998). So it seems that HAB is a very useful mechanism for distinguishing between the functions of aggression. Things become more complicated, however, when the functions are combined with the forms.

Studies investigating the role of HAB in the four subtypes of aggression are limited and results so far have been mixed. As mentioned earlier, Bailey & Ostrov (2008) found that reactive relational aggression was associated with HAB for relational situations and that reactive overt aggression was associated with HAB for overt situations in a sample of emerging adults. Considering the results of studies focusing exclusively on either the forms or functions of aggression, this finding is not surprising. If reactive aggression has been more strongly associated with HAB (e.g., Crick & Dodge, 1996) and individuals engaging in either relational or overt aggression have demonstrated situation specific hostilities (e.g., Crick et al., 2002), then it only seems logical that these associations would hold for the cross products of these constructs as well. However, studies seeking these results in children and adolescents have yet to find them. Crain, Finch, and Foster (2005) sought to find a predictive relationship between hostile

attributions for relational provocations and likelihood of relational aggression in a sample of fourth-to sixth-grade girls. When they failed to find a significant relationship, they also decided to examine that for HAB for overt provocations and likelihood of overt aggression. Those results were also nonsignificant. The attributed their findings both to the potential normative nature of the vignettes chosen (i.e., the stories were ones that would elicit an aggressive response from generally nonaggressive girls, but not from highly aggressive girls), as well as issues in their measurement of HAB. They argued that using a three-point rating scale (0 = not trying to be mean, 1 = maybe trying to be mean, 2 = definitely trying to be mean) may have been too limiting for their participants to respond with. As mentioned earlier, Marsee & Frick (2007) were unable to find any association between HAB and aggression. They suggested that their results may have been due to a small sample size (n = 58). However, given the unique nature of their sample (predominantly African American detained girls), their results may be attributable to a potential flaw in HAB measurement. It is possible that the means by which HAB was assessed in this study were inadequate for complete comprehension by this distinct group of participants (Leff et al., 2006)

The Measurement of HAB

In the beginning of HAB and aggression research Dodge (1980) assessed the construct through two different ways. The first utilized a live action provocation situation involving deception. Children were told that they would be competing against another child in a different room to complete a difficult puzzle for a prize. About halfway through working on the puzzle, participants were given an opportunity to see how much the other child had done. While in their opponent's room, participants overheard different recordings of the other child in their room and then returned to find their puzzle completely dismantled. There were three conditions: benign

(where the other child was clearly trying to help the participant complete the puzzle), hostile (where the child was clearly trying to wreck the participant's puzzle), and ambiguous. The results suggested that highly aggressive boys were much more likely to display hostility during the ambiguous situation than their less aggressive peers. In other words, they showed more HAB. Although few other studies (e.g., Kirsch, 1998; Orobio de Castro, 2000) have utilized a similar 'real-life' interaction to assess HAB, results from a recent meta-analysis of HAB studies by Orobio de Castro et al. (2002) suggest that studies using this means of assessing HAB have significantly larger effect sizes (i.e., demonstrate stronger relationships between HAB and overall aggression) than any other method. They attributed these findings to the amount of personal involvement felt by participants during the various HAB tasks. That being said, the cumbersome nature of staging an ambiguous provocation scenario (or multiple scenarios if investigating both forms of aggression) makes this a difficult method for assessing HAB. As such, it was necessary for Dodge to construct a more convenient means of assessing this construct.

For the second study in his initial HAB investigation Dodge (1980) constructed what would become the HAB measurement standard: the vignettes. This measure consists of a series of stories where participants experience a negative event (e.g., getting milk spilled on their shirt) and the intention of the provocateur is ambiguous. Participants are then asked whether or not they think the provocateur did that on purpose or by accident (i.e., they attribute hostile or benign intent). Even today, modifications of these stories continue to dominate the HAB literature. Early on, the vignettes demonstrated the ability to distinguish aggressive from nonaggressive children (e.g., Sancilio, Plumert, & Hartup, 1989; Dodge & Somberg, 1987). Soon after, they also demonstrated an ability to distinguish the proactive and reactive functions of aggression by

showing that only reactive aggression is associated with HAB (e.g., Crick & Dodge, 1996; Dodge & Coie, 1987). More recently, the vignettes have been modified to account for both the overt and relational aggression (Crick, 1995) and studies have shown that the vignettes can distinguish between these two forms as well (e.g., Crick et al., 2002).

In spite of the success in utilizing these updated stories to assess HAB, consistent results have still not been found when employing them in studies assessing the subtypes of aggression. Unlike Bailey and Ostrov (2008), who were able to find specific reactive-relational and reactive overt HAB in a sample of emerging adults when using vignettes, Marsee and Frick (2007) did not find these results in an adolescent sample. As mentioned earlier, they attributed their lack of findings to a small sample size, but it is possible that these results could also be attributed to other factors, for example flaws in measurement. Although they read the stories out loud to control for reading level differences, it is possible that the nature of the stories in general may have been difficult for participants to visualize. Leff et al. (2006) described the results of a pilot study that indicated that many adolescent participants found the vignettes to be boring and hard to understand. These participants suggested that illustrating the vignettes might be beneficial. Furthermore, Orobio de Castro, et al. (2002) emphasized the importance of participants feeling involved in the stories, so it seems logical that if visualization is difficult, finding results will be as well. It seems necessary, then, to modify the vignettes for the purpose of aiding in participant comprehension and story salience.

One potential way to increase comprehension appears to be adding visual stimulation. In a study on computer users, Miller and Stanney (1997) found that adding pictograms from a first-person perspective to instructions for a specific task increased performance time and time efficiency in novices as well as overall efficiency in expert computer users. They reasoned that

this increase was due to how much more 'real' the pictograms made the instructions seem. Two recent revisions of the vignettes, Hughes et al. (2004) and Leff et al. (2006), have added visual stimuli to try to accomplish this goal.

Revisions to the Vignettes

In an effort to utilize the vignettes in a way that would better assess multiple levels of the Crick and Dodge (1994) SIP model, as well as allow for a more gender-balanced means of interpretation, Hughes et al. (2004) constructed the Social-Cognitive Assessment Profile (SCAP). The SCAP consists of eight of the vignettes and several follow-up questions administered in interview format. Each story is accompanied by cartoon illustration to aid in participant visualization. Following each story, children are asked several questions designed to assess some of the SIP mechanisms outlined in the Crick and Dodge (1994) model (HAB, goal orientation, response generation, and response evaluation). Hughes et al. administered the SCAP to a large sample of children that were rated by their teachers as being aggressive, as well as to a control group of children rated as being "average" or "good citizens."

Test-retest reliability of the SCAP was deemed acceptable, ranging from Pearson r = .67 to .83. Internal consistency reliability ratings (α) for each scale of the SCAP were as follows: .65 (Attributions), .71 (Aggressive Solutions), .75 (Response Evaluation – Peer Retaliation), .81 (Response Evaluation - Peer Approval), .82 (Response Evaluation – Positive Outcome), .87 (Goal Orientation – Affiliation), and .89 (Goal Orientation – Dominance/Revenge). These internal consistency reliability scores were deemed satisfactory. They also found that the individual SCAP scales predicted both teacher ratings of conduct problems on the Child Behavior Checklist-Teacher Report Form (CBCL-TRF, Achenbach, 1991) as well as peer-nominated aggression scores from a modified version of the Class Play peer rating scale

(Masten, Morrison, & Pelligrini, 1985). Additionally, they examined the prediction by all of the SCAP scales together for teacher and peer ratings. Their results indicated that combining the scales significantly predicted 10% of the variance for teacher-rated conduct problems and 8% of the variance for peer-nominated aggression

All this considered, there are several major limitations to the SCAP that should be noted at this point in time. First, the use of the CBCL-TRF as the predictive validity criteria of the SCAP's ability to predict aggression is a bit misleading because that particular measure assesses not only aggressive symptoms, but oppositional, defiant, and conduct-related problems as well. Second, although they adjusted the SCAP's vignettes and the peer nomination scales to account for differences in relational and overt aggression, Hughes et al. (2004) failed to find significant discrimination between these two forms. As such, they were unable to assess the moderating role of gender in these forms of aggression that has been found in previous literature (e.g., Crick et al., 1996; Crick & Grotpeter, 1995).Third, Hughes et al did not investigate any prediction for the proactive or reactive subtypes of aggression. As current literature on this topic has consistently demonstrated that specific mechanisms of Crick and Dodge's (1994) SIP model appear to be differentially associated with these two types of aggression (e.g., Camodeca & Goossens, 2005; Crick & Dodge, 1996), assessing the utility of the various SCAP scales in distinguishing them from one another would greatly strengthen its predictive validity. Finally, and dealing specifically with the current study's interest in HAB, it seems that the internal consistency alpha for the Attributions scale (alpha = .65), although deemed acceptable, could definitely be higher. As only a few other studies (e.g., Heidgerken, Hughes, Cavell, & Wilson, 2004; Peets, Hodges, & Salmivalli, 2008) have utilized the SCAP or versions of it, these limitations have yet to be fully addressed.

In another attempt to increase salience in participants, this time for a very specific population, Leff et al. (2006), used cartoons to accompany each vignette. Collaborating with a group of African American girls (n = 120, Mean age = 10 years) recruited from a large urban area of the northeastern United States, Leff et al. developed a series of comics to illustrate each scenario that were customized for this particular group of participants. Unlike the SCAP, Leff et al.'s measure was designed to exclusively examine participants' HAB for both relational and overt situations. They explained that participants from the same population had complained of difficulty with understanding the vignettes alone in an earlier pilot study. These girls had suggested adding drawings to make the stories more engaging and enjoyable. Collaborating with the pilot group and a hired illustrator, Leff et al. created a series of comic-like panels to accompany each vignette. These cartoons, taken from a third person perspective, depicted African American girls in each scenario. Several revisions were made to the cartoons during their development following consultations with the pilot group in order to ensure that the images resembled people, places, and situations that they felt they could relate to. Leff et al. argued that adding these specific cartoons would make the stories more 'culturally relevant' for participants.

To assess the reliability of their revised measure, Leff et al. (2006) used a test-retest method comparing the text alone to the text/cartoon combination. They found that the cartoon version demonstrated comparable internal consistency for both relational ($\alpha = .83$) and physical ($\alpha = .81$) situations to that of the written version ($\alpha = .76$ for relational, and $\alpha = .83$ for physical). Additionally, test-retest reliability for the question of distress (i.e., "How upset would you be if the things in this story happened to you?") was significantly higher for the cartoon version than the written version for overt aggression situations ($z = 2.37$, $p < .05$). Furthermore, Leff et al. implemented a 5-item acceptability/meaningfulness measure with each test version to test what

they called the 'social' validity of their measure (i.e., how much more relatable the cartoon version is when compared to the vignettes alone). Their results indicated that, not only was the cartoon version rated much more acceptable and meaningful on every item ($p < .008$ for each item), but the test-retest reliability of the acceptability measure was much higher for the cartoon vignettes ($r = .85$) than for the written vignettes ($r = .49$).

While it is encouraging that Leff et al. (2006) were able to find such results, their measure has several flaws that would make its widespread use for the assessment of HAB in youth difficult. First, although their cartoon measure demonstrated greater acceptability/meaningfulness (i.e., social validity) than the written measure, Leff et al. failed to assess any other kind of validity. For example, assessing their measure's ability to predict participants' aggression scores (of either form or function) would have greatly enhanced the utility of their vignettes. In order for a measure to be a valuable clinical tool, researchers must first demonstrate that it has the ability to adequately measure the construct it purports to. While Leff et al.'s revisions to the vignettes show a lot of promise, there is much to be done in ascertaining that these changes are, in fact, effectively adding incremental validity to the measurement of HAB. Additionally, this measure was designed for a very specific population (urban, African-American girls), which limits its generalizability to girls of different races and boys in general.

Both the SCAP and urban girls' cartoons, while admirable attempts to modify the vignettes, still fall short in many areas. In addition to the individual flaws of each measure outlined earlier, both share several additional problems. First, in both the SCAP and Leff et al.'s (2006) cartoons, the stories are depicted from a third- rather than first-person perspective. Orobio de Castro et al.'s (2002) meta-analysis of HAB studies found that those presenting the vignettes

in this way (i.e., having the children watch a video or look at a pictures of each story) actually showed the smallest overall relation between HAB and aggressive behavior (r = .02, not significant for pictures and r = .09, p = .015 for video). Those where the vignettes were read to children or read by children showed moderate effects (r = .24, p < .001 for both methods), and the few studies that actually employed an ambiguous provocation situation had the largest associations between intent attributions and aggression (r = .55, p = .012). They proposed that these results were due to the participants' amount of personal involvement during vignette administration, and argued that watching another child (or a drawing of another child) interact and being instructed to 'pretend it's you' may in fact make it more difficult for participants to visualize themselves in each story.

A second problem with both the SCAP and urban girls' cartoons is that the images in each measure are static. Though this issue is potentially less problematic than the third-person perspective, this is still a concern in terms of participant salience. Of all the methods of vignette presentation examined by Orobio de Castro et al. (2002), those using pictures alone showed the smallest (and also the only nonsignificant) relationship between hostile attributions and aggressive behavior. This HAB effect was even smaller than video presentation, which was also very small. Again, this could theoretically be linked to a participant's feeling of personal involvement during administration as imagining oneself as a still image may be more difficult than for a moving one.

A final major limitation of these studies is that neither Hughes et al. (2004) nor Leff et al. (2006) used their measures to assess HAB differences among the subtypes of aggression. In fact, neither study assessed these measures' utility in distinguishing even the forms or functions of aggression. As mentioned earlier, Hughes et al. failed to examine the SCAP's ability to

distinguish between proactive and reactive aggression. Additionally, although they adjusted the vignettes and the peer nomination scales to account for differences in relational and overt aggression, they failed to find significant discrimination between the two forms. Leff et al. examined only the basic psychometrics (test-retest reliability, internal consistency reliability, and social validity) of their new measure. Differences in aggression and HAB types were not considered. Taking these issues together, there is still much to be done where the measurement of HAB is concerned.

The Other Half of HAB: The Provocateur

It should be noted that up to this point in this extensive literature review, the focus has solely been on the individual with HAB. While it is clear that there are unique facets of HAB within the individual (i.e., degrees of specificity to the forms and functions of aggression), little is known about specific cognitions involved in this bias. If effective interventions are to be gleaned from research on this construct, much more detail about the actual thoughts experienced by an individual in the provocative situations need to be sought. One potential starting point for finding these specifics involves consideration of the fact that there are two people involved where HAB is concerned: the individual with HAB *and the provocateur*. Focusing solely on the person with HAB is only half the story. Now, then, it appears necessary to consider the effects of provocateurs and their relationship to individuals' attributions of intent.

While the majority of HAB research focuses on the hostile individuals' demographic features, some studies have looked at the importance of provocateur features in influencing aggressive responding. Juujärvi, Kooistra, Kaartinen, and Pulkkinen (2001) found that physical characteristics of a provocateur (e.g., height, weight, gender) were strongly related to the amount of retaliatory aggression selected in a computer task. Specifically, they found that both boys and

girls responded most aggressively to a peer of the same gender and close to the same size as them, and were less aggressive to opposite gender peers that were either smaller or larger than them. So it does seem that, even at the most basic physical level, characteristics of the provocateur have an effect on an individual's aggression.

Ray and Cohen (1997) and Ray, Norman, Sadowski, and Cohen (1999), instead of looking at provocateurs' exterior features, investigated the importance of the underlying relationship between provocateur and victim (i.e., best friend, acquaintance, or enemy) with regards to HAB and aggression. Both studies found that children evaluated confrontations between provocateurs labeled as 'acquaintances' or 'enemies' much more negatively than they did for situations with those labeled as 'friends.' More recently, Peets, Hodges, Kikas, and Salmivalli (2007) conducted a similar study using children's real life self-reported friends, acquaintances, and enemies. Their results were similar, suggesting that children do differentiate between relationship types with regards to HAB and responsive aggression. These results may be further explained by studies examining the effects of individual's HAB on their evaluation of a provocateur's character and moral standing.

Research has shown that different interpretations of conflict situations (i.e., hostile or benign) yield different judgments about the provocateur as a person and, as a result, different responses. Furthermore, research has demonstrated that additional information about both the provocateur and the conflict situation can alter even a hostile individual's interpretation. For example, Kremer & Stephens (1983) found that providing mitigating information (i.e., information excusing the provocateur's behavior) immediately after an aggressive act led to decreases in retaliatory aggression. Providing this information later or subjecting participants to a second attack, however, decreased or eliminated the buffering effect of the mitigation. In a

similar study, this one with mitigating information present prior to provocation, Pederson (2006) found that individuals who had a positive view of a provocateur were much more likely to attribute an aggressive act to external circumstances (i.e., as inconsistent with that person's normal behavior) and would subsequently inhibit an aggressive response. However, for a provocateur whom participants had no positive feelings for (i.e., the 'neutral' condition), they were much more likely to attribute an aggressive act to internal characteristics (i.e., not 'inconsistent' behavior) and respond with aggression. This explanation may account for the changes in hostility and aggression as a result of relationship type in studies of provocateur status and HAB. For example, Peets et al. (2007) found that children displayed different responses (i.e., hostile or forgiving) depending on the status (friend, enemy, or neutral) of the provocateur. The next major step is to examine the specific moral evaluations made and, perhaps more importantly, the information that most affects these responses.

In an effort to find a specific situational factor that may lead to the harsher moral evaluations of provocateurs, Reeder, Kumar, Hesson-McInnis, and Trafimow (2002) conducted a study on interpretations based on information regarding the specific *motivation* behind an aggressive act. Specifically, they sought to examine whether or not knowing that an aggressive act was proactively or reactively motivated would impact participants' moral evaluations of the provocateur. They found that, when an act was proactively motivated (i.e., when the provocateur was receiving a secondary gain such as money for aggressing), participants evaluated provocateurs much more harshly than for situations where the aggression was not motivated by external gain. Similarly, Leahy (1979) found that presenting children with different information about motivation influenced the severity of punishment given to hypothetical provocateurs. Specifically, he found that for situations involving mitigation (i.e., response to provocation from

the participant) or duress (i.e., being told by a bully that they have to do something), provocateurs were seen as less responsible for their actions and lighter punishments were given. However, in situations where indicators of internal 'maladjustment' (i.e., being described as "a little crazy" or being known to get into fights a lot) were presented, Leahy found that children were much more likely to hold the provocateur accountable for the action and select a more severe punishment.

Based on this body of research, it seems clear that different information about the provocateur can change an individual's evaluation of them, but there is still the question of just what that evaluation entails, especially in the case of a hostile one. The literature has demonstrated that particular judgments are made about provocateurs when participants are given information, but no one has systematically assessed how these individuals interpret these situations (and come to unique moral evaluations) on their own. Specifically, current research has yet to answer the question of suspected provocateur motive: "Do you think the provocateur victimized you for a particular reason?" While it is true that variations of the vignettes have questions asking about provocateur motivation, there does not appear to be any published literature that utilizes this information yet. As it has been demonstrated that certain types of information and interpretations dampen hostile responses (Kremer & Stephens, 1983, Reeder et al., 2002) clarifying these findings from a first-person perspective has the potential to seriously change HAB focused intervention strategies.

As can be seen here, not only does it appear necessary to modify current HAB measures to more accurately assess the construct as a whole, now it appears that this modification should also account for provocateur motivation in order to increase overall understanding of some of the

specific cognitions involved in the bias and, as a result, design more detailed, informed, and ultimately effective interventions.

Statement of the Problem

Previous research indicates that hostile attributional bias (HAB; the tendency to interpret an ambiguous provocation as intentional and negative) is a significant risk factor for aggressive behavior in general (Dodge, 1980) and also seems to play a specific role in different types of aggression (Bailey & Ostrov, 2008; Crick & Dodge, 1996; Goldstein, Tisak, Persson, & Boxer, 2006). Furthermore, Camodeca et al. (2002) found that the type of aggression commonly associated with HAB is prominent in both school bullies as well as bully/victims (individuals who are bullied and aggressive to others). As bullying and aggression in schools are a critical issue today (Storch & Esposito, 2003; Snyder et al., 2003), a clearer understanding of the nature of HAB appears to be essential for understanding the various types of aggression and planning effective interventions for each. The goal of the present study was to further investigate several underlying facets of HAB that may lead to clearer definitions and distinct functions of the construct and shed more light on its relation to various subtypes of aggression. This enhanced understanding, in turn, could lead to more effective treatment and prevention measures for the types of aggression associated with HAB in the future.

The first aim of this study was to assess whether or not HAB showed relational or overt situation specificity in reactively aggressive adolescents. Past research has shown that HAB is often more prominent in reactively aggressive children than proactively aggressive ones (e.g., Crick & Dodge, 1996) and that youth often show situation-specific biases for relational versus overt aggression (e.g., Crick et al., 2002). However, when breaking the construct of aggression down further into the four established subtypes of aggression (e.g., proactive overt, proactive

relational, reactive overt, reactive relational), results regarding these distinctions are unclear. A logical supposition is that HAB should present primarily in reactively aggressive children and, within that subgroup, should still be situation-specific (i.e., reactive relationally aggressive individuals should demonstrate more HAB for relational situations and reactive overtly aggressive ones for overt situations), but researchers have not found any conclusive results to support this hypothesis in youth.

Bailey and Ostrov (2008) demonstrated evidence of situation-specific (relational or overt) aggression in reactively aggressive individuals in a sample of emerging adults (mean age = 19.05 years). This finding has yet to be extended to children and adolescents, the population in which these problems appear to be most important. Marsee and Frick (2007) failed to find a significant association between measures of HAB and either type of reactive aggression in a sample of detained girls. They attributed this inconsistency to a small sample size but there are other potential explanations, for example: inadequacy of the HAB measure used (vignettes). In particular, the abstract nature of the stories may have caused difficulty for participants in visualizing each and thus making the validity of their responses suspect. It seems necessary to revise these stories in order to make them more meaningful to participants (Leff et al., 2006). Additionally, both Marsee and Frick (2007) and Leff et al. (2006) used versions of the vignettes in specific populations: predominantly African American detained girls, and urban African American girls. Additional revisions may be necessary for making these vignettes generalizable to other populations as well.

The present study sought to revise the current (Crick, 1995) HAB vignettes in a way that would increase salience and the participants' understanding of and feelings of involvement in the stories. Following the reasoning of Orobio de Castro et al. (2002), increasing participants' sense

of involvement in the vignettes could lead to an increased ability to predict overall aggression. Leff et al. (2006) and Hughes et al. (2004) have suggested that if participants can better understand and relate to the stories, they may answer more consistently and validly. These enhanced answers, in turn, could yield results consistent with aggression-type specific HAB found in adults (Bailey & Ostrov, 2008) in children and adolescents and demonstrate stronger associations with aggressive behavior. Leff et al. (2006) found that when pairing the stories with culturally relevant cartoon depictions (i.e., designed specifically for urban, African American girls), responses were not only more reliable, but participants consistently rated the stories as more meaningful (i.e., demonstrating greater social validity). However, as the present study seeks to examine HAB in a more diverse sample of youth, the specific cultural orientation of Leff et al.'s measure renders it inadequate. Additionally, both the Leff et al. cartoons and the SCAP present readers with static images taken from the third- rather than first-person perspective. In Orobio de Castro et al.'s (2002) review, these types of measures actually showed the weakest relationships with aggression. In this sense, these measures may be more likened to tests of moral attributions made by individuals outside of a situation (e.g., Reeder et al., 2002), not individuals experiencing direct provocation.

In order to address these limitations, two major changes were made to the Crick (1995) version of the measure: (1) the addition of animation and (2) the addition of a narration component. While the Leff et al. (2006) cartoon measure demonstrated more reliability than the written vignettes version, the fact that images were static and presented from a third-person perspective is problematic. Miller and Stanney (1997) found that adding pictograms from a first-person perspective to instructions for completing various computer tasks increased performance time and time efficiency in novice computer users as well as overall efficiency in expert

computer users. They reasoned that this increase was due to how much more 'real' the pictograms made the instructions seem. This logic also follows that of Orobio de Castro et al. (2002), who posited that the HAB studies that showed the strongest associations between HAB and aggression (i.e., the more highly correlated HAB was with aggressive behavior) were those where participants felt more personally involved. HAB measurement involving an actual provocation task showed the strongest relationship to aggression, while tasks involving viewing pictures or videos from the third-person perspective showed the weakest. For the present study, animations from a first-person perspective were created for each story with the goal of more clearly presenting each vignette. The overarching goal of this study was to make the experiences of the vignettes as understandable and, perhaps more importantly, as close to a real-life experience as possible for participants. As a result of increased participant understanding, this new measure should demonstrate an increased capability to predict aggressive behaviors beyond the measures currently in use. Additionally, the animations created for this study were designed to be much more universal with ethnically neutral characters, similar to those in the SCAP.

As for adding narration to the animations, reasoning for this component comes from Marsee and Frick (2007) and a study conducted by Mayer and Johnson (2008). Marsee and Frick, although they used the vignettes alone, read each story to participants in order to control for reading level differences. Also, Mayer and Johnson found that when giving a multimedia presentation presenting information through diagrams, narration, and printed words, as opposed to just narration and images alone, information recall and comprehension was increased in a sample of college students. Furthermore, Orobio de Castro et al. (2002) found that studies where the participants either read the stories or had the stores read to them showed stronger correlations between aggressive behavior and HAB than those where pictures or video alone were used. The

measure used in the current study employed animations, narration, as well as the printed stories for participants. Again, the goal was to obtain more reliable results from participants that have a clear understanding of each story and increase the vignette's ability to predict aggression.

The second aim of this study was to use this new measure to assess whether or not HAB is dependent on the perceived motivation behind provocation. While some studies have investigated the effects of variables such as provocateur gender, status (e.g., rejected, popular, etc.) and relationship to the victim (e.g., Peets et al., 2007), the literature has not examined whether individuals who exhibit HAB suspect that the provocateur has something to gain by committing the action (i.e., whether or not the action was proactively/instrumentally motivated).

Reeder et al. (2002) indicated that the perceived motivation behind an action plays a role in inferences about the provocateur as made by an outside person observing the situation. They found that individuals observing an aggressive act responded very differently depending on the information they were given about the aggressor in a story. In situations where the aggressor clearly had something to gain from acting (e.g., money), evaluators ratings were much more negative and the aggressor was viewed as more immoral. However, in situations where a clear gain for aggressing was not present (e.g., reacting to provocation), observers were much more likely to forgive the aggressor and did not rate him as an immoral individual. Keller, Lourenço, Malti, and Saalback (2003) found similar results in a sample of children. They found that children were more likely to rate aggressors' moral standing as lower if their action was motivated by an external gain. They found similar results for children's self-ratings (how the child would feel if he or she were the aggressor in the stories) as well. However, they did not examine how the child would evaluate an aggressor if he or she were the victim in a story. It is quite possible that this trend applies to victims in these situations as well, though there is no

current research addressing this topic. Furthermore, these studies presented participants with stories involving a clearly aggressive intent, as opposed to the HAB vignettes where the intent is ambiguous.

To date no known research has explored this question of proactive versus reactive provocateur motivations in HAB. Motivations in HAB studies (e.g., Juujärvi et al., 2001) appear to be limited to only questions of intent (i.e., hostile/intentional versus benign/unintentional). Whether or not HAB is influenced by perceived proactively motivated actions (and how that influence may affect the individual's response) has yet to be studied in depth. To achieve this goal, additional modifications to the HAB measure were necessary. The original vignettes contain a question asking why the child thinks the events in the story happened. However, the answer choices, again, appear to only be benign or hostile (proactive/reactive motivations are unclear). To adjust these options for this study, proactive and reactive motivation choices were constructed based on items of the Peer Conflict Scale (Marsee & Frick, 2007) to replace the current choices.

Past and current literature argues that in order to understand aggression in individuals, the unique emotional and cognitive mechanisms involved in aggression must be understood as well (e.g., Crick & Dodge, 1994). It is possible that understanding the role of perceived motivation in HAB could add to the ever growing body of knowledge about aggressive behavior in adolescents, as well as aid in planning interventions.

Based on these stated goals, the hypotheses of this study are as follows:

1. The animation/narration vignettes will show comparable reliability (through internal consistency measures and correlation comparisons) with the written vignettes.

2. The animation/narration vignettes will demonstrate an increased ability to predict overall aggression as compared to the written vignettes.
3. Reactive aggression will be significantly associated with HAB, even after controlling for proactive aggression. After controlling for reactive aggression, proactive aggression is not expected to be associated with HAB.
4. Reactive relational aggression will be significantly associated with HAB for relational provocation situations and reactive overt aggression will be significantly associated with HAB for overt provocation situations when controlling for gender and for the other aggression subtypes.
5. HAB will show a significant and positive correlation with proactive motivations but will not be significantly correlated with reactive motivations. Additionally, ratings of anger and overall aggression will show significant and positive correlations with proactive motivations but will not be significantly correlated with reactive motivations.

Considering the high rate of aggression in youth and its multifaceted nature (Marsee & Frick, 2007), researchers are compelled to examine correlates that may increase understanding and aid in treatment and prevention. As HAB is a clear risk factor for aggressive behavior (Dodge, 1980), a better understanding of this phenomenon and the particular role it plays in aggressive behavior in youth is critical.

Method

Participants

A sample of adolescents (mean age = 16.51 years, SD = 1.13, 50% male, 31% Caucasian) was recruited from a public high school in southeastern Louisiana. 300 informed consent letters were distributed to students in their physical education and health classes a week prior to data

collection. No parents refused consent, but due to absences or refusal to participate, only 144 data packets were completed. Of these packets, 18 contained answers for less than 50% of the measures, yielding a final sample size of n = 126 (participation rate = 42%).

Originally, all participants were expected to complete both written and animation/narration versions of the vignettes. However, some difficulty was encountered in accomplishing this task. Many of the participants, once they reached the second version of the vignettes in their packet, filled in random answers (e.g., selecting zeroes for every response) or did not complete it at all. Additionally, when directed to answer both versions of the vignettes, several students refused to participate in the study any longer. The two-vignette procedure was carried out for the first three class periods. During this time, only 55 individuals completed both versions of the measure validly. Given the great amount of difficulty the researchers encountered while using the two-vignette procedure, only written versions of the vignettes were used in the final class period. The final class period administration yielded a second subsample of n = 71 participants who only completed the written version of the vignettes. Thus, analyses containing the animation/narration version of the measure are based on a smaller subset (n = 55) of the total N and written vignettes analyses can be conducted using either the n = 71 subsample or the total sample of N = 126.

Measures

Demographic information

Participants provided their month and year of birth, age, ethnicity, gender, grade, and GPA.

Aggression type

Children's type of aggression was assessed using the Peer Conflict Scale (PCS, Marsee & Frick, 2007). The PCS is a 40-item self-report measure that assesses the presence of the four subtypes of aggression: proactive overt (e.g., "I start fights to get what I want"), reactive overt

(e.g., "When someone hurts me, I end up getting into a fight"), proactive relational (e.g., "I gossip about others to become popular"), and reactive relational (e.g., "If others make me mad, I tell their secrets") in youth. Participants circle a number based on how well the statement describes him/her (0= "not at all true," 1= "somewhat true," 2= "very true," and 3 = "definitely true"). Subtype scores are calculated by summing the 10 items that compose each subscale and range from 0 – 30. Proactive and Reactive function scores are calculated by summing the 20 items for each subscale and range from 0-60. Overall aggression scores are the sum of all of the PCS items and range from 0-120. Marsee and Frick (2007) demonstrated good internal consistency (measured by Cronbach's α) for the subtype scores in a sample of detained girls (reactive overt = .87, proactive overt = .82, reactive relational = .80, proactive relational = .76). Additionally, Marsee (2008) demonstrated reliability for the reactive and proactive scales in a sample of adolescents affected by hurricane Katrina (total reactive α = .87, total proactive α = .86). For this study, each of these scales demonstrated good internal consistency reliability (alphas ranged from .93 to .98 see Table 1).

Hostile attributional bias (HAB)

HAB was measured using two sets of vignettes (animation/narration and written) based on a modified version of the Crick (1995) HAB vignettes. A description of the justification for and process involved in creating the animation/narration version of the vignettes is described in the introduction. Sample screen shots from the animated vignettes are included in Appendix A. Each story involves a situation with a negative outcome (e.g., having milk spilled on your back, not being invited to a party) where the intent of the provocateur is ambiguous. The stories consist of five relational (e.g., seeing two peers whispering and looking at you in the hallway) and five overt (e.g., being bumped from behind and falling into a mud puddle) provocation situations.

These stories have demonstrated good reliability for both relational (α = .65-.78) and overt (α = .77-.86) situations (Crick, Grotpeter, & Bigbee, 2002), as well as predictive utility for both the forms (Crick, 1995; Crick, Grotpeter, & Bigbee, 2002) and functions (Crick & Dodge, 1996) of aggression.

In the original stories the provocateur is always described as a 'kid' but five of the vignettes used in this study (two overt and three relational situations) have been modified to be gender specific, two stories involve mixed gender groups (both relational situations), and three (overt situation) stories were kept the same, leaving the gender of the provocateur ambiguous. These changes were made in order to potentially account for Juujärvi et al.'s (2001) finding that children and adolescents are more likely to respond aggressively to a provocation from an individual of the same gender. By varying the gender composition of the provocateurs in the story, the goal was to assess HAB across multiple provocateur types. Additionally, the content of two of the stories was altered to increase salience for the generation being studied. For example, an original vignette involves bringing a radio to school to show other kids. In the modified vignette, the story contains a cellular phone instead of a radio. Another modified story involves seeing a friend receive a text message from someone unknown instead of the original version, which involved seeing a friend playing with someone unknown.

After hearing each story youth are asked to answer follow-up questions. In the original version of the vignettes, there are three follow-up questions. The first question asks why the event happened and contains four options (two benign, e.g., "It was an accident" and two hostile, e.g., "The kid was mad at me."). The second question asks respondents if they think the kid in the story was "trying to be mean" or "not trying to be mean," and the third question asks participants how upset or mad they would be if the events in the story happened to them. Most

often HAB is calculated by summing responses to question two (the question of intent to "be mean"). However, in order to evaluate some of the specific hypotheses of this study, several changes to these follow up questions were made.

In the modified vignettes (see Appendix A), three questions designed to assess provocateur motivation were added first. The questions ask how likely is it that specific thoughts about the provocateur's motive will pop into the participant's mind rated on a 0 to 4 likert scale with three rating markers (0 = "doesn't pop up in my mind", 2 = "might pop up in my mind", 4 = "definitely pops up in my mind", where 1 and 3 are intermediate ratings between these three statements). The first question involves a proactive motive for the act (e.g., "the boy spilled paint on my project because he wants a better grade than me"), the second a reactive motive (e.g., "the girl didn't invite me because she is trying to get back at me for something"), and the third is a benign option (e.g., "the kids didn't say anything because they didn't see me standing there"). The fourth question is a forced-choice version of the first three questions and asks participants to pick the thought that they think is most believable. Motive suspicion scores were calculated in two ways. Proactive Motive Suspicion (item 1), Reactive Motive Suspicion (item 2), and Benign Motive Suspicion (item 3) were individually calculated by summing the likert-scale items across stories, and range from 0 (no suspicion of proactive/reactive/benign motive) to 40 (suspicion of proactive/reactive/benign motive). Motive suspicion scores based on the forced-choice believability item (Believe Motive Suspicion) were calculated by scoring proactive motive as 2, reactive motive as 1, and benign motive as 0 and summing them across stories. Scores on Believe Motive Suspicion range from 0 (most benign) to 20 (most proactive). The fifth question assesses overall HAB exactly as the original measure, asking whether or not participants think that the provocateur was "trying to be mean" or "not trying to be mean" with

scores ranging from 0-10, with higher scores indicating higher levels of HAB. The final question asks how upset or angry the child would be if this situation had happened to them (0 = "not upset or mad at all", 1 = "a little upset or mad", 2 = "very upset or mad"). Anger scores (Anger to Provocation) were calculated by summing the items from this question and range from 0-20.

Both the written and animated vignettes consist of exactly the same stories, presented in the same order, and with the same questions following each story. As mentioned above, some of the stories are gender specific (others are mixed-gender group and gender unknown). As such, the task has separate versions for boys and girls. The revised vignettes, as well as several screen shots from the animations can be found in Appendix A.

Procedure

Prior to data collection, the university Institutional Review Board (IRB) approved all procedures. Informed consent letters including information on the procedures, the voluntary nature of participating, potential risks and benefits, and the terms of confidentiality were distributed to students in their physical education (PE) and health classes a week prior to data collection. Students were instructed to show these letters to their parents, though it was not necessary to bring back a signed letter as documentation of parental consent was the only risk to loss of participant confidentiality. Instead, the consent letter contained instructions for parents on how to contact the researchers if they did not want their child to participate in the study. No parents contacted the researchers to refuse consent. On the day of data collection, students were escorted from their PE or health class during each class period (there were four blocks) to the cafeteria where two trained graduate students distributed questionnaire packets. The first page of each packet was an assent form outlining the study's procedure, potential risks and benefits, and explanations of the voluntary nature of participation and the terms of confidentiality. As with the

informed consent, documentation of assent was waived. Instead, students were told that by filling out the questionnaires they were agreeing to participate in the study. Once assent was obtained, students were instructed to complete the questionnaires in order without skipping any questions. The graduate students remained in the cafeteria to provide additional instructions if students had problems with the questionnaires.

During questionnaire administration, groups of 15-20 students were brought to a separate classroom to complete the animation/narration version of the vignettes, supervised by a third trained graduate student. Animations were projected onto a large screen at the front of the classroom while narration played over two computer speakers. After viewing each story, students were instructed to answer the follow-up questions. Once all ten stories were completed, the group was taken back to the cafeteria. Two groups, one of boys and one of girls, viewed animation/narration vignettes in each class period. The morning class periods were presented the animation/narration version before the written one, and the afternoon periods were presented written first followed by animation/narration. As mentioned earlier, much difficulty was encountered in carrying out this procedure in vivo. Problems primarily centered on many students failing or refusing to complete both versions of the HAB measure. This procedure was used for the first three class periods (two in the morning and one in the afternoon). Given the amount of difficulty found, however, the researchers decided to only use the written version of the vignettes in the final class period. Upon completion of data collection, participants were allowed to select a small prize (e.g., sunglasses, key chains, hacky sacks, etc.) as compensation for their time.

Results

Preliminary Analyses

Descriptive statistics for the main study variables are presented in Tables 1,2 and 3. Overall, participants reported significantly ($t = 2.113$, $p < .05$) higher levels of reactive aggression (M = 13.34, SD = 14.39) than proactive aggression (M = 10.63, SD = 14.56), with the largest subtype being reactive overt aggression (M = 7.97, SD = 8.29). HAB scores of the written versus animation/narration versions of the vignettes were very similar (M = 4.45, SD = 2.28, and M = 4.49, SD = 2.11 respectively) and participants reported similar HAB for relational provocations (M = 4.73, SD = 2.80 for written, and M = 4.72, SD = 2.80 for animation/narration) and overt ones (both M = 4.18, SD = 2.70). Additionally, participants reported higher suspicion of proactive motivations (M = 16.38, SD = 8.86 for written, and M = 17.00, SD = 9.50 for animation/narration) than for reactive motivations (M = 13.64, SD = 7.77, and M = 13.94, SD = 8.50). These results were significant for both the written ($t = 3.472$, $p < .01$) and animation/narration ($t = 2.391$, $p < .05$). A series of t-tests were conducted to determine whether the students who completed both the animation/narration and written vignettes (n = 55) differed significantly on any of the main study variables from the students who completed only the written vignettes (n = 71). Results showed no significant differences on any of the main study variables.

Correlations of the main study variables are presented in Tables 4, 5, and 6 (for the written vignettes) and 7 (for the animation/narration vignettes). As expected, all four subtypes of aggression were highly correlated, with r's ranging from .71 (reactive relational and reactive overt, $p < .01$) to .94 (reactive relational and proactive relational, $p < .01$). Gender (0 = male, 1 = female) was significantly correlated with total aggression ($r = -.18$, $p < .05$), proactive

aggression(r = -.20, p < .05), and proactive overt aggression(r = -.23, p < .05), with boys reporting more of each. HAB from the written vignettes (in the whole sample and the written-only group) was significantly correlated at the .01 level with all aggression variables (total r = .34, proactive r = -.34, reactive r = .33, proactive overt r = .34, proactive relational r = .33, reactive overt r = .27, reactive relational r = .35). The animation/narration vignettes variables (HAB, proactive motive suspicion, reactive motive suspicion, HAB for overt provocation, HAB for relational provocation, and anger to provocation) were correlated with the written-vignettes variables for the n = 55 sample. All variables were significantly correlated at p < .01 with r's ranging from .46 (HAB for relational provocation) to .84 (proactive motive suspicion). Unexpectedly, written vignettes scores for the animation/narration (n = 55) group yielded mostly nonsignificant correlations with the aggression variables (see Table 6). Animation/narration HAB scores, however, were significantly correlated at the .05 level (total r = .28, proactive r = .27, reactive r = .28, proactive overt r = .32, reactive overt r = .30), but were nonsignificant for proactive relational (r = .21, p = .129) and reactive relational aggression (r = .21, p = .185).

Table 1 - Descriptives of Main Study Variables (Whole Sample, N = 126)

Variable	Min.	Max.	Mean	SD	Alpha
1. Age	13	21	16.51	1.13	--
2. Ethnicity	--	--	30.4% white	--	--
3. Gender	--	--	50% male	--	--
4. HAB (W)	0	10	4.45	2.28	.61
5. Proactive Motive Suspicion (W)	0	38	16.38	8.86	.82
6. Reactive Motive Suspicion (W)	0	38	13.64	7.77	.80
7. Overt Provocation HAB (W)	0	10	4.18	2.70	.47
8. Relational Provocation HAB (W)	0	10	4.73	2.80	.48
9. Anger to Provocation (W)	0	20	9.73	4.29	.78
10. Total Aggression	0	120	23.97	28.39	.98
11. Proactive Aggression	0	60	10.63	14.56	.97
12. Reactive Aggression	0	60	13.34	14.39	.95
13. Proactive Overt Aggression	0	30	5.24	7.35	.93
14. Proactive Relational Aggression	0	30	5.39	7.49	.94
15. Reactive Overt Aggression	0	30	7.97	8.29	.93
16. Reactive Relational Aggression	0	30	5.37	7.28	.93

Note. HAB = hostile attributional bias; W = written version; Gender was coded 0 for male and 1 for female. Ethnicity was coded 0 for white and 1 for nonwhite.

Table 2 - Descriptives of Main Study Variables (Written-only Sample, N = 71)

Variable	Min.	Max.	Mean	SD	Alpha
1. Age	13	21	16.53	1.22	--
2. Ethnicity	--	--	30% white	--	--
3. Gender	--	--	54.9% male	--	--
4. HAB (W)	0	10	4.59	2.39	.64
5. Proactive Motive Suspicion (W)	0	38	15.78	8.80	.82
6. Reactive Motive Suspicion (W)	0	38	13.59	7.92	.80
7. Overt Provocation HAB (W)	0	10	4.62	2.80	.50
8. Relational Provocation HAB (W)	0	10	4.56	2.93	.54
9. Anger to Provocation (W)	0	20	10.11	4.11	.75
10. Total Aggression	0	120	25.41	32.17	.99
11. Proactive Aggression	0	60	11.57	16.64	.98
12. Reactive Aggression	0	60	13.83	16.03	.97
13. Proactive Overt Aggression	0	30	5.61	8.34	.96
14. Proactive Relational Aggression	0	30	5.97	8.54	.96
15. Reactive Overt Aggression	0	30	8.11	8.85	.95
16. Reactive Relational Aggression	0	30	5.71	8.15	.95

Note. HAB = hostile attributional bias; W = written version; A/N = animation/narration version, Gender was coded 0 for male and 1 for female. Ethnicity was coded 0 for white and 1 for nonwhite.

Table 3 - Descriptives of Main Study Variables (A/N Sample, N = 55)

Variable	Min.	Max.	Mean	SD	Alpha
1. Age	13	19	16.49	1.00	--
2. Ethnicity	--	--	30.9% white	--	--
3. Gender	--	--	43.6% male	--	--
4. HAB (W)	0	9	4.28	2.13	.56
5. Proactive Motive Suspicion (W)	0	34	17.15	8.96	.83
6. Reactive Motive Suspicion (W)	0	32	13.71	7.64	.81
7. Overt Provocation HAB (W)	0	8	3.62	2.48	.38
8. Relational Provocation HAB (W)	0	10	4.94	2.62	.40
9. Anger to Provocation (W)	0	20	9.25	4.50	.82
10. HAB (A/N)	0	9	4.49	2.12	.56
11. Proactive Motive Suspicion (A/N)	0	36	17.00	9.50	.85
12. Reactive Motive Suspicion (A/N)	0	29	13.94	8.50	.85
13. Overt Provocation HAB (A/N)	0	10	4.05	2.64	.43
14. Relational Provocation HAB (A/N)	0	10	4.94	2.45	.30
15. Anger to Provocation (A/N)	0	17	9.52	4.38	.83
16. Total Aggression	0	80	22.12	22.75	.96
17. Proactive Aggression	0	40	9.41	11.37	.94
18. Reactive Aggression	0	40	12.70	12.06	.92
19. Proactive Overt Aggression	0	22	4.78	5.86	.86
20. Proactive Relational Aggression	0	20	4.64	5.84	.88
21. Reactive Overt Aggression	0	30	7.78	7.59	.91
22. Reactive Relational Aggression	0	20	4.93	6.02	.87

Note. HAB = hostile attributional bias; W = written version; A/N = animation/narration version, Gender was coded 0 for male and 1 for female. Ethnicity was coded 0 for white and 1 for nonwhite.

Table 4 - Correlations of Main Study Variables (Whole sample, N = 126)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age															
2. Ethnicity	.077														
3. Gender	.011	.203*													
4. HAB (W)	.108	.146	-.031												
5. Proactive Motive Suspicion (W)	.118	.270**	-.072	.418**											
6. Reactive Motive Suspicion (W)	.044	.196*	-.023	.331**	.686**										
7. Overt Provocation HAB (W)	.115	.183*	-.133	.821**	.382**	.312**									
8. Relational Provocation HAB (W)	.065	.061	.078	.835**	.311**	.238**	.371**								
9. Anger to Provocation (W)	-.138	.194*	-.010	.306**	.466**	.354**	.278**	.230**							
10. Total Aggression	.029	.107	-.182*	.342**	.329**	.278**	.317**	.251**	.087						
11. Proactive Aggression	.017	.125	-.198*	.339**	.299**	.250**	.308**	.254**	.057	.981**					
12. Reactive Aggression	.039	.086	-.159	.332**	.345**	.295**	.312**	.238**	.115	.980**	.922**				
13. Proactive Overt Aggression	-.006	.104	-.225*	.336**	.284**	.225*	.313**	.245**	.071	.968**	.982**	.915**			
14. Proactive Relational Aggression	.039	.141	-.165	.330**	.304**	.266**	.293**	.253**	.040	.958**	.982**	.896**	.929**		
15. Reactive Overt Aggression	.018	.016	-.169	.265**	.355**	.285**	.249**	.191*	.141	.877**	.786**	.934**	.814**	.731**	
16. Reactive Relational Aggression	.057	.150	-.121	.354**	.278**	.259**	.334**	.254**	.067	.939**	.928**	.913**	.883**	.939**	.707**

Note. N = 126. HAB = hostile attributional bias; W = written version. Gender was coded 0 for male and 1 for female. Ethnicity was coded 0 for white and 1 for nonwhite.

*$p < .05$, ** $p < .01$

Table 5 - Correlations of Main Study Variables (Written-only sample, N = 71)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age															
2. Ethnicity	.119														
3. Gender	.026	.144													
4. HAB (W)	.142	.278*	-.023												
5. Proactive Motive Suspicion (W)	.270*	.364**	-.082	.626**											
6. Reactive Motive Suspicion (W)	.180	.305*	.105	.532**	.718**										
7. Overt Provocation HAB (W)	.131	.252*	-.141	.825**	.555**	.473**									
8. Relational Provocation HAB (W)	.108	.213*	.097	.842**	.490**	.415**	.389**								
9. Anger to Provocation (W)	-.094	.241*	.107	.521**	.513**	.387**	.436**	.433**							
10. Total Aggression	.081	.133	-.176	.489**	.373**	.265*	.430**	.386**	.128						
11. Proactive Aggression	.109	.153	-.203	.471**	.360**	.255*	.417**	.369**	.102	.985**					
12. Reactive Aggression	.050	.108	-.143	.492**	.374**	.267*	.429**	.391**	.151	.984**	.939**				
13. Proactive Overt Aggression	.068	.144	-.217	.475**	.328**	.221	.430**	.362**	.116	.972**	.985**	.928**			
14. Proactive Relational Aggression	.147	.158	-.184	.454**	.381**	.281*	.392**	.365**	.086	.970**	.986**	.922**	.944**		
15. Reactive Overt Aggression	.004	.037	-.160	.446**	.349**	.231	.361**	.382**	.138	.902**	.830**	.948**	.843**	.795**	
16. Reactive Relational Aggression	.094	.172	-.108	.483**	.357**	.274*	.452**	.355**	.148	.956**	.945**	.938**	.911**	.952**	.779**

Note. N = 126. HAB = hostile attributional bias; W = written version. Gender was coded 0 for male and 1 for female. Ethnicity was coded 0 for white and 1 for nonwhite.

*$p < .05$, ** $p < .01$

Table 6 - Correlations of Main Study Variables, Written Vignettes (A/N Sample, N = 55)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age															
2. Ethnicity	.014														
3. Gender	-.008	.284*													
4. HAB (W)	.046	-.043	-.023												
5. Proactive Motive Suspicion (W)	-.112	.157	-.081	.142											
6. Reactive Motive Suspicion (W)	-.179	.053	-.198	.034	.647**										
7. Overt Provocation HAB (W)	.085	.088	-.077	.825**	.191	.087									
8. Relational Provocation HAB (W)	-.006	-.153	.035	.845**	.051	-.027	.395**								
9. Anger to Provocation (W)	-.211	.143	-.124	.014	.436**	.321*	.041	-.016							
10. Total Aggression	-.090	.065	-.186	.040	.280*	.315*	.074	-.005	.010						
11. Proactive Aggression	-.198	.077	-.179	.056	.223	.255	.059	.036	-.038	.969**					
12. Reactive Aggression	.016	.049	-.181	.022	.318*	.353**	.084	-.044	.054	.973**	.886**				
13. Proactive Overt Aggression	-.174	.035	-.236	.048	.232	.243	.060	.022	-.015	.955**	.972**	.886**			
14. Proactive Relational Aggression	-.210	.114	-.112	.061	.202	.253	.054	.048	-.060	.929**	.972**	.836**	.889**		
15. Reactive Overt Aggression	.043	-.015	-.182	-.042	.373**	.372**	.061	-.126	.145	.835**	.704**	.911**	.763**	.606**	
16. Reactive Relational Aggression	-.023	.117	-.134	.097	.167	.239	.091	.072	-.074	.896**	.887**	.813**	.813**	.911**	.565**

Note. N = 126. HAB = hostile attributional bias; W = written version. Gender was coded 0 for male and 1 for female. Ethnicity was coded 0 for white and 1 for nonwhite.

*$p < .05$, ** $p < .01$

Table 7 - Correlations of Main Study Variables, Animation/Narration Vignettes (A/N Sample, N = 55)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age															
2. Ethnicity	.014														
3. Gender	-.008	.284*													
4. HAB (A/N)	-.143	.005	-.163												
5. Proactive Motive Suspicion (A/N)	-.185	.101	.012	.270*											
6. Reactive Motive Suspicion (A/N)	-.331	.051	-.224	.233	.603**										
7. Overt Provocation HAB (A/N)	-.082	-.048	-.265	.842**	.192	.257									
8. Relational Provocation HAB (A/N)	-.165	.064	.007	.821**	.261	.128	.384**								
9. Anger to Provocation (A/N)	-.048	.061	-.056	.098	.285*	.169	.006	.162							
10. Total Aggression	-.090	.065	-.186	.283*	.325*	.266*	.266	.199	-.038						
11. Proactive Aggression	-.198	.077	-.179	.270*	.282*	.252	.253	.192	-.075	.969**					
12. Reactive Aggression	.016	.049	-.181	.279*	.347**	.265	.262	.196	.000	.973**	.886**				
11. Proactive Overt Aggression	-.174	.035	-.236	.317*	.277**	.265	.299*	.223	-.071	.955**	.972**	.886**			
14. Proactive Rel. Aggression	-.210	.114	-.112	.207	.271*	.225	.193	.149	-.076	.929**	.972**	.836**	.889**		
15. Reactive Overt Aggression	.043	-.015	-.182	.299*	.401**	.287*	.291*	.200	-.030	.835**	.704**	.911**	.763**	.606**	
16. Reactive Rel. Aggression	-.023	.117	-.134	.182	.189	.169	.158	.140	-.039	.896**	.887**	.813**	.813**	.911**	.565**

Note. N = 55. HAB = hostile attributional bias; A/N = animation/narration version. Gender was coded 0 for male and 1 for female. Ethnicity was coded 0 for white and 1 for nonwhite.

*$p < .05$, ** $p < .01$

Hypothesis 1

Hypothesis 1 stated that the animation/narration version of the HAB measure would show comparable reliability to the written version. Using Cronbach's coefficient alpha, the internal consistency estimates for each set of vignettes were compared. Results, consistent with this hypothesis, indicated that the internal consistency for the animation/narration version was comparable to that of the written version for all questions. As can be seen in Table 8, alphas were calculated for the written vignettes in the total sample of 126 and the 55 person subset that also completed the animations/narration versions. For the most part, the animation/narration version of the vignettes had larger alphas than both written groups (for proactive motive suspicion, reactive motive suspicion, benign motive suspicion, and anger to provocation). For the Believe Motive Suspicion question, the alpha for the animation/narration version (.32) was similar to that for the written version (.31) within the subset of participants who completed both versions (n = 55), but was lower than the alpha for the written version when looking at the entire sample (.44). For the item assessing HAB, the alphas for the subset that completed both versions was the same (both .56), which was lower than for the total sample (.61). Results for the written-only (n = 71) subsample were also consistent with these findings (see Table 8).

To further assess the comparability of the two measures, their items were correlated to determine whether the animation/narration version responses were consistent with the written version responses (i.e., item one on the written version should be highly correlated with item one on the animation/narration version, item two for the written should correlate with item two for animation/narration, etc.) as expected in hypothesis one. Results were mostly consistent with the hypothesis. All written items were significantly correlated with all animation/narration items at the .01 level for six of the stories (Art, Invite, Milk, Text, Shoes, and Park; see Appendix A for

items/vignettes). Of the four remaining stories, all written items were significantly correlated with all animation/narration items ($p < .05$) with the following exceptions: the HAB item ("In this story, do you think the kid was trying to be mean or not trying to be mean?") was not significantly correlated for three stories (Lunch $r = .002$, $p = .991$, Cell Phone $r = .20$, $p = .137$, and Hallway $r = .24$, $p = .083$), the Believe Motive Suspicion item ("Which of the following statements is most believable…?") was not significantly correlated for two stories (Books $r = .24$, $p = .09$ and Lunch $r = .26$, $p = .063$), and the Reactive Motivation Suspicion item (i.e., "They laughed because they thought I had looked at them funny") item was not significantly correlated for one story (Hallway $r = .25$, $p = .072$).

Table 8 - Cronbach's α for Animation/Narration vs. Written Vignettes

Item	Construct	Animation/Narration n = 55	Written (within A/N sample) n = 55	Written (written-only sample) n = 71	Written (whole sample) n = 126
1	Proactive Motive Suspicion	.85	.83	.82	.82
2	Reactive Motive Suspicion	.85	.81	.80	.80
3	Benign Motive Suspicion	.86	.85	.74	.80
4	Believe Motive Suspicion	.32	.31	.53	.44
5	HAB	.56	.56	.64	.61
6	Anger to Provocation	.83	.81	.75	.78

Note. HAB = hostile attributional bias; A/N = animation/narration version. Believe Motive Suspicion is the forced-choice version of the three Motive Suspicion questions.

Hypothesis 2

Hypothesis 2 stated that the animation/narration vignettes would demonstrate increased ability to predict overall aggression as compared to the written vignettes. To test this hypothesis, a hierarchical multiple regression analysis was conducted to determine the animation/narration measure's independent ability to predict PCS overall aggression scores beyond the written vignettes measure (see Table 5). Step one of the regression contained an order variable (i.e., whether or not the participants saw the animations first or second). At step two, the HAB score for the written vignettes was added, and at step three the HAB score for the animation/narration vignettes was added. Order-by-written vignettes and order-by-animation/narration vignettes interaction terms were entered in a fourth step to examine the possibility of presentation order having an effect on the measures' abilities to predict overall aggression.

Results, presented in Table 9, were consistent with hypothesis two and indicated that the HAB score for the animation/narration version significantly predicted aggression beyond the HAB score for the written version ($\beta = .345$, $p < .05$). The HAB score for the animation/narration version was the only significant predictor of total aggression and remained significant after accounting for order by written and order by animation/narration interactions ($\beta = .310$, $p < .05$).

A supplementary regression analysis was conducted to examine potential main effects and/or interactions for gender (see Table 9) in the prediction of aggression. Results indicated that the animation/narration HAB scores predicted aggression beyond gender and written HAB scores in Step 3 of the analysis. At Step 4 there was a significant negative main effect for gender but there were no other significant main effects or interactions. Both the animation/narration and written versions of the vignettes were used to test hypotheses 3, 4 and 5.

Table 9 - Hierarchical Regressions for HAB Predicting Total Aggression

		Model R^2	β	*t*	*p*
Model Predicting Aggression					
Step 1	Order	.035	.186	1.381	.173
Step2	Order	.036	.185	1.359	.180
	Written HAB		.033	.244	.808
Step 3	Order	.121*	.157	1.187	.241
	Written HAB		-.147	-.954	.345
	A/N HAB		**.345**	2.221	.031
Step 4	Order	.182	-.163	-.625	5.35
	Written HAB		-.166	-1.087	.282
	A/N HAB		**.310**	2.011	.050
	Order x Written		-.160	-.311	.757
	Order x A/N		.561	1.228	.225
Step 1	Gender	.035	-.186	-1.376	.174
Step2	Gender	.036	-.185	-1.358	.180
	Written HAB		.036	.261	.795
Step 3	Gender	.114*	-.134	-1.003	.321
	Written HAB		-.140	-.898	.374
	A/N HAB		**.335**	2.123	.039
Step 4	Gender	.186	**-.514**	-2.287	.027
	Written HAB		-.094	-.607	.546
	A/N HAB		.251	1.567	.123
	Gender x Written		.452	.889	.378
	Gender x A/N		.008	.017	.986

Note. n = 55. Order = order in which animation was presented (0 = first or 1 = second); HAB = hostile attributional bias; A/N = animation narration version. . Gender was coded 0 for male and 1 for female. Significant betas are in bold. *$p < .05$.

Hypothesis 3

Hypothesis 3 stated that reactive aggression would be significantly associated with HAB, even after controlling for proactive aggression, and that after controlling for reactive aggression, proactive aggression would not be associated with HAB. Partial correlations were used to examine associations between one aggression function and HAB while controlling for the alternate aggression function. Results did not support this hypothesis. Neither written nor animation/narration HAB scores were significantly correlated with either function of aggression when controlling for the other (written: reactive pr = .05, p = .556, proactive pr = .09, p = .319; animation/narration: reactive pr = .09, p = .552, proactive pr = .051, p = .712).

Hypothesis 4

Hypothesis 4 stated that reactive relational aggression would be significantly associated with HAB for relational provocation situations and reactive overt aggression would be significantly associated with HAB for overt provocation situations when controlling for gender and for the other aggression subtypes. To test this hypothesis, a series of hierarchical regression analyses were conducted using overt provocation (Table 10) and relational provocation (Table 11) from both the written and animation/narration versions of the HAB measure as the dependent variables. For each regression analysis, gender and the subtype of interest (e.g., reactive overt) were entered at step one, the proactive counterpart of the variable from step one (e.g., proactive overt) was entered at step two, and the proactive and reactive types of the other aggression form (e.g., proactive relational and reactive relational) were entered at step three. A gender-by-aggression subtype interaction term was entered at step four. Due to the large correlations between the predictor variables, possible multicollinearity among the variables was examined for all regression analyses by calculating variance inflation factor (VIF) and tolerance values.

Tolerance represents the proportion of variability in an independent variable not explained by other independent variables, whereas VIF indicates whether the proportion of variability in an independent variable has been exaggerated due to multicollinearity (Allison, 1999). For the animation/narration vignettes, problems of multicollinearity (i.e., VIFs exceeding 10 and tolerance levels less than 0.1; Tabachnick & Fidell, 2007) were found for only proactive relational aggression. For the written vignettes, there was significant multicollinearity for proactive relational and proactive overt aggression. However, given the understanding that the subtypes of aggression are highly correlated (Bailey & Ostrov, 2008; Marsee & Frick, 2007), the planned analyses for hypothesis four were still conducted.

Overall, results did not support hypothesis 4.As reported in Table 10, reactive overt aggression accounted for unique variance in HAB for overt provocation situations for the written version (Model 1) at step one ($\beta = .233$, $p < .01$) of the analysis. At step two, proactive overt aggression accounted for unique variance in HAB for overt provocation situations ($\beta = .309$, $p < .05$), and reactive overt aggression was no longer a significant predictor. At step three, reactive relational aggression accounted for unique variance in the provocation variable ($\beta = .506$, $p < .05$) while the betas for other subtypes were no longer significant. None of the aggression variables accounted for unique variance in the provocation variable after the addition of the gender by reactive overt aggression interaction term was entered in step four. Similar results were found in the written-only (n = 71) subsample. For the analyses using the animation/narration vignettes as the dependent variable (Model 2), none of the aggression variables accounted for unique variance in HAB for overt provocation situations.

Table 10- Hierarchical Regressions Predicting HAB for Overt Provocations

		Model R^2	β	*t*	*p*
Model 1 Predicting HAB for Overt Provocation (Written, n = 126)					
Step 1	Gender	.071*	-.093	-1.056	.293
	Reactive Overt Aggression		**.233**	2.646	.009
Step2	Gender	.102*	-.065	-.743	.459
	Reactive Overt Aggression		-.013	-.089	.929
	Proactive Overt Aggression		**.309**	2.068	.041
Step 3	Gender	.132	-.088	-.993	.323
	Reactive Overt Aggression		-.024	-.163	.871
	Proactive Overt Aggression		.234	.848	.398
	Proactive Relational Aggression		-.397	-1.251	.213
	Reactive Relational Aggression		**.506**	2.016	.046
Step 4	Gender	.134	-.129	-1.079	.283
	Reactive Overt Aggression		-.069	-.401	.689
	Proactive Overt Aggression		.254	.909	.365
	Proactive Relational Aggression		-.387	-1.214	.227
	Reactive Relational Aggression		.480	1.868	.064
	Gender x Reactive Overt Aggression		.070	.513	.609

Table 10 Continued

Model 2 Predicting HAB for Overt Provocation (Written-only, n = 71)					
Step 1	Gender	.137**	-.085	-.748	.457
	Reactive Overt Aggression		**.347**	3.040	.003
Step 2	Gender	.188*	-.050	-.442	.660
	Reactive Overt Aggression		-.003	-.015	.988
	Proactive Overt Aggression		**.422**	2.040	.045
Step 3	Gender	.254	-.112	-.985	.328
	Reactive Overt Aggression		-.033	-.164	.871
	Proactive Overt Aggression		.429	1.159	.251
	Proactive Relational Aggression		-.826	-1.870	.066
	Reactive Relational Aggression		**.860**	2.373	.021
Step 4	Gender	.272	-.229	-1.577	.120
	Reactive Overt Aggression		-.187	-.805	.424
	Proactive Overt Aggression		.480	1.295	.200
	Proactive Relational Aggression		-.693	-1.535	.130
	Reactive Relational Aggression		.705	1.853	.069
	Gender x Reactive Overt Aggression		.223	1.285	.203

Table 10 Continued

Model 2 Predicting HAB for Overt Provocation (A/N, n = 55)					
Step 1	Gender	.131*	-.219	-1.666	.102
	Reactive Overt Aggression		.251	1.912	.061
Step 2	Gender	.139	-.205	-1.536	.131
	Reactive Overt Aggression		.151	.749	.457
	Proactive Overt Aggression		.135	.664	.510
Step 3	Gender	.152	-.188	-1.347	.184
	Reactive Overt Aggression		.116	.551	.584
	Proactive Overt Aggression		.361	.951	.346
	Proactive Relational Aggression		-.079	-.186	.853
	Reactive Relational Aggression		-.154	-.481	.633
Step 4	Gender	.152	-.169	-.861	.394
	Reactive Overt Aggression		.134	.532	.597
	Proactive Overt Aggression		.350	.890	.378
	Proactive Relational Aggression		-.067	-.152	.880
	Reactive Relational Aggression		-.154	-.477	.636
	Gender x Reactive Overt Aggression		-.030	-.133	.895

Note. HAB = hostile attributional bias; A/N = animation narration version. Gender was coded 0 for male and 1 for female. Significant betas are in bold. *$p < .05$

Like the findings for overt aggression, the findings for relational aggression also failed to support hypothesis 4. Table 11 shows the results of the regression analyses using the written (Model 3) and animation/narration (Model 4) versions of the measure to examine the unique contribution of the aggression variables to HAB for relational provocation. Reactive relational aggression scores accounted for unique variance in HAB for relational provocation situations for the written version (Model 3) at step one ($\beta = .267$, $p < .01$) of the analysis. Upon the addition of the other aggression variables in subsequent steps, the beta for reactive relational aggression was no longer significant in the prediction of the provocation variable. Gender became a significant predictor in step four ($\beta = .226$, $p < .05$) after the addition of the gender by reactive relational aggression interaction term. Again, results were similar in the written-only ($n = 71$) subsample. The only difference was that gender did not become a significant predictor in the final step of the regression. Analyses using the animation/narration vignettes for the provocation variable (Model 4) indicated that neither gender nor any of the aggression subtypes accounted for unique variance in the dependent variable (see Table 11).

Table 11 - Hierarchical Regressions Predicting HAB for Relational Provocations

		Model R^2	β	*t*	*p*
Model 3 Predicting HAB for Relational Provocation (Written, n =126)					
Step 1	Gender	.076**	.111	1.269	.207
	Reactive Relational Aggression		**.267**	3.058	.003
Step 2	Gender	.080	.120	1.359	.177
	Reactive Relational Aggression		.097	.380	.704
	Proactive Relational Aggression		.182	.712	.478
Step 3	Gender	.082	.131	1.434	.154
	Reactive Relational Aggression		.084	.326	.745
	Proactive Relational Aggression		.073	.223	.824
	Proactive Overt Aggression		.149	.524	.601
	Reactive Overt Aggression		-.020	-.134	.893
Step 4	Gender	.100	**.226**	2.046	.043
	Reactive Relational Aggression		.218	.804	.423
	Proactive Relational Aggression		.068	.208	.836
	Proactive Overt Aggression		.116	.408	.684
	Reactive Overt Aggression		.006	.041	.967
	Gender x Reactive Relational Aggression		-.196	-1.509	.134

Table 11 Continued

Model 4 Predicting HAB for Relational Provocation (Written-only, n = 71)					
Step 1	Gender	.144**	.137	1.214	.229
	Reactive Relational Aggression		**.370**	3.275	.002
Step2	Gender	.161	.172	1.477	.144
	Reactive Relational Aggression		-.038	-.103	.918
	Proactive Relational Aggression		.433	1.147	.255
Step 3	Gender	.186	.183	1.543	.128
	Reactive Relational Aggression		-.111	-.293	.770
	Proactive Relational Aggression		.267	.579	.564
	Proactive Overt Aggression		.036	.092	.927
	Reactive Overt Aggression		.255	1.225	.225
Step 4	Gender	.194	.240	1.721	.090
	Reactive Relational Aggression		.010	.025	.980
	Proactive Relational Aggression		.225	.484	.630
	Proactive Overt Aggression		.019	.049	.961
	Reactive Overt Aggression		.271	1.291	.201
	Gender x Reactive Relational Aggression		-.130	-.784	.436

Table 11 Continued

Model 4 Predicting HAB for Relational Provocation (A/N, n = 55)					
Step 1	Gender	.020	.026	.190	.850
	Reactive Relational Aggression		.144	1.038	.304
Step2	Gender	.023	.025	.180	.858
	Reactive Relational Aggression		.030	.088	.930
	Proactive Relational Aggression		.125	.372	.712
Step 3	Gender	.069	.092	.632	.530
	Reactive Relational Aggression		.033	.098	.923
	Proactive Relational Aggression		-.299	-.672	.505
	Proactive Overt Aggression		.467	1.174	.246
	Reactive Overt Aggression		.022	.102	.919
Step 4	Gender	.074	.033	.174	.862
	Reactive Relational Aggression		-.006	-.019	.985
	Proactive Relational Aggression		-.349	-.760	.451
	Proactive Overt Aggression		.500	1.231	.224
	Reactive Overt Aggression		.002	.010	.992
	Gender x Reactive Relational Aggression		.115	.519	.606

Note. HAB = hostile attributional bias; A/N = animation narration version. Gender was coded 0 for male and 1 for female. Significant betas are in bold. *$p < .05$

Hypothesis 5

Hypothesis 5 stated that HAB, anger to provocation, and overall aggression would show significant and positive correlations with proactive motivations but would not be significantly correlated with reactive motivations. Bivariate correlations were used to examine associations between each motivation type and HAB, anger to provocation, and overall aggression for both the written and animation/narration versions. These initial results, which can be found in Tables 2 and 3, did not fully support this hypothesis. For the written measure, there were significant positive correlations for both hostile motivation types, with proactive motivation correlations (with HAB $r = .42$, $p < .01$, with anger to provocation = $r = .47$, $p < .01$, and with total aggression = $r = .33$, $p < .01$) being only slightly larger than reactive ones (with HAB $r = .33$, $p < .01$, with anger to provocation = $r = .35$, $p < .01$, and with total aggression = $r = .28$, $p < .01$). For the animation/narration version significant correlations between proactive motivations and HAB ($r = .20$, $p < .05$), anger to provocation ($r = .29$, $p < .05$), and aggression ($r = .33$, $p < .05$) were found, as well as a significant association between reactive motivations and aggression ($r = .27$, $p < .05$).

Given the high correlations between the reactive and proactive motivation constructs for both the written ($r = .67$, $p < .01$) and animation/narration ($r = .60$, $p < .01$) versions, partial correlations were also conducted to examine associations between one motivation variable and HAB, anger to provocation, and aggression while controlling for the other. For the written version of the vignettes, results supported hypothesis five. Significant associations for proactive motivations were found for all variables (with HAB $pr = .28$, $p < .01$, with anger to provocation = $pr = .33$, $p < .001$, and with total aggression = $pr = .20$, $p < .05$) when controlling for reactive motivations. Reactive motivations were not significantly correlated with any variable when

controlling for proactive motivations. For the animation/narration version, all partial correlations were nonsignificant.

Discussion

The present study sought to expand on current understandings of HAB as a construct as well as detail specific relationships between the bias and the various manifestations of aggression in an adolescent sample. The first specific aim was to explore the relationship between HAB, (overall and situation-specific) and the proactive and reactive forms of aggression, as well as the four aggression subtypes (proactive overt, reactive overt, proactive relational, and reactive relational). As the current literature is mixed about the strength of these relationships and ranges from full situational specificity of HAB and aggression subtypes (i.e., reactively relationally aggressive individuals showing HAB for only relational provocations and vice versa for reactive overt aggression; Bailey & Ostrov, 2008) to no significant relationship at all (Marsee & Frick, 2007), changes were made to the commonly used vignettes. These modifications were based on research demonstrating the importance of making the measure understandable and relatable to participants (Leff et al, 2006) as well as the role of participants' sense of involvement in each story in contributing to valid responses (Orobio de Castro et al., 2002).

In the current study, first-person animations were created to accompany each story along with a narration that played along with the images. This study's first hypothesis focused on determining whether the animation/narration vignettes would be comparable to the commonly used written vignettes in terms of internal consistency reliability and item correlations. Results generally supported this hypothesis. The animation/narration vignettes had alphas that were very similar to those for the written vignettes. Although two scales (HAB and the forced-choice of

motive suspicion) displayed lower reliability for the animation/narration version, they were still comparable to the written versions, which were also low. However, it is worth noting here that the two types of questions most often used in the assessment of HAB, that of intent (i.e., "do you think the kid was trying to be mean or not trying to be mean?") and a forced-choice selection of motive suspicion (Crick, 1995; Crick, Grotpeter, & Bigbee, 2002) were the ones that were found to be least reliable in this study. Although the Believe Motive Suspicion item used in the current study was a slightly modified version of the question used in the Crick studies (Crick, 1995; Crick et al., 2002) (i.e., changed from "Why did the events in the story happen?" to "Which of the following statements is most believable…?"), the forced-choice format is the same. The current results, however, suggest that this means of assessing HAB is less reliable than assessing via likert ratings.

Items for both the written and animation/narration versions were highly correlated with only a few exceptions. Interestingly, the two items least correlated were the HAB item ("In this story do you think the kid was trying to be mean or not trying to be mean?"), which was not correlated for three stories and the forced-choice of provocateur motive ("Which of the following statements is most believable…?"), which was not correlated for two stories. Although the original hypothesis that the animation/narration and written versions would show comparable reliability was supported, these results illuminate the possibility for even further improvement in the measurement of HAB. Both the internal consistency analysis and the item correlations here appear to suggest that reliable responding is more likely when using a likert rating scale. Crain et al. (2005) applied a similar interpretation when they failed to find significant associations between HAB for relational provocations and relational aggression. They argued that even a three-point rating system (0 = not trying to be mean, 1 = maybe trying to be mean, 2 = definitely

trying to be mean) may have been too restrictive for participant responding. In this study, five-point likert scales were used for the proactive, reactive, and benign motive suspicion questions (all rated from 0 to 4) as well as the anger to provocation (rated from 0 to 2) item, while the HAB ("Do you think the kid was trying to be mean or not trying to be mean?") and forced-choice motive suspicion ("Which of the following statements is most believable…?") were not. Internal consistency reliability ratings were much larger for the likert items across measure versions. Of course, it is possible that viewing the animations of the stories could have enhanced the ambiguity of the provocateur's intentions. Perhaps seeing the story play out on screen from a first person perspective changed individuals' interpretations. It could be that reading the stories without visual cues may lead to more personal interpretations, making participants more likely to see the provocations as either intentional or benign depending on how they are imagining them. Seeing the stories acted out by an animated character, on the other hand, could change that interpretation and lead to participants' changing their responses from those in the written vignettes. That being said, it is equally likely that changing the way in which participants answer the follow-up questions from categorical to continuous would further improve this form of HAB assessment. Converse, Oswald, Imus, Hedricks, Roy, & Butera (2008) found results to suggest that a forced-choice style of measurement in a personality test may produce negative test-taker reactions. They noted that, compared to those using a likert style personality measure, forced choice test-takers showed lower scores of test-taking ease and positive affect, and higher scores of test-taking anxiety. Granted, this study did not examine these same variables, however these results are interesting when considering the lower reliability and inconsistent item correlations for the forced-choice questions used to assess HAB. It could be possible that the present study suffered issues similar to Converse et al. Namely, the forced choice format may have produced a

negative reaction in our participants, thereby affecting the responses they gave. Although this theory was not an original goal in redesigning the measurement of HAB, these findings definitely provide support for further changes to be made in future research assessing this construct. Beyond the addition of animation/narration and consideration of provocateur motive, these results suggest that it may also be beneficial to employ likert rating scales in the quantitative measurement of HAB.

Like other studies that have employed the use of images (e.g., Leff et al., 2006; Miller & Stanney, 1997), it was supposed that the animations would improve participant understanding and responding. The aim of the second hypothesis was to demonstrate that the animation/narration vignettes would predict overall aggression scores beyond the written ones. Findings fully supported this hypothesis. The animation/narration vignettes did indeed display enhanced predictive utility even after examining potential order effects. These results are similar to those found by Leff et al., who noted more reliable responding and higher ratings of social validity for their cartoon accompanied vignettes. Like Leff et al., this study employed the use of a visual aid with characters that were ethnically neutral and designed to be viewed by a larger, more general audience. The results of this study went a step even further by demonstrating that a measure designed to make participants feel more personally involved in the experience of the stories (i.e., illustrating them from a first-person perspective) can lead to an enhanced ability to predict overall aggression (Orobio de Castro et al, 2002). Given these findings, it seems that taking the first-person perspective in the animations aided in participant comprehension of the stories as the standardized coefficients for the animation/narration version were much larger than those for the written. Further, the scores for the written version of the vignettes negatively predicted total aggression once the animation/narration scores were added into the regression

(though these numbers were nonsignificant). When employing a measure designed to assess individuals' interpretations of ambiguous situations, then, it does seem important to make the experience as close to real-life involvement as possible. The results found here seem to support this notion.

Both the written and animation/narration versions of the vignettes were used in examining the relationship between overall HAB and reactive aggression. Partial correlations were used to examine this association. Despite the abundance of literature that has supported this relationship in the past (e.g., Crick & Dodge, 1996), the results of this study were akin to those of Marsee & Frick (2007), who found no significant relationships between HAB and the reactive subtypes of aggression. There was, however, a strong significant correlation between HAB (written and animation/narration) and overall aggression (see Tables 4-7), so it seems that the two functions were likely too highly correlated to distinguish their unique relationships with HAB. Another possibility is that, because HAB is one of numerous factors associated with reactive aggression, a significant relationship could not be found in this study. Multiple studies have demonstrated the role of other factors, both SIP related and otherwise in contributing to the occurrence of reactive aggression (e.g., Gifford-Smith & Rabiner, 2004). Considering other variables from the Crick and Dodge (1994) SIP model such as intention-cue detection deficits (Dodge & Coie, 1987), as well as other factors such as emotional dysregulation (Card & Little, 2006) and peer victimization (Camodeca et al., 2002) could potentially explain these nonsignificant findings. It is possible that these elements, when studied together, could better distinguish the profile of individuals who are reactively aggressive, versus those who prefer proactive aggression. Additionally, analysis of variables more commonly associated with proactive aggression such as positive outcome expectations for aggression (Crick & Dodge,

1996) and callous-unemotional traits (Marsee & Frick, 2007) could also aid in better distinguishing the two functions from one another.

Bailey and Ostrov (2008) found unique associations between reactive overt aggression and HAB for overt provocations and reactive relational aggression and HAB for relational provocations in a sample of adults. The current study attempted to expand upon these results by investigating the reactive aggression subtypes' abilities to predict HAB to overt and relational provocation situations in a sample of youth. Contrary to expectations and previous findings in adults (Bailey & Ostrov, 2008), reactive overt aggression did not significantly predict HAB for overt provocation beyond the other subtypes of aggression for either the written or animation/narration measures (see Table 6). Similarly, reactive relational aggression did not predict HAB for relational provocations beyond other subtypes of aggression for either measure (see Table 11). While these results are inconsistent with Bailey and Ostrov's findings, they are consistent with those of Crain et al. (2005), who found no significant associations between HAB for relational provocations and relational aggression in a sample of fourth- through sixth-grade girls. Although their original hypotheses did not contain statements about overt provocations, they examined those associations as well and, again, did not find anything significant. In addition to citing flaws in the limited (0-2) rating scale for HAB, Crain et al. argued that the scenarios they chose for the HAB vignettes may have been too normative for their sample (i.e., they were not situations that would capture the actions of highly aggressive girls). Perhaps this study encountered a similar problem. Although significant results have been found using these stories in other samples (e.g., Crick et al., 2002), it is possible that this nonreferred sample was more responsive to the stories presented and therefore obscured the results of the few highly

aggressive individuals in the study. Future research will benefit from utilizing these vignettes to compare community, at-risk, and highly aggressive youth for differences in responding.

There were, however, interesting changes in significant predictor status found when adding in the aggression subtypes step by step (see Table 10). HAB for overt provocations (using the written vignettes) was significantly predicted by proactive overt aggression beyond reactive overt aggression in step two of the regression. Interestingly, in step three only reactive relational aggression was a significant predictor of HAB for overt provocations, though the overall model was not significant. Thus, while this finding should be interpreted cautiously and bears replication, it suggests that youth in this study showed the opposite of what was expected in terms of situation-specific HAB (i.e., reactive relational aggression was a stronger predictor of HAB for overt provocations that reactive overt aggression). While this result could be due to the high collinearity between the functions of aggression, it could also be due to the written measure's lack of ability to differentiate between the functions of aggression. Bailey and Ostrov (2008) suggest that ecologically valid measures of HAB for overt and relational provocations may be necessary for such differentiation among aggressive subtypes. Though the animation/narration version of the measure was designed with ecological validity in mind, the sample size for the analyses using this version may not have been adequate to detect differences. Further research using the animation/narration vignettes in a larger sample is warranted in order to examine its ability to distinguish between reactive and proactive subtypes of aggression.

HAB for relational provocation was significantly predicted by gender only after all aggression subtypes and the gender by reactive relational aggression interaction term were entered in the regression model, though the overall model was not significant (see Table 11). Numerous studies have suggested a gender effect for the forms of aggression with girls

displaying more than boys (e.g., Crick, Bigbee, & Howes, 1996; Hadley 2003), and others have attempted to extend that effect to HAB for relational provocations (e.g., Crick, 1995). In this study there was not a significant effect of gender on the forms of aggression, so the fact that gender became a significant predictor of HAB only after all aggression subtypes and the gender-by-reactive-relational-aggression interaction term was added to the equation is most likely explained by the multicollineartity between the aggression subtypes. Again, given that the overall model was not significant, this result should be interpreted cautiously.

These inconsistent findings could be attributed to several factors. First, the subtypes of aggression were all highly correlated (see Tables 1-3), so it is possible that there was not enough power—for either version of the HAB measure—to tease apart unique associations between each one and situation-specific HAB. Also, it is worth considering that examining aggression's ability to predict HAB is not the most effective means of detecting this situational specificity. Although Bailey and Ostrov (2008) used this methodology and found significant results, and other studies (e.g., Crick et al., 2002; Dodge & Somberg, 1987) have used analysis of variance with the situational HAB as the dependent variable. However, if HAB is to be thought of as something to target in treating aggressive behavior, then establishing it as a predictor is paramount. Future research may benefit more from looking at the role of HAB for either overt or relational provocations in predicting the subtypes of aggression. Examining the construct in this way adds to its predictive utility and provides further support for considering HAB as a risk factor, rather than just a feature of aggressive individuals. Hypothesis two found significant results for HAB's ability to predict overall aggression. Examining situational HAB's ability to predict a specific aggressive subtype (i.e., using HAB for overt provocation as a predictor of reactive overt aggression) may yield different results. Currently, the literature on the nature of the relationship

between HAB and aggression, whether it is causal or just co-occurring, is vague. Clearly more research on this relationship is needed.

The second specific aim of this study—again the overarching goal being to expand the current understanding of HAB—was to investigate the potential role of perceived provocateur motivation and its impact on an individual's hostile evaluations. While there has been research about the moral evaluations of provocateurs from a third-person perspective in adults (Reeder et al., 2002) and children (Keller et al., 2003), there is nothing in the literature about the provocateur evaluations carried out by individuals who display HAB. Previous studies have suggested that both gender (Juujärvi et al., 2001) and relationship to victim (Peets et al., 2007) can influence an individual's HAB and likelihood of aggression. Understanding whether or not perceived motive (proactive or reactive) is something inherent in HAB may expand on these findings by forging a link between moral evaluation literature, which has demonstrated links to aggressive behavior, and the most current HAB research also seeking a definitive connection to aggression. Seeking out a specific label (proactive or reactive) to place on provocateur's intent will more effectively answer the common HAB assessment question: "Why do you think the events in the story happened?" While current versions of the vignettes (e.g., Crick, 1995) include this question, the forced-choice answers consist of only hostile (e.g., "The kid doesn't like me") or benign (e.g., "The kid is just clumsy like that") options. To really understand the specific cognitions associated with this bias, further quantifiable detail seems necessary.

The final goal of this study was to accomplish just that task, with the assumption that there would be strong associations between HAB and proactive but not reactive motivations. Initially results were mixed, with significant bivariate correlations for both motivations in both versions of the vignettes. However, high correlations between the motivations called for further

investigation. When partial correlations were used for the written version of the vignettes, hypothesis five, which stated that there would only be significant correlations for HAB, anger to provocation and total aggression with proactive motive suspicion and not reactive motive suspicion, was fully supported. Once proactive motivations were controlled for, all associations between reactive motivations and HAB, anger, and total aggression became nonsignificant. To date, no research on HAB has addressed this question. The findings detailed here indicate that there may in fact be a proactive motive suspicion bias that accompanies HAB. As Reeder et al. (2003) found in their study, proactive motive suspicion is associated with more unfavorable evaluations of provocateurs. Further, Keller et al. (2003) found that children were more likely to select harsher punishments for acts that were proactively motivated. If individuals with HAB are already applying a proactive motive to the events in the vignettes, given these findings, it is more likely that they will respond aggressively when provoked. Given the findings detailed in this paper, it is quite possible that considering a proactive provocateur motivation bias in the treatment of HAB and aggressive behavior could prove beneficial.

Limitations

Despite the interesting and promising findings that resulted from this investigation, it is not without limitations. First and foremost, the sample used is limited in both generalizability and size. In terms of sample size, it is likely that this study did not have enough participants to be adequately powered to detect smaller effects. This limitation is especially salient with regards to hypothesis four, which was looking for unique effects in a group of highly correlated constructs. It is likely that unique relationships between the various manifestations of aggression and HAB could not be detected with the number of participants in this study. With regards to generalizability, although this sample was representative of the population in which the study

was carried out and the revisions to the vignettes themselves were designed to make them accessible to diverse groups, these specific findings may not be found in other populations. These results were found in a non-referred high school sample, so in order to extend these findings to other groups such as detained adolescents, at-risk youth, or younger children requires further study. It must be noted that this sample came from a single public school and that participants were not randomly selected so, of course, external validity is a concern.

A second limitation is that the animation/narration vignettes, although they showed significant predictive utility, need to have other forms of validity established. While the ability of the animation/narration version the predict aggression beyond the written one is encouraging, exploring its correlation with other means of assessing HAB (e.g., a real-life provocation situation) and assessing ratings of what Leff et al. (2006) referred to as "social validity" (i.e., how much participants feel they can relate to the stories) would undoubtedly strengthen the credibility of this new measure. This study only employed self-report measures, which brings up the issue of shared-method variance so, examining the relationship between this measure of HAB and reports of aggression from other informants (e.g., peers, parents, teachers) would also be beneficial. The cross-sectional nature of this investigation is also limiting. If the predictive utility of HAB is to adequately be assessed, multiple time points are necessary.

Another problem encountered in conducting this study was the issue of multicollinearity when examining the four aggression subtypes. Due to their high degree of correlation with one another, our sample displayed VIF values in excess of what is normally deemed acceptable (Tabachnick & Fidell, 2007). According to Allison (1999), while multicollinearity does not bias regression coefficients, it does make them unstable and will likely make each variable appear to have weaker effects. This explanation does shed light on the nonsignificant findings in

hypothesis four, however, the solution Fox (1991) gives as the ideal means of coping with collinear data is to collect new data in way that avoids it (i.e., through experimental manipulation). Other suggestions for solving the issue of collinear variables is to either delete, or combine them and examine the variables as a set rather than individually. The goal here, however, was to examine the individual contributions of each subtype on situation specific HAB, so these options are not particularly optimal. If the unique effects of these highly correlated subtypes are to be discovered, a much larger sample is likely needed.

In the same vein of the multicollinearity issue, this studied encountered problems of between group (i.e., the written-only and animation/narration subsamples) differences. As explained earlier, the difficulties encountered in administering the animation/narration measure in addition to the written measure yielded a relatively small subsample of participants. As the correlations in Table 6 indicate, there appears to be a difference in the written versus animation/narration responses with only the latter being significantly correlated with the aggression variables. Given these findings, the validity of the animation/narration versus written vignettes comparisons made in this study should be interpreted with caution. Future research would do well to employ a more effective measurement procedure (e.g., forming large, randomly selected written-only and animation/narration only groups).

Lastly, it is important to remember that HAB is but a single part of the Crick and Dodge (1994) SIP model, so studying its impact on aggression in isolation can only tell so much of a much larger story. There is no shortage on the literature asserting the importance of the role of HAB in child and adolescent aggressive behavior (Orobio de Castro et al., 2002). Despite the lengthy list of names attached to significant findings associated with the HAB construct, overall results remained mixed. The current study is no exception. While there are limitations to account

for the inconsistent findings detailed in the preceding paragraphs, a more intriguing answer may be that there is a broader theoretical underpinning that has been missed in this investigation. As mentioned earlier, HAB as described by Crick and Dodge (1994), is one of a six-part model implicated in aggression development. Research investigating this model (e.g., Crick et al, 2002, Gifford-Smith & Rabiner, 2004) has shown that aggression and its subtypes is not determined by a single step, but by combinations of them. Perhaps, then, the reason only some of this study's hypotheses were supported is that studying HAB in isolation from the rest of the SIP model can only yield mixed results. Aggression, though it holds a deceptively simple definition (Coie & Dodge, 1998), is becoming increasingly complex with its forms, functions, and subtypes. A single mechanism like HAB, even with investigations like this one that attempted to illuminate progressively finer details about it, is probably not enough to disentangle the nature of the various manifestations aggression can take. Future research will benefit from considering HAB as one in an ensemble of constructs involved in the formation of aggressive behavior in youth.

Implications

Despite the limitations of this study, the results do seem to suggest that employing animations and narrations in the assessment of HAB can enhance its ability to predict overall aggression. Further, these findings also raise questions about the most common means of measuring HAB (i.e., forced-choice questions versus likert rating scales). If HAB is to be considered—as it has been—as something to be targeted in the treatment of aggressive individuals (e.g., Bailey & Ostrov, 2008, Crick & Dodge, 1996), it should go without saying that the assessment of this construct needs to be both reliable and demonstrate predictive utility. Conversely, the fact that this study did not find unique effects for HAB in either the functions of aggression or in the subtypes also has interesting implications. As mentioned earlier, HAB is one

of a group of constructs associated with different aggressive behaviors. Future research should focus on these other factors, both SIP mechanisms as well as other known correlates such as emotional dysregulation, in conjunction with HAB and aggression. Research has suggested that reactive and proactive aggression represent unique paths to various outcomes that could require different treatments (Frick & Morris, 2004), so understanding not only the role of HAB, but the role of it within a larger model could greatly aid in planning more effective interventions for these different types of aggression.

By investigating the role of perceived provocateur motive, this study sought to expand on the theoretical concept of HAB. That being said, these results have clinical implications as well. Research has demonstrated that people make moral evaluations (e.g., Reeder et al., 2002) and determine punishment (e.g., Keller et al, 2003; Leahy, 1979) based on the motive (proactive or reactive) behind an aggressive act when viewing it from the third-person. Studies have also suggested that the physical (e.g., Juujärvi et al, 2001) and relational (e.g., Peets et al., 2007) characteristics of provocateurs determine whether or not an individual is likely to respond with aggression. The results of this study suggest that there is a relationship between perceived provocateur motivation and the likelihood of an aggressive response as well. Future research should examine the specific role of proactive motive suspicion in determining aggressive behavior, as significant results could yield specific cognitions to target in the treatment of aggression.

Conclusions

The goals of this study were to assess the unique association of HAB with the functions (proactive and reactive) and reactive subtypes (reactive relational and reactive overt) of

aggression and to examine the potential role of perceived provocateur motivation in HAB, anger to provocation, and aggression. To accomplish these goals, revisions to the common vignettes were made both in terms of administration (adding animations and narration) as well as content (adding questions about provocateur motive suspicion rated on a likert scales). Results indicated that the animation/narration version of the vignettes was comparable to the written one in terms of reliability and that it displayed an increased ability to predict total aggression. However, a unique relationship between HAB and reactive aggression was not found, nor was HAB for specific provocations (i.e., relational or overt) uniquely associated with the reactive subtypes of aggression. The hypothesis regarding the association between provocateur motivation and HAB, anger to provocation, and aggression was supported, with unique results found between proactive motives when controlling for reactive ones, but not the opposite. Overall these findings add to the literature calling for more salient measurement of HAB, question its role in the different manifestations of aggression, and suggest that considering perceived provocateur motive is important in designing interventions for individuals who show HAB and aggression.

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Appendix A:

Revised Vignettes, Questions, and Animation Screenshots

<u>Story 1 (Books):</u> Imagine that you are sitting at your desk at school before class starts, and another kid runs down the aisle past your desk. Your books get knocked off the desk onto the floor, making a mess.

The kid knocked over my books to show me who's boss.

Doesn't pop up in my mind | Might pop up in my mind | Definitely pops up in my mind

1 2 3 4 5

The kid knocked over my books because he/she is mad at me.

Doesn't pop up in my mind | Might pop up in my mind | Definitely pops up in my mind

1 2 3 4 5

The kid knocked over my books on accident.

Doesn't pop up in my mind | Might pop up in my mind | Definitely pops up in my mind

1 2 3 4 5

Which thought is most believable?

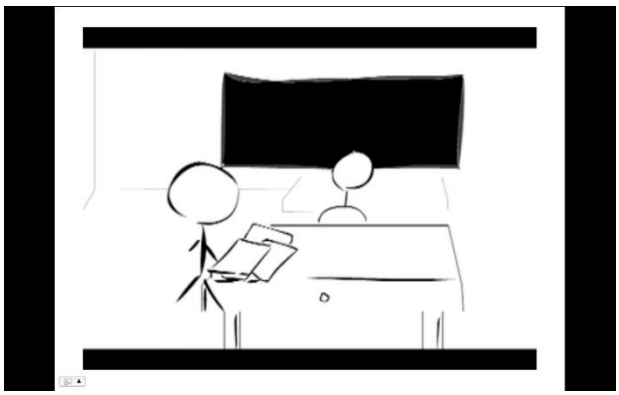
- The kid knocked over my books because he/she is mad at me.
- The kid knocked over my books on accident.
- The kid knocked over my books to show me who's boss

In this story, do you think the kid was

- Trying to be mean?
- <u>Not</u> trying to be mean?

How upset or mad would you be if the things in this story really happened to you?

- <u>Not</u> upset or mad at all
- A little upset or mad
- Very upset or mad



<u>Story 2 (Lunch):</u> Imagine that you are at lunch one day and looking for a place to sit. You see some kids you know at a table across the room. The kids are laughing and talking to each other and they look like they are having a good time. You walk over to their table. As soon as you sit down, the kids stop talking and no one says anything to you.

The kids stopped talking because they want to look cooler in front of the other kids.

Doesn't pop up in my mind | Might pop up in my mind | Definitely pops up in my mind

1 2 3 4 5

The kids stopped talking because they are angry at me for something.

Doesn't pop up in my mind | Might pop up in my mind | Definitely pops up in my mind

1 2 3 4 5

The kids stopped talking because they are waiting for me to say something first.

Doesn't pop up in my mind | Might pop up in my mind | Definitely pops up in my mind

1 2 3 4 5

Which thought is most believable?

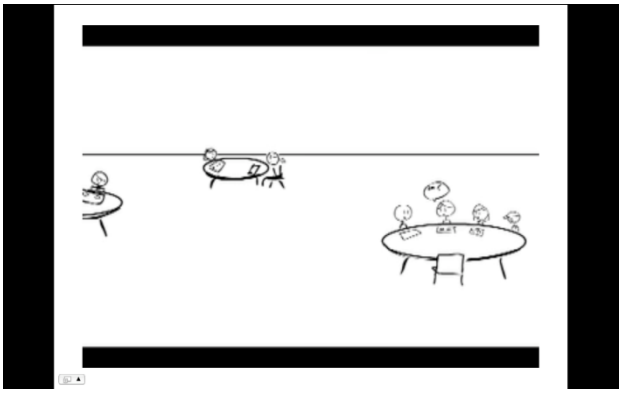
- o The kids stopped talking because they are waiting for me to say something first.
- o The kids stopped talking because they want to look cooler in front of the other kids.
- o The kids stopped talking because they are angry at me for something.

In this story, do you think the kids were

- o Trying to be mean?
- o <u>Not</u> trying to be mean?

How upset or mad would you be if the things in this story really happened to you?

- o <u>Not</u> upset or mad at all
- o A little upset or mad
- o Very upset or mad



<u>Story 3 (Cell Phone):</u> Imagine that you brought your new cell phone to school today. You saved up your allowance to buy it and you want to show it to the other kids at school. You let another boy look at it for a few minutes while you go get a drink of water. When you get back you realize that the boy has dropped your new cell phone and it broke.

The boy dropped my cell phone because he doesn't want me to have something better than him.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The boy dropped my cell phone because he is mad at me.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The boy dropped my cell phone because he is kind of clumsy.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

Which thought is most believable?

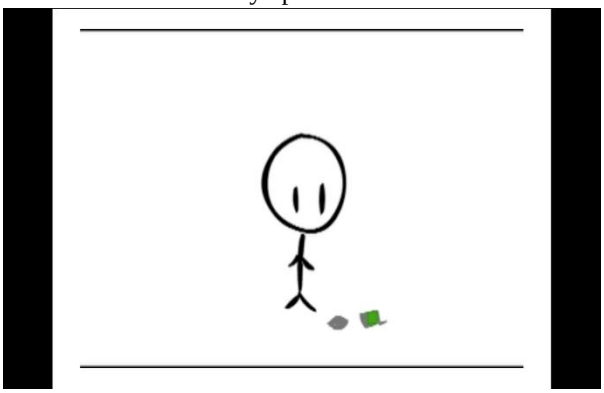
- o The boy dropped my cell phone because he is mad at me.
- o The boy dropped my cell phone because he is kind of clumsy.
- o The boy dropped my cell phone because he doesn't want me to have something better than him.

In this story, do you think the boy was

- o Trying to be mean?
- o <u>Not</u> trying to be mean?

How upset or mad would you be if the things in this story really happened to you?

- o <u>Not</u> upset or mad at all
- o A little upset or mad
- o Very upset or mad



<u>Story 4 (Art):</u> Imagine that you have just finished an art project for school. You've worked on it a long time and you're really proud of it. Another boy comes over to look at your project. The boy is holding a jar of paint. You turn away for a minute and when you look back the boy has spilled paint on your art project. You worked on the project for a long time and now it's ruined.

The boy spilled paint on my project because he wants a better grade than me.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The boy spilled paint on my project because he is trying to get back at me for something.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The boy spilled paint on my project on accident.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

Which thought is most believable?

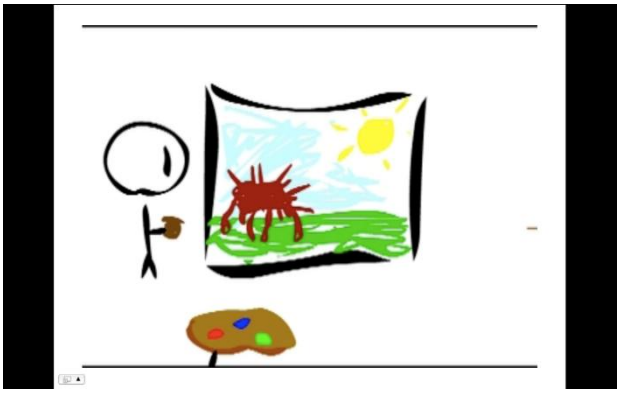
- The boy spilled paint on my project because he wants a better grade than me.
- The boy spilled paint on my project because he is trying to get back at me for something.
- The boy spilled paint on my project on accident.

In this story, do you think the boy was

- Trying to be mean?
- <u>Not</u> trying to be mean?

How upset or mad would you be if the things in this story really happened to you?

- <u>Not</u> upset or mad at all
- A little upset or mad
- Very upset or mad



<u>Story 5 (Invite)</u>: Imagine that you are in the bathroom washing your hands one day after recess. While you are in there, two other boys from your class come in and start talking to each other. One of the boys invites the other one to a birthday party. The boy says there are going to be a lot of people at the party. You have not been invited to this party.

The boy didn't invite me because he only wants the most popular kids to come to the party.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The boy didn't invite me because he is trying to get back at me for something.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The boy hasn't had the chance to invite me to the party yet.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

Which thought is most believable?

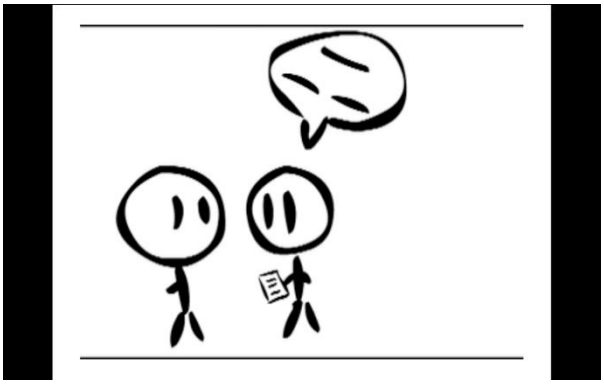
- o The boy hasn't had the chance to invite me to the party yet.
- o The boy didn't invite me because he only wants the most popular kids to come to the party.
- o The boy didn't invite me because he is trying to get back at me for something.

In this story, do you think the boy was

- o Trying to be mean?
- o <u>Not</u> trying to be mean?

How upset or mad would you be if the things in this story really happened to you?

- o <u>Not</u> upset or mad at all
- o A little upset or mad
- o Very upset or mad



<u>Story 6 (Milk):</u> Imagine that you are sitting at the lunch table at school, eating lunch. You look up and see another kid coming over to your table with a carton of milk. You turn around to eat your lunch, and the next thing that happens is that the kid spills milk all over your back. The milk gets your shirt all wet.

The kid spilled milk on me because he/she wants to make other kids laugh.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The kid spilled milk on me because he/she is mad at me.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The kid spilled milk on me because he/she wasn't looking where he/she was going.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

Which thought is most believable?

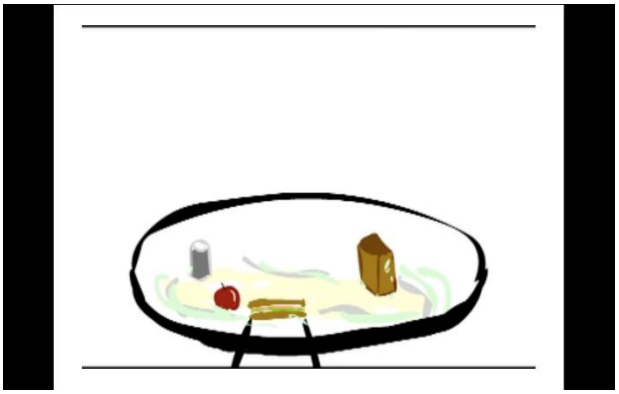
- The kid spilled milk on me because he/she is mad at me.
- The kid spilled milk on me because he/she wasn't looking where he/she was going.
- The kid spilled milk on me because he/she wants to make other kids laugh.

In this story, do you think the kid was

- Trying to be mean?
- <u>Not</u> trying to be mean?

How upset or mad would you be if the things in this story really happened to you?

- <u>Not</u> upset or mad at all
- A little upset or mad
- Very upset or mad



<u>Story 7 (Text):</u> Imagine that you are standing in the hallway at school talking to a boy you know. You ask him if he wants to hang out with you after school and he says yes. Just then, he gets a text message on his cell phone from another boy in your class. Right after reading it, the boy says that he actually can't hang out after school today.

The boy can't hang out because he wants to hang out with more popular kids instead.

Doesn't pop up in my mind | Might pop up in my mind | Definitely pops up in my mind

1 2 3 4 5

The boy can't hang out because the text-message said I had bad-mouthed him.

Doesn't pop up in my mind | Might pop up in my mind | Definitely pops up in my mind

1 2 3 4 5

The boy can't hang out because he forgot that he has something else to do after school.

Doesn't pop up in my mind | Might pop up in my mind | Definitely pops up in my mind

1 2 3 4 5

Which thought is most believable?

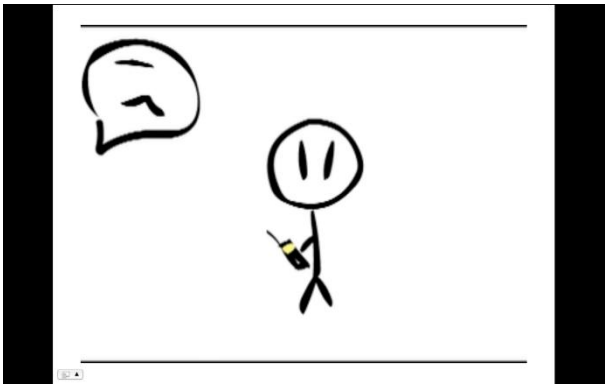
- o The boy can't hang out because he wants to hang out with more popular kids instead.
- o The boy can't hang out because the text-message said I had bad-mouthed him.
- o The boy can't hang out because he forgot that he has something else to do after school.

In this story, do you think the boy was

- o Trying to be mean?
- o <u>Not</u> trying to be mean?

How upset or mad would you be if the things in this story really happened to you?

- o <u>Not</u> upset or mad at all
- o A little upset or mad
- o Very upset or mad



<u>Story 8 (Shoes):</u> Imagine that you are walking to school and you're wearing your new tennis shoes. You really like your new shoes and this is the first day you have worn them. Suddenly, you are bumped from behind by another kid. You stumble and fall into a mud puddle and your new shoes get muddy.

The kid bumped me because he/she wants to make me look stupid in front of others.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The kid bumped me because he/she is angry with me.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The kid bumped me because he/she was fooling around and pushed too hard by accident.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

Which thought is most believable?

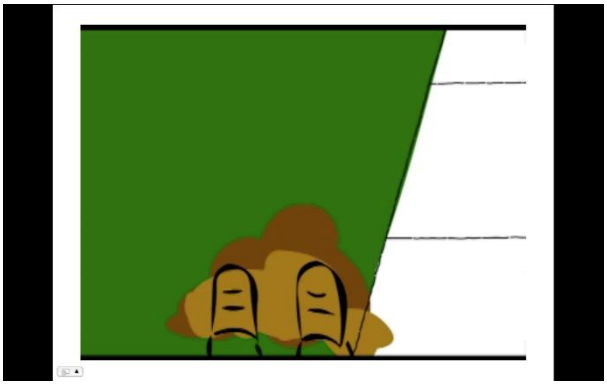
- The kid bumped me because he/she was fooling around and pushed too hard by accident.
- The kid bumped me because he/she wants to make me look stupid in front of others.
- The kid bumped me because he/she is angry with me.

In this story, do you think the kid was

- Trying to be mean?
- <u>Not</u> trying to be mean?

How upset or mad would you be if the things in this story really happened to you?

- <u>Not</u> upset or mad at all
- A little upset or mad
- Very upset or mad



<u>Story 9 (Hallway):</u> Imagine that you are standing in the hallway one morning at school. As you are standing there, two boys from your class walk by. As they walk by you, the two boys look at you, whisper something to each other and then they laugh.

The boys laughed because it makes them feel better about themselves.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The boys laughed because they thought I had looked at them funny.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The boys laughed because they were just having fun.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

Which thought is most believable?

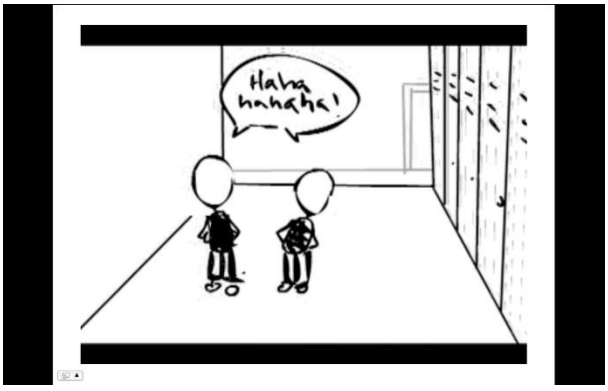
- o The boys laughed because they thought I had looked at them funny.
- o The boys laughed because they were just having fun.
- o The boys laughed because it makes them feel better about themselves.

In this story, do you think the boys were

- o Trying to be mean?
- o <u>Not</u> trying to be mean?

How upset or mad would you be if the things in this story really happened to you?

- o <u>Not</u> upset or mad at all
- o A little upset or mad
- o Very upset or mad



<u>Story 10 (Park):</u> Imagine that you are at a park near your house, and you see a bunch of kids talking in a circle about 15 feet away. You yell out, "Hey everybody!" The kids keep on talking and don't say anything to you.

The kids didn't say anything because they want to act like they're better than me.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The kids didn't say anything because they are mad at me about something.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

The kids didn't say anything because they didn't see me standing there.

Doesn't pop up in my mind	Might pop up in my mind	Definitely pops up in my mind
1 2	**3 4**	**5**

Which thought is most believable?

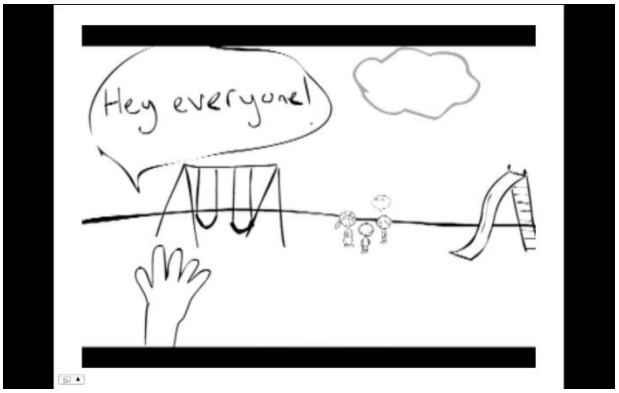
- The kids didn't say anything because they want to act like they're better than me.
- The kids didn't say anything because they are mad at me about something.
- The kids didn't say anything because they didn't see me standing there.

In this story, do you think the kids were

- Trying to be mean?
- <u>Not</u> trying to be mean?

How upset or mad would you be if the things in this story really happened to you?

- <u>Not</u> upset or mad at all
- A little upset or mad
- Very upset or mad



Vita

Melissa Kunimatsu was born in Royal Oak, Michigan and received her B.A. from the University of Michigan, Ann Arbor in December 2007.