

2009

# The impact of situational context on children's social information processing: The proximal influence of friends

Heather L. Smith-Schrant  
*University of South Florida*

Follow this and additional works at: <http://scholarcommons.usf.edu/etd>

 Part of the [American Studies Commons](#)

---

## Scholar Commons Citation

Smith-Schrant, Heather L., "The impact of situational context on children's social information processing: The proximal influence of friends" (2009). *Graduate Theses and Dissertations*.  
<http://scholarcommons.usf.edu/etd/24>

This Thesis is brought to you for free and open access by the Graduate School at Scholar Commons. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Scholar Commons. For more information, please contact [scholarcommons@usf.edu](mailto:scholarcommons@usf.edu).

The Impact Of Situational Context  
On Children's Social Information Processing:  
The Proximal Influence Of Friends

by

Heather L. Smith-Schrandt

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Arts  
Department of Psychology  
College of Arts and Sciences  
University of South Florida

Major Professor: Ellis Gesten, Ph.D.  
Judith Bryant, Ph.D.  
Vicky Phares, Ph.D.

Date of Approval:  
March 9, 2009

Keywords: social cognition, social skills, peer influence, hostile attribution, emotion,  
social cues

© Copyright 2009 , Heather L. Smith-Schrandt

## Dedication

Mom and Dad, I have unending appreciation for your lifelong support and encouragement of my education and achievement. Mom, I got my “smarts” from you. Dad, you inspired me by the inclusion of your 9 year old daughter in your thesis dedication more than 20 years ago. Jody and Braden, your sacrifices for the pursuit of my education are many and great. I would not be here without the patience, editing, cheerleading, consulting, and love you both provide. I share this accomplishment with you both and promise to return all the favors. Bray, I could not be more proud and look forward to all the wonderful you will create. Jody, you are everything – next time, I follow you.

## Acknowledgements

I would like to thank my advisor, Dr. Ellis Gesten, for support and guidance in my academic pursuits, and for always keeping my best interests at the forefront. I am grateful to my committee, Dr. Judith Bryant and Dr. Vicky Phares, whose perspectives and suggestions were invaluable contributions. This research was made possible by the overwhelming support and dedication of the School District of Hillsborough County, and specifically, Tracy Schatzberg, Mike Cummings, Darlene Choe, Lisa Tierney-Jackson, Anita Greenbaum, Gina Jones, and all the participating teachers. Thank you all.

## Table of Contents

List of Tables	iii
List of Figures	v
Abstract	vi
Introduction	1
Social Information Processing	2
Hostile Attribution Bias	3
Response Evaluation and Decision	4
Emotional Reaction	5
The Context of Social Information Processing	6
The Importance and Impact of Friendship	11
The Influence of Friends on Social Information Processing	13
Current Study	16
Hypotheses	17
Method	19
Participants	19
Measures	19
Hostile Attribution	21
Negative Emotional Reaction	21
Behavioral Response Evaluation	23
Procedure	23
Results	25
Descriptive Statistics	25
Intercorrelations	27
Impact of Situational Context on Social Information Processing	29
Hostile Attribution	30
Negative Emotional Reaction	33
Aggressive Response Evaluation	36
The Role of Emotion in Response to Hypothetical Peer Conflict	38

Discussion	41
Impact of Situational Context on Social Information Processing	41
Antagonist Action Cues	42
Friends' Attribution	43
Interaction Effects and Discrepant Situations	45
The Role of Emotion	47
Demographic Differences in Emotional Reaction	48
Emotion Predicting Social Information Processing	48
Limitations	49
Implications and Future Directions	50
References	53
Endnotes	65
Appendices	67
Appendix A: Experimental Manipulation of CASS Hypothetical Vignettes	68
Appendix B: Example of a Full Version of the CSS Measure (Version 1/Boys)	77
Appendix C: Stimulus Development and Expert Panel Results	87
Appendix D: Parent Informed Consent	90
Appendix E: Teacher Informed Consent	94
Appendix F: Child Assent	97
Appendix G: Exploratory Analyses with Assertive Behavior	100
Appendix H: Friendship Quality as a Potential Moderator of Friends' Attributions	104
Appendix I: Aggression as a Potential Moderator of Friends' Attributions	111
Appendix J: Gender as a Potential Moderator of Friends' Attributions	115

## List of Tables

Table 1-A	Experimental Manipulation of Vignettes	21
Table 1-B	Counterbalancing of Story Lines (81 Vignette Variations) and Versions of CASS Measure (9 for each Gender)	22
Table 2	Means, Standard Deviations, and Demographic Differences in Social Information Processing Outcome Variables	26
Table 3	Correlation Coefficients for the Social Information Processing Outcome Variables (N = 320 – 356)	28
Table 4	Means and Standard Deviations of Outcome Variables per Vignette Manipulation	29
Table 5	The Impact of Situational Context on Students' Social Information Processing as Demonstrated by Results from 3x3 Repeated Measures MANOVAs and ANOVAs	30
Table 6	Simple Effects Testing for Hostile Attribution: The Impact of a Friend's Attribution at each Level of Antagonist Action Cue	31
Table 7	Simple Effects Testing for Anger: The Impact of a Friend's Attribution at each Level of Antagonist Action Cue	34
Table 8	Simple Effects Testing for Embarrassment: The Impact of a Friend's Attribution at each Level of Antagonist Action Cue	35
Table 9	Simple Effects Testing for Physical Aggression: The Impact of a Friend's Attribution at each Level of Antagonist Action Cue	37
Table C-1	Results of Expert Panel Questionnaire	89
Table G-1	Means, Standard Deviations, and Simple Effects Testing for Assertive Response Evaluation: The Impact of a Friend's Attribution at each Level of Antagonist Action Cue	102

Table G-2	Impact of Situational Context on Students' Assertive Response Evaluation as Demonstrated by Results from a 3x3 Repeated Measures ANOVA	103
Table H-1	Impact of Friendship Quality on Students' Social Information Processing as Demonstrated by Results from 3x3 Repeated Measures MANCOVAs and ANCOVAs	107
Table I-1	Impact of Teacher Rated Aggression on Students' Social Information Processing as Demonstrated by Results from 3x3 Repeated Measures MANCOVAs & ANCOVAs	114
Table J-1	Gender as a Potential Moderator of Situational Context as Demonstrated by Results from 3x3x2 Repeated Measures MANOVAs and ANOVAs	116



## List of Figures

Figure H-1	Illustration of the Moderation of a Friend's Attribution by Friendship Quality for Physical Aggression	108
Figure H-2	Illustration of the Moderation of a Friend's Attribution by Friendship Quality for Relational Aggression	109
Figure H-3	Illustration of the Moderation of a Friend's Attribution by Friendship Quality for Verbal Aggression	110

The Impact of Situational Context  
On Children's Social Information Processing:  
The Proximal Influence of Friends

Heather L. Smith-Schrandt

ABSTRACT

There is increasing recognition that contextual aspects of social situations are important determinants of children's social information processing. While it is generally accepted that friends influence children's social behavior, the immediate influence of a friend in specific conflict situations is less understood. Contextualized vignettes depicting hypothetical peer conflict situations were developed to examine the impact of situational context, namely a friend's suggested attribution and an antagonist action cue, on students' social information processing. A repeated measures design examined the proximal influence of situational context on 4<sup>th</sup> and 5<sup>th</sup> grade students' (N=367) own intent attributions, emotional reactions, and response evaluations to hypothetical peer conflict scenarios. Results indicated that situational context is important to students' social cognition. Students adjusted their social cognition and emotion in response to cues to an antagonist's intent and were influenced by a friend's comments during peer conflict scenarios. Students' responses were more aligned with the antagonist's action than a friend's suggested attribution. However, a friend's attribution was influential in situations where it conflicted with the antagonist's action. Results of this study help to increase

knowledge regarding the *context* of social cognition and can assist in the development of more ecologically valid social skill interventions.

## Introduction

Children's social cognition reflects and impacts their adjustment and behavior. Social skill and social information processing deficits have been linked to diverse childhood problems including: aggression, antisocial behavior, bullying, peer victimization, social withdrawal, depression, and anxiety (e. g., Camodeca & Goosens, 2005; Crick & Dodge, 1996; Dineen & Hadwin, 2004; Farmer, Bierman, & The Conduct Problems Prevention Research Group, 2002; Fontaine, 2006; Lochman & Dodge, 1994; Prinstein, Cheah, & Guyer, 2005; Quiggle, Garber, Panak & Dodge, 1992; Zelli, Dodge, Lochman, Laird, & The Conduct Problems Prevention Research Group, 1999). This has led to the creation and implementation of many social skill based interventions (e.g. Metropolitan Area Child Study Research Group, 2007). Unfortunately, many programs have limited effectiveness and acquired skills do not always generalize to everyday peer interactions (Gresham, Sugai, & Horner, 2001; Quinn, Kavale, Mathur, Rutherford, & Forness, 1999). Some have hypothesized this is partly due to a failure to consider the larger social context and peer ecology (Farmer & Xie, 2007). To date, only a small portion of research on children's social information processing has considered situational or social context and none has considered the role of a friend as a third party participant in a peer conflict.

Friends are very important to children, and their opinions influence how children behave and think in social situations (Berndt, 1982; Buhrmester, 1990; Dunn, 2004). For

example, friends often target the same victims for aggression (Card & Hodges, 2006). Interpersonal conflict seldom occurs without another peer present (Chaux, 2005), and it may be that a friend's perception of a conflict influences a child's subsequent reaction. The purpose of this study was to examine the impact of situational context and peer influence on children's social information processing to enhance our understanding of the peer ecology of social cognition.

### *Social Information Processing*

The core postulate of social cognitive theory is that interpersonal behavior is influenced by the understanding and interpretation of social events (Lemerise & Arsenio, 2000). Broadly conceived, social information processing can be thought of as how one attempts to find solutions to problematic social situations (D'Zurilla & Maydeu-Olivares, 1995). Social information processing is seen as a largely cognitive process that results in behavioral action. Although affective, attention, and motivational components are also involved, these aspects are less developed and studied. Crick and Dodge (1994, Dodge & Crick, 1990) developed the most prominent model of children's social information processing. Their theory describes the "online", or real time, processing of specific social situations rather than measuring global constructs or cognitive tendencies. Children bring to a conflict both a biologically limited capability and a database of cognitive schemata based on past memories of social interactions which influence the processing of social information.

Crick and Dodge's (1994) model consists of six steps that allow for feedback loops to return to previous steps. The steps are believed to occur rapidly and perhaps, at times, in parallel. Step 1 is the *encoding* of, or selective attention to, both internal and

external cues. Step 2 is the *interpretation* of those cues which is largely influenced by the database of previously processed personal experiences. The child attempts to determine the meaning of the event for both themselves and others involved. Step 3 is the *clarification of goals*, or determining the desired outcome. During step 4, the child *generates possible solutions* to the problem which may be newly constructed or retrieved from the database of past responses. Step 5 involves *choosing which response to employ* based on beliefs concerning the expected outcome, the appropriateness of the response, and the ability to enact the response. At step 6, the *response is enacted and evaluated*.

#### *Hostile Attribution Bias*

Nasby, Hayden, and dePaulo (1980) first coined the term “hostile attribution bias” when they found that aggressive children tend to assume others’ actions are motivated by hostility. The attribution of hostile intention during social situations is one way in which cues can be misinterpreted (step 2) and subsequent processing distorted. Since the initial identification of hostile attribution bias, over 100 studies have confirmed that aggressive children have an overarching tendency to attribute hostility to others, and that aggressive behavior responses follow an attribution of hostility (see Dodge, 2006). A meta-analysis of 41 studies revealed a consistent bias towards hostile attribution in aggressive children with a mean effect size of .17, which is considered small to medium (Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002). The meta-analysis discovered considerable heterogeneity in effect sizes with the larger effects (up to .65) being associated with more severe aggression. Although hostile attribution bias has most frequently been associated with reactive aggression, other associated adjustment problems include depression, social anxiety, relational aggression, somatic symptoms and

other stress reactions (for review see Dodge, 2006). Thus, bias towards hostile attribution has a well established association with psychological adjustment as well as, in at least one study, mortality (Barefoot, Dodge, Peterson, Dahlstrom, & Williams, 1989).

### *Response Evaluation and Decision*

Children may think of more than one way to respond to a social situation. This would involve the evaluation of each possible response and then deciding which to enact. Evaluation of response options is influenced by moral values (e.g., beliefs regarding the appropriateness of aggression), outcome expectations, and self-efficacy beliefs (Crick & Dodge, 1994). After this evaluative process, children must select a response. Although this marks the end of the response decision process, the process may begin again after enactment and outcome evaluation.

Numerous studies have shown that aggressive children endorse more aggressive or maladaptive response options and less friendly, pro-social, or assertive response options than less aggressive children (e.g., Erdley & Asher, 1996; Orobio de Castro, Merk, Koops, Veerman, & Bosch, 2005; Quiggle et al. 1992; Zelli et al. 1999). Maladaptive response decisions have also been associated with other types of social adjustment difficulties. One study revealed that both aggressive and shy children are more likely than well-adjusted children to select avoidant strategies (Burgess, Wojslawowicz, Rubin, Rose-Krasnor, & Booth-LaForce, 2006). Another study reported that depressed children rated assertive responding as less likely than comparison children and found a trend for rating withdrawn responses more favorably (Quiggle et al., 1992). Both bullies and victims evaluate aggressive behavioral responses more favorably than uninvolved students, while bullies also believe it is easier to use verbal persuasion

(Camodeca & Goossens, 2005). A lack of social acceptance by peers has been associated with more favorable evaluation of aggressive solutions measured one-year later (Dodge, Lansford, Burks, Bates, Pettit, Fontaine et al. 2003).

### *Emotional Reaction*

Lemerise and Arsensio (2000) suggest that emotion be considered an integral component of social information processing and adapted the Crick and Dodge (1994) model to reflect the reciprocal relationship of cognition and emotion. It is thought that emotion can influence what is noticed in a situation. Emotional cues of both self and others will be encoded and can influence subsequent processing. Goals may be influenced in that children may be motivated toward emotion-reduction goals. Children's emotional reaction may cause them to be too overwhelmed in social situations to generate and evaluate possible solutions from multiple perspectives. Representations of past experiences stored in cognitive schemas contain an affective component, and emotional expectations derived from these schemas will influence the selection of a response. Emotional reaction will also influence a child's ability to enact a response effectively. Lastly, emotional cues provide evidence for the success or failure of an encounter which affects both whether further processing occurs and how the event is subsequently represented in memory.

Although it is likely that emotional reaction influences interpretation and processing of a social situation, empirical examination has been limited. Dodge and colleagues (2002), employing confirmatory factor analysis, found that *emotional understanding* – knowledge of one's own emotions and how others experience emotion – is a distinct yet related component of social information processing. Garner and Lemerise



(2007) found preschoolers' emotional knowledge is related to more pro-social response decision but not associated with attributions of intent. Further, children with various social difficulties report a more negative *emotional response* to possible conflict situations. Children characterized as aggressive, shy, depressed, and victimized report more anger, as do bullies than better adjusted peers (Burgess et al., 2006 [aggressive & shy]; Camodeca & Goosens, 2005 [bullies & victims]; Orobio de Castro et al., 2005 [aggressive], Quiggle et al., 1992 [depressed]). Victims also report more sadness.

Most research regarding emotional reaction compares the reaction of children with various social difficulties to that of normal peers rather than examining the influence of emotional reaction on subsequent processing. Two studies report associations between emotional reaction and other social information processing variables (Burgess et al., 2006; Orobio de Castro et al., 2005). However, neither study considered anxious feelings, and the one study that considered embarrassment employed a forced-choice response format (Burgess et al., 2006). Therefore, a second objective of the current study was to gain a more complete understanding of the role of emotional reaction on intent attributions and response evaluation by: (1) assessing anxiety/fear, sadness, anger and embarrassment based on an empirically validated measure (PANAS-C: Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, et al., 1999) and, (2) examining relationships between emotion and two other social information processing variables (i.e., attributions of intent and response evaluation).

### *The Context of Social Information Processing*

Since the conception of Crick and Dodge's (1994) seminal social information processing model, numerous studies have contributed to a now vast literature that

establishes the social information processing model as a valid and useful heuristic for examining peer conflict situations. Despite its broad application, it is becoming apparent that the model cannot explain all variability in children's processing of social information without considering the larger peer ecology or situational context. For example, in one study, as much as 87% of the variability in hostile attribution was attributable to whether an antagonist was a friend or enemy (Peets, Hodges, Kikas, & Salmivalli, 2007). In another study of dyads, hostile attribution was driven by relationship qualities (21% of variance) as well as individual characteristics of both the child (19%) and the partner (8%) (Hubbard, Dodge, Cillessen, Coie, & Schwartz, 2001). These studies illustrate that it is still unclear exactly how much variance in social information processing is due to characteristic tendencies of a child as compared to situational context – including peer relations and influence.

This gap in understanding has led some to proclaim the exploration of context as an important future direction for the field of social cognition (e.g., Dodge, 2006; Fontaine, 2006; Sumrall, Ray, & Tidwell, 2000). Although Crick and Dodge (1994) included “social context” as a moderating factor in their reformulated model, Dodge (2006) himself acknowledges the field “has not yet articulated a strong theory of context” (p. 810). Dodge postulates a “theory of context” is required for a translational science approach to hostile attribution that is both cross-disciplinary and applicable to practice. Fontaine (2006) argues that social information processing should be viewed from a systems perspective with situational context being one extra-cognitive influence warranting consideration. Although studies of contextual influence are few, researchers are beginning to build empirical evidence that situational context does influence social

information processing. Namely, an antagonist's emotional display, situation type, antagonist's reputation, and relationship type have all been associated with children's social information processing.

Lemerise, Gregory, and Fredstrom (2005) found antagonists' emotional display in videotaped vignettes did not affect recall of social cues, but that hostile attribution was more common when the antagonist appeared angry. The influence of the antagonist's emotional display depended, in part, on the child's adjustment. When an antagonist appeared angry or sad, aggressive children generated more aggressive goals and solutions than other children, but if an antagonist appeared happy, there were few group differences. These differences were present despite the fact that only 3% of children mentioned the antagonist's emotion when asked what happened in the story. A subsequent study found similar results regarding social goals and response decisions (Lemerise, Fredstrom, Kelley, Bowersox, & Waford, 2006). When the antagonist appeared happy there were few group differences but when the antagonist appeared angry or sad, rejected-aggressive children report more aggressive social information processing than did non-aggressive and popular-aggressive children. These two studies suggest that when this contextual element is altered, individual differences in social information processing may disappear. Although the emotional display of an antagonist is outside of the individual, and could be considered part of the situational context, it should be noted this factor also is linked to a child's perception and may not be a purely contextual variable.

Some evidence suggests that social information processing is situation specific. Dodge, McClaskey, and Feldman (1985) found that several types of social situations

were more difficult for less socially competent children and peer provocation, in particular, highlights processing deficits. While a hostile attribution bias seems to be consistent across peer entry and peer provocation situations, children's goals, solution generation, and response evaluation vary by situation type (Dodge, Laird, Lochman, Zelli, & The Conduct Problems Prevention Research Group, 2002). Some children have difficulty with peer entry but not peer provocation situations, and other children only struggle when provoked by a peer. Situation specificity has also been found within peer provocation scenarios as children respond with either relational or physical aggression depending on whether the provocation was relational or physical (Dirks, Treat, & Weersing, 2007). Further, girls respond more indirectly than directly to indirect relational aggression than direct relational aggression, matching response type to provocation type (Sumrall et al., 2000). Another study found the likelihood of responding with direct or indirect aggression was related to specific social cognitions regarding each type of aggression (Musher-Eizenman, Boxer, Danner, Dubow, Goldstein, & Heretick, 2004).

Children's social information processing may be dependent on who is doing the antagonizing. Several studies have found more adaptive processing with friends rather than unfamiliar peers or enemies (Burgess et al., 2006; Caplan, Bennetto, & Weissberg, 1991; Sumrall et al., 2000), although one study did not (Sancilio, Plumert, & Hartup, 1989). For example, Burgess and colleagues (2006) found children were more likely to provide adaptive attributions, have less negative emotional reaction, and choose conciliatory coping strategies when the antagonist was a friend as compared to an unfamiliar peer. Social information processing might also depend on the reputation or characteristics of the antagonist. Several studies have found that social information

processing, particularly hostile intent attributions, is a function of whether the child likes or dislikes the antagonist (Hymel, 1986; Peets et al., 2007; Peets, Hodges, & Salmivalli, 2008). Similarly, Dodge (1980) found that a child's perception of an antagonist as aggressive led to a fivefold increase in hostile attribution, and antagonist reputation had a greater effect than the protagonist's own level of aggression.

To explore the relative importance of both relationship type and reputation of the antagonist, Peets and associates (2007) asked children to identify a friend, enemy, and neutral peer in their classroom. When the nominated peers' names were included in the vignettes as the antagonist, children reported less hostile attribution and less aggressive responding when the antagonist was a friend rather than an enemy or neutral peer. This finding remained after controlling for the reputation (aggressiveness as nominated by the whole class) of the nominated friend, suggesting that the friendship relationship is more influential than a peer's typical behavioral repertoire. Individual differences in social cognitive tendencies (e.g., child's hostile attribution bias) disappeared after accounting for relationship type of the antagonist – illustrating the impact of context.

It is unclear just how much variability in children's social information processing can be attributed to situational context. Dodge et al. (2002) found situation-specificity of processing was not as strong as individual differences in social cognition. Ojanen and colleagues (2007) found that about half of the variability in children's social goals was related to individual differences, while the other half was explained by situation type. Peets and associates (2008) found that almost all variation in hostile attribution could be attributed to whether the antagonist was liked or disliked by the respondent. Regardless,

studies indicate that children do change their social information processing to some degree in response to situational context.

In summary, although several elements of situational context have been examined and corroborate the impact of context on children's social information processing, one element that has not been considered is the impact of peers as witnesses to conflicts. Salmivalli and associates (1996) found that bullying is a group process and most children are involved in some manner, whether assisting a bully or defending a victim. Naturalistic observation on school playgrounds revealed peers are present in 88% of bullying episodes and intervene in 19% of these incidents (Hawkins, Pepler, & Craig, 2001). In another study, Colombian children recounted recent conflicts with peers, and in 63% of the incidents another peer was present and actively involved in 52% of the conflicts (Chaux, 2005). Further, the most frequent type of involvement was that of supporting one side or the other, which suggests that peers may frequently share their perceptions of the conflict. Thus, peers frequently bear witness to and are often involved in children's conflicts. Yet to date, no research has considered the proximal influence of a friend's actions or statements during hypothetical peer conflict scenarios.

#### *The Importance and Impact of Friendship*

Friendship has important implications for children because it influences "the information they receive, the attitudes they form and the interactions they experience" (McPherson, Smith-Lovin, & Cook, 2001, p. 415). Friends have a direct influence on a child's perceptions, beliefs, goals, and behaviors regarding diverse areas such as academics (e.g., Altermatt & Pomerantz, 2003), health-related behavior (e.g., Hains, Berlin, Davies, Smothers, Sato, & Alemzadeh, 2007), culture (e.g., Berndt, 1982),

friendship (e.g., Richard & Schneider, 2005), and substance use (e.g., Simons-Morton, 2007).

Friendships become increasingly important to children in the transition to adolescence (Buhrmester, 1990). By 7<sup>th</sup> grade friends are perceived as supportive as parents, and by 10<sup>th</sup> grade friends become the most frequently reported source of support for adolescents (Furman & Buhrmester, 1992). Adolescents claim to feel more open with and less judged by friends compared to their parents (Larson, 1983). In a meta-analysis that compared friends to other peers to create a ‘portrait of friendship’, friends spent more time together, displayed more positive affect towards one another, tried harder to resolve conflicts, and were more cooperative than non-friends (Newcomb & Bagwell, 1995).

Not only are friendships important to children and adolescents, friends impact children’s development and well-being (Dunn, 2004). Friends provide intimacy (Furman & Buhrmester, 1985), emotional support (Bukowski, 1991), and opportunity to develop social competence (Dunn, 2004). Friendships can be a training ground for later romantic relations because, unlike parent-child relationships, friendships are less hierarchical and more symmetrical in nature (Newcomb & Bagwell, 1995). Friends can impact children in both positive and negative ways. For example, having a mutual friend in the fifth grade prospectively predicts higher self-worth in adulthood (Bagwell, Newcomb, & Bukowski, 1998). In contrast, poor peer relations are predictive of later adjustment difficulties in multiple areas such as early school termination, dissatisfaction with life, criminal activity, and psychopathology (for review see Parker & Asher, 1987). As this diverse research illustrates, friends have a direct impact on children’s social thinking and behavior. Thus, it follows that friends are also likely to directly influence social information processing.

### *The Influence of Friends on Social Information Processing*

Friends' influence on social information processing may be suspected due to the strong congruence between children's general level of aggression and that of their peers (e.g., Card & Hodges, 2006; Espelage, Holt, & Henkel, 2003; Werner & Crick, 2004). Enhancement models of deviant behavior suggest that individual and family characteristics contribute to aggressive behavior but indicate peers exacerbate these tendencies (e.g., Paterson, DeBaryshe, & Ramsey, 1989). Although many children may be aggressive before affiliation with deviant peers, their deviancy tends to increase after these associations are made (e.g., Van Lier, Wanner, & Vitaro, 2007). Thus, it is possible that aggressive friends impact the way a child processes social information such that aggression becomes more likely or routine.

Examinations of the mechanisms of friends' influence on aggression suggest that, in addition to modeling, both overt and subtle methods of reinforcement are important. Eldekliloglu (2007) found that overt peer pressure predicts adolescents' physical and relational aggression. Similarly, friends' use of directives in an observed dyadic problem-solving task was associated with teacher-rated antisocial behavior (Dishion, Andrews, & Crosby, 1995). Further, video-taped interactions show that friends' more subtle behaviors, such as laughter and deviant talk, are associated with increases in violence years later (Dishion, Eddy, Haas, Li, & Spracklen, 1997). Another study found that when provoked (given negative feedback by an experimenter), either while alone or in the presence of a peer, college undergraduates in the peer present condition later generated more aggressive solutions to a hypothetical situation than those in the alone condition (Jacquin, Harrison, & Alford, 2006). These findings suggest that a friend's



influence, whether overt encouragement or simple presence, is related to aggression.

Very little research has examined whether friends exert a direct influence on children's social information processing with two notable exceptions (Baron, Forde, & Kennedy, 2007; Brendgen, Bowen, Normand, & Vitaro, 1999).

Baron and colleagues (2007) presented adolescent males with hypothetical conflict situations and altered the vignettes in terms of whether or not a friend was present. They hypothesized that the presence of a friend in the scenario would increase the adolescents' perception of harm and aggressive responding. However, they did not find a significant association between a friend's presence and reported reactions to the scenarios. These results suggest that the mere presence of a friend during a conflict situation does not influence processing, or alternatively that adding "and your friend" to a hypothetical vignette is not prominent enough to influence processing. This study was conducted with a very specific population – male adolescents who were no longer in school and spent considerable time on the street – that may not generalize to preadolescent children. Preadolescents may be more susceptible to friends' influence because they are just beginning to negotiate intimate friendships. Further, this study only examined one social information processing variable – the likelihood of responding with physical force.

Brendgen and associates (1999) used a sample of grade-school children to directly examine the possibility that friends' behavior would alter social information processing (solution generation and intent attributions). The general level of aggression was assessed for each child via peer nomination procedures. Social information processing was assessed at baseline and again six months later. Children's overall aggressiveness was

significantly correlated to their friends' aggressiveness. Having aggressive friends predicted increases in preadolescents' *aggressive* response generation after controlling for the youth's own initial level of aggression. Having non-aggressive friends only predicted increases in a child's *pro-social* response generation if the child was also non-aggressive at baseline. Thus, it seems that, although association with pro-social peers benefits well-adjusted children's social information processing, aggressive children do not receive similar benefit. Unfortunately all preadolescents seem to be negatively influenced by aggressive friends. The authors suggest that aggressive children may not attend to behavior that does not fit within their aggressive cognitive schema, and/or pro-social children may not have the power to influence aggressive children who could be dominant in the friendship.

In contrast to the findings regarding response generation, friends' aggressive and pro-social behavior did not predict increases in the frequency of hostile attributions after controlling for the child's own aggression (Brendgen et al. 1999). The authors suggest that observing one's friends may not be powerful enough to enhance or diminish the acquisition of hostile attribution tendencies. The authors also believed that friendship stability should be examined in the future because it was unknown whether friendships continued throughout the six month period. Finally, this study used a dichotomous response option for hostile attribution, and may not have captured nuances in responding.

These two studies suggest some effect of friends on social information processing, but leave other questions unanswered. Neither study directly addressed the role of emotion or a friend's immediate influence on the social information processing of a specific situation. The results of Brendgen et al. (1999) are important as they illustrate

having an aggressive friend can alter a child's social information processing (at least response generation) in as little as six months time. Yet, the findings do not illuminate the process by which influence occurs because the specific actions of the friends were not considered.

### *Current Study*

To determine how context may influence social information processing, vignettes depicting hypothetical conflict situations were presented to children with two contextual elements varied: (1) a best friend's verbalized attribution of the antagonist's intent and (2) antagonist action cues that hint at the antagonist's intent. It was hypothesized that a best friend's perception of a conflict would influence a child's attribution of intent, emotional reaction, and solution evaluation. To further examine the influence of friends, additional cues were presented such that something the antagonist does or says hints at their intent. Antagonist action cues were either congruent or incongruent with the attribution made by the best friend. It was expected that children's social information processing would also be influenced by the antagonist action cues, but for discrepant situations, children's social information processing would align more closely with the best friend's attribution. Finally, emotional reaction was predicted to influence both attribution of intent and response evaluation.

## *Hypotheses*

Hypothesis 1: Situational context will influence students' attribution of the antagonist's *hostile intentions*.

Hypothesis 1a: Students' attributions of intent will be most hostile when *antagonist action cues* indicate hostility and least hostile when antagonist action cues suggest benign intention.

Hypothesis 1b: Students' attributions of intent will be most hostile when a *best friend suggests hostility* and least hostile when benign intention is suggested by the friend.

Hypothesis 1c: In comparing the two *discrepant situations*, students' attributions of intent will be more hostile when the best friend's attribution is hostile and the antagonist action cue is benign than when the best friend's attribution is benign and the antagonist action cue is hostile.

Hypothesis 2: Situational context will influence the degree of *negative emotion* students' experience.

Hypothesis 2a: Children will report the most negative emotion in response to situations when *antagonist actions cues* indicate hostility and the least negative emotion when antagonist action cues suggest benign intentions.

Hypothesis 2b: Children will report the most negative emotion in response to situations when a *best friend suggests hostility* and the least negative emotion when benign intentions are suggested by the friend.

Hypothesis 2c: In comparing the two *discrepant situations*, children will report more negative emotion in response to situations in which the best friend's

attribution is hostile and the antagonist action cue is benign than when the best friend's attribution is benign and the antagonist action cue is hostile.

Hypothesis 3: Situational context will influence the *rating of aggressive response* options.

Hypothesis 3a: Children will be most likely to respond aggressively in situations when *antagonist action cues* indicate hostility and least likely to respond aggressively when antagonist action cues suggest benign intention.

Hypothesis 3b: Children will be most likely to respond aggressively in situations when *a best friend suggests hostility* and least likely to respond aggressively when benign intention is suggested by the friend.

Hypothesis 3c: In comparing the two *discrepant situations*, children will be most likely to respond aggressively to situations in which the best friend's attribution is hostile and the antagonist action cue is benign than when the best friend's attribution is benign and the antagonist action cue is hostile.

Hypothesis 4: Children's *emotional reaction will influence other social information processing steps*.

Hypothesis 4a: A heightened negative emotional reaction will predict more *hostile attributions* of antagonist intent.

Hypothesis 4b: A heightened negative emotional reaction will predict greater endorsement of *aggressive solutions*.

## Method

### *Participants*

Participants included 369 4<sup>th</sup> and 5<sup>th</sup> grade students from two elementary schools (49% of sample from one school) in a large (approximately 159,000 students) Southeastern school district (U. S. Department of Education, 2001). Forty-four percent and 77% of the student body at each school was considered “economically disadvantaged” by the school district during the school year in which the study was conducted. All 4<sup>th</sup> and 5<sup>th</sup> grade classrooms from both schools (N = 39) participated in the study. Three students did not provide enough data to be included in any of the main analyses and were excluded from the final sample (N = 367). Most students were 9 (30.6%) or 10 (49.9%) years old (Range = 9-12, M = 9.90, SD = .76). Gender, grade level, and ethnicity were obtained from school records. Participants included slightly more females (N = 197, 53.7%) than males (N = 170, 46.3%) and nearly equal numbers of 4<sup>th</sup> (N = 181, 49.3%) and 5<sup>th</sup> graders (N = 186, 50.7%).<sup>1</sup> Most students were either Caucasian (N = 166, 45.2%) or Hispanic (N = 133, 36.2%). Other ethnicities represented included: Black/African American (N = 39, 10.6%), Asian/Pacific Islander (N = 3, .8%), American Indian/Alaskan Native (N = 3, .8%), or Other (N = 23, 6.3%).

### *Measures*

Contextualized Ambiguous Social Situations (CASS; see Appendices A & B) were created specifically for this study. However, vignettes were adapted from

ambiguous social situations used in other studies of children's social information processing (Fast Track Project, 2002; Fast Track Project, 2003; Garner & Lemerise, 2007; Parker, 2002).<sup>2</sup> CASS contains nine vignettes describing peer situations with a negative outcome for protagonist due to the actions of a same-sex peer antagonist (e.g., being bumped from behind by Maria [the antagonist] and falling down ruining new shoes).

There are three peer entry (e.g., asking to play with a peer who then says 'no') and six peer provocation situations. Instructions ask students to "PRETEND the story is happening TO YOU". In all scenarios, a "best friend" is present. A best friend was selected rather than simply a friend to ensure students would imagine the same peer in all conflict situations. The vignettes vary by: (1) the intent attribution verbalized by the best friend, and (2) an antagonist action that is a cue to their intent. Thus, the nine vignettes each represent a different manipulation of these two factors (see Table 1-A). There are three levels (benign, none, and hostile) of each manipulated factor. The best friend verbalizes either a benign (e.g., "Maria was running too fast") or hostile (e.g., "Maria is a real jerk") attribution, or does not say anything at all. Similarly, some stories include an additional contextual detail such that the antagonist in the story says or does something that suggests either benign (e.g., "Maria reaches out a hand to help you up") or hostile (e.g., "Maria doesn't stop and keeps going to school") intent. Other stories do not include an additional antagonist action cue. Although antagonist action cues add information regarding the antagonist's intentions, some degree of ambiguity remains. To control for the effects of a particular story line, story lines were counterbalanced across conditions (see Table 1-B for illustration).

Table 1-A

Experimental Manipulation of Vignettes

		Antagonist Action Cue		
		Benign	None	Hostile
Friend's Attribution of Intent	Benign	1	2	3
	None	4	5	6
	Hostile	7	8	9

*Note:* Shaded cells represent discrepant situations in which the friend’s attribution of intent is incongruent with the antagonist action cue.

*Hostile Attribution.* Immediately following each vignette, students respond to one question that indicates the degree of hostile intention attributed to the antagonist (i.e., antagonist acted “on purpose because she was trying to be mean”) on a 5-point scale ranging from 1 = “NO Definitely not” to 5 = “YES Definitely”.

*Negative Emotional Response.* Students’ emotional response to the situation was assessed by four questions that ask students “if this story happened to you, would you feel”: (1) sad, (2) mad, (3) embarrassed, and (4) scared with a 5-point response scale ranging from 1 = “Very Slightly” to 5 = “Extremely”. The emotions of sad, mad, and scared were taken directly from the PANAS-C which is a widely employed and empirically valid measure of children’s emotions (Laurent et al., 1999). The emotion of “embarrassed” is not on the PANAS-C but was selected, instead of “ashamed”, to indicate self-consciousness without necessarily feeling self-blame. The four emotions are presented in a different order for each of the nine vignettes.



Table 1-B

Counterbalancing of Story Lines (81 Vignette Variations) and Versions of CASS Measure (9 for each Gender)

Vignette Manipulation		Story Line								
Friend's Attribution	Environmental Cue	A. Pens	B. Catch	C. Lunch <sup>a</sup>	D. Shoes	E. PC	F. Club*	G. Art	H. Line	I. Play <sup>a</sup>
1 Benign	Benign	A1	B1	C1	D1	E1	F1	G1	H1	I1
2 Benign	None	A2	B2	C2	D2	E2	F2	G2	H2	I2
3 Benign	Hostile	A3	B3	C3	D3	E3	F3	G3	H3	I3
4 None	Benign	A4	B4	C4	D4	E4	F4	G4	H4	I4
5 None	None	A5	B5	C5	D5	E5	F5	G5	H5	I5
6 None	Hostile	A6	B6	C6	D6	E6	F6	G6	H6	I6
7 Hostile	Benign	A7	B7	C7	D7	E7	F7	G7	H7	I7
8 Hostile	None	A8	B8	C8	D8	E8	F8	G8	H8	I8
9 Hostile	Hostile	A9	B9	C9	D9	E9	F9	G9	H9	I9

CASS Version	Vignettes
1	A1 B2 C3 D4 E5 F6 G7 H8 I9
2	A2 B3 C4 D5 E6 F7 G8 H9 I1
3	A3 B4 C5 D6 E7 F8 G9 H1 I2
4	A4 B5 C6 D7 E8 F9 G1 H2 I3
5	A5 B6 C7 D8 E9 F1 G2 H3 I4
6	A6 B7 C8 D9 E1 F2 G3 H4 I5
7	A7 B8 C9 D1 E2 F3 G4 H5 I6
8	A8 B9 C1 D2 E3 F4 G5 H6 I7
9	A9 B1 C2 D3 E4 F5 G6 H7 I8

<sup>a</sup> Peer entry situation (other stories are peer provocation)

*Behavioral Response Evaluation.* Students respond to four questions asking “if this story happened to you, would you” react with: (1) physical aggression (e.g., “Try to knock Maria down”), (2) direct verbal aggression (e.g., “Yell to Maria, ‘I will get you for this’”), (3) indirect relational aggression (e.g., “Get Maria’s friends to walk home with you after school instead of with Maria”), and (4) assertiveness (e.g., “At school, tell Maria she should help you clean your shoes”). Students indicate whether they would perform each behavioral response on a 5-point scale ranging from 1 = “NO Definitely not” to 5 = “YES Definitely”. The order of behavioral response types differs in each of the nine stories.

#### *Procedure*

All 39 4<sup>th</sup> and 5<sup>th</sup> grade teachers at the two schools volunteered to participate and were given a \$10 gift card for their participation in the study. Teachers sent home Spanish and English parental consent forms with each student. To encourage the return of informed consent materials, a small classroom-wide reward was given to the class at each school that returned the highest percentage of consent forms regardless of parental decision. The overall return rate of parental consent was approximately 75% (School 1: 72% School 2: 78%). Of parents who returned the consent form, approximately 17% did not want their children to participate in the study. Students whose parents consented to participation were presented with the opportunity to assent to their own participation, and four students declined. Consent and assent forms can be found in Appendices D, E, and F.

Student data were collected in group format (M = 12 students per session). The social situation vignettes were included as part of a larger survey packet, and teachers

provided additional information.<sup>3</sup> Each CASS vignette was read aloud by a researcher, and students answered the corresponding questions silently. The stories were also printed on the survey page. Students were asked to not to move on to the next story until told to do so. A second researcher was present to individually answer any questions the students might have. The researcher moved on to the next story when all students were finished. At the conclusion of the final vignette, students completed the remainder of the survey packet at their own pace. The entire administration was completed in approximately one hour. Small tokens were provided to students who participated in the survey.

This study was developed collaboratively with the school district student services staff and approved by their Assessment and Accountability Department as well as the University of South Florida's Institutional Review Board. Survey packets were pre-labeled with non-identifiable numbers to ensure confidentiality.

## Results

Results are presented in four sections: (1) descriptive statistics for the social information processing outcome variables, (2) intercorrelations among outcome variables, (3) the impact of situational context (a friend's attributions and antagonist action cues) on outcome variables, and (4) the role of emotion in response to hypothetical peer conflict situations.

### *Descriptive Statistics*

Students' responses for each dependent variable were averaged across situations and manipulation type. Additionally, each student's emotional responses (i.e., sadness, anger, fear, and embarrassment) were averaged to create an index of overall negative emotion. Response evaluations of physical, relational, and verbal aggression were averaged to create a mean aggressive response score. Overall means and standard deviations are presented in Table 2.<sup>4</sup> To be included in the main analyses, the student had to have complete data for the outcome variable for all vignettes.

Table 2

Means, Standard Deviations, and Demographic Differences in Social Information Processing Outcome Variables

Variable <sup>a</sup>	Gender				Ethnicity <sup>b</sup>			F <sup>c</sup>	Grade		t
	Overall (N=341-366)	Male (N=147-170)	Female (N=187-196)	t	Caucasian (N=154-165)	Hispanic (N=119-133)	Other (N=61-68)		4th (N=164-181)	5th (N=170-185)	
Hostile Att	3.26 (.65)	3.32 (.69)	3.22 (.61)	1.48	3.29 (.61)	3.25 (.71)	3.23 (.63)	.34	3.30 (.64)	3.23 (.66)	1.06
Neg Emotion	2.29 (.62)	2.08 (.56)	2.44 (.62)	5.51***	2.18 <sup>d</sup> (.57)	2.43 <sup>c</sup> (.66)	2.26 (.62)	5.80**	2.40 (.61)	2.17 (.60)	3.45**
Sad	2.38 (.93)	1.94 (.81)	2.74 (.87)	8.72***	2.32 (.92)	2.48 (.96)	2.32 (.90)	1.12	2.53 (.94)	2.24 (.91)	2.86**
Mad	3.22 (.91)	3.23 (.95)	3.21 (.89)	.20	3.17 (.92)	3.34 (.93)	3.11 (.85)	1.75	3.29 (.89)	3.16 (.93)	1.36
Scared	1.44 (.70)	1.36 (.72)	1.50 (.67)	1.83	1.29 <sup>d</sup> (.51)	1.63 <sup>e</sup> (.84)	1.43 (.72)	8.27***	1.55 (.78)	1.33 (.59)	3.05**
Embar	2.08 (.84)	1.79 (.80)	2.33 (.79)	6.35***	1.93 <sup>d</sup> (.95)	2.24 <sup>e</sup> (.91)	2.16 (.74)	5.45**	2.18 (.90)	1.99 (.76)	2.08*
Agg Resp Eval	1.99 (.92)	2.20 (.97)	1.81 (.84)	4.03***	1.90 (.94)	2.13 (.87)	1.95 (.94)	2.30	1.99 (.90)	1.99 (.95)	.01
Physical	2.05 (1.08)	2.31 (1.12)	1.83 (.99)	4.36***	1.97 (1.09)	2.17 (1.01)	2.04 (1.16)	1.28	2.01 (1.02)	2.09 (1.13)	.74
Relational	1.95 (.84)	2.08 (.90)	1.83 (.77)	2.85**	1.86 (.88)	2.08 (.78)	1.90 (.83)	2.54	1.99 (.84)	1.90 (.83)	.98
Verbal	1.98 (.97)	2.19 (1.04)	1.80 (.87)	3.85***	1.88 (.99)	2.14 (.96)	1.93 (.95)	2.60	1.98 (.95)	1.98 (1.00)	.01

*Note:* Values presented in cells are Mean (Standard Deviation). Significant differences are reflected by different superscripts in the same row. Hostile Att = Hostile Attribution. Neg Emotion = Negative Emotional Response. Embar = Embarrassed. Agg Resp Eval = Aggressive Response Evaluation.

<sup>a</sup>All variables measured on a 5 point scale. <sup>b</sup>As the sample was largely Hispanic and Caucasian, all other ethnicities combined into an 'Other' category.

<sup>c</sup>An ANOVA with follow-up Tukey post hoc test examined group differences in the variables. Significant differences are noted by different superscripts in the same row.

\* $p < .05$ . \*\* $p < .01$ . \*\*\*  $p < .001$ .

There were no group differences in hostile attribution based on demographics. There were grade-, gender-, and ethnicity-related differences in negative emotional response to the vignettes. Fourth grade students reported more negative emotion, specifically more sadness, fear, and embarrassment, than did 5<sup>th</sup> graders. Girls reported more sadness and embarrassment. Hispanics reported more fear and embarrassment than Caucasians. The only significant demographic difference related to aggression was that boys reported a greater likelihood of responding aggressively: physically, relationally, and verbally. See Table 2 for demographic differences in the social information processing variables.

#### *Intercorrelations*

Correlations among the social information processing variables are presented in Table 3. The level of hostility the students attributed to the antagonist was moderately correlated ( $r(348) = .50$ ) with their overall evaluation of aggressive behavioral responses to peer conflict. Hostile attribution also had approximately the same degree of correlation ( $r(345) = .48$ ) to the emotion of anger (i.e., “mad”) experienced in response to the conflict but not related to other specific emotional responses. Hostile attribution was more correlated with aggressive response evaluation ( $r(348) = .50$ ) than negative emotion ( $r(333) = .16$ ). Negative emotion in general was correlated only with relational aggression ( $r(325) = .22$ ). Anger was equally correlated with all three types of aggression ( $r(337) = .49$ ). Sadness was negatively correlated with physical ( $r(338) = -.24$ ) and verbal aggression ( $r(337) = -.18$ ). The emotion of scared was only correlated with relational aggression ( $r(332) = .12$ ). Embarrassment was not related to aggressive response evaluation.

Table 3

Correlation Coefficients for the Social Information Processing Outcome Variables (N = 320 – 356)

	HA	NE	Sad	Mad	Scared	Embar	Agg	Phy	Rel	Verb
Hostile Attribution (HA)	1.00									
Negative Emotion (NE)	.16**	1.00								
Sad	-.04	.81**	1.00							
Mad	.48**	.56**	.22**	1.00						
Scared	-.03	.73**	.51**	.09	1.00					
Embarrassed (Embar)	.02	.84**	.61**	.26**	.65**	1.00				
Aggressive Response Evaluation (Agg)	.50**	.13*	-.17**	.52**	.05	-.04	1.00			
Physical Aggression (Phy)	.48**	.06	-.24**	.49**	.00	-.09	.97**	1.00		
Relational Aggression (Rel)	.49**	.22**	-.05	.49**	.12*	.06	.93**	.83**	1.00	
Verbal Aggression (Verb)	.47**	.10	-.18**	.49**	.03	-.05	.97**	.92**	.85**	1.00

Note: r values presented are Pearson Correlations and significance determined based on 2-tailed tests.

\*p < .05. \*\*p < .01

*Impact of Situational Context on Social Information Processing*

Social information processing means and standard deviations for each manipulation of the vignettes are presented in Table 4. Results are discussed in terms of the impact of situational context on each social information processing variable.

Table 4  
Means and Standard Deviations of Outcome Variables per Vignette Manipulation

<b>Hostile Attribution (N=366)</b>				
AAC				
		Benign	None	Hostile
FA	Benign	2.33 (1.27)	2.92 (1.26)	3.75 (1.28)
	None	2.35 (1.22)	3.38 (1.21)	4.11 (1.03)
	Hostile	2.80 (1.27)	3.54 (1.29)	4.20 (1.05)
<b>Negative Emotion (N=334)</b>				
Sad AAC				
		Benign	None	Hostile
FA	Benign	2.24 (1.32)	2.35 (1.41)	2.56 (1.44)
	None	2.19 (1.28)	2.34 (1.39)	2.62 (1.50)
	Hostile	2.28 (1.43)	2.46 (1.43)	2.54 (1.50)
Mad ACC				
		Benign	None	Hostile
FA	Benign	2.68 (1.49)	2.99 (1.51)	3.58 (1.40)
	None	2.58 (1.40)	3.27 (1.48)	3.75 (1.40)
	Hostile	2.95 (1.54)	3.40 (1.50)	3.78 (1.36)
Scared AAC				
		Benign	None	Hostile
FA	Benign	1.42 (.94)	1.41 (.90)	1.48 (.97)
	None	1.47 (.95)	1.44 (.96)	1.43 (.92)
	Hostile	1.40 (.94)	1.38 (.85)	1.46 (.98)
Embarrassed AAC				
		Benign	None	Hostile
FA	Benign	1.86 (1.26)	2.06 (1.42)	2.16 (1.38)
	None	2.13 (1.45)	2.04 (1.39)	2.20 (1.47)
	Hostile	2.18 (1.46)	2.02 (1.37)	2.09 (1.41)
<b>Aggressive Response Evaluation (N=349)</b>				
Physical Aggression AAC				
		Benign	None	Hostile
FA	Benign	1.82 (1.22)	1.90 (1.27)	2.34 (1.49)
	None	1.80 (1.27)	2.09 (1.43)	2.20 (1.42)
	Hostile	1.98 (1.34)	2.01 (1.36)	2.25 (1.45)
Relational Aggression AAC				
		Benign	None	Hostile
FA	Benign	1.77 (1.15)	1.87 (1.19)	2.09 (1.27)
	None	1.77 (1.11)	1.94 (1.25)	2.07 (1.30)
	Hostile	1.91 (1.26)	1.97 (1.23)	2.11 (1.32)
Verbal Aggression AAC				
		Benign	None	Hostile
FA	Benign	1.82 (1.24)	1.99 (1.32)	2.12 (1.38)
	None	1.76 (1.19)	1.95 (1.32)	2.17 (1.38)
	Hostile	1.85 (1.24)	2.05 (1.32)	2.18 (1.39)

Note: Shading indicates discrepant situations in which the friend's attribution (FA) is incongruent with the antagonist action cue (AAC).



*Hostile Attribution.* A 3x3 (friend's attribution x antagonist action cue) repeated measures ANOVA with hostile attribution as the dependent variable indicated that both antagonist action cues and comments by a best friend influence students' perception of the antagonist's intent (Table 5, see Table 4 for means). Significant main effects for both a friend's attribution and an antagonist action cue showed students' hostile attribution is greatest when the cue/comment is hostile, followed by no comment, and least when it is benign.

Table 5

The Impact of Situational Context on Students' Social Information Processing as Demonstrated by Results from 3x3 Repeated Measures MANOVAs and ANOVAs

	Friend's Attribution (FA)		Antagonist Action Cue (AAC)		FAxAAC	
	F	$\eta^2$	F	$\eta^2$	F	$\eta^2$
Hostile Attribution	60.96***	.14	484.42***	.57	5.41***	.02
Negative Emotion <sup>a</sup>	5.06***	.03	28.29***	.15	2.64***	.01
Sad	.55	.00	15.26***	.04	1.12	.00
Mad	17.85***	.05	98.70***	.23	4.38**	.01
Scared	.68	.00	1.02	.00	.71	.00
Embarrassed	1.70	.01	1.78	.01	4.48*	.01
Aggressive Response Evaluation <sup>a</sup>	1.14	.01	27.63***	.11	2.05 <sup>†</sup>	.01
Physical Aggression	1.47	.00	51.84***	.13	5.05**	.01
Relational Aggression	2.14	.01	22.24***	.06	.67	.00
Verbal Aggression	1.41	.00	43.54***	.11	.81	.00

Note:  $\eta^2$  = Partial Eta Squared (effect size).

<sup>a</sup>Multivariate results including all 4 emotions and all 3 types of aggressive response evaluation.

\*p < .05. \*\*p < .01. \*\*\* p < .001. <sup>†</sup>p < .10.

The main effects were qualified by a significant interaction. Follow-up simple effects tests (three one-way ANOVAs) were conducted to determine the effect of a friend's attribution at each level of an antagonist action cue (Table 6). In the case of benign antagonist action cues, students attributed *greater* hostility to the antagonist if the friend made a hostile (contradictory) comment as compared to both no comment ( $t(366) = 5.66, p < .001$ ) or a benign (confirmatory) comment ( $t(366) = 6.38, p < .001$ ; see superscripts in Table 6) conditions, which did not differ from each other. Similarly, for hostile antagonist action cues, a benign (contradictory) comment from a friend resulted in *lower* hostile attribution than when the friend made a hostile (confirmatory) comment ( $t(365) = 5.89, p < .001$ ) or no comment ( $t(365) = 4.78, p < .001$ ). If no antagonist action cues were present, hostile attribution was lower when a benign comment was made by the friend than following no comment ( $t(366) = 5.86, p < .001$ ) or a hostile comment ( $t(366) = 6.91, p < .001$ ).

Table 6

Simple Effects Testing for Hostile Attribution: The Impact of a Friend's Attribution at each Level of Antagonist Action Cue

Antagonist action cues	Friend's Attribution			F	$\eta^2$
	Benign	None	Hostile		
Benign	2.33 (1.27) <sup>a</sup>	2.35 (1.22) <sup>a</sup>	2.80 (1.27) <sup>b</sup>	23.29***	.06
None	2.92 (1.26) <sup>a</sup>	3.38 (1.21) <sup>b</sup>	3.54 (1.28) <sup>b</sup>	29.56***	.08
Hostile	3.75 (1.28) <sup>a</sup>	4.11 (1.03) <sup>b</sup>	4.20 (1.05) <sup>b</sup>	23.29***	.06

*Note:* Values presented in cells are Mean (Standard Deviation). Significant differences ( $p < .001$ ) are reflected by different superscripts in the same row.  $\eta^2$  = Partial Eta Squared (effect size).

\*\*\*  $p < .001$ .

To determine which aspect of situational context (cue or comment) had a greater impact on students' hostile attribution when the two were incongruent, discrepant situations were compared. Specifically, the mean level of hostile attribution (see the shaded cells in Table 4) for manipulation 3 (benign comment/hostile cue) was compared to manipulation 7 (hostile comment/benign cue) (see Table 1-A for manipulation numbers). Greater means for manipulation 7 – the hostile element is a friend's attribution – would indicate that students are more inclined to follow the best friend's attribution than the antagonist cue when the two conflict. The opposite – the hostile element is the antagonist action cue – would suggest that students' processing is more closely aligned to antagonist action cues. A paired sample t-test demonstrated that students' hostile attribution ( $t(365) = 11.33, p < .001$ ) was significantly greater in situations with a hostile antagonist action and benign comment by the best friend than the converse (benign cue, hostile comment). In other words, students' hostile attribution was more likely to follow the antagonist action cue than the friend's attribution in situations where the two elements of context were incongruent.

Although a friend's comment does not surpass the influence of the antagonist action cue on students' hostile attribution in discrepant situations, the influence of a friend's comment is more influential in discrepant than confirmatory situations. Contradictory comments from friends influence hostile attribution according to the valence of the contradictory comment (benign contradictory decrease and hostile contradictory increase) whereas confirmatory statements from friends are equivalent to a friend making no comment. When no antagonist action cues were present, only a friend's benign comment reduced hostile attribution.

*Negative Emotional Reaction.* A 3x3 (friend's attribution x antagonist action cue) repeated measures MANOVA with four negative emotions as the dependent variables resulted in significant main effects of both elements of situational context (friend's attribution & antagonist action cue) as well as a significant interaction effect (Table 5). As expected, the negative emotion experienced increases as the situational context was more suggestive of hostility. Thus, ANOVAs were examined to determine if the independent variables affected the four emotions in a similar manner. A main effect of antagonist action cues was present for the degree of anger and sadness experienced with both increasing as cues were more suggestive of hostility. A main effect of a friend's attribution was found only for anger – increasing as comments were more suggestive of hostility. Significant interaction effects were present for anger and embarrassment. Neither main nor interaction effects were found regarding the impact of situational context on the reported level of fear (i.e., “scared”).

The interaction for anger appears quite similar to the interaction for hostile attribution (Table 5). Follow-up tests of simple effects revealed different effects of a friend's attribution according to the cue type presented by the antagonist (see Table 7). When benign antagonist action cues were present, a student experienced more anger if friend made a hostile (contradictory) comment as compared to either no comment ( $t(353) = 4.16, p < .001$ ) or a benign (confirmatory) comment ( $t(353) = 3.28, p < .01$ ) conditions. When cues were hostile, a benign (contradictory) comment from a friend resulted in less anger than if the friend made a hostile (confirmatory) comment ( $t(356) = 2.61, p < .01$ ) or no comment ( $t(356) = 1.93, p = .054$  NS). If no antagonist action cues were present, anger was lesser if a benign comment was made by the friend than if the friend remained

silent ( $t(358) = 3.00, p < .01$ ) or made a hostile comment ( $t(358) = 4.71, p < .001$ ). To determine which element of context was more influential when the two conflicted, a paired samples t-test was used to compare the mean level of anger in the two discrepant situations. As can be seen in Table 4, the mean level of anger was greater ( $t(359) = 7.07, p < .001$ ) when the hostile element was the antagonist action cue (hostile cue, benign comment) than when friend's attribution was hostile (benign cue, hostile comment). In sum, friend's contradictory comments were more likely to influence the anger experienced than confirmatory statements but were not powerful enough to surpass the influence of an antagonist action cue.

Table 7

Simple Effects Testing for Anger: The Impact of a Friend's Attribution at each Level of Antagonist Action Cue

Antagonist action cues	Friend's Attribution			F	$\eta^2$
	Benign	None	Hostile		
Benign	2.68 (1.49) <sup>a</sup>	2.58 (1.40) <sup>a</sup>	2.95 (1.54) <sup>b</sup>	10.54***	.03
None	2.99 (1.51) <sup>a</sup>	3.27 (1.48) <sup>b</sup>	3.40 (1.50) <sup>b</sup>	11.42***	.03
Hostile	3.58 (1.40) <sup>a</sup>	3.75 (1.40)	3.78 (1.36) <sup>b</sup>	4.31*	.01

*Note:* Values presented in cells are Mean (Standard Deviation). Significant differences ( $p < .01$ ) are reflected by different superscripts in the same row.  $\eta^2$  = Partial Eta Squared (effect size).

\* $p < .05$ . \*\*\*  $p < .001$ .

The interaction for embarrassment reflects a different pattern of results from those seen thus far (Table 5). Simple follow-up tests revealed the interaction effect was driven by the effects of benign confirmatory statements (Table 8). When benign antagonist action cues were present, a student experienced less embarrassment if friend made a benign (confirmatory) comment than both no comment ( $t(352) = 3.22, p < .001$ ) or a hostile (contradictory) comment ( $t(352) = 3.61, p < .001$ ) conditions. If there was a hostile antagonist action cue or no antagonist action cue, a friend's attribution did not significantly alter students' embarrassment. The mean levels of embarrassment for the two discrepant situations were not significantly different ( $t(353) = -.17, NS$ ).

Table 8

Simple Effects Testing for Embarrassment: The Impact of a Friend's Attribution at each Level of Antagonist Action Cue

Antagonist action cues	Friend's Attribution			F	$\eta^2$
	Benign	None	Hostile		
Benign	1.86 (1.26) <sup>a</sup>	2.13 (1.45) <sup>b</sup>	2.18 (1.46) <sup>b</sup>	8.25***	.02
None	2.06 (1.42)	2.04 (1.39)	2.02 (1.37)	.07	.00
Hostile	2.16 (1.38)	2.20 (1.47)	2.09 (1.41)	.83	.00

*Note:* Values presented in cells are Mean (Standard Deviation). Significant differences ( $p < .001$ ) are reflected by different superscripts in the same row.  $\eta^2$  = Partial Eta Squared (effect size).

\*\*\*  $p < .001$ .

To summarize the effects of situational context on negative emotion: (1) no significant effects were found for “scared”, (2) sadness was increased or increased according to the valence of the antagonist action cue, (3) antagonist action cues had more impact on anger than a friend’s comments but contradictory comments by friends were more influential (in the direction of the comment’s valence) than confirmatory ones, and when no cues were present, benign comments resulted in less anger, and lastly, (4) embarrassment was lower when both the antagonist action cue and the friend’s comment were benign compared to all other manipulations.

*Aggressive Response Evaluation.* A 3x3 (friend’s attribution x antagonist action cue) repeated measures MANOVA with three types of aggression as the dependent variables resulted in a significant main effect of antagonist action cues as well as a trend for the interaction between the cues and a friend’s attribution (see Table 5). As expected, the endorsement of aggressive solutions was higher if the antagonist’s actions or statements suggested hostility. ANOVAs were conducted to determine which types of aggression were driving the significant multivariate effects. Significant main effects of the antagonist actions cue were found for all three types of aggression (physical, relational, and verbal). Aggressive response evaluation was greater under conditions of hostile cues than no cues and no cues resulted in more aggressive responding than positive cues. A significant interaction (cue x comment) was present for physical aggression only.

One-way ANOVAs were conducted to examine the significant interaction for physical aggression (Table 9). When benign antagonist action cues were present, a student rated physically aggressive responses higher when a friend made a hostile

(contradictory) comment than if the friend made a benign (confirmatory) comment ( $t(352) = 2.51, p < .05$ ) or remained silent ( $t(352) = 2.69, p < .01$ ). When no antagonist action cues were present, a benign comment from a friend, compared to no comment, resulted in less endorsement of physical aggression ( $t(361) = 3.06, p < .01$ ). If there was a hostile antagonist action cue, a friend's attribution did not significantly alter students' rating of physically aggressive responses. Again, the mean levels of physical aggression during discrepant situations were compared to determine which element of context was more influential. A paired sample t-test demonstrated that students rated physical aggression more positively in situations with a hostile antagonist action and benign comment by the best friend than the converse ( $t(361) = 5.25, p < .001$ ). This indicated that when the two elements of situational context were in conflict, a student's level of physical aggression was more likely to follow cues from the antagonist than comments by a friend.

Table 9

Simple Effects Testing for Physical Aggression: The Impact of a Friend's Attribution at each Level of Antagonist Action Cue

Antagonist action cues	Friend's Attribution			F	$\eta^2$
	Benign	None	Hostile		
Benign	1.82 (1.22) <sup>a</sup>	1.80 (1.27) <sup>a</sup>	1.98 (1.34) <sup>b</sup>	4.75**	.01
None	1.90 (1.27) <sup>a</sup>	2.09 (1.43) <sup>b</sup>	2.01 (1.36)	4.36*	.01
Hostile	2.34 (1.49)	2.20 (1.42)	2.25 (1.45)	2.19	.01

*Note:* Values presented in cells are Mean (Standard Deviation). Significant differences ( $p < .05$ ) are reflected by different superscripts in the same row.  $\eta^2$  = Partial Eta Squared (effect size).

\* $p < .05$ . \*\*  $p < .01$ .



To summarize, the endorsement of all three types of aggressive responding was greatest when the antagonist action cue suggested hostility, least when it was benign, and in between when no cue was present. There was a significant interaction effect for physical aggression such that a hostile contradictory statement from a friend increased the likelihood of responding with physical aggression. When no antagonist action cues were present, benign comments from friend resulted in less physical aggression.

#### *The Role of Emotion in Response to Hypothetical Peer Conflict*

A secondary goal of this study was to examine emotions other than anger as they relate to hypothetical peer conflict scenarios. A one-way repeated measures ANOVA revealed significant differences in the degree to which students reported each type of emotion ( $F(3, 331) = 361.14, p < .001$ ). Further, post hoc Tukey tests indicated the mean level of each type of negative emotion was significantly different from the others at the  $p < .001$  level. Students most frequently reported anger followed by: sadness, embarrassment, and fear (means and standard deviations can be found in Table 1).

The mean level of anger corresponds to students believing they would feel between 3 = “moderately” and 4 = “quite a bit” mad. Sadness and embarrassment fell between 2 = “a little” and 3 = “moderately” whereas, on average, students thought they would feel 1 = “very slightly” or 2 = “a little” scared. Sixty-one percent of students had a greater than 3 = “moderate” mean level of anger in response to the peer conflict situations. Twenty-eight percent, 15%, and 6% of students had a greater than moderate mean level of sadness, embarrassment, and fear respectively. Further, 25% of students reported feeling 4 = “quite a bit” or more scared in response to *at least one* of the

vignettes. A large majority of students thought they would feel 4 = “quite a bit” or more angry (93%), sad (71%), or embarrassed (71%) in response to at least one of vignettes.

It was predicted that students’ emotional reaction would influence the other social information processing steps assessed, namely hostile attribution and aggressive response evaluation. A regression analysis determined that negative emotion, accounting for 26% of the variance, predicted hostile attribution ( $F(4, 328) = 28.23, R = .51, p < .001$ ). The emotions of mad ( $\beta = .52, p < .001$ ) and sad ( $\beta = -.14, p < .05$ ) significantly contributed to the model but embarrassed and scared did not. The more anger and the less sadness students feel in response to potential peer conflict situations, the more likely they are to believe the antagonist acted based on hostile intentions. A similar regression analysis revealed that negative emotion, accounting for 40% of the variance, predicted aggressive response evaluation ( $F(4, 315) = 52.98, R = .63, p < .001$ ). All four emotions (mad:  $\beta = .59, p < .001$ , scared:  $\beta = .26, p < .001$ ; sad:  $\beta = -.42, p < .001$ ; embarrassed:  $\beta = -.15, p < .05$ ) significantly contributed to the model predicting physical aggression ( $F(4, 322) = 56.17, R = .64, p < .001$ ). Anger ( $\beta = .55, p < .001$ ), sadness ( $\beta = -.26, p < .001$ ), and fear ( $\beta = .24, p < .001$ ) contributed to the model predicting relational aggression ( $F(4, 320) = 37.12, R = .56, p < .001$ ), but embarrassment did not. Verbal aggression was significantly predicted ( $F(4, 320) = 47.77, R = .61, p < .001$ ) by anger ( $\beta = .58, p < .001$ ), sadness ( $\beta = -.37, p < .001$ ), and fear ( $\beta = .25, p < .001$ ) and a trend was present for embarrassment ( $\beta = -.12, p = .07$  NS). Anger and fear predicted increased physical, relational, and verbal aggression. Sadness predicted a decreased likelihood of all types of aggression and embarrassment predicted decreased chances of responding physically.

Because this is the first known study to consider the proximal influence of a friend during peer conflict, the current study was interested in other potential effects beyond those hypothesized. Accordingly, several exploratory analyses were conducted to inform future study, and they can be found in Appendices. They included analyses of the impact of situational context on assertive behavior (Appendix G) and the potential moderation of a friend's attribution by friendship quality (Appendix H), aggression (Appendix I), and gender (Appendix J).

## Discussion

The purpose of the current study was to investigate the impact of situational context – antagonist action cues and a friend’s attribution of intention – on students’ processing of hypothetical peer conflict scenarios. Despite assertions that situational context is necessary for effective practical application (Dodge, 2006) and should be considered one element in a systems perspective of social information processing (Fontaine, 2006), researchers are only beginning to consider how context might moderate social cognitive processing. This study is distinguished in its approach of systematically varying two elements of context, and the first study to consider the proximal impact of a friend’s comment during conflict situations. Results confirm that social information processing is at least partially dependent on situational context and are consistent with the social information processing model that posits the encoding of social cues influences other steps (Dodge, 1994). Intent attributions, emotional reaction, and aggressive response evaluation were all influenced by one or both contextual social cues.

### *Impact of Situational Context on Social Information Processing*

Although children’s social cognition develops within a social context, hypothetical conflict situations used in most social processing research are largely devoid of contextual variation. Dodge and colleagues (2002), among the first to consider the impact of situational context, concluded that children’s social information processing is likely “multidimensional” and predicted that further examination of diverse situations

would reveal this complexity (p. 72). The current study confirms this contextual model – social thought reflects a complex interplay of individual differences and situational context. Since each element of context was predicted to impact students’ social information processing, results are first discussed in terms of main effects. However, significant interaction effects clarified these findings by highlighting the unique nature of two previously unconsidered types of situations: discrepant (incongruent evidence) and confirmatory (congruent evidence) scenarios.

*Antagonist Action Cues.* Most studies of social information processing are conducted using ambiguous social situations because variation in processing is assumed to be greatest in situations requiring the most interpretation (Dirks et al., 2007; Orobio de Castro et al., 2002). Since the addition of antagonist action cues reduces the range of interpretation by clarifying the intent of the antagonist, it was predicted that students’ social information processing would be impacted by these cues. Results confirmed that students’ social information processing – hostile attribution, negative emotional reaction, and aggressive response evaluation – was affected by the valence of the additional antagonist action cues. These findings are consistent with previous studies that have shown social information processing is impacted by other elements of context: emotional display of the antagonist (e.g., Lemerise et al., 2005), relationship with the antagonist (e.g., Burgess et al., 2006), feelings toward the antagonist (e.g., Peets et al, 2007), situation type (e.g., Dodge et al, 2002; Sumrall et al., 2000), type of provocation (e.g., Dirks et al., 2007; Musher-Eizenman et al., 2004), and reputation of antagonist (e.g., Dodge, 1980). There was a large range of effect sizes with hostile attribution the most affected by the antagonist action cues. The antagonist action cues in the current study

were meant to suggest the intention of the antagonist and, therefore, were likely most relevant to this element of processing.

There were no effects of antagonist action cues for the emotion “scared”. The current study was the first known attempt to include and assess anxious responses to hypothetical peer situations. Results suggest that anxiety was not a common response, with only 6% of students having a “moderate” level of anxiety across the nine vignettes. However, one fourth of students did report feeling “quite a bit scared” in response to at least one of the vignettes. This suggests that the problem may be with this particular measurement of anxiety. An existing measure (PANAS-C) was used to select an age-appropriate emotion word to reflect anxiety; “scared”, “nervous”, “jittery”, and “frightened” were considered. “Scared” appeared most understandable and commonly used in this age group.<sup>5</sup> In retrospect, “scared” may be closer to fear whereas anxiety may be better reflected by worry, nervousness, or uneasiness. Additionally, “scared” might connote greater intensity of emotion than “worried”.

*Friends’ Attributions.* It has been noted that “little is known about the actual qualities of context” (Orobio de Castro et al., 2002, p. 930) that contribute to the context specificity of social cognition. The primary objective of this study was to investigate a potentially critical but unexamined quality of context – the immediate influence of a friend’s comments during peer conflict situations. Friends are important to children (Furman & Buhrmester, 1992), provide opportunities to develop social competence (Dunn, 2004), and influence well-being (e.g., Bagwell et al., 1998; Parker & Asher, 1987). Peets and colleagues (2008) illustrated that a friendship-related construct – whether the antagonist is a friend, enemy, or neutral peer – can influence students’ social

information processing. Given the importance of friends for children's social development and adjustment, it was thought that a friend's attribution regarding the antagonist's intent would impact students' social information processing. Results confirmed a friend's attribution influences each major element of processing: hostile attribution, negative emotion (anger and embarrassment), and aggressive response evaluation (physical). Since antagonist action cues likely reduced the ambiguity of the social situations, it is impressive that a friend's attributions were still able to exert some influence.

Results indicated that friends have an immediate impact on at least some aspects of social information processing. One might ask does this help or harm the process. The answer is probably dependent on the characteristics of the friend, the relationship, and the situation. Burgess and colleagues (2006) suggested that friends serve important protective functions for children who are less socially skilled. There are several scenarios in which consideration of a friend's comment could be adaptive. First, a friend may have information (e.g., observed a precursor event) that could assist in more accurate evaluation a conflict. Second, a friend's presence could provide alternative solutions (e.g., seeking social or instrumental support). Third, prosocial friends could serve as exemplars of adaptive social information processing. On the other hand, friendships do not always serve a protective function. Friends' subtle reinforcement of deviant behavior results in increases in antisocial behavior over time (e.g., Dishion et al., 1997). Over time, students may begin to model the maladaptive strategies of their less socially skilled peers (i.e., hostility bias of aggressive friends or avoidant strategies of withdrawn friends). Additionally, friends have their own social motives during social situations which might

not always be in the best interest of the student. Relationally aggressive friends might manipulate others to do their aggressing for them or friends invested in social status may support a popular antagonist.

*Interaction Effects and Discrepant Situations.* Since actual peer conflict situations are multidimensional, containing elements of situational context which may not always converge, interrelations among factors, and the impact of these relationships on processing are of interest. Middle childhood is a time in which children learn to negotiate egalitarian relationships (see Buhrmester, 1990). Eight year olds still conceptualize friendship based on concrete activities rather than common values (see Davies, 2004). Fourth and 5<sup>th</sup> grade students are probably not as confident or skilled in their social processing ability as older students (see Crick & Dodge, 1994 for a discussion of social information processing development). It was thought that 4<sup>th</sup> and 5<sup>th</sup> grade (ages 9-10) friendships are not sufficiently strong to withstand peer pressure making students' social information processing more susceptible to influence from a friend's attribution than the antagonist action cue. In fact, the opposite was true. Students' social processing was more aligned to antagonist action cues than a friend's attributions when the two were incongruent. It may be that antagonist action cues are more obvious than a friend's attribution and this age group did not notice the more subtle friend's attributions. However, interaction effects revealed distinctions between discrepant and confirmatory situations.

Attributions from a friend that contradicted the antagonist action cues (discrepant situations) influenced processing according to the valence of the comment. Confirmatory statements from a friend did not impact students' social information processing. To



illustrate, when a benign antagonist action cue was present, a contradictory (hostile) comment from a friend resulted in greater hostile attribution, anger, and physical aggression than if the friend made a confirmatory (benign) statement or remained silent. Thus, contradictory comments from a friend led students to better align their social processing to the friend's perspective. However, this adjustment did not overcome the influence of an antagonist's actions. When conflicting information is present, it may be difficult for a student to process peer conflict. Thus, students likely gave more deliberate consideration to a friend's comment during discrepant versus confirmatory situations. It is possible that antagonist action cues were sufficiently clear or powerful that no incremental change was possible. For example, a hostile comment from a friend might not increase anger if the student was already certain, based on the antagonist action cue, that the antagonist was ill-intentioned.

The effect of situational context on embarrassment was very different from other results. Neither a friend's attribution nor an antagonist action cue altered embarrassed feelings in discrepant situations. Only confirmatory benign comments had any impact and reduced embarrassment. Specifically, a benign comment from a friend that confirmed a benign antagonist action cue resulted in less embarrassment than the pairing of a benign antagonist action cue with a hostile comment or no comment. The congruent perception of a witness might be more influential for this emotion due to its unique relational nature. Embarrassment seems to call for an audience and may result in perception management motives. Students could be particularly reassured when both witnesses to the conflict suggest benign intentions.

Although interaction effects illuminated the complexity and multidimensionality of context, interpretation must be tempered by limited comparisons available in the literature. At least one other study that varied two elements of context (direct/indirect relational provocation and friend/unfamiliar peer) did not find interactions between the two factors (Dirks et al., 2007). Effect sizes for the interactions in the current study were small but this is typically the case. Despite small effect sizes, the practical or real life importance for children is notable given the frequency of peer conflicts and the likelihood of friends being involved (Rosenthal, 1990). Brendgen and colleagues (1999) found that preadolescents with aggressive friends increased aggressive responding to hypothetical vignettes after six months but did not determine the mechanism of friends' impact on social information processing. If an aggressive friend repeatedly provides a discrepant perception, a small immediate effect could have a great impact on a child's social thought over time. Moreover, effects could be greater, and more meaningful, for particular children. For example, the impact of friends' comments on social information processing may be substantial for children low in self confidence. These results have important implications for social skills interventions whose materials and focus should include the influence of friends to enhance ecological validity and improve outcomes.

### *The Role of Emotion*

A secondary goal of this study was to examine emotional reactions other than anger to hypothetical peer conflict scenarios. Students most frequently reported anger followed by sadness, embarrassment, and fear. Although anger may be an expected and primary response to conflict with peers, it is not the only possible emotional response. In fact, the majority of students reported they would feel "quite a bit" sad or embarrassed in

response to at least one story. Examination of the emotional reaction to peer conflict should be expanded to regularly include emotions other than anger.

*Demographic Differences in Emotional Reaction.* Significant gender, grade, and ethnicity differences were found regarding emotion. Fourth grade students experienced a more negative emotional reaction to the vignettes than 5<sup>th</sup> graders, namely higher ratings of scared, embarrassed, and sad. Given only a one year difference between the grades, this finding was not expected. It is most likely explained by the fact that younger students may have less developed emotion regulation skills. In a longitudinal study, Sallquist and colleagues (2009) found the degree and intensity of expressed emotion declines from 7 to 13 years. Hispanics reported more fear and embarrassment than Caucasian students. Other studies considering the emotional reaction to hypothetical peer conflict situations did not report differences based on ethnicity (Burgess et al., 2006; Quiggle et al., 1992) or were conducted with Dutch samples (Camodeca & Goosens, 2005; Orobio de Castro et al., 2005). Some evidence suggests that emotions are expressed more openly in certain Hispanic cultures (e.g., Soto, Levenson, & Ebling, 2005). Gender differences found in the current study are mostly aligned to other studies that have examined emotional response to peer conflict vignettes (Burgess et al., 2006; Camodeca & Goosens, 2005; Orobio de Castro et al., 2005; Quiggle et al., 1992).<sup>6</sup> Males and females experience similar degrees of anger but females report more sadness and embarrassment in response to hypothetical peer conflict vignettes.

*Emotion Predicting Social Information Processing.* Emotion is believed to be an integral component of social information processing. Immediate emotional reaction, mood, emotional knowledge, perception of emotion in others, felt emotions towards

antagonists, induced emotion, and emotional regulation are all thought to influence processing and are beginning to be examined empirically (Burgess et al., 2006; Crick & Dodge, 1994; Dodge et al., 2003; Lemerise & Arsenio, 2000; Lemerise, Gregory, & Fredstrom, 2005; Musher-Eizenman et al., 2004; Orobio de Castro, Slot, Bosch, Koops, Veerman, 2003; Peets et al. 2008). Negative emotions predicted both students' hostile attribution and evaluation of aggressive behavioral responses. The emotions of mad and sad accounted for 26% of the variance in hostile attribution. The more anger and the less sadness students felt, the more likely they were to believe the antagonist acted with hostile intention. Negative emotions accounted for 40% of the variance in overall aggressive response evaluation. All four emotions predicted physical aggression, and anger, sadness, and fear predicted relational and verbal aggression. Sadness and embarrassment reduced aggressive response evaluation whereas anger and fear increased the likelihood of responding aggressively. These results indicate that emotion is intertwined with social thought and behavior, and the relationship is likely bi-directional. Social processing intervention and prevention programs need to include emotion-related skill building and education.

### *Limitations*

The current study is not without limitations. Hypothetical vignettes and survey methodology are commonly used but they are only an analogue to real life peer conflict. Emotional reaction in particular may be quite different - probably more intense - in actual conflicts situations. Staged situations (i.e., semi-naturalistic) and observational studies would increase confidence in conclusions about the impact of situational context on social information processing if they were to replicate findings. As already discussed,

“scared” was likely a less than optimal operationalization of anxiety, making the lack of significant finding regarding anxiety possibly an artifact of measurement. Effects of situational context on anxiety might be found with a different, more valid, assessment perhaps using “worried” or “nervous”. Sample characteristics always limit the generalizability of findings. One strength of the current study is the large number of Hispanic students surveyed. However, there was an under-representation of African American students. Only 4<sup>th</sup> and 5<sup>th</sup> grade students were included, and future research should investigate the impact of situational context in other aged children. Younger children may be less able to attend to and consider more subtle social cues. Additionally, since the salience and importance of peers increases with age, it is possible that older adolescents would be more influenced by a friend’s comment. Conversely, adolescents possess greater cognitive sophistication and might be less likely to be swayed by unsubstantiated comments from a friend. Lastly, all analyses were correlational and should not be interpreted as causal.

#### *Implications and Future Directions*

These results add to the literature suggesting situational context is an important and complex component of social processing. There is a great need for the field to develop standardized stimulus materials that include, and manipulate key aspects of, situational detail. Even if researchers are not interested in the proximal influence of friends, these contextualized vignettes might be considered a template for better representing real-world peer conflict. Examination of the relationships between multiple elements is an important direction in the continued exploration of situational context. While there are an infinite number of elements of context that could be examined, the

presence and influence of bystander peers seems worthy of consideration. Friends' comments impacted students' social information processing even when paired with antagonist action cues that were quite powerful in their own effects. Examining other elements of situational context in conjunction with antagonist action cues, rather than using only ambiguous situations, might highlight the most important aspects of situational context.

The current study only considered a subset of social information processing constructs and did not consider individual differences or relationship characteristics. For example, there is likely a bidirectional relationship between friends' influence and children's social goals. Children who are motivated by communal, as opposed to agentic, goals may be more impacted by a friend's perception of a conflict (see Ojanen et al., 2007). Additionally, friends' comments could result in students being motivated toward particular social outcomes such as concealing emotion or protecting self-image (see Banerjee, Rieffe, Terwogt, Gerlein, & Voutsina, 2006). The current study considered all types of students and found that friends' comments impact the immediate processing of social conflict. It is possible that the effects differ according to social status, self-confidence, or other child adjustment variables. Future research could consider specific friendship dyads to determine the impact friends have on each other's social cognition. At least one study has found that hostile attribution is more driven by relationship characteristics than individual student or peer characteristics (Hubbard et al., 2001).

Social context has the potential to reinforce problem behavior and preclude behavioral change (Farmer & Xie, 2007). More recent bully prevention programs are including modules that address the role of bystanders in bully situations (e.g., "Steps to

Respect”: Frey, Hirschstein, Snell, Van Schiaack, MacKenzie, & Broderick, 2005).

Similarly, social skills-based intervention and prevention programs should perhaps follow suit and include peer group interventions, assessment of susceptibility to peer pressure, and the inclusion of material regarding the possible misperceptions of peers.

Contextualized stimulus materials could be used for exercises in which children identify various pieces of evidence and discuss the validity of each. An understanding of situational context has practical importance as it may lead to more ecologically valid and effective social skills interventions.

## References

- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for ASEBA School-Age Forms & Profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.
- Altermatt, E. R. & Pomerantz, E. M. (2003). The development of competence-related and motivational beliefs: An investigation of similarity and influence among friends. *Journal of Educational Psychology, 95*(1), 111-123.
- Bagwell, C. L., Newcomb, A. F. & Bukowski, W. M. (1998). Preadolescent friendship and peer rejection as predictors of adult adjustment. *Child Development, 69*(1), 140-153.
- Banerjee, R., Rieffe, C., Terwogt, M. M., Gerlein, A. M., & Voutsina, M. (2006). Popular and rejected children's reasoning regarding negative emotions in social situations: The role of gender. *Social Development, 15*, 418-433.
- Barefoot, J. C., Dodge, K. A., Peterson, B. L., Dahlstrom, G., & Williams, R. B. (1989). The Cook-Medley Hostility Scale: Item content and ability to predict survival. *Psychosomatic Medicine, 51*, 46-57.
- Baron, S. W., Forde, D. R., & Kennedy, L. W. (2007). Disputatiousness, aggressiveness, and victimization among street youth. *Youth Violence and Juvenile Justice, 5*(4), 411-425.



- Berndt, T. J. (1982). The features and effects of friendship in early adolescence. *Child Development, 53*, 1447-1460.
- Brendgen, M., Bowen, F., Normand, R., & Vitaro, F. (1999). Effects of friends' characteristics on children's social cognitions. *Social Cognition, 8*(1), 41-51.
- Buhrmester, D. (1990). Intimacy of friendship, interpersonal competence, and adjustment during preadolescence and adolescence. *Child Development, 61*, 1101-1111.
- Bukowski, W. M., Hoza, B., & Boivin, M. (1994). Measuring friendship quality during pre- and early adolescence: The development and psychometric properties of the Friendship Qualities Scale. *Journal of Social and Personal Relationships, 11*, 471-484.
- Burgess, K. B., Wojslawowicz, J. C., Rubin, K. H., Rose-Krasnor, L., & Booth-LaForce, C. (2006). Social information processing and coping strategies of shy/withdrawn and aggressive children: Does friendship matter? *Child Development, 77*(2), 371-383.
- Camodeca, M. & Goosens, F. A. (2005). Aggression, social cognitions, anger, sadness in bullies and victims. *Journal of Child Psychology and Psychiatry, 46*, 186-197.
- Caplan, M., Bennetto, L., & Weissberg, R. P. (1991). The role of interpersonal context in the assessment of social problem-solving skills. *Journal of Applied Developmental Psychology, 12*, 103-114.
- Card, N. A. & Hodges, E. V. E. (2006). Shared targets for aggression by early adolescent friends. *Developmental Psychology, 42*(6), 1327-1338.
- Chaux, E. (2005). Role of third parties in conflicts among Colombian children and early adolescents. *Aggressive Behavior, 31*, 40-55.

- Crick, N. R. & Dodge, K. A. (1994). A review and reformulation of social information processing mechanisms in children's social adjustment. *Psychological Bulletin*, *115*(1), 74-101.
- Crick, N. R. & Dodge, K. A. (1996). Social information processing mechanisms in reactive and proactive aggression. *Child Development*, *67*, 993-1002.
- Davies, D. (2004). Middle childhood development. In N. B. Webb (Series Ed.) *Social work practice with children and families: Vol. 2. Child development: A practitioner's guide* (2<sup>nd</sup> edition, pp. 335-388). New York: Guilford Press.
- Dineen, K. A. & Hadwin, J. A. (2004). Anxious and depressive symptoms and children's judgments of their own and others' interpretation of ambiguous social situations. *Anxiety Disorders*, *18*, 499-513.
- Dirks, M. A., Treat, T. A., & Weersing, V. R. (2007). The situation specificity of youth responses to peer provocation. *Journal of Clinical Child and Adolescent Psychology*, *36*, 621-628.
- Dishion, T. J., Andrews, D. W., & Crosby, L. (1995). Antisocial boys and their friends in early adolescence: Relationship characteristics, quality, and interactional process. *Child Development*, *66*, 139-151.
- Dishion, T. J., Eddy, J. M., Haas, E. M., Li, F., & Spracklen, K. (1997). Friendships and violent behavior during adolescence. *Social Development*, *6*(2), 207-223.
- Dodge, K. A. (2006). Translational science in action: Hostile attributional style and the development of aggressive behavior problems. *Development and Psychopathology*, *18*, 791-814.

- Dodge, K. A. & Crick, N. R. (1990). Social information-processing bases of aggressive behavior in children. *Personality and Social Psychology Bulletin*, 16(1), 8-22.
- Dodge, K. A. & Frame, C. L. (1982). Social cognitive bias and deficits in aggressive boys. *Child Development*, 53, 620-635.
- Dodge, K. A., Laird, R., Lochman, J. E., Zelli, A., & Conduct Problems Prevention Research Group (2002). Multidimensional latent-construct analysis of children's social information processing patterns: Correlations with aggressive behavior problems. *Psychological Assessment*, 14(1), 60-73.
- Dodge, K. A., Lansford, J. E., Burks, V. S., Bates, J. E., Pettit, G. S., Fontaine, R. et al. (2003). Peer rejection and social information-processing factors in the development of aggressive behavior problems in children. *Child Development*, 74(2), 374-393.
- Dodge, K. A., McClaskey, C. L., & Feldman, E. (1985). Situational approach to the assessment of social competence in children. *Journal of Consulting and Clinical Psychology*, 53(3), 344-353.
- Dunn, J. (2004). *Children's Friendships: The Beginnings of Intimacy*. Blackwell Publishing. Malden, MA.
- D'Zurilla, T. J. & Maydeu-Olivares, A. (1995). Conceptual and methodological issues in social problem-solving assessment. *Behavior Therapy*, 26, 409-432.
- Eldeleklioglu, J. (2007). The relationship between aggressiveness, peer pressure and parental attitudes among Turkish high school students. *Social Behavior and Personality*, 35(7), 975-986.

- Erdley, C. A. & Asher, S. R. (1996). Children's social goals and self-efficacy perceptions as influences on their responses to ambiguous provocation. *Child Development*, 67, 1329-1344.
- Espelage, D. L., Holt, M. K., & Henkel, R. R. (2003). Examination of peer-group contextual effects on aggression during early adolescence. *Child Development*, 74(1), 205-220.
- Farmer, A. D., Bierman, K. L., & The Conduct Problems Prevention Research Group (2002). Predictors and consequences of aggressive-withdrawn problem profiles in early grade school. *Journal of Clinical Child and Adolescent Psychology*, 31, 299-311.
- Farmer, T. W. & Xie, H. (2007). Aggression and school social dynamics: The good, the bad, and the ordinary. *Journal of School Psychology*, 45, 461-478.
- Fast Track Project (2002). What do you think? Retrieved March 12, 2008, from <http://childandfamilypolicy.duke.edu/fasttrack/techrept/w/wyt/>.
- Fast Track Project (2003). Social Problem Solving Scale. Retrieved March 12, 2008, from <http://childandfamilypolicy.duke.edu/fasttrack/techrept/s/sps/>.
- Fontaine, R. G. (2006). Evaluative behavioral judgments and instrumental antisocial behaviors in children and adolescents. *Clinical Psychology Review*, 26, 956-967.
- Freedman, B. J., Rosenthal, L., Donahue, C. P. Jr., Schlundt, D. G., & McFall, R. M. (1978). A social-behavioral analysis of skill deficits in delinquent and nondelinquent adolescent boys. *Journal of Consulting and Clinical Psychology*, 46(6), 1448-1462.

- Frey, K. S., Hirschstein, M. K., Snell, J. L., Van Schoiack Edstrom, L., MacKenzie, E. P., Broderick, C. J. (2005). Reducing playground bullying and supporting beliefs: An experimental trial of the Steps To Respect program. *Developmental Psychology*, 41(3), 479-491.
- Furman, W. & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social network. *Developmental Psychology*, 21(6), 1016-1024.
- Furman, W. & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development*, 63, 103-115.
- Garner, P.W. & Lemerise, E. A. (2007). The roles of behavioral adjustment and conceptions of peers and emotions in preschool children's peer victimization. *Development and Psychopathology*, 19, 57-71.
- Gresham, F. M., Sugai, G., & Horner, R. H. (2001). Interpreting outcomes of social skills training for students with high-incidence disabilities. *Exceptional Children*, 67(3), 331-334.
- Hains, A. A., Berlin, K. S., Davies, W. H., Smothers, M. K., Sato, A. F., & Alemzadeh, R. (2007). Attributions of adolescents with Type 1 Diabetes related to performing diabetes care around friends and peers: The moderating role of friend support. *Journal of Pediatric Psychology*, 32(5), 561-570.
- Hawkins, D. L., Pepler, D. J., & Craig, W. M. (2004). Naturalistic observations of peer interventions in bullying. *Social Development*, 10(4), 512-527.

- Hubbard, J. A., Dodge, K. A., Cillessen, A. H. N., Coie, J. D., & Schwartz, D. (2001). The dyadic nature of social information processing in boys reactive and proactive aggression. *Journal of Personality and Social Psychology, 80*(2), 268-280.
- Hymel, S. (1986). Interpretations of peer behavior: Affective bias in childhood and adolescence. *Child Development, 57*(2), 431-445.
- Jacquín, K. M., Harrison, M. L., & Alford, S. M. (2006). Gender and peer presence influence responses to aggressive provocation. *American Journal of Forensic Psychology, 24*(3), 29-44.
- Larson, R. W. (1983). Adolescents' daily experience with family and friends: Contrasting opportunity systems. *Journal of Marriage and the Family, 45*(4), 739-750.
- Laurent, J., Catanzaro, S. J., Joiner, T. E. Jr., Rudolph, K. D., Potter, K. I., Lambert, S. et al. (1999). A measure of positive and negative affect for children: Scale development and preliminary validation. *Psychological Assessment, 11*(3), 326-338.
- Lemerise, E. A. & Arsenio, W. F. (2000). An integrated model of emotion processes and cognition in social information processing. *Child Development, 71*, 107-118.
- Lemerise, E. A., Fredstrom, B. K., Kelley, B. M., Bowersox, A. L., & Waford, R. N. (2006). Do provocateurs' emotion displays influence children's social goals and problem-solving? *Journal of Abnormal Child Psychology, 34*, 559-571.
- Lemerise, E. A., Gregory, D. S., & Fredstrom, B. K. (2005). The influence of provocateurs' emotion displays on the social information processing of children varying in social adjustment and age. *Journal of Experimental Child Psychology, 90*, 344-366.

- Lochman, J. E. & Dodge, K. A. (1994). Social-cognitive processes of severely violent, moderately aggressive, and non-aggressive boys. *Journal of Consulting and Clinical Psychology, 62*(2), 366-374.
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology, 27*, 415-444.
- Metropolitan Area Child Study Research Group (2007). Changing the way child "think" about aggression: Social-cognitive effects of a preventive intervention. *Journal of Consulting and Clinical Psychology, 75*(1), 160-167.
- Musher-Eizenman, D. R., Boxer, P., Danner, S., Dubow, E.F., Goldstein, S. E., & Heretick, D. M. L. (2004). Social-cognitive mediators of the relation of environmental and emotion regulation factors to children's aggression. *Aggressive Behavior, 30*, 389-408.
- Nasby, W., Hayden, B., & DePaulo, B. M. (1980). Attributional bias among aggressive boys to interpret unambiguous social stimuli as displays of hostility. *Journal of Abnormal Psychology, 89*(3), 459-468.
- Newcomb, A. F. & Bagwell, C. L. (1995). Children's friendship relations: A meta analytic review. *Psychological Bulletin, 2*, 306-347.
- Ojanen, T., Aunola, K., & Salmivalli, C. (2007). Situation-specificity of children's social goals: Changing goals according to changing situations? *International Journal of Behavioral Development, 31*(3), 232-241.

- Orobio de Castro, B., Merk, W., Koops, W., Veerman, J. W., & Bosch, J. D. (2005). Emotions in social information processing and their relations with reactive and proactive aggression in referred aggressive boys. *Journal of Clinical Child and Adolescent Psychology, 34*(1), 105-116.
- Orobio de Castro, B., Slot, N. W., Bosch, J., D., Koops, W. & Veerman, J. W. (2003). Negative feelings exacerbate hostile attribution of intent in highly aggressive boys. *Journal of Clinical Child and Adolescent Psychology, 32* (1), 56-65.
- Orobio de Castro, B., Veerman, J. W., Koops, W., Bosch, J. D., & Monshouwer, H. J. (2002). Hostile attribution of intent and aggressive behavior: A meta-analysis. *Child Development, 73*, 916-934.
- Parker, E. H. (2002). The role of social information processing in the relation between children's exposure to marital conflict and their social adjustment. Unpublished doctoral dissertation, University of Delaware, Newark.
- Parker, J. G. & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin, 102*(3), 357-389.
- Patterson, C. J., DeBaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. *American Psychologist, 44*, 329-335.
- Peets, K., Hodges, E. V. E., & Salmivalli, C. (2008). Affect-congruent social-cognitive evaluations and behaviors. *Child Development, 79*(1), 170-185.
- Peets, K., Hodges, E. V., Kikas, E., & Salmivalli, C. (2007). Hostile attributions and behavioral strategies in children: Does relationship type matter? *Developmental Psychology, 43*(4), 889-900.



- Prinstein, M. J., Cheah, C. S. L., & Guyer, A. E. (2005). Peer victimization, cue interpretation, and internalizing symptoms: Preliminary concurrent and longitudinal findings for children and adolescents. *Journal of Clinical Child and Adolescent Psychology, 34*(1), 11-24.
- Quiggle, N. L., Garber, J., Panak, W. F., & Dodge, K. A. (1992). Social information processing in aggressive and depressed children. *Child Development, 63*, 1305-1320.
- Quinn, M. M., Kavale, K. A., Mathur, S. R., Rutherford, R. B., & Forness, S. R. (1999). A meta-analysis of social skill interventions for students with emotional or behavioral disorders. *Journal of Emotional & Behavioral Disorders, 7*(1), 54-65.
- Richard, J. F. & Schneider, B. H. (2005). Assessing friendship motivation during preadolescence and early adolescence. *Journal of Early Adolescence, 25*, 367-385.
- Rosenthal, R. (1990). *How are we doing in soft psychology?* *American Psychologist, 45*, 775-777.
- Salmivalli, C., Lagerspetz, K., Bjorkqvist, K., Osterman, K., & Kaukiainen, A. (1996). Bullying as a group process: Participant roles and their relations to social status within the group. *Aggressive Behavior, 22*, 1-15.
- Sallquist, J. V., Eisenberg, N., Spinrad, T. L., Reiser, M., Hofer, C., Zhou, Q., et al. (2009). Positive and negative emotionality: Trajectories across six years and relations with social competence. *Emotion, 9*(1), 15-28.

- Sancilio, M. F. M., Plumert, J. M., Hartup, W. W. (1989). Friendship and aggressiveness as determinants of conflict outcomes in middle childhood. *Developmental Psychology, 25*, 812-819.
- Simons-Morton, B. (2007). Social influence on adolescent substance use. *American Journal of Health Behavior, 31*(6), 672-684.
- Soto, J. A., Levenson, R. W., & Ebling, R. (2005). Cultures of moderation and expression: Emotional experience, behavior, and physiology in Chinese Americans and Mexican Americans. *Emotion, 5*(2), 154-165.
- Sumrall, S. G., Ray, G.E., & Tidwell, P. S. (2000). Evaluations of relational aggression as a function of relationship type and conflict setting. *Aggressive Behavior, 26*, 179-191.
- U. S. Department of Education (2001). Characteristics of the 100 largest public elementary and secondary school districts in the United States: 1999-2000. Retrieved on March 12, 2008, from [http://nces.ed.gov/pubs2001/100\\_largest/btables.asp](http://nces.ed.gov/pubs2001/100_largest/btables.asp).
- Van Lier, P. A., Wanner, B., & Vitaro, F. (2007). Onset of antisocial behavior, affiliation with deviant friends, and childhood maladjustment: A test of the childhood- and adolescent-onset models. *Development and Psychopathology, 19*, 167-185.
- Werner, N. E. & Crick, N. R. (2004). Maladaptive peer relationships and the development of relational and physical aggression during middle childhood. *Social Development, 13*(4), 495-514.

Zelli, A., Dodge, K. A., Lochman, J. E., Laird, R. D., & Conduct Problems Prevention Research Group (1999). The distinction between beliefs legitimizing aggression and deviant processing of social cues: Testing measurement validity and the hypothesis that biased processing mediate the effects of beliefs on aggression. *Journal of Personality and Social Psychology*, 77(1), 150-166.

## Endnotes

<sup>1</sup> There were similar gender ratios by grade (4<sup>th</sup> grade: 48% male; 5<sup>th</sup> grade: 45% male). Students in the 4<sup>th</sup> grade (mean age = 9.44, SD = .60) were approximately one year younger than those in the 5<sup>th</sup> grade (mean age = 10.37, SD = .59).

<sup>2</sup> The nature of current study required manipulation of a contextual situational factor not previously examined (i.e., a friend's presence and involvement) which necessitated the development of stimulus materials. An expert panel was used to evaluate the face validity of the adapted vignettes (see Appendix C).

<sup>3</sup> In addition to responding to CASS vignettes, students reported information regarding bullying/victimization, friendship quality, social problem solving self-efficacy, social goals, peer perception, and self-esteem. Child adjustment (e.g., aggression, depression, anxiety) data was collected from teachers. Both teachers and students reported bully/victim status.

<sup>4</sup> Any dependent variable with a skewness value  $> .9$  or kurtosis  $> 1$  was examined for outliers and transformed to reduce the skew. Although log and inverse transformations were able to reduce the skewness to below 1.00, conducting the main analyses with the transformed values did not alter the results. Thus, all analyses were performed with the original (non-transformed) data.

<sup>5</sup> The sentence from the survey "If this story happened to you, would you feel scared?" has a Flesch-Kincaid grade level of 2.4. Replacing "scared" with nervous results

in a reading level of 3.6. Thus, while “nervous” may be a more advanced vocabulary word than “scared”, both are readable by 4<sup>th</sup> and 5<sup>th</sup> grade students.

<sup>6</sup> There are mixed results in the literature regarding gender differences in sadness in response to hypothetical peer conflict vignettes. The current study’s finding that females report more sadness confirms results of Quiggle et al. (1992) but Burgess et al. (2006) found no gender differences in reported sadness.

## Appendices

## Appendix A

### Experimental Manipulation of CASS Hypothetical Vignettes

**STORY 1:** Pretend you just sharpened some pencils at school and you are walking back to your seat. You smile at your best friend as you walk by her desk. A classmate named Maria has her foot in the aisle and you trip over it, dropping your pencils. [INSERT AAC] [INSERT FA]

#### *Friend's attribution (FA)*

Hostile: "Your best friend says you should tell the teacher Maria tripped you".

Benign: "Your best friend complains your classroom is too crowded".

Ambiguous: Add nothing to the story.

#### *Antagonist action cue (AAC)*

Hostile: "Maria turns and gives a high-five to the girl sitting behind her".

Benign: "Maria gets up from her desk and starts helping you pick up your pencils".

Ambiguous: Add nothing to the story.

*Story line adapted from:* Fast Track Project, 2002

Appendix A (Continued)

**STORY 2:** Pretend that you are in gym class playing catch with your best friend and a girl named Amber. You throw the ball to your best friend and she catches it. You turn around and suddenly Amber throws the ball and it hits you in the middle of your back.

[INSERT FA] [INSERT AAC]

*Friend's attribution (FA)*

Hostile: "Your best friend asks Amber why she is always such a jerk".

Benign: "Your best friend says 'Whoa Amber, you'd better look where you're throwing'".

Ambiguous: Add nothing to the story.

*Antagonist action cue (AAC)*

Hostile: "Amber is laughing and pointing at you".

Benign: "Amber comes over to you and asks if you're OK".

Ambiguous: Add nothing to the story.

*Story line adapted from:* Parker (2002); also Dodge & Frame, 1982; Garner & Lemerise, 2007.



Appendix A (Continued)

**STORY 3:** Pretend that at lunch time you and your best friend see some kids you would like to sit with and you go over to their table. You ask if you can sit with them and a girl named Shawna says, “No”. [INSERT AAC] [INSERT FA]

*Friend’s attribution (FA)*

Hostile: “Your best friend says ‘Forget Shawna, let’s find NICE kids to sit with’”.

Benign: “Your best friend says, ‘Oh yeah, there are only five kids allowed at each table. Let’s find another place to sit.’”

Ambiguous: Add nothing to the story.

*Antagonist action cue (AAC)*

Hostile: “...and puts her lunchbox on the empty seat without turning to look at you”.

Benign: “...but smiles nicely and says she will see you at recess”.

Ambiguous: Add nothing to the story.

*Story line adapted from:* Quiggle et al., 1992; also Parker, 2002

## Appendix A (Continued)

**STORY 4:** Pretend that you and your best friend are walking to school together and you're wearing brand new shoes. You really like your new shoes and this is the first day you have worn them. Suddenly, you are bumped from behind by a girl named Whitney. You fall into a mud puddle and your new shoes get muddy. [INSERT FA] [INSERT AAC]

### *Friend's attribution (FA)*

Hostile: "Your best friend says 'Whitney can be a real bully'".

Benign: "Your best friend says Whitney was running too fast".

Ambiguous: Add nothing to the story.

### *Antagonist action cue (AAC)*

Hostile: "Whitney doesn't stop and keeps going to school".

Benign: "Whitney reaches out a hand to help you up".

Ambiguous: Add nothing to the story.

*Story line adapted from:* Parker, 2002; also Garner & Lemerise, 2007.

## Appendix A (Continued)

**STORY 5:** Pretend your class has a new computer which has some fun games. Your teacher tells the class that everyone should take turns trying these games. You and your best friend have waited for a while and now it's your turn. A classmate named Sophia comes over and sits down to play the computer games before you and your friend. You tell Sophia that it's your turn [INSERT AAC] [INSERT FA].

### *Friend's attribution (FA)*

Hostile: "Your best friend says 'Hey Sophia, that's not fair!'"

Benign: "Your best friend tells you 'Maybe we should have stood right behind the computer so everyone would know we were next'".

Ambiguous: Add nothing to the story.

### *Antagonist action cue (AAC)*

Hostile: "...but Sophia keeps playing anyway".

Benign: "...and Sophia says 'Oh, sorry'".

Ambiguous: Add nothing to the story

*Story line adapted from:* Fast Track Project, 2002

Appendix A (Continued)

**STORY 6:** Pretend that you and your best friend decide to join Girl Scouts. At the first meeting, you want to make friends with the other kids. You walk up to a kid named Brianna and say “Hi” but Brianna [INSERT AAC] doesn’t say anything back. [INSERT FA]

*Friend’s attribution (FA)*

Hostile: “Your best friend says ‘Maybe joining Girl Scouts wasn’t a good idea’”.

Benign: “Your best friend says ‘Try again and talk louder this time’”

Ambiguous: Add nothing to the story.

*Antagonist action cue (AAC)*

Hostile: “...makes a funny face at you and...”

Benign: “...doesn’t seem to see you and...”

Ambiguous: Add nothing to the story.

*Story line adapted from:* Parker, 2002

Appendix A (Continued)

**STORY 7:** Pretend you are in art class and have just finished a painting you are proud of. You show the painting to your best friend and then go to the sink to wash your hands. When you come back to the table, you find out Hannah spilled red paint all over your painting. [INSERT FA] [INSERT AAC]

*Friend's attribution (FA)*

Hostile: "Your best friend tells you Hannah was probably jealous of your picture".

Benign: "Your best friend says 'These tables are so small'".

Ambiguous: Add nothing to the story.

*Antagonist action cue (AAC)*

Hostile: "Hannah just laughs".

Benign: "Hannah starts trying to clean up the paint".

Ambiguous: Add nothing to the story.

*Story line adapted from:* Garner & Lemerise, 2007.

Appendix A (Continued)

**STORY 8:** Pretend that you just got a good spot near the front of the line to go outside to recess right behind your best friend. Then Danielle walks right in front of you and takes your place. [INSERT FA] [INSERT AAC]

*Friend's attribution (FA)*

Hostile: "Your best friend says, 'Danielle always wants to be in the front of the line'"

Benign: "Your best friend says, 'Danielle must think I was saving her a spot in line'"

Ambiguous: Add nothing to the story.

*Antagonist action cue (AAC)*

Hostile: "You tell Danielle there is no cutting in line but Danielle just ignores you."

Benign: "You tell Danielle there is no cutting in line and Danielle tells you she left her place in line to get something for the teacher."

Ambiguous: Add nothing to the story.

*Story line adapted from:* Fast Track Project, 2003

Appendix A (Continued)

**STORY 9:** Pretend that you and your best friend see some classmates playing on the playground. You would really like to play with them, so you go over and ask one of them, Isabella, if you can play. Isabella says, “No” [INSERT AAC] [INSERT FA].

*Friend’s attribution (FA)*

Hostile: “Your best friend tells Isabella, ‘We didn’t really want to play with you anyway’”.

Benign: “Your best friend looks at her watch and says ‘Yeah, recess is almost over’”.

Ambiguous: Add nothing to the story.

*Antagonist action cue (AAC)*

Hostile: “...and just keeps playing”.

Benign: “...but let’s play together next recess”.

Ambiguous: Add nothing to the story.

*Story line adapted from: Parker, 2002.*

## Appendix B

### Example of a Full Version of the CASS Measure (Version 1/Boys)

What grade are you in?

- 4<sup>th</sup>                       5<sup>th</sup>

How old are you?

- younger than 7     7     8     9     10     11     12     older than 12

Are you a boy or a girl?

- boy                       girl

What is your ethnicity?

- American Indian/Alaskan Native
- Asian/Pacific Islander
- Black or African American
- Hispanic
- White or Caucasian
- Other

Inside are nine stories about things that can happen to children your age. Please READ each story CAREFULLY and PRETEND the story is happening TO YOU. After each story are 10 questions. Think about your answer to each question and try to answer what would happen if this actually happened to you. You can answer that you might do more than one thing. Please mark just one square in EVERY row.



Appendix B (Continued)

**STORY 1:** Pretend you just sharpened some pencils at school and you are walking back to your seat. You smile at your best friend as you walk by his desk. A classmate named Elijah has his foot in the aisle and you trip over it, dropping your pencils. Elijah gets up from his desk and starts helping you pick up your pencils. Your best friend complains your classroom is too crowded. *Manipulation 1: FA = Benign AAC = Benign*

1. *In this story, do you think Elijah tripped you on purpose because he was trying to be mean?*

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

*If this story happened to you, would you feel...*

Response options for questions 2-5:

- Extremely     Quite a bit     Moderately     A little     Very slightly

2. SAD?

3. MAD?

4. EMBARRASSED?

5. SCARED?

*If this story happened to you, would you...*

Response options for questions 6-9:

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

6. Step on Elijah's foot?

7. Call Elijah a mean name?

8. Ask Elijah if he tripped you?

9. Draw a funny picture of Elijah and pass it around to the other kids?

Appendix B (Continued)

**STORY 2:** Pretend that you are standing on the playground playing catch with your best friend and a boy named Aaron. You throw the ball to Aaron and he catches it. You turn around and suddenly Aaron throws the ball and it hits you in the middle of your back. Your best friend says ‘Whoa Aaron, you’d better look where you’re throwing’.

*Manipulation 2: FA = Benign AAC = None*

1. *In this story, do you think Aaron threw the ball at you on purpose because he was trying to be mean?*

YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

*If this story happened to you, would you feel...*

Response options for questions 2-5:

Extremely    Quite a bit    Moderately    A little    Very slightly

2. MAD?

3. SAD?

4. SCARED?

5. EMBARRASSED?

*If this story happened to you, would you...*

Response options for questions 6-9:

YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

6. Yell at Aaron to ‘Go Away!’?

7. Tell your best friend to just throw the ball to you and NOT to Aaron?

8. Ask Aaron not to hit you with the ball again?

9. Try and hit Aaron with the ball?

Appendix B (Continued)

**STORY 3:** Pretend that at lunch time you and your best friend see some kids you would like to sit with and you go over to their table. You ask if you can sit with them and a boy named Samuel says, “No” and puts his lunchbox on the empty seat without turning to look at you. Your best friend says, ‘Oh yeah, there are only five kids allowed at each table. Let’s find another place to sit’. *Manipulation 3: FA = Benign AAC = Hostile*

1. *In this story, do you think Samuel said ‘No’ on purpose because he was trying to be mean?*

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

*If this story happened to you, would you feel...*

Response options for questions 2-5:

- Extremely    Quite a bit    Moderately    A little    Very slightly

2. EMBARRASSED?

3. SCARED?

4. SAD?

5. MAD?

*If this story happened to you, would you...*

Response options for questions 6-9:

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

6. Ask Samuel why he said ‘No’?

7. Tell Samuel you don’t want to sit by a dork like him anyway?

8. Tell the other kids at the table they should sit with you tomorrow instead of Samuel?

9. Knock Samuel’s lunch on the floor?

Appendix B (Continued)

**STORY 4:** Pretend that you and your best friend are walking to school and you're wearing brand new shoes. You really like your new shoes and this is the first day you have worn them. Suddenly, you are bumped from behind by a boy named Duane. You fall into a mud puddle and your new shoes get muddy. Duane reaches out a hand to help you up. *Manipulation 4: FA = None AAC = Benign*

1. *In this story, do you think Duane bumped you on purpose because he was trying to be mean?*

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

*If this story happened to you, would you feel...*

Response options for questions 2-5:

- Extremely     Quite a bit     Moderately     A little     Very slightly

2. SCARED?

3. EMBARRASSED?

4. SAD?

5. MAD?

*If this story happened to you, would you...*

Response options for questions 6-9:

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

6. Get Duane's friends to walk home with you after school instead of with Duane?

7. Try to knock Duane down?

8. Yell to Duane 'I will get you for this'?

9. At school, tell Duane he should help you clean your shoes?

Appendix B (Continued)

**STORY 5:** Pretend your class has a new computer which has some fun games. Your teacher tells the class that everyone should take turns trying these games. You and your best friend have waited for a while and now it's your turn. A classmate named Sean comes over and sits down to play the computer games before you and your friend. You tell Sean that it's your turn. *Manipulation 5: FA = None AAC = None*

1. *In this story, do you think Sean sat down to play the computer game on purpose because he was trying to be mean?*

YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

*If this story happened to you, would you feel...*

Response options for questions 2-5:

Extremely     Quite a bit     Moderately     A little     Very slightly

2. EMBARRASSED?

3. SAD?

4. MAD?

5. SCARED?

*If this story happened to you, would you...*

Response options for questions 6-9:

YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

6. Start whispering mean things to Sean?

7. Tell Sean it would be more fair to take turns?

8. Pinch Sean on the arm?

9. Get everyone to ignore Sean for the rest of the day?

Appendix B (Continued)

**STORY 6:** Pretend that you and your best friend decide to join Boy Scouts. At the first meeting, you want to make friends with the other boys. You walk up to a boy named Jackson and say “Hi!”, but Jackson makes a funny face at you and doesn’t say anything back. *Manipulation 6: FA = None AAC = Hostile*

1. *In this story, do you think Jackson didn’t say ‘Hi’ on purpose because he was trying to be mean?*

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

*If this story happened to you, would you feel...*

Response options for questions 2-5:

- Extremely     Quite a bit     Moderately     A little     Very slightly

2. SAD?

3. EMBARRASSED?

4. SCARED?

5. MAD?

*If this story happened to you, would you...*

Response options for questions 6-9:

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

6. Stand in front of Jackson and say ‘Hi’ again?

7. Tell the other Boy Scouts that no one likes Jackson at school the next day?

8. Hit Jackson on the arm to get his attention?

9. Ask Jackson ‘Are you stupid or something, I just said Hi to you?’

Appendix B (Continued)

**STORY 7:** Pretend you are in art class and have just finished a painting you are proud of.

You show the picture to your best friend and then go to the sink to wash your hands.

When you come back to the table, you find out Calvin spilled red paint all over your painting. Your best friend whispers Calvin was probably jealous of your picture. Calvin starts trying to clean up the paint. *Manipulation 7: FA = Hostile AAC = Benign*

*1. In this story, do you think Calvin spilled the paint on purpose because he was trying to be mean?*

YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

*If this story happened to you, would you feel...*

Response options for questions 2-5:

Extremely     Quite a bit     Moderately     A little     Very slightly

2. MAD?

3. EMBARRASSED?

4. SCARED?

5. SAD?

*If this story happened to you, would you...*

Response options for questions 6-9:

YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

6. Pour blue paint on Calvin's artwork?

7. Make a plan with your best friend to ruin Calvin's artwork the next week?

8. Ask Calvin to help you clean up the paint?

9. Tell Calvin you hate him?

Appendix B (Continued)

**STORY 8:** Pretend that you just got a good spot near the front of the line to go outside to recess right behind your best friend. Then Ricky walks right in front of you and takes your place in line. You tell Ricky there is no cutting in line. Your best friend tells you, ‘Ricky will do anything to be the first outside’. *Manipulation 8: FA = Hostile AAC = None*

1. *In this story, do you think Ricky got in line in front of you on purpose because he was trying to be mean?*

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

*If this story happened to you, would you feel...*

Response options for questions 2-5:

- Extremely    Quite a bit    Moderately    A little    Very slightly

2. SCARED?

3. SAD?

4. MAD?

5. EMBARRASSED?

*If this story happened to you, would you...*

Response options for questions 6-9:

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

6. Tell your best friend he shouldn't play with Ricky at recess?

7. Tell Ricky you think he's a jerk?

8. Ask Ricky why he is cutting in line?

9. Step in front of Ricky, bumping him out of line?



Appendix B (Continued)

**STORY 9:** Pretend that you and your best friend see some classmates playing on the playground. You would really like to play with them, so you go over and ask Andrew if you can play. Andrew says, ‘No’ and just keeps playing. Your best friend tells Andrew, ‘We didn’t really want to play with you anyway’. *Manipulation 9: FA= Hostile AAC = Hostile*

1. *In this story, do you think Andrew said ‘No’ on purpose because he was trying to be mean?*

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

*If this story happened to you, would you feel...*

Response options for questions 2-5:

- Extremely     Quite a bit     Moderately     A little     Very slightly

2. SAD?

3. MAD?

4. SCARED?

5. EMBARRASSED?

*If this story happened to you, would you...*

Response options for questions 6-9:

- YES       yes       maybe yes,       no       NO  
Definitely      probably      may no      probably not      Definitely not

6. Push Andrew?

7. Tell Andrew you would really like to play with him and ask if he’s sure you can’t join in?

8. Hang around Andrew during the rest of recess and say mean things to him?

9. Tell the other kids they should play with you and your best friend instead of Andrew?

## Appendix C

### Stimulus Development and Expert Panel Results

There are several possible methods to assess children's social information processing. Many researchers choose to conduct individualized interviews with children to later have raters code the responses (e.g., Dodge & Frame, 1982). Others select more traditional pencil and paper measurement, and give children multiple-choice options or a rating-scale format (e.g., Erdley & Asher, 1996). The choice of methodology likely has an impact on results. Some evidence suggests aggressive children can and are more likely to select a pro-social response when it is presented to them. For example, Freedman and associates (1978) found a multiple-choice format elicited more effective responding and was not able to distinguish delinquent from non-delinquent adolescents. However, numerous studies have found significant social information processing deficits using a multiple-choice methodology (e.g., Quiggle et al., 2002). Importantly, Orobio de Castro and colleagues (2002) did not find difference in effect sizes based on response format in their meta-analysis of hostile attribution. Of the 41 studies included, 27 studies used an open-ended response format (some of which also included a multiple-choice option) and 14 used only multiple-choice or a rating-scale format (Orobio de Castro et al., 2002). Therefore, both methods are used and sometimes in conjunction. Due to the preliminary nature of this study, open-ended assessment seemed unwarranted given the time, cost, and logistical complexities associated with conducting interviews. In consideration of the aforementioned information, the decision was made to use a pencil and paper method with a rating-scale format.

## Appendix C (Continued)

Researchers studying social information processing have not yet generated a strongly validated or standard set of hypothetical vignettes. Very few researchers have published a full version of their hypothetical vignettes but many include example situations. The nature of current study required manipulation of a contextual situational factor not previously examined (i.e. a friend's presence and involvement) which necessitated the development of stimulus materials. While all situations were adapted from previously employed measures, an expert panel was used to evaluate the face validity and developmental relevance of the adapted vignettes.

The panel consisted of two Ph. D. level faculty members who specialize in clinical child or developmental psychology as well as seven advanced clinical child psychology graduate students. Based on the feedback of the expert panel, direct verbal aggression was separated from indirect relational aggression which resulted in the creation of several new response options that were not rated by the experts. Additionally, some minor changes to wording were made. In general, the experts thought the situations were developmentally relevant and the manipulations pulled in the intended direction (either hostile or benign) but still left a degree of ambiguity in the minds of the panel (see Table C1).

Appendix C (Continued)

Table C-1

Results of Expert Panel Questionnaire

	Mean	Std. Dev.	Range <sup>a</sup>	No. of stories <sup>b</sup>
<b>How likely is this situation to happen to 4th and 5th grade students?</b>	5.99	0.43	5.22 - 6.44	9
<b>How much hostility is indicated by the attention of this contextual detail?</b>				
Hostile FA	4.65	0.63	3.78 - 5.67	9
Benign FA	2.00	0.32	1.56 - 2.44	9
Hostile AAC	5.49	0.83	4.33 - 6.44	9
Benign AAC	1.79	0.57	1.11 - 2.67	9
<i>Overall Hostility of Hostile Manipulations</i>	5.07	0.84	3.78 - 6.44	
<i>Overall Hostility of Benign Manipulations</i>	1.90	0.46	1.11 - 2.67	
<b>How aggressive or assertive is this response?</b>				
Physically Aggressive Response	5.52	0.55	4.89 - 6.67	9
Verbally Aggressive (Direct) Response	5.56	0.16	5.44 - 5.78	4
Relationally Aggressive (Indirect) Response	5.50	0.39	5.22 - 5.78	2
Assertive Response	5.43	0.25	5.00 - 5.78	9
<i>Overall Strength of Response Type</i>	5.49	0.37	4.89 - 6.67	
<b>Calculated Difference between FA &amp; AAC</b>				
Hostile FA - Benign AAC	3.04	0.77	2.22 - 4.33	9
Hostile AAC - Benign FA	3.62	0.83	2.33 - 4.56	9
Hostile FA - Hostile AAC	1.33	0.46	0.89 - 2.11	9
Benign AAC - Benign FA	0.78	0.37	0.33 - 1.33	9
<i>Overall Differences in Congruent Situations</i>	1.06	0.49	0.33 - 2.11	
<i>Overall Differences in Discrepant Situations</i>	3.33	0.83	2.22 - 4.56	

Note: All responses on a 7 point scale. FA = Friend's attribution of intent. AAC = Antagonist action cue.

<sup>a</sup>The range represents the story with the lowest and highest means across stories. <sup>b</sup>No. of stories column indicates how many stories the results are based on. Due to the initial combination of verbal and relational aggression, these ratings were based on fewer stories.

## Appendix D

### Parent Informed Consent

Dear Parent or Guardian,

My name is Heather Schrandt and I'm a graduate student working on my Master's Thesis in the Department of Psychology at the University of South Florida. I, along with Dr. Ellis Gesten, my professor and also a Clinical Psychologist who works with all three of our local school districts, am very interested in understanding and improving children's peer relationships. The school district has reviewed our project and given us permission to request your approval to allow your child to participate in our study, entitled *Teaming to Improvement Peer Problem Solving (TIPPS)*. We hope this study will allow us to better understand how child think, feel and behave in peer conflict situations. The following information will help you decide if your child is right for this study. You may have questions this letter does not answer. If you do, I will be more than happy to answer them.

#### **Why is my child being asked to take part in this study?**

We are asking your child to take part in this study because he/she is in 4<sup>th</sup> or 5<sup>th</sup> grade, a time when peer relationships are important to children's well-being.

#### **How long will my child be asked to stay in the study?**

Your child will be asked to spend about 45 minutes in this study during regular school hours. Your child will not lose any important academic time.

## Appendix D (Continued)

### **What will happen during this study?**

Your child will be asked to answer questions about peer relationships. Your child will be given the option in class to participate or not. No one has to participate. Your child will read stories about possible peer conflict and answer questions about peer problem-solving, bullying/victimization, and friendship. Your child's teacher will also provide information about your child's functioning.

### **What are the benefits that my child will receive if I let him/her take part in this study?**

Your child will receive a small token of our appreciation, either a pencil or sticker, for participating in this study. Also, the class that returns the most forms (regardless of your decision) may receive a reward.

### **What are the risks if my child takes part in this study?**

There are no known risks to those who take part in this study.

### **What will we do to keep your child's study records from being seen by others?**

Federal law requires us to keep your child's study records private. This means that no one other than me or the study staff will know how your child answered. However, certain people may need to see your child's study records. By law, anyone who looks at your child's records must keep them private. The only people who will be allowed to see these records are:

## Appendix D (Continued)

- The study staff.
- People who make sure that we are doing the study in the right way. They also make sure that we protect your child's rights and safety:
  - The University of South Florida's Institutional Review Board (IRB)
  - The United States Department of Health and Human Services (DHHS)
- We may share findings with school personnel or publish what we find out from this study. If we do, we will not use your child's name or anything else that would let people know who your child is.

Although all of your child's answers will be private, there are times when Florida law requires and/or permits us to break confidentiality. For example, if we learn that your child is being abused or if we find that he/she is in imminent danger of hurting themselves or another person, we would inform you about this information.

### **If you decide not to let your child take part in the study:**

Nothing will happen. Your child will not receive any penalty in grading. This study is completely voluntary.

### **What if you let your child join the study and then later decide you want to stop?**

If you decide you want your child to stop taking part in the study, tell your child's teacher, me or any member of the study staff as soon as you can. We will take your child out of the study:

- If your child asks us to leave
- If we feel that your child is unhappy during the study

Appendix D (Continued)

**You can get answers to your questions!**

If you ever have any questions about this study, please call Heather Schrandt. If you have questions about your child's rights as a person who is taking part in this study, call the University of South Florida's Division of Research Compliance.

I appreciate the time you have given this letter. I hope you decide to let your child participate in this study! Remember, if you ever need to reach me, do not hesitate.

\*It's up to you. You can decide if you want to your child take part in this study.

**I freely give my consent to let my child take part in this study. I also agree to answer questions about myself and my child's other parent. I understand that this is research. I have received a copy of this consent form.**

**I do not want my child to participate in this study.**

Name of child:

---

---

Signature of Parent

---

Printed Name of Parent

---

Date

---

Signature of Researcher

---

Printed Name of Researcher

---

Date



## Appendix E

### Teacher Informed Consent

Dear Educator,

My name is Heather Schrandt and I'm a graduate student working on my Master's Thesis in the Department of Psychology at the University of South Florida. I, along with Dr. Ellis Gesten, my professor and also a Clinical Psychologist who works with all three of our local school districts, am very interested in understanding and improving children's peer relationships. The school has reviewed our project and given us permission to request your participation in our project, entitled *Teaming to Improvement Peer Problem Solving (TIPPS)*. We expect this study will allow us to better understand how child think, feel and behave in peer conflict situations. The following information will help you decide if you would like to participate in this study. You may have questions this letter does not answer. If you do, I will be more than happy to answer them.

#### **Why am I being asked to take part in this study?**

We are asking you to take part in this study because you are a 4<sup>th</sup> or 5<sup>th</sup> grade. This is a time when peer relationships are important to children's well-being.

#### **How long will I be asked to stay in the study?**

You will be given two weeks to fill out a questionnaire for each participating student. It will take about 15 minutes to answer questions for each child.

#### **What will happen during this study?**

You will be asked questions about each child's behavior.

#### **What are the benefits that I will receive if I take part in this study?**

You will receive a \$10 gift card for your participation in the study.

## Appendix E (Continued)

### **What are the risks if I take part in this study?**

There are no known risks to those who take part in this study.

### **What will we do to keep your records from being seen by others?**

Federal law requires us to keep your study records private. This means that no one other than me or the study staff will know how you answered. However, certain people may need to see your study records. By law, anyone who looks at your records must keep them private. The only people who will be allowed to see these records are:

- The study staff.
- People who make sure that we are doing the study in the right way. They also make sure that we protect your child's rights and safety:
  - The University of South Florida's Institutional Review Board (IRB)
  - The United States Department of Health and Human Services (DHHS)
- We may share findings with school personnel or publish what we find out from this study. If we do, we will not use your name or anything else that would let people know who you are.

Although all of your answers will be private, there are times when Florida law requires and/or permits us to break confidentiality. For example, if we learn that a child is being abused or if we find that he/she is in imminent danger of hurting themselves or another person, we would inform the child's parent(s) about this information.

### **If you decide not take part in the study:**

Nothing will happen. This study is completely voluntary.

Appendix E (Continued)

**What if you join the study and then later decide you want to stop?**

If you decide you want to stop taking part in the study, tell me or any member of the study staff as soon as you can.

**You can get answers to your questions!**

If you ever have any questions about this study, please call Heather Schrandt. If you have questions about your rights as a person who is taking part in this study, call the University of South Florida's Division of Research Compliance.

I appreciate the time you have given this letter. I hope you decide to participate in this study! Remember, if you ever need to reach me, do not hesitate.

\*It's up to you. You can decide if you want to take part in this study.

**I freely give my consent to take part in this study. I understand that this is research. I have received a copy of this consent form.**

**I do not want to participate in this study.**

\_\_\_\_\_  
Signature of Participant                      Printed Name of Participant                      Date

\_\_\_\_\_  
Signature of Researcher                      Printed Name of Researcher                      Date

Appendix F

Child Assent Form

**DO YOU WANT TO TAKE PART IN A RESEARCH STUDY?**

**WHY AM I BEING ASKED TO TAKE PART IN THIS RESEARCH?**

You are being asked to take part in a research study about how kids get along. If you take part in this study, you will be one of about 100 people in this study.

**WHO IS DOING THE STUDY?**

The person in charge of this study is Heather Schrandt, a college student at USF. Her teacher is Dr. Ellis Gesten.

**WHAT IS THE PURPOSE OF THIS STUDY?**

By doing this study, we hope to learn how kids think, feel and behave with their classmates.

**WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?**

This study will be in your school and take less than 45 minutes.

**WHAT WILL I BE ASKED TO DO?**

You will be asked to answer questions about your how you get along with your classmates. You will read stories about things that happen to some kids and tell us your feelings, thoughts and behavior if these things happened to you.

**WILL SOMETHING GOOD HAPPEN IF I TAKE PART IN THIS STUDY?**

You will receive either a pencil or a sticker.

## Appendix F (Continued)

### **WILL SOMETHING BAD HAPPEN IF I TAKE PART IN THIS STUDY?**

We don't think anything bad will happen. We try to make sure this doesn't happen but you may find some questions we ask you may upset you. If so, we will tell you and your parents about some people who may be able to help you with these feelings.

### **DO I HAVE TO TAKE PART IN THE STUDY?**

You should talk with your parents or anyone else that you trust about taking part in this study. If you do not want to take part in the study, that is your decision.

### **IF I DON'T WANT TO TAKE PART IN THE STUDY, WHAT WILL HAPPEN?**

If you do not want to be in the study, nothing else will happen.

### **WHO WILL SEE THE INFORMATION I GIVE?**

Your information will be added to the information from other people taking part in the study so no one will know who you are.

### **CAN I CHANGE MY MIND AND QUIT?**

If you decide to take part in the study you still have the right to change your mind later. No one will think badly of you if you decide to quit.

### **WHAT IF I HAVE QUESTIONS?**

You can ask questions about this study at any time. You can talk with your parents or other adults that you trust about this study. You can talk with the person who is asking you to volunteer. If you think of other questions later, you can ask them.

Appendix F (Continued)

**Assent to Participate**

I understand what the person running this study is asking me to do. I have thought about this and agree to take part in this study.

\_\_\_\_\_

Name of person agreeing to take part in the study

\_\_\_\_\_

Date

\_\_\_\_\_

Name of person providing information to the subject

\_\_\_\_\_

Date

## Appendix G

### Exploratory Analyses with Assertive Behavior

#### *Analyses*

Although no hypotheses were made regarding assertive behavior, the students also reported how likely (1 = “NO Definitely not” to 5 = “YES Definitely”) they would be to respond to each peer conflict with assertive behavior (e.g., “At school, tell Maria she should help you clean your shoes”). Means and standard deviations per manipulation appear in Table G1.

A 3x3 (friend’s attribution x antagonist action cue) repeated measures ANOVA with assertive response evaluation as the dependent variable revealed a significant interaction between the two elements of situational context and no main effects (see Table G2). One-way ANOVAs were conducted to examine the impact of a friend’s attribution for each type of antagonist action cues (Table G1). When hostile antagonist action cues were present, a student rated assertive responses lower when a friend made a hostile (confirmatory) comment than if the friend made a benign (contradictory) comment ( $t(365) = 2.18, p < .05$ ) no remained silent ( $t(365) = 2.69, p < .01$ ). There were no simple effects of a friend’s attribution found when antagonist action cues were benign or absent. Regarding discrepant situations, a paired sample t-test revealed an antagonist action cue and a friend’s attribution are equally influential ( $t(365) = .91, NS$ ).

#### *Interpretation*

Results suggested that situational context only influenced assertive response evaluation in hostile confirmatory situations. If a friend confirms what appears to be a hostile situation (hostile cue/hostile comment) the likelihood of assertive action is

### Appendix G (Continued)

decreased. It may be that when a friend confirms a hostile suggestion for the antagonist the student (1) is fearful of approaching the antagonist or (2) believes the antagonist would not respond to assertive problem-solving strategies.



Appendix G (Continued)

Table G-1

Means, Standard Deviations, and Simple Effects Testing for Assertive Response

Evaluation: The Impact of a Friend's Attribution at each Level of Antagonist Action Cue

Antagonist action cues	Friend's Attribution			F	$\eta^2$
	Benign	None	Hostile		
Benign	3.48 (1.40)	3.42 (1.37)	3.44 (1.43)	.25	.00
None	3.50 (1.41)	3.49 (1.39)	3.63 (1.45)	1.67	.01
Hostile	3.52 (1.42) <sup>a</sup>	3.57 (1.43) <sup>a</sup>	3.31 (1.48) <sup>b</sup>	4.22*	.01

*Note:* Values presented in cells are Mean (Standard Deviation). Significant differences ( $p < .05$ ) are reflected by different superscripts in the same row.  $\eta^2$  = Partial Eta Squared (effect size).

\* $p < .05$ .

Appendix G (Continued)

Table G-2

Impact of Situational Context on Students' Assertive Response Evaluation as Demonstrated by Results from a 3x3 Repeated Measures ANOVA

Friend's Attribution (FA)		Antagonist Action Cue (AAC)		FAxAAC	
F	$\eta^2$	F	$\eta^2$	F	$\eta^2$
.32	.00	1.56	.00	2.73*	.01

Note:  $\eta^2$  = Partial Eta Squared (effect size).

\* $p < .05$ .

## Appendix H

### Friendship Quality as a Potential Moderator of Friends' Attributions

#### *Descriptive Statistics*

Friendship quality with a best friend ( $N = 366$ ,  $M = 3.69$ ,  $SD = .67$ ) was assessed via the 23-item Friendship Qualities Scale (Bukowski, Hoza, & Boivin, 1994). Students are asked to “please think about your BEST friend” and rate how true each statement is of their relationship with their best friend (1 = “not true” to 5 = “really true”). The 23-item scale had an internal reliability of .88 (Cronbach’s Alpha). Females ( $N = 196$ ,  $M = 3.88$ ,  $SD = .60$ ) reported a higher friendship quality than males ( $N = 170$ ,  $M = 3.47$ ,  $SD = .68$ ) and the gender difference was significant ( $t(364) = 6.10$ ,  $p < .001$ ). There were no significant ethnicity or grade related differences in friendship quality. Friendship quality was negatively correlated with hostile attribution ( $r(363) = -.11$ ,  $p < .05$ ) and aggressive response evaluation (average aggression:  $r(346) = -.24$ ,  $p < .01$ ; physical:  $r(354) = -.27$ ,  $p < .01$ ; relational:  $r(352) = -.16$ ,  $p < .01$ ; verbal:  $r(353) = -.25$ ,  $p < .01$ ). Friendship quality was positively correlated with assertive response evaluation ( $r = .26$ ,  $p < .01$ ) and overall reporting of negative emotion ( $r(353) = .12$ ,  $p < .05$ ). An increased friendship quality with a best friend related to increased reporting of sadness ( $r(343) = .21$ ,  $p < .01$ ) and embarrassment ( $r(346) = .17$ ,  $p < .01$ ) and a decrease in the amount of anger reported ( $r(343) = -.11$ ,  $p < .05$ ).

#### *Friendship Quality as a Potential Moderator*

A series of 3x3 (friend’s attribution x antagonist action cue) repeated measures MANCOVAs and ANCOVAs were conducted to determine if students’ perceived friendship quality moderated the influence of antagonist action cues and a friend’s stated

## Appendix H (Continued)

attributions on hostile attribution and negative emotional reaction, as well as aggressive and assertive response evaluation (see Table H1). A friend's attribution and the antagonist action cue were considered within-subject factors and friendship quality was considered a between-subjects variable.

A main effect of friendship quality was found for hostile attribution and negative emotion, as well as aggressive and assertive response evaluations. As friendship quality increased, hostile attribution and aggression decreased while negative emotion and assertive responding increased. Friendship quality was the only significant contributor to the models for negative emotion (sad, mad, and embarrassed) and assertive behavior. Regarding hostile attribution, friendship quality also interacted with the antagonist action cue.

Friendship quality did moderate the influence of a friend's attribution on students rating of all three types of aggressive responses (physical, relational, and verbal). As illustrated in Figures H-1, H-2, and H-3, the influence of a friend's attribution was greatest for students with a lower quality of friendship with their best friend.

### *Interpretation*

The main effects of friendship quality on the social information processing variables may be a result of friendship quality being related to social skills or prosocial behavior. Students who are better able to maintain close quality friendships react to peer conflict with more assertiveness/less aggression and do not display hostility biases in making intent attributions. Friendship quality moderated the effect of a friend's attribution for aggressive responding but not hostile attribution or negative emotion.

## Appendix H (Continued)

Emotion and cognition are not observable whereas aggressive behavior is – which may explain the significant interaction for aggressive responding. Students who have a greater quality relationship with their best friend may feel confident that their friend is not expecting them to react in any particular manner. Whereas students who are not as close to their best friend, may feel the friendship is more tenuous and dependent on their behavior. These students may feel the need to “save face”, or protect self-image, in front of their friends by retaliating with aggression in the friend suggests the antagonist was hostile.

Appendix H (Continued)

Table H-1

Impact of Friendship Quality on Students' Social Information Processing as Demonstrated by Results from 3x3 Repeated Measures MANCOVAs and ANCOVAs

	Friend's Attribution		Antagonist Action		Friendship Quality		FAxAAC		FAxFQ		AACxFQ	
	F	$\eta^2$	F	$\eta^2$	F	$\eta^2$	F	$\eta^2$	F	$\eta^2$	F	$\eta^2$
Hostile Att	1.53	.00	1.82	.00	4.62*	.01	.62	.00	.11	.00	7.55**	.02
Neg Emotion <sup>a</sup>	.76	.01	.44	.00	9.51***	.10	.61	.00	.60	.00	1.42	.01
Sad	1.13	.00	.15	.00	15.69***	.05	.49	.00	1.02	.00	1.14	.00
Mad	.87	.00	.31	.00	5.04*	.02	1.03	.00	.11	.00	1.70	.01
Scared	1.07	.00	.22	.00	1.03	.00	.40	.00	1.31	.00	.10	.00
Embarrassed	.27	.00	.64	.00	12.86***	.04	.48	.00	.09	.00	.43	.00
Agg Resp Eval <sup>a</sup>	4.62***	.02	3.52**	.02	10.44***	.07	.50	.00	4.07***	.02	.99	.01
Physical	4.02*	.01	51.84***	.13	5.25**	.02	5.05**	.01	3.47*	.01	1.91	.01
Relational	7.44**	.02	22.24***	.06	6.25**	.02	.67	.00	6.43**	.02	2.79 <sup>†</sup>	.01
Verbal	5.93*	.02	43.54***	.11	2.00	.01	.81	.00	5.10**	.02	.11	.00
Assrt Resp Eval	.27	.00	1.31	.00	24.72***	.07	.89	.00	.20	.00	1.77	.01

Note:  $\eta^2$  = Partial Eta Squared (effect size). FA = Friend's attribution of intent. FQ = Friendship quality. AAC = Antagonist action cue. Hostile Att = Hostile attribution. Neg Emotion = Negative Emotional Response. Agg Resp Eval = Aggressive response evaluation. Assrt Resp Eval = Assertive response evaluation.

<sup>a</sup>Multivariate results including all 4 emotions and all 3 types of aggressive response evaluation as the dependent variables.

\*p < .05. \*\*p < .01. \*\*\* p < .001. †p < .10.

Appendix H (Continued)

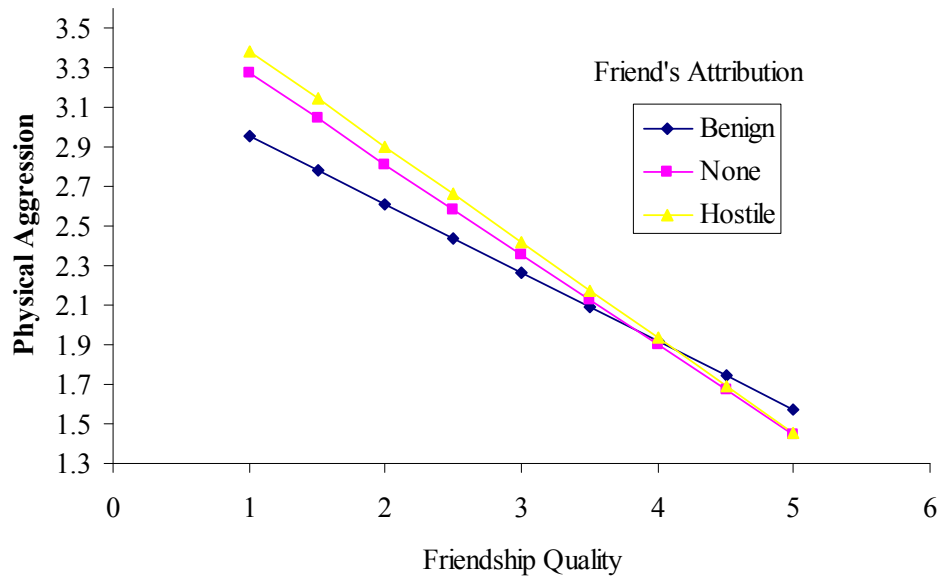


Figure H-1. Illustration of the Moderation of a Friend's Attribution by Friendship Quality for Physical Aggression.

Appendix H (Continued)

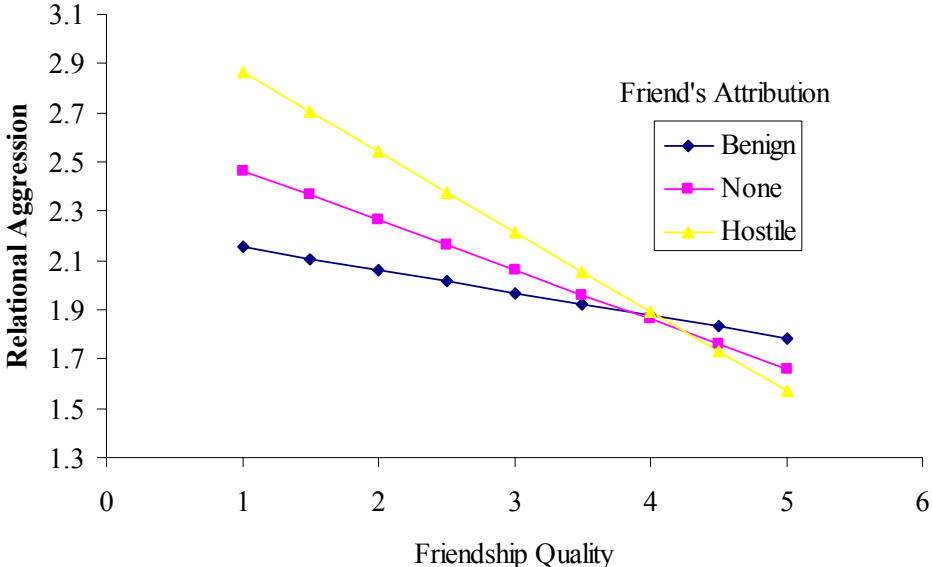


Figure H-2. Illustration of the Moderation of a Friend’s Attribution by Friendship Quality for Relational Aggression.



Appendix H (Continued)

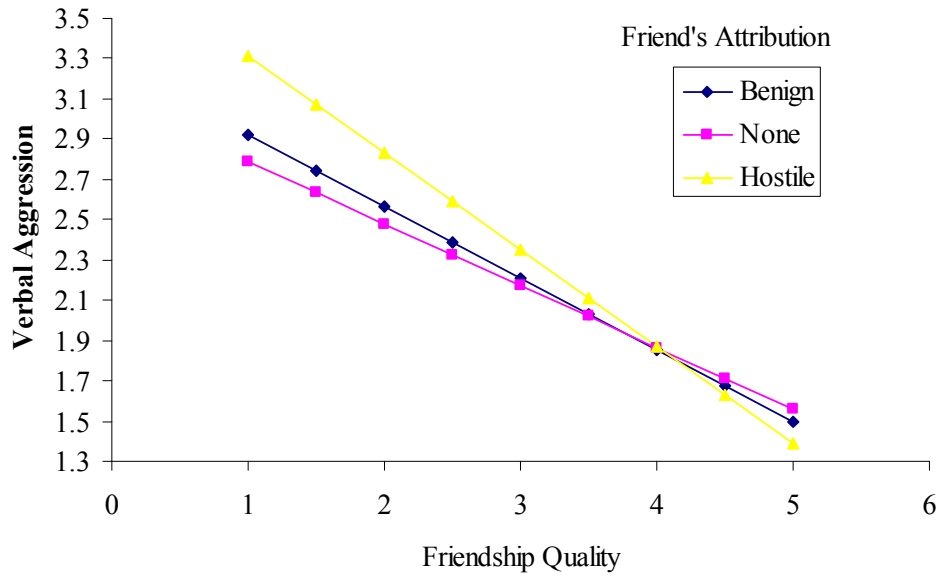


Figure H-3. Illustration of the Moderation of a Friend's Attribution by Friendship Quality for Verbal Aggression.

## Appendix I

### Aggression as a Potential Moderator of Friends' Attributions

#### *Descriptive Statistics*

Child adjustment data was reported by teachers using Achenbach's Teacher Report Form (TRF: Achenbach & Rescorla, 2001). Teachers responded to 118 items (0 = "not true for the child", 1 = "somewhat true for the child", 2 = "very often true for the child") regarding problem behavior which will yielded a Total Problem Behaviors score as well as subscale scores regarding specific types of behavior. Twenty items were used to generate aggression subscale T scores (N = 361, M = 52.47, SD = 5.11, Skewness = 3.20, Kurtosis = 13.89) and percentiles (65% at or below the 50<sup>th</sup> percentile) for the sample. Four students were in the clinical range (T > 74) of aggression and seven were in the borderline range (64 > T > 75).

Teacher-reported aggression (T score) was correlated with the student's average hostile attribution ( $r(358) = .11, p < .05$ ) and reported sadness ( $r(338) = -.11, p < .05$ ) as well as physically ( $r(350) = .13, p < .05$ ) and relationally ( $r(348) = .11, p < .05$ ) aggressive response evaluations. Aggression was not related to other negative emotions, verbally aggressive response evaluation, assertive response evaluation, or friendship quality. Males (N = 167, M = 53.29, SD = 6.20) were higher in aggression than females (N = 194, M = 51.76, SD = 3.81) and the gender difference was significant ( $t(359) = 2.88, p < .01$ ). Fourth grade students (N = 176, M = 53.09, SD = 5.85) were more aggressive than 5<sup>th</sup> graders (N = 185, M = 51.88, SD = 4.22;  $t(359) = 2.25, p < .05$ ). Ethnicity related differences in aggression were also found ( $F(358, 2) = 4.51, p < .05$ ) with

## Appendix I (Continued)

Hispanics ( $N = 130$ ,  $M = 51.79$ ,  $SD = 3.74$ ) being less aggressive than “Other” ethnicities ( $N = 67$ ,  $M = 54.06$ ,  $SD = 5.69$ ;  $t(195) = 3.35$ ,  $p < .01$ ).

### *Aggression as a Potential Moderator*

As the distribution of the T scores for aggression was highly skewed, logarithmic transformations were conducted which reduced the skew slightly but not to the level of normality (Skewness = 2.64, Kurtosis = 8.65). Due to the preliminary nature of this analysis, a decision was made to group students with any elevation in aggression (any item endorsed as 1 or 2 by their teacher) and compared them to students with no elevation. Thus, a series of  $3 \times 3 \times 2$  (friend’s attribution  $\times$  antagonist action cue  $\times$  teacher rated aggression) repeated measures MANOVAs and ACOVAs were conducted to determine if aggression moderated the influence of both antagonist action cues and a friend’s stated attributions on hostile attribution and negative emotional reaction, as well as aggressive and assertive response evaluation (Table I1). A friend’s attribution and the antagonist action cue were considered within-subject factors and aggression was considered a between-subjects factor.

Main effects of students’ aggression were found for anger, physically and verbally aggressive response evaluations, as well as trends for hostile attribution and sadness. Students with any elevation in aggression were more likely to respond to the peer conflicts with anger and physical/verbal aggression. There were no significant interaction effects for aggression with friend’s attribution or antagonist action cue. The effects of a friend’s attribution and an antagonist action cue on students’ social information processing were not affected by the inclusion of aggression in the model. With the

## Appendix I (Continued)

exception of the interaction (friend's attribution x antagonist action cue) disappearing for assertive response evaluation.

### *Interpretation*

Due to a lack of variation in teachers' reports of aggressive behavior, it may not be possible to explore the moderating potential of aggression with this sample. Further data transformation may be possible and result in more interpretable findings. However, future research may want to consider a referred sample of students.

Appendix I (Continued)

Table I-1

Impact of Teacher Rated Aggression on Students' Social Information Processing as Demonstrated by Results from 3x3 Repeated Measures MANCOVAs & ANCOVAs

	Friend's		Antagonist		Aggression		FAxAAC	
	F	$\eta^2$	F	$\eta^2$	F	$\eta^2$	F	$\eta^2$
Hostile Attribution	52.83***	.13	423.69***	.54	3.68 †	.01	5.03**	.01
Negative Emotion <sup>a</sup>	3.78***	.02	26.27***	.14	2.89*	.04	2.09**	.01
Sad	0.22	.00	10.99***	.03	3.30 †	.01	1.71	.01
Mad	13.87***	.04	95.68***	.23	4.70*	.01	2.89*	.01
Scared	.25	.00	.94	.00	.00	.00	.54	.00
Embarrassed	1.12	.00	1.43	.00	.22	.00	3.34*	.01
Aggressive Resp Eval <sup>a</sup>	1.56	.01	26.24***	.10	2.00	.02	1.89*	.01
Physical	2.14	.01	50.44***	.13	5.39*	.02	4.98**	.01
Relational	2.13	.01	22.92***	.06	2.13	.01	.47	.00
Verbal	2.00	.01	39.45***	.10	3.96*	.01	.12	.00
Assertive Resp Eval	.64	.00	.62	.00	1.10	.00	1.62	.01

Note:  $\eta^2$  = Partial Eta Squared (effect size). FA = Friend's attribution of intent. AAC = Antagonist action cue. Resp Eval = Response evaluation.

<sup>a</sup>Multivariate results including all 4 emotions and all 3 types of aggressive response evaluation as the dependent variables.

\*p < .05. \*\*p < .01. \*\*\* p < .001. †p < .10.

## Appendix J

### Gender as a Potential Moderator of Friends' Attributions

#### *Descriptive Statistics*

There were significant gender differences in some of the social information processing outcome variables. Females had higher mean levels of assertive behavior ( $t(353) = 2.25, p < .05$ ), sadness, and embarrassment, and lower levels of all types of aggression (see Table 1).

#### *Gender as a Potential Moderator*

A series of  $3 \times 3 \times 2$  (friend's attribution  $\times$  antagonist action cue  $\times$  gender) repeated measures MANOVAs and ACOVAs were conducted to determine if gender moderated the influence of both antagonist action cues and a friend's stated attributions on hostile attribution and negative emotional reaction, as well as aggressive and assertive response evaluation (Table J1). A friend's attribution and the antagonist action cue were considered within-subject factors and gender was considered a between-subjects factor.

The effects of situational context presented in the text remained significant with the inclusion of gender in the model. A main effect of gender quality was found for sadness, embarrassment, and aggression. Gender did not moderate the effects of situational context.

#### *Interpretation*

Situational context affects both genders similarly. The influence of a friend's comment is not more influential for females than males.

Appendix J (Continued)

Table J-1

Gender as a Potential Moderator of Situational Context as Demonstrated by Results from 3x3x2 Repeated Measures MANOVAs and ANOVAs

	Friend's		Antagonist Action		Gender		FAxAAC		FAxGender		AACxGender	
	F	$\eta^2$	F	$\eta^2$	F	$\eta^2$	F	$\eta^2$	F	$\eta^2$	F	$\eta^2$
Hostile Attribution	59.54***	.14	479.04***	.57	2.19	.01	5.30***	.01	2.50 <sup>†</sup>	.01	2.29	.01
Negative Emotion <sup>a</sup>	4.91***	.03	27.41***	.14	26.10***	.24	2.48**	.01	.47	.00	.63	.00
Sad	.59	.00	14.65***	.04	68.38***	.17	1.12	.00	.16	.00	.47	.00
Mad	17.14***	.05	95.20***	.22	.13	.00	4.15**	.01	1.29	.00	1.67	.01
Scared	.72	.00	.91	.00	3.77T	.01	.74	.00	.23	.00	.73	.00
Embarrassed	1.77	.01	1.81	.01	41.00***	.11	4.06**	.01	.12	.00	.45	.00
Aggressive Resp Eval <sup>a</sup>	1.20	.01	27.95***	.11	7.24***	.06	2.11*	.01	.83	.00	.67	.00
Physical	1.45	.00	52.02***	.13	20.37***	.06	5.29***	.02	.98	.00	.30	.00
Relational	2.31	.01	22.90***	.06	9.22**	.03	.63	.00	.92	.00	.25	.00
Verbal	1.46	.00	44.01***	.11	14.64***	.04	.34	.00	.20	.00	.51	.00
Assertive Resp Eval	.36	.00	1.53	.00	5.09*	.01	2.66*	.01	.72	.00	2.34 <sup>†</sup>	.01

Note:  $\eta^2$  = Partial Eta Squared (effect size). FA = Friend's attribution of intent. AAC = Antagonist action cue. Resp Eval = Response evaluation.

<sup>a</sup>Multivariate results including all 4 emotions and all 3 types of aggressive response evaluation as the dependent variables.

\*p < .05. \*\*p < .01. \*\*\* p < .001. †p < .10.