BULLYING AND SOCIAL INFORMATION PROCESSING:
DO THE CHARACTERISTIC BIASES CONTINUE INTO ADULTHOOD?

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The purpose of the current study is to examine the self-report of childhood bullying experiences among college students and their current endorsement of aggression and biases in social information processing. Results indicated that bullies in childhood endorse higher levels of proactive and reactive aggression than those who were not bullies; childhood victims report higher levels of reactive aggression than non-victims. In relation to social information processing, a discriminant function analysis distinguished those who were bullies from those who not bullies on measures of possessing a positive attitude toward aggression and having a low self-efficacy in their belief to stay out of fights. Contrary to previous literature, victims of childhood bullying were no different on scores of hostile attribution bias from non-victims. In conclusion, the current study found support that some of the biases that are characteristic of bullies in childhood were biases for those with a childhood history of bullying.

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Overview

Research on bullying is a relatively recent field of study, especially in the United States (Nansel et al., 2001). Behavior is considered bullying when it involves an unprovoked physical, verbal, or psychological attack on a victim, where there is an imbalance of power, and the behavior is repeated over time (Farrington, 1993). Bullying can involve physical aggression, verbal aggression, and social manipulation. Bullying has mainly been tested in children; however, measurement of bullying in adults is an emerging area in the literature (Smith, Singer, Hoel, & Cooper, 2003). Roles in bullying include the pure bully, pure victim, being both a bully and a victim, and not being involved in bullying.

The current study also measured type of aggression. Proactive and reactive aggression are theoretical constructs that combine the two main competing theories of aggression (Dodge, 1991). Proactive aggression is instrumental and goal directed. Reactive aggression is an angry and defensive reaction to a social cue. Research suggests that bullies fit the characteristics of proactively aggressive individuals and that victims fit the characteristics of reactively aggressive individuals (Camodeca, Goossens, Terwogt, & Schuengel, 2002; Salmivalli & Nieminen, 2002).

Further, the current study sought to measure bias that individuals have when deciding how to react in a social situation. Dodge’s (1986) social information processing model provides a heuristic to conceptualize how individuals use social cognitions to decide how to behave when given a social cue. The revised model (Crick & Dodge, 1994) contains six steps delineating the process that individuals navigate in order to identify and enact an appropriate response. These steps include (1) encoding of the
presented social cue, (2) identifying a meaning and interpretation of the cue, (3) reviewing of the goals for behavior that is to be enacted, (4) generating a list of possible responses to the cue, (5) selecting a response, and (6) enacting the selected response. Biases at any of these stages may lead to aggressive behavior (Dodge, 1986).

Proactive and reactive aggressive individuals are differentiated by characteristic biases during social information processing. Reactively aggressive individuals make hostile attribution errors, which is the probability of attributing hostile intent to another person when the condition does not merit hostility. Proactively aggressive individuals have a positive attitude toward aggression, have positive expectations for their aggressive behavior, and have high self-efficacy regarding their ability in carrying out the aggressive behavior (Crick & Dodge, 1996).

The biases discussed previously have been demonstrated in children repeatedly. However, it is unclear whether these biases exist in adulthood. The current study sought to test if these biases are still apparent in people who were bullied or who were the bullies in childhood.

Participants were asked to answer surveys designed to measure roles associated with bullying behavior during their childhood, levels of aggression, and different bias that occur during social information processing. It is hypothesized that self-reported victims of bullying in childhood would be more reactively aggressive than nonvictims and would attribute hostility to ambiguous situations. Those who were bullies would be more proactively aggressive than nonbullies and exhibit a high general self-efficacy, positive attitudes toward aggression, and positive expectations for aggression.
The current study found that those who were bullies in childhood were more likely to endorse proactive aggression and reactive aggression and those who were victims were more likely to endorse reactive aggression. Hostile attributional bias was not found to be significantly related to being a victim in childhood in the current sample. A discriminant function analysis indicated a low belief in ability to control anger and possessing a positive attitude toward aggression discriminated between those who were bullies in grade school and those who were not. The prediction rate for those not involved in bullying was high; however, the rate of correctly identifying those involved in bullying was low.

The current study found that some of the biases that individuals endorsed from the social information processing model could be used to predict past bullying experiences, indeed some of the characteristic biases appear to continue into early adulthood. Future research should focus on other steps in the model. Also, better measures for hostile attributional biases should be created due to the low internal consistency found in the current research. Additionally, it would be helpful to use an older population, who are further removed from grade school bullying, to assess if the social information processing biases exist among older adults.
Definitions of Bullying

Numerous bullying definitions have been used in research. Farrington (1993) asserted that there is a consensus among researchers that a definition of bullying include the following elements: (1) a physical, verbal, or psychological attack or intimidation that is intended to cause fear, distress, or harm to the victim; (2) an imbalance of power; (3) behavior that is not provoked by the victim; (4) and behavior that is repeated by the same individuals over a prolonged period. This definition is the working definition used by the majority of researchers in the bullying literature included in the current review. All studies reported in this review contain these components and these components are reflected in the measures used.

Bullying will be conceptualized for the current study using the above definition. Behaviors that are not considered bullying include fighting between two people of similar strength. Single aggressive acts or the occasional fight between people can be considered bullying if either the acts are severe enough or if the victim anticipates future victimization by the same person. Indeed, the fear of being bullied again is as important as an actual repetition of the behavior (Randall, 1997).

Bullying does not include mild teasing which has a less severe connotation. Teasing involves a playful element in addition to aggressiveness. Land (2003) found evidence from data collected with high school students to support this differentiation. Specifically, Land (2003) collected data from 147 students by asking them to give an example of bullying, an example of teasing, and an example of sexual harassment. Participants reported that teasing is associated more with playing and joking than bullying. They reported that repetition of the behavior was indicative of both bullying and
teasing. The students reported that bullying and sexual harassment involved physical behaviors whereas teasing did not.

For the purposes of the current study bullying will not include fighting between siblings. Although some sibling fighting can be categorized as bullying most research in childhood bullying uses either peer or teacher report and, thus, sibling bullying was not assessed. Some researchers employing self-report methods specifically instruct respondents not to include siblings when asked about bullying (Haynie et al., 2001). Only one study (Ahmed & Smith, 1994) included bullying between siblings in their definition of bullying. The family dynamic is fundamentally different that the peer relationship which would appear to confound any studies that involve sibling bullying with peer bullying.

**Types of Bullying**

Bullying behavior can be divided into three main types. The first type is physical bullying which includes any physical contact that is meant to harm the individual including hitting, kicking, fighting, chasing, pushing, or shoving. The second type of bullying is verbal aggression. Verbal aggression is conceptualized as any message exchange which involves an attack of the character or threat that is meant to be hurtful. Attacks that are made are personal to the victim and are often direct attacks on character or appearance (Atkin, Smith, Roberto, Feduik, & Wagner, 2002). Verbal aggression can be both direct and indirect, although the line between indirect verbal aggression and social manipulation is not clear (Björkqvist, Lagerspetz, & Kaukiainen, 1992). Social manipulation is the third type of bullying. Social manipulation has been referred to as indirect aggression (Björkqvist, Lagerspetz, and Kaukiainen, 1992; Rivers & Smith,
1994) and relational aggression (Crick & Grotpeter, 1995). Social manipulation typically uses the social network to inflict harm on the target (e.g., excluding someone from the group). Researchers have at times included destruction of property as a separate type of bullying (Mynard & Joseph, 2000), but this is not as well established in the literature as the other forms.

**Gender Differences.** Gender differences are apparent in previous literature in the types of bullying behavior being perpetrated. Olweus (1993a) found that boys are more often bullies than girls. Lagerspetz, Björkqvist, and Peltonen (1988) reported that among 11 and 12 year-olds, boys were more physically aggressive than girls. Boys were more likely to kick, hit, or shove when they were angry due to a provocation.

Some research (Atkin et al., 2002) has identified males as perpetrating more verbal aggression than females (although it is a small difference). Other research (Rivers & Smith, 1994) has identified females as more verbally aggressive than males. However, the research by Atkin et al. (2002) is considered the more applicable to the current literature review both because it uses a United States sample and it is more recent.

Social manipulation has been shown to be more commonly used and experienced by females (Björkqvist et al., 1992; Crick & Grotpeter, 1995; Lagerspetz et al., 1988). Research by Lagerspetz and colleagues (Björkqvist et al., 1992; Lagerspetz et al., 1988) found that at age eight, boys’ and girls’ social groups structures did not differ but they did by age eleven, in part, explaining the difference between the age groups for using social manipulation. Furthermore, girls use more indirect bullying behaviors to intimidate. These studies found that when angry, girls preferred using more social manipulative types of aggression than boys. Girls were more likely than boys to prevaricate and spread
rumors. Girls are also more likely than boys to use changes of allegiance or to ignore victims in order to hurt their feelings. Other studies have assessed gender differences of social manipulation. Crick and Grotpeter (1995) found that girls were far more likely to use social manipulation aggression against their peers (17.4% of girls vs. 2.0% of boys). Specifically, girls were more likely to tell friends that they will not be their friend if they do not do what they say or ignore others or threaten to not talk to them.

*Age Differences.* There is evidence that the rate of bullying decreases as the population being studied gets older (Devoe et al., 2002; Nansel et al., 2001). Devoe et al. found that 14.3% of students in the 6th grade reported being victimized while at school during a six month period. During the same time period, 2.4% of 12th graders reported being victimized. The grades between 6th and 12th exhibited a steady decline in the percentage of victimization. Nansel et al. found that among those who reported victimization weekly, the percentages decreased as the grade in school increased. Specifically, 13.3% of participants in the 6th grade reported being bullied weekly; 4.8% of participants in the 10th grade reported being bullied weekly. This decline in bullying prevalence may be due to an actual decrease in bullying behaviors or may be due to responding in a socially desirable manner, a tendency that increases with age when individuals are socialized (Paulhus, 1991).

Children at different ages utilize different ways to bully others. The amount of physical aggression decreases with age as children advance to more subtle types of aggression. Craig (1995) found a significant difference between the use of physical aggression for children in grades four through six and children in grades seven and eight.
Atkin et al. (2002) found that 15-year olds used more verbal aggressive acts than 13-year olds.

Björkqvist et al. (1992) assert that younger children have not developed nor do they require involved social networks until they get older and their verbal skills have developed. Thus, indirect bullying behaviors are typically only exhibited by older children and are usually the last of the bullying behaviors to develop. Indeed bullying behaviors across ages are different in this respect as shown in research comparing eight-year olds and 11-year olds. Another function of age is that children learn better, more subtle techniques of aggression (so as not to look like the responsible party) as they grow older and practice and refine their bullying behavior.

Roles Taken in Bullying

Bullying involvement has been traditionally divided into four groups: pure bullies, pure victims, bully/victims, and neither bullies nor victims (Olweus, 1978). Researchers have found that earlier bullying is highly correlated with later bullying and early victimization is correlated with later victimization (Olweus, 1993b; Salmivalli, Lappalainen, & Lagerspetz 1998; Stephenson & Smith, 2002; Sourander, Helstelä, Helenius, & Piha, 2000). Camodeca et al. (2002) found bully and victim status was stable for a one-year period. Further, it has been demonstrated that being a victim persists, even when the victim changes schools (Salmivalli et al., 1998) as does bullying behavior (Boulton & Smith, 1994).

Bullies are usually friends with bullies who support the aggressive attitudes. Bullies have a more positive attitude toward violence and are more impulsive than their non-bully peers (Olweus, 1993a).
Victims are often physically smaller and are more passive than nonvictims (Schwartz, Dodge, Petit, & Bates, 1997). Victims are not usually liked by their peers (Olweus, 1993a). Coie, Dodge, Terry, and Wright (1991) found that the most common response of victims to the bully is submission (48% respond in this manner). The victims defended themselves in 32% of the situations; in only 9% of the situations did the victim escalate the level of aggression.

In one study using children in the sixth, seventh, and eighth grades, researchers found that more than half of those who bullied were also victims (Haynie et al., 2001). Unnever (2005) conducted a study comparing the experiences of those who are both bullies and victims to those who were pure bullies and pure victims. Results from the study indicated that those who were both bullies and victims were twice as likely to utilize physical forms of bullying as pure bullies. They were less likely to utilize verbal aggression that pure bullies. There was no difference in the bullying frequency though from pure bullies. In relation to pure victims, those who were both bullies and victims were more likely to be victims of physical bullying than pure victims. However, there was no difference in victimization frequency between those who were both bullies and victims and pure victims.

The noninvolved group has been used as a control group in bullying literature, and indeed is used in that capacity in the current study. However, Salmivalli et al. (1998) differentiated noninvolved students into categories that included the “bully assistant”, “reinforcer”, “defender”, and “outsider”. The assistant followed the bully’s lead and joined in with the bully. Reinforcers were by-standers who may have cheered on the bully or appear to have cheered on the bully by their mere presence. Defenders were
supporting and consoling and made efforts to stop the bullying. Outsiders stayed outside of the bully situation.

Importance of Studying Bullying

Prevalence and Situations in which Bullying Occurs

Bullying is an important area of research because of increasing prevalence rates over time, bullying’s use in an increasing number of situations, stability of bullying, and the short- and long-term consequences. Prevalence rates of bullying have been estimated in European countries for 20 years. Prevalence studies in the United States have only recently been conducted and are still small in number. Recent studies have shown that the prevalence of bullying is generally on the rise. According to the National Center for Education Statistics, 8% of students reported they had been bullied at school in the previous 6 months in the year 2001, an increase from five percent two years previously (DeVoe et al., 2002).

There are two large prevalence studies that include a representative sample of youths in the United States. Devoe et al. (2002) presented results from a nationwide project sponsored by the Bureau of Justice Statistics and the National Center for Education Statistics from data gathered in 2001. The study included students in grades six through 12; the number of participants was over 24 million. A dichotomous question was posed, asking if the participants had been bullied at school in the previous six months. 8.6% of males and 7.1% of females answered that they had been victimized in the previous six months, with an overall percentage of 7.9%.

The second large prevalence study was conducted by Nansel et al. (2001); participants included 15,686 students in the sixth to tenth grade and were a nationally
representative sample as designated by the National Institute of Child Health and Human Development. Respondents were given a definition of bullying that is very similar to the definition being used in the current study. The definition included the important elements of what is bullying: unpleasant events that are repeated and the requirement of a power differential. This study included a question of frequency, an advantage over Devoe et al. (2002), which only asked about bullying in a dichotomous form. Approximately 21% of boys reported being the victim of bullying sometimes or weekly in the current school term in which the survey was given; 14% of girls reported being the victim of bullying during the same period of time.

The percentages from Nansel et al. (2001) are larger than the percentages reported by Devoe et al. (2002). However, there are significant differences between the two studies in methodology. It is unclear what the total time period was for the Nansel et al. study; in the article, they did not define how much time a “term” was. A “term” may be longer than the six month time period asked by Devoe et al. Another explanation for the larger percentage in the Nansel et al. study is that Nansel et al. asked about victimization both while in school and away from school. Devoe et al. asked specifically about victimization in schools.

With the advancements in technology, the act of bullying has expanded to the internet and through other electronic communications. A survey by the National Children’s Home in 2002 found that 27% of students had been bullied through e-mail, text messages, or in internet chat rooms. Jerome and Segal (2003) reported three cases of on-line bullying they had seen in their clinical practice. The age of the individuals are unknown, however, they were all in grade school. In these cases, the bullies built web
pages about their victims and encouraged the victim’s peers to post negative comments about them. Jones (2002) brought attention to this new form of bullying that can be especially harmful because of the ease of dissemination of rumors and an inability to reverse the harm once released on the internet. Griffiths (2002) stated that this type of bullying can be particularly damaging to the victim because the print is permanent and can be read again and again. Further, bullying using the internet can be done anonymously, possibly increasing the use of the internet because of the lack of repercussions.

Immediate Effects of Bullying

Bullying has been shown to have an immediate negative effect on those being bullied. Hawker and Boulton (2000) conducted a meta-analysis of bullying and found that research resoundingly demonstrated that victims are more depressed than their non-bullied peers. Victims are lonelier than those who were not bullied, reported more generalized anxiety and social anxiety, had lower self-esteem, and a poorer social self-concept. Perry et al. (1988) found that victims had the highest rate of peer rejection. Nansel et al. (2001) studied the psychosocial adjustment of victims, bullies, and those who were both bullies and victims. They found that children who were bullied were 33 times more likely to self-report being very lonely than students not involved in bullying. Victims responded that it was very difficult to make friends twice as often as those who were not victims.

Bullies are more likely to participate in other antisocial activities such as using alcohol and smoking tobacco (Nansel et al., 2001). Bullies also have more difficulty in
school and have trouble achieving academically. They received higher scores on externalizing behaviors such as being disobedient and lying (Kumpulainen et al., 1998).

Children who were both bullies and victims showed the least optimal psychosocial functioning as measured by problem behaviors, lack of self-control, lower social competence, depressive symptoms, and poorer school functioning than the pure bullies, pure victims, and noninvolved children (Nansel et al., 2001). It is hypothesized that members of this group may not be able to form meaningful friendships with peers and are seen negatively because of their aggressive behavior (Unnever, 2005).

*Long-term Effects of Bullying*

Both the bully and the victim can experience long-term effects. Olweus (1993b) found that children who were victims in the sixth grade had higher levels of depression and a more negative view of themselves at age 23. Smith et al.’s (2003) findings suggested a continuation of bully experiences from childhood to adulthood. Those respondents who reported being the victim of bullying in childhood were more likely to have been bullied at work in the previous five years before the study than those who had not been bullied in childhood, 20 to 30 years later. This was a modest association though; indeed many school victims were not victims at work nor were all work victims bullied during school.

Research of long-term consequences of bullying experiences has focused on the victim. Most of the research that has focused on the long-term consequences of being a bully is limited to following those who were generally aggressive rather than the smaller subset of bullies. Huesmann, Eron, Lefkowitz, and Walder (1984) found that participants who were aggressive as eight-year old children were more aggressive as 30 year-olds.
They were more likely to have served jail or prison sentences than their nonaggressive counterparts. Olweus (1993a) found supporting data for this assertion, specifically, 60% of boys who exhibited bullying behavior as children had at least one conviction by age 24. Nansel et al. (2001) found that bullies were likely to commit status offenses such as drinking alcohol and smoking cigarettes which may lead to long-term difficulties not only with the judicial system but also with their personal health.

Those children who are both bullies and victims have the poorest long-term outcome as they experience a combination of the long-term consequences of both bullies and victims. Their social isolation and poor school adjustment may have implications for future education and career goals (Haynie et al., 2001).

Bullying in Adults

Research with an adult population concerning bullying is limited, indeed the amount of systematic study decreases as age of participant increases. Few studies have been conducted concerning bullying in college and the workplace.

Chapell et al. (2004) studied college students and their self-report of bullying experiences during college. Participants included 1,025 student with a mean age of 21.2 (SD=4.3). Most of the participants were upperclassmen. Participants were provided with a definition of bullying adapted from Olweus’s definition provided in his questionnaire; the definition was tailored to a college population. The definition is similar to the definition provided participants in the current study as they are from the same questionnaire. Frequency was assessed on a four-point scale ranging from never experiencing bullying to experiencing bullying very frequently. 6.1% of participants responded that they had been victimized by another student in college occasionally or
very frequently. 5.1% of participants reported that they had bullied another student in college occasionally or very frequently. The researchers also asked about victimization by teachers in college. 4.7% of the respondents reported that they had been victimized by a teacher while in college; however, 14.7% of students reported seeing another student victimized by a teacher.

Smith et al. (2003) conducted a study of over 5,000 adults (mean age 40.2 years, SD=9.8) who worked in a wide range of occupations. Participants were provided a definition of bullying that is very similar to the definition supplied in this review (indicating that the behavior was repeated over time and a power differential between the bully and the victim) and were asked if they had been bullied at work in the previous five years. Results indicated that 22% of males and 28% of females report being victimized in the workplace. These percentages appear to be larger than what would be expected from prevalence studies conducted using children and adolescents. However, the time period is five years and the question tapping the variable was dichotomous (yes/no) which may erroneously inflate the number.

Quine (2002) collected a survey of 546 medical students and inquired about victimization. A bullying definition was supplied and respondents were asked if they had experienced bullying in the previous 12 months. Respondents were also asked if they had experienced 21 bullying behaviors. The results suggested that 37% had been the victim of bullying. 84% had experienced at least one of the 21 bullying behaviors. This is not considered bullying because the behavior was not necessarily repeated. Frequently endorsed behaviors include attempts to belittle and undermine the victim’s work,
persistent unjustified criticism, persistent efforts to humiliate the victim, and attempts to undermine the victim’s integrity.

Hoosen and Callaghan (2004) conducted a similar survey to that of Quine (2002) but using a sample of psychiatric trainees. The same questionnaire was used in both studies. Out of the 177 respondents 47% had experienced at least one of the bullying behaviors in the previous year. There was no percentage provided to assess how many of these participants fit the actual definition that requires repeated behaviors. An addition to the literature from this study concerned the reporting of victimization to those who could provide help. Few of the victimization experiences were reported and most had unsatisfactory results when the victimization was reported. Hoosen and Callaghan posit that most of victimization goes unreported due to the possible negative consequences. Specifically, bullying by superiors may be underreported due to the victims’ dependence on acquiring references. Further, there is a desire to not “rock the boat” and risk being alienated in their studies.

The prevalence of bullying in the workplace seems to contradict the steady decrease in bullying prevalence rates during grade school as reported earlier in this review (Devoe et al., 2002; Nansel et al., 2001). While it appears that bullying may decrease with age there is never a total cessation of bullying experiences. Further, the school yard and the workplace are different environments. In the workplace, there is competition for promotions which may encourage both bullying behaviors and the belief that others are attempting to undermine work. Further, the Quine (2002) and Hoosen and Callaghan (2004) studies used a population in a highly competitive environment where another’s failure may increase personal standing.
Social Information Processing

Dodge (1986) formulated a model to explain how social cognitions are interwoven with social behaviors. Specifically, he hypothesized a model that could be applied to understand why someone would choose an aggressive response. He postulated that biases in social cue interpretation would lead to an aggressive act. In his model, a bias in thinking often belies the true intent of another’s actions.

Dodge integrated and elaborated on previous models that focused on social skills deficits. Previous models were problematic because they often searched for a single factor that could predict aggression such as deficits in role-taking, problem solving, or low empathy. The models also ignored the fact that aggressive behaviors are situation specific. Finally, the models did not postulate a theory of why social cognitions lead to aggressive behaviors (Dodge, 1986).

Dodge’s (1986) model describes how people respond to social cues using social cognitions. He posits that people begin with a body of biologically determined capabilities and storehouse of past experiences, socialized rules and knowledge, and schemas. The storehouse contains memories and information gathered by the individual over time. These capabilities and memories are personalized to each individual. Social cues are received by the individual. In a series of steps, the individual processes the presented social information using the aforementioned biologically determined capabilities and memories of past experiences. The steps the individual takes to process social cues occurs rapidly and sequentially. Every step is experienced although not necessarily at a conscious level. When a situation is novel or unfamiliar, the steps may be
slower and at a conscious level. Dodge makes the assertion that either consciously or unconsciously, the individual invariably uses all social information processing steps.

Deviant responses to social cues are due to a failure to respond in a skillful or unbiased manner. Because individuals have different biological information and social experiences, their processing is individualized. The model provides a way to hypothesize how individuals understand and interpret social situations as a function of their past experiences and innate abilities (Dodge, 1986).

Crick and Dodge (1994) further developed the original model reflecting advances in conceptual and empirical innovations in psychology. This model differs from Dodge (1986) in that it provides more linkages between steps of processing. This is represented by the change of the model’s shape, originally linear, to the circular shape of the newly formulated model. The change to a circular model also addresses concerns of researchers who believe that social information processing follows a simultaneous parallel path instead of the more rigid, sequential steps. The reformulated model accounts for this by presenting the model as circular and providing feedback loops in processing; the sequential steps are retained, however, in the belief that the model provides “heuristic value for understanding the processing of a single stimulus” (p. 77).

There are six steps in the reformulated model of social information processing. For a pictorial representation of the steps, see Figure 1 (page 21). The first step is the encoding process of the social cues received through the senses. Encoding the cues involve attending to appropriate cues and chunking information. Heuristics are often employed to economically encode information. Deficient or inaccurate encoding of social cues, such as not encoding all available cues, may lead to deviant responses. Cues may be
Figure 1. A reformulated social-information processing model (Crick & Dodge, 1994).
selectively encoded to support future interpretations (Crick & Dodge, 1994; Dodge, 1986).

The second step in social information processing is the mental representation and interpretation process. Cues are integrated with past experiences producing a meaningful understanding of the social situation. This skill develops with age as the individual constructs and refines decision rules for understanding the social situation. Cognitive heuristics, schemas, scripts, and working models of relationships are used in order to guide processing at this step, making processing more efficient. As in the first step, deficiencies at this level will lead to cognitive biases while interpreting the cues. One example of this is the hostile attribution error, which will be discussed subsequently. Also, some individuals see aggression as normal and will acquire scripts and schemas that use aggression. Further, schemas may be malleable to deviant interpretations and thus encourage problematic behavioral responses. Interpretations made during this exchange will have an effect on future encoding and interpretation of social cues (Crick & Dodge, 1994; Dodge, 1986).

The third step is the only step added during the reformulation (Crick & Dodge, 1994); this is the step where the individual makes a clarification of goals for the social situation. Individuals begin with certain goals due to past experiences that may be revised in regard to the current social situation. Goals can be internal or external to the individual. Examples of goals include self-survival, retaliation, obtaining a reward, and developing social relationships. Inappropriate goals are relationship damaging and will result in deviant behavior (cf., positively socially adjusted individuals who will chose
goals that are relationship enhancing). This step was originally a part of the next stage, however, by separating this step out, more attention and research may be focused on it.

The fourth step involves the search for possible behavioral responses that are appropriate to how the social information was encoded, interpreted, and to what goal the individual is working toward. Available responses are constructed through the socialization process and are selected using a combination of past experiences, the ability to generate responses, rule structures, and the processes used in resolving the previous steps. When the situation is novel, new responses may be constructed to respond to social cues. If the previous steps have been conducted in an aberrant way, deviant responses will be generated. Deviant responses may occur at this step if the individual has inadequate search skills or has conducted a biased search (Crick & Dodge, 1994; Dodge, 1986).

Step five involves choosing a response to the social situation (Crick & Dodge, 1994; Dodge, 1986). Responses are chosen carefully as they may be situation specific (effective only in a specific situation) and involve specific behavioral capabilities concerning the individual’s ability to carry out the decision. Further, an analysis of consequences must be performed. Estimations of consequences may be biased by the previous steps or due to past experiences. The response is decided upon by considering outcome expectations and self-efficacy evaluation. The individual may need to return to step four for additional response generation if there are no satisfactory response choices available. If, during step two, the individual made a hostile attribution to the other person’s intent, the response chosen will mirror this and will more likely be aggressive.
The mistake of an overestimation of positive consequences may lead the individual to choose an aggressive response.

The sixth and final step of social information processing occurs when the response is enacted (Crick & Dodge, 1994; Dodge, 1986). This is the culmination of the process. Verbal and motor skills that have been developed through rehearsal, feedback, and practice are employed to act out the chosen response. An individual’s previous experience with the chosen response will influence the response’s effectiveness.

At the conclusion of step six, the other(s) involved will react to the individual’s chosen behavior which constitutes a new social cue restarting the social information processing. The other person’s response will be incorporated into the individual’s memories of past experiences that will influence how the steps will be processed during future social situations (Crick & Dodge, 1994; Dodge, 1986).

Dodge’s (1986) model and Crick and Dodge’s (1994) reformulated model have been supported by empirical evidence. Most of the research presented is of data from Dodge’s and colleagues’ laboratories. However, the model has found support in the United States and in other countries by numerous other researchers including VanOostrum and Horvath (1997), Andreou and Metallidou (2004), and Orobio de Castro, Slot, Bosch, Koops, and Veerman, (2003).

Results of social information processing studies support differences between aggressive and nonaggressive children in each step of social information processing model and data supports that a combination of factors best predicts aggression. Also noted is that predictions of social behavior are situation specific. This indicates that the behavioral response in one domain does not significantly predict the behavioral response
in another domain. There may, however, be a general processing pattern, due to the marginal cross-domain predictability of aggression (Crick & Dodge, 1994; Dodge, 1986).

The research presented concerns the application of social information processing to aggressive individuals. However, social information processing has also been applied to other types of individuals including prosocial youth (Nelson & Crick, 1999). During stage two, unlike aggressive children, prosocial youth were less likely to make hostile attributional errors and more likely to make benign attributions; they were also less distressed concerning the provocation than non-prosocial youth. Prosocial participants were more likely to make positive evaluations of prosocial behavior responses. Further, they were more likely to scorn instrumental goals and instead support relational goals (Nelson & Crick, 1999).

Proactive and Reactive Aggression

Researchers have sought to define aggression since the beginning of psychological research. Two models of aggression have dominated the field. The frustration-aggression model identified by Dollard, Doob, Miller, Mowrer, and Sears (1939) and refined by Berkowitz (1962) states that aggression is an angry reaction to a perceived frustration, be it competition for scarce goods or the belief that a rival is acting in a hostile manner. Berkowitz (1990) later postulated that an aggressive response is more likely to occur when activated by negative emotions such as sadness. Vitiello and Stoff (1997) identify the highly affective quality of this type of aggression. Arousal levels are high and current emotional states can have an effect on an aggressive act being utilized.

The second model is by Bandura (1973) who forwarded a model of aggression based on social learning. This model asserts that aggression is a socially acquired
instrumental behavior motivated by reinforcement. With the social learning model, Bandura explained aggression is instrumental in order to gain rewards. In the context of social learning, aggression is developed through learning and reinforcement; when rewards are acquired, the individual’s use of aggression is validated and continued.

Proponents of each theory recognize the validity of the other. Berkowitz (1962) admitted “aggression…can be a part of a strategy for winning rather than the irrational product of frustration-engendered emotions” (p. 166) and Bandura (1983) conceded that his own theory explained a great deal of aggression, but not all. Dodge and colleagues (Dodge, 1991; Dodge & Coie, 1987) have posited a combination of these two dominating theories of aggression.

Dodge (1991) discussed Dollard et al.’s (1939) theory as reactive aggression which is an angry and defensive response to a threat and is thus situation dependent. Bandura’s (1973) model was termed proactive aggression which is instrumental and goal-directed and is focused on perceived gains from the behavior, be it a monetary gain, status gain, etc. It is the perceived outcome of aggression that pulls for the behavior of the proactively aggressive individual and the perceived frustration that pushes for a reactively aggressive behavior. Dodge writes that among children, proactive aggression manifests in the form of “object acquisition, bullying, and dominance of a peer” (p. 205). Reactive aggression is not as positively viewed as proactive aggression and can be seen in temper tantrums and retaliatory aggressive acts. Dodge’s theory successfully combines Berkowitz and Bandura’s theories of aggression into a unitary construct.

There are two main critiques to the proactive/reactive aggression dichotomy. First, it may be at times difficult to distinguish between proactively and reactively
aggressive acts when the aggressive act is delayed. Some victims may delay action as to have a larger impact or to gather resources. The aggressive act is in reaction to a previous event that may not be readily apparent to an observer (Dodge, 1991). An example of this in current events is the Columbine shooting. The shooters had experienced bullying and their spree was a reaction to the bullying, however, outside observers may not have seen the bullying which did not occur on the same day as the shootings. In observational research, Dodge and Coie (1987) identified two criteria to distinguish an aggressive act as reactive or proactive. The behavior is rated on height of arousal. If the child showed higher arousal, the behavior was deemed to be reactive. The second criterion is the time difference between the provocation and the response. Indeed, even though provoked, if the child took time to formulate and plan then the aggressive act would become instrumental instead of reactionary. In reference to the Columbine shootings, the high schoolers used proactive aggression in order to assert their dominance and kill the students who had bullied them.

A second critique is that proactive and reactive aggression are highly correlated as shown in numerous studies (Brown, Atkins, Osborne, & Milnamow, 1996; Camodeca et al., 2002; Day, Bream, & Pal, 1992; Dodge & Coie, 1987; Price & Dodge, 1989) and thus may not be a helpful distinction for research or clinical application. However, further review of the scales used in the Dodge and Coie (1987) study indicated that items within the scales have a higher inter-item correlation than the items between-scales.

Kempes, Matthys, de Vries, and van Engeland (2005) assert that the high correlations between proactive and reactive aggression may be due to the inability for observers to identify the type of aggression used in a specific situation. As noted
previously, there are ways to distinguish proactive aggression from reactive aggression (height of arousal, time period between provocation and response). However, these are not as easily observed by teachers, who are the primary reporters in studies of children.

From a theoretical point of view, the distinction between proactive and reactive aggression is useful in understanding the differing processes that occur which result in an aggressive behavior. Proactive aggression and reactive aggression are fundamentally different and are used in fundamentally different ways. It seems probable from the high correlations, that many individuals are pervasively aggression, that they utilize both proactive and reactive aggression. However, due to the different purposes of the two types of aggression, it is necessary to retain the distinction.

Research by Poulin and Boivin (2000) supported the two factor model. A confirmatory factor analysis was conducted. Over multiple studies presented in the same paper, the two factor model’s chi-square was significantly less than the chi-square for the single factor model. This result indicated that the two factor model is the better fit. Specifically, Poulin and Boivin researched a pattern of social-adjustment variables that differentiate those who are proactively and reactively aggressive. Partial correlations were computed to assess the relationships between type of aggression and social variables while controlling for the other type of aggression. Reactively aggressive individuals were associated with higher levels of peer victimization. Further, leadership was negatively associated with reactive aggression and positively associated with proactive aggression. Finally, social withdrawal was positively associated with reactive aggression and negatively associated with proactive aggression. So despite the considerable correlations
between proactive and reactive aggression, it remains useful to distinguish these types of aggression as the social consequences are very different.

Other evidence that supports the idea that reactive and proactive aggression are separate constructs that can be measured can be found in the physiological evidence. A review of the literature by Vitiello and Stoff (1997) found evidence that impulsive aggression, aggression that is accompanied by fear and anger, was associated with decreased serotonin levels. Individuals with non impulsive aggression, aggression that is goal-oriented, typically have lower than normal arousal levels and lower skin conductance.

Despite these differences in social-adjustment and physiological measurements, there is evidence that individuals can fit into both categories of aggression. Indeed, Dodge, Lochman, Harnish, Bates, and Pettit (1997) found that most of their sample exhibited both forms of aggression. Specifically, 53% exhibited equal amounts of proactive and reactive aggression, 32% exhibited primarily reactive aggression, and 15% exhibited primarily proactive aggression. Those who exhibit both types of aggression are considered to be pervasively aggressive. These individuals can both react aggressively to a perceived frustration and commit an aggressive act to achieve a goal.

Despite these critiques, the reactive and proactive aggression distinction is useful in both theoretical research but also in clinical practice. Specifically, in clinical practice, the practitioner may focus on a specific event and discuss with the client why a particular response was chosen. It is important to identify specific events as aggressive responding often follows a pattern and is situation specific (Vitiello & Stoff, 1997).
Further, different types of treatment have been shown to be effective for the separate types of aggression. Vitiella and Stoff (1997) assert that proactive aggressors can be treated using behavioral techniques to decrease the aggressive behavior. Further, those who are proactively aggressive can be helped through therapy to use aggression to gain reward instead of to harm other individuals. Pharmacological treatment has been shown to be useful in reducing the impulsive behaviors of those who are reactively aggressive. Further, psychosocial therapy can be employed to assist a client in reducing their hostility and arousal levels when provoked.

**Bullying and Proactive/Reactive Aggression**

Some researchers (Crick & Dodge, 1996; Price & Dodge, 1989) have found evidence to support that bullies act in a proactively and reactively aggressive way and that victims act only in a reactively aggressive way. Recently, other researchers and independent laboratories (Camodeca, Goossens, Terwogt, & Schuengel, 2002; Pellegrini et al., 1999; Salmivalli & Nieminen, 2002) have supported this assertion. Camodeca et al. (2002) found similar results to Dodge’s work among children who were seven-years old. Specifically, more bullies were proactively aggressive than was expected. Victims were more reactively aggressive than was expected. This study added to the literature by including information on those who were scored high on both the reactive and proactive scales. Those who were both bullies and victims scored more often than expected in the cell representing participants who were both reactively and proactively aggressive.

Salmivalli and Nieminen (2002) found similar results. They used both peer nominations and teacher reports to identify children’s bully status and the type of aggression exhibited. The participants in this study were 10- to 12-years old. Reactive
and proactive aggression were measured by eight items. A principal-components analysis with varimax rotation revealed the expected clean loadings for six of the items. Victims were more reactively aggressive than those who were not involved. Further, victims did not score differently on the proactive aggression questions than those who were not involved. Bullies were significantly higher in proactive aggression than victims and those who were not involved. The high association between bullying and proactive aggression is not unexpected. According to Dodge’s (1991) definition, bullying is a specific case of proactive aggression. Bullying is a method of gaining dominance over another individual (Crick & Dodge, 1999). There is a clear goal for the aggressive behavior. Thus those who are bullies are also proactively aggressive. The inverse, however, is not true. Those who are proactively aggressive are not necessarily bullies.

Dodge and colleagues (Dodge & Coie, 1987; Price & Dodge, 1989) have assessed children’s perception of proactive and reactive aggressors. They found that children who were involved in high rates of reactive aggression were disliked by their peers. This was not true for children who were involved in high rates of proactive aggression. This is consistent with the bully literature, where the victims are more disliked by their peers than the bullies (Dodge, 1991; Olweus, 1993a).

Social Information Processing and Proactive/Reactive Aggression

The social information processing model (Crick & Dodge, 1994; Dodge, 1986) focuses on biases in processing that will result in aggressive behavior. A combination of specific biases result in a child exhibiting proactively and/or reactively aggressive behavior. A pattern of characteristic social biases emerges among proactive and reactive aggressive individuals that may be used to identify them.
Crick and Dodge (1996) hypothesized that individuals who are reactively aggressive have a bias in step two (mental representation and interpretation) in that they attribute hostile intent to ambiguous situations and would thus react with a retaliatory response. Further, they hypothesized that individuals who are proactively aggressive have biases in steps three (goal selection), four (response search), and five (response decisions). Proactively aggressive individuals focus on goal attainment (i.e., the goal pulls for a behavior). These individuals choose goals that are instrumental in nature. Responses generated in step four will support the individual’s outcome expectancies. During step five, the response will be chosen that also support their perceived positive outcome expectancies. Further, the individual will incorporate their feeling of self-efficacy in performing the behavior during the response decision. These specific social information processing variables will be discussed subsequently.

Berkowitz (1977) demonstrated that the individual’s interpretation of the intention of the other person is related to their response choice. Milich and Dodge (1984) systematically studied how, when the provocateur’s intent is unknown, aggressive children may attribute hostility to an ambiguous act. If the individual processes the provocateur as acting aggressively, a retaliatory response will be chosen thus demonstrating reactive aggression. Dodge (1986; 1991) hypothesized that this is a bias in the second step of social information processing which leads people to make this type of aggressive interpretation. The bias is processed from past experiences and may result from an expectation of being the victim of aggression due to the individual being the victim of aggression previously. This is apparent in Dodge’s (1986) and Crick and Dodge’s (1994) model that identified a storehouse of previous experiences that is
accessed in order to interpret the current social cue. Fittingly, this is characteristic of reactively aggressive individuals and thus of victims who are the repeated victim of aggression. Called hostile attributional bias, this is the probability of attributing hostile intent to another person when the situation does not warrant hostility. If the individual has been the victim of previous aggression, that heuristic would be activated easily, thus attributing hostility to the current social cue. Dodge and Newman (1981) found that a hostile attributional bias most likely occurred when the social cues were selectively encoded for hostility (step one).

Hostile attributional bias has been demonstrated in research by Dodge and Coie (1987) who found that reactively aggressive boys (in first through third grades) were inaccurate in interpreting peers’ cues. Specifically, they found that the reactively aggressive group of boys attributed hostile intention to ambiguous situations; the proactively aggressive group did not differ from nonaggressive children in the amount of hostile attributions. More recently, Orobio de Castro, Merk, Koops, Veerman, and Bosch (2005) found supporting results among aggressive boys aged seven to 13. Partial correlations were computed to assess the unique relationship between type of aggression and hostile attributional bias. With the effects of proactive aggression partialed out, a significant correlation was found between reactive aggression and making hostile attributions. On the other side, children who were proactively aggressive were not significantly associated to hostile attribution scores after the effects of reactive aggression were partialed out.

The research discussed above was all conducted with children who were younger than 18. Homant and Kennedy (2003) created a pencil-paper assessment to measure
hostile attribution in adults. Participants included undergraduate students whose ages ranged from 18 to 56 years. Homant and Kennedy (2003) hypothesized that participants with hostile attributional styles would perceive hostility in ambiguous situations. Questions involved measuring responses about ten commonly frustrating events. Results supported the original hypotheses that high hostile attributional scores were significantly related to rating an aggressive response as justified in ambiguous situations.

Research has shown that hostile attribution can be influenced by priming negative feelings. When alerted to possible hostile intent, children may access representations of hostile memories more easily and thus attribute hostility when the situation is ambiguous. Victims, who face, by definition, continuous physical, verbal, and emotional abuse, have many representations in their thoughts ready to receive hostility and thus encourage them to make this attributional error (Berkowitz, 1990; Orobio de Castro et al., 2003).

Dodge (1991) reported that proactively aggressive individuals have expectations of a positive result for their aggressive behavior which causes them to have a positive attitude toward aggression. These positive expectations for aggressive behavior come from instrumental goals decided on in stage three and will result in the individual choosing an aggressive response in step five of social information processing. This is found among proactively aggressive children but not for reactively aggressive children. Crick and Dodge (1996) hypothesized that proactively aggressive individuals have a more positive attitude toward aggression because of what can be gained by the aggressive behavior.

More recently, Vernberg, Jacobs, and Hershberger (1999) gave a measure of attitude toward aggression, adapted from Slaby and Guerra (1988), to 1105 junior high
students. The measure consists of three factors including Aggression is Legitimate and Warranted, Aggression Enhances Status and Power, and One Should Not Intervene in Fights. Only boys and girls who were identified as bullies scored high on all three of these factors (r = .61, r = .30, and r = .28 respectively, p<.001). Neither victims of bullying nor those who reported no involvement in bullying had high scores on the measure showing discriminate value for this variable in identifying the three bully groups.

Self-efficacy is a measure of one’s feeling of agency in regards to their capabilities (Bandura, 1997). Self-efficacy affects how an individual thinks, what course of action is chosen, goal choice, and effort and commitment toward the goal. Indeed, it is the individual’s belief in the ability to carry out the behavior and gain the desired effect that provides validation to perform the behavior. Individuals who are low in self-efficacy for a specific behavior are less likely to attempt the behavior. In general, individuals avoid activities they believe exceed their ability to perform. Individuals with a high self-efficacy choose more challenging tasks and will be more apt to continue a task even after their efforts have been thwarted.

Possessing high self-efficacy has been connected to being proactively aggressive (Crick & Dodge, 1996). Specifically, results supported that proactively aggressive individuals had a significantly greater belief in their ability to carry out an aggressive act. This belief is important in step 5 (response selection) of social information processing because a response will be chosen that the bully is confident in their ability to carry it out. Bandura (1997) asserts that individuals who have high self-efficacy in their ability to
carry out an aggressive act will readily resort to aggression when they believe they can achieve their goal.

Researchers have postulated that ratings of self-efficacy may be generalized to other undertakings in a similar domain. Woodruff and Cashman (1993) asserted that as an individual experiences repeated successes, ratings of self-efficacy may transfer to other dissimilar domains. This results in a more generalized sense of self-efficacy. In a study of general self-efficacy, Woodruff and Cashman (1993) found that general self-efficacy was related to other constructs that are theoretically related. Specifically, the researchers found that general self-efficacy was significantly associated with a scale to capture individuals’ belief in the control they have over their own lives and to a task-specific efficacy rating for an academic task.

Self-efficacy ratings are typically thought to be domain-specific. Bandura (1997) asserted that self-efficacy ratings are not contextless, meaning that high self-efficacy in one area does not necessarily indicate high self-efficacy in another. General self-efficacy is indicative of wide ranging positive self-beliefs (Scholz, Doña, Sud, & Schwarzer, 2002; Schwarzer, Mueller, & Greenglass, 1999). General self-efficacy “might reflect a generalization across various domains of functioning in which people judge how efficacious they are” (Luszczynska, Gutiérrez-Doña, & Schwarz, 2005).

Luszczynska, Gutiérrez-Doña, and Schwarz (2005) identified and tested several constructs that were hypothesized to be related to self-efficacy using a general self-efficacy measure. The researchers found strong positive associations between general self-efficacy and self-regulation and positive affect and strong negative association with anxiety and depression. For the purposes of this study a general self-efficacy measure
will be employed as no adult measure of self-efficacy to carry out aggressive behavior is available.

Crick and Dodge (1996) tested a combination of biases to assess how they are related to proactive and reactive aggression. Participants included 624 children (9 – 12 years of age) in a large metropolitan area. Results supported the hypotheses indicating that there was a difference in how reactive and proactive children process social information. Specifically, the reactive aggressive group expressed more hostile attributions than the nonaggressive and the proactively aggressive group among 11 and 12 year olds. Proactively aggressive children evaluated more positive outcome expectations for aggressive behavior than non-proactive aggression. Further, proactively aggressive individuals also had a higher belief in their ability to carry out aggressive behaviors. In relation to social goals, proactively aggressive children exhibited more instrumental goals that were self-enhancing, supporting the hypothesis of a processing bias during step three. Conclusions from Crick and Dodge indicate that social information processing theory can discriminate between proactively and reactively aggressive individuals.

The current study seeks to extend the Crick and Dodge (1996) study. Crick and Dodge’s (1996) study demonstrated the relationship between specific social information processing variables and type of aggression endorsed. Other previous research has indicated a connection between the type of aggression endorsed and being a bully or a victim (Camodeca et al., 2002; Salmivalli & Nieminem, 2002). The current study seeks to connect previous history of bullying experiences to current endorsement of aggression type and social information processing variables. In a search of the literature, only one
The current study seeks to make the direct connection with measures for current social information processing, bully status, and proactive and reactive aggression. With this in mind, the specific biases in the social information processing model that are being tested in the current study will be discussed in detail.

Limitations of Past Research

Problematic for researchers who study bullying is that “bullying” has been identified with numerous names. For example, bullying is referred to as peer victimization by Mynard and Joseph (2000) and Espelage and Swearer (2003), as peer abuse by Haynie et al. (2001) and Moore (2002), and as harassment by Newman (2003). The definitions used by these researchers are very similar and include the basic components of the previously defined bullying definition. Thus they can all be considered under the rubric of “bullying”. The studies cited in the current paper have all been assessed in the definition of the behaviors being measured. This is not a limitation to the research per se but is a limitation due to the difficulty in acknowledging what studies have been conducted. It is difficult to demonstrate a complete knowledge from the literature review when so many names exist to identify the same concept.

Another conceptual problem is that many behaviors fall within the category of bullying. Bullying can involve physical aggression, mental cruelty, overt or covert intimidation, extortion, destruction of, or stealing the victim’s property, group exclusion, menacing stares, name calling, gossip and rumor spreading, belittling the victim, and
denigrating the victim’s physical features (Ahmad & Smith, 1994; Farrington, 1993). However, these are all types of bullying as the behaviors are meant to inflict harm on another individual.

Previous research has focused on aggression in children. Only rarely has proactive and reactive aggression and social information processing been studied in adults. Proactive and reactive aggression research in adults appears to be limited; a search of articles in PsychInfo revealed no articles with proactive and reaction aggression in the title that used an adult population. Social information processing variables in adults have been studied to a limited degree, indeed, only a few studies could be found in the literature. Ogle and Miller (2004) studied the effect of alcohol intoxication on aggressive goal selection, aggressive response generation, and aggressive response selection. When intoxicated, men were more likely to choose the aggressive alternatives in these stages of social information processing. Other research sought to compare the tendency to make hostile attributions between mothers and their children but did not specifically measure the mothers’ aggression level (MacBrayer, Milich, & Hundley, 2003). The literature is lacking in a complete picture of how social information processing is related to aggression in adults.

Rationale for Current Study

Most research on bullying that has been conducted has used a child or adolescent population. The current study seeks to discover if the aggressive attributes and social processing errors of bullies and victims exist in adulthood, after the bullying experiences of childhood have ceased. The social information processing model (Crick & Dodge, 1994; Dodge, 1986) was formulated while considering children’s social responses. The
current study seeks to discover if the biases that are apparent in children who are bullying others are still occurring in adulthood.

The current project will provide a better picture of the long-term outcomes for childhood bullies and victims. Specifically, the study will compare bullies, victims, and those who were not involved in childhood on several social information processing variables in order to assess if the difference on these variables are apparent in adulthood. The current study will assess components of the social information processing model. Social information processing model has been previously used to predict current behavior. These components will concern current processing and will be used to predict previous bullying experiences. The current study used typical biases in the model to predict past behavior, thus the current study is not testing the model per se. Rather it is attempting to assess if the typical biases that occur in bullies and victims of childhood are still occurring into adulthood, after the bully experiences of childhood have ceased.

Hypotheses

Hypotheses included in the study can be identified by specific topics including gender differences, aggression differences, levels of proactive and reactive aggression, and support of social information processing variables.

Gender Specific Hypotheses:

- Males will be generally more aggressive than females as exhibited by higher scores for current aggressive levels and for childhood physical, verbal, and or social manipulation bullying (Olweus, 1993a).
• Females will report using more social manipulation in childhood than males. Males will report using higher levels of physical aggression in childhood than females (Björkqvist et al., 1992; Lagerspetz, 1988).

• Males will more likely be the victim of childhood physical aggression and females will be more likely to be the childhood victim of social manipulation (Ahmed & Smith, 1994).

Aggression Hypotheses:

• Those who were bullies will endorse more aggressive behavior as adults than those who were not involved in bullying in childhood (Olweus, 1993a).

• Bullies in childhood will be more aggressive than victims (Huesmann et al., 1984).

• Bullies in childhood will have higher scores on both reactive and proactive aggression than those who were not bullies (Camodeca et al., 2002; Dodge & Coie, 1987; Pellegrini et al., 1999; Price & Dodge, 1989; Salmivalli & Nieminen, 2002).

• Victims in childhood will endorse higher levels of reactive aggression than those who were not victims (Camodeca et al., 2002; Dodge & Coie, 1987; Pellegrini et al., 1999; Price & Dodge, 1989; Salmivalli & Nieminen, 2002).

Bullying and Social Information Processing Variables Hypotheses:

• Victims in childhood will share characteristics of reactively aggressive individuals.
- Childhood victimization will have a positive relationship with attributing hostile intent to ambiguous situations (Crick & Dodge, 1996; Dodge & Coie, 1987; VanOostrum & Horvath, 1997).

- Bullying, by definition, is a form of proactive aggression (Dodge, 1991) and will thus exhibit social information processing characteristics that have been previously demonstrated in proactively aggressive individuals.

- Crick and Dodge (1996) found that those who were proactively aggressive endorsed a higher sense of self-efficacy in their belief that they could carry out an aggressive act. In the current study it is hypothesized that bullying frequency will be associated with a higher general self-efficacy.

- Childhood bullying frequency will be positively associated with having higher expectations of positive outcomes for aggressive acts, and with having a more positive attitude toward aggression (Olweus, 1993a; Vernberg et al., 1999).

- Childhood bully frequency will be negatively related to high endorsement of self-efficacy on the scales measuring the participants’ belief in their ability to stay out of fights and cope with their anger.

Methods

Participants

Participants in this study included undergraduate students at Ohio University. They were enrolled in psychology courses and had the choice of volunteering to participate in psychology experiments or writing a brief summary of a journal article in
exchange for credit applied toward course grades. Students volunteered for participation on the Internet. Participants were recruited in Fall 2004 and Winter 2005 to participate in one session. Participation involved approximately one hour of time per session; participants received one experimental credit for their participation in the study.

The completed study included 323 undergraduate students. One participant was excluded in the final analysis due to his failure to follow questionnaire instructions. Of the participants used in the study, 102 were men (32%) and 220 were women (68%). The majority were 18- or 19-years old (n=265, 82%), first- or second-year students (n=298, 93%), and white (n=304, 94%). Table 1 provides a complete list of frequencies and percentages for the demographic variables.
Table 1

*Demographic Characteristics of Sample (n=322)*

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<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent of Sample</th>
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<tr>
<td>Women</td>
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<td><strong>Age</strong></td>
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Measures

Demographic Questionnaire. The Demographics Questionnaire (Appendix B-1) was a 13-item measure that included questions about the background information of each participant. Questions included information pertaining to the participant's age, current year in school, and race. All participants will be asked to complete this questionnaire at the beginning of the study.

Bullying Questionnaire. The Olweus Bully/Victim Questionnaire (Appendix B-2) is by far the most used measure in the bullying literature (Olweus, 1996) and was used to attain a complete picture of the participants’ bullying experiences. The questionnaire has not been used with a college aged population in the past. However, the measure was used due to the fact that the population is, on average, only one to two years older than the population with which the questionnaire was normed.

The questionnaire contained questions concerning various bullying behaviors such as physical, verbal, indirect, racial, and sexual. The senior form of the questionnaire was used for the current study which is appropriate for participants’ ages. The questionnaire was administered three times to capture bullying experiences in elementary school, in middle school, and in high school. Modifications were made to the instructions to accommodate the past tense of the behaviors and the adult audience (specifically the terms “boys” and “girls” were changed to “males” and “females”). Further, the first ten questions of the victim measure and the bully measure will be asked, inquiring about current bullying experiences (Appendix B-3).

Reliability has been assessed by measuring the internal consistency. Cronbach’s alphas are consistently in the .80’s or higher when assessing consistency on an individual
basis. Internal consistency is even higher when the school is used as the unit of analysis, typically in the .90 range (Olweus, 2001).

Divergent validity was tested identifying the difference between victims and non-victims and between bullies and non-bullies. Consistently, research has indicated that victims reported more social disintegration, global negative self-evaluation, and depressive tendencies than those who were not bullied (Nansel et al., 2001; Solberg & Olweus, 2002). Bullies are more aggressive than non-bullies and participate in more antisocial behaviors (Nansel et al., 2001; Solberg & Olweus, 2002). These differences between groups have been found when using the Olweus Bully/Victim Questionnaire. As further evidence for its validity, data suggests that the more severe the bullying experiences as measured by the Olweus Bully/Victim Questionnaire, the more the victim experiences social disintegration, global negative self-evaluations, and depressive tendencies.

Participants were asked to recall specific periods of their childhoods. It is believed that recall of these childhood experiences should be fairly accurate. Olweus (1993b) found reasonably good accuracy of retrospective estimates of victims to the amount of their actual victimization as judged by peer ratings seven years prior. Other studies have supported the use of retrospective data. Rivers (2004) found stable relationships between recall of childhood bullying experiences over a 12 to 14 month period. The age of participants in the Rivers study ranged from 16- to 41-years old with a mean age of 29.7 (SD 4.7). More generally, Dube, Williamson, Thompson, Felitti, and Anda (2004) analyzed the test-retest reliability of adult report of adverse childhood experiences. Kappa statistics were computed for reporting of physical, emotional, and sexual abuse. The
agreement for time one and time two of each type of abuse was good, ranging from .52 to .72 (average time between surveys was 20 months). Studies have found that retrospective reports of childhood abuse are usually underestimated (Della Famina, Yeager, & Lewis, 1990). Della Famina et al. hypothesized that the underestimation may be due to memory failures, social desirability, and memory impairment due to the stressful nature of the events the participants were asked to recall.

**Proactive and Reactive Aggression.** The Berger and Shiltz Proactive/Reactive Aggression Measure (2000) was constructed as a self-report measure of proactive and reactive aggression for an adult population (Appendix B-4). The scale was constructed by selecting items from existing aggression inventories and adapting items from teacher ratings of proactive and reactive aggression. Principal components analysis was performed on the original items and resulted in two factors. Items were excluded that were biased by gender. Items with factor loadings of at least .6 were retained for the final measure. Items with high covariance between both factors were excluded. The resulting factors included 10-items on each scale which attained Cronbach’s alpha of .90 for proactive aggression and .91 for the reactive aggression. For the current sample, the internal consistencies were similarly high (proactive aggression scale Cronbach’s $\alpha=.90$; reactive aggression scale Cronbach’s $\alpha=.89$). An example of an item tapping proactive aggression is, “I sometimes take charge of a situation by using intimidation”; and an example of an item tapping reactive aggression (when reverse-coded) is, “When angry, I keep my cool”. Study participants responded on an 8-point scale ranging from “extremely inaccurate” to “extremely accurate”. Six questions were reverse coded; possible scores ranged from 20 to 160, with higher scores indicative of greater aggressive tendencies.
Hostile attributional bias. Hostile attributional bias was measured using Homant and Kennedy’s (2003) Awareness of Motivation Scale (Appendix B-5). Reliability was previously measured by assessing internal consistency ($\alpha = .63$; Homant & Kennedy, 2003). The current sample did not result in an internal consistency as high ($\alpha = .39$). There were numerous items that were not significantly correlated; further, some of the items were significantly negatively correlated. The scale initially included forced choice answers. However, there have been revisions and additional validations reported by Homant, Barnes, and Kennedy (2003). The revised scale uses a five-point scale which was shown to be methodologically superior to the forced choice measure. In Homant et al. (2003) both versions of the scale were given to participants two-weeks apart and were highly correlated ($r = .62$). The revised scale included 10 items; five items were reverse scored. Possible scores ranged from 10 to 50, with higher scores indicative of making more hostile attributional errors. In the current sample, scores ranged from 14 to 50; the mean score was 29.76 with a standard deviation of 4.54.

Concurrent validity was assessed by measuring respondents’ judgments on the hostile intent of three scenarios created by Homant and Kennedy (2003), each illustrating workplace conflict. The authors found that high scores on the Awareness of Motivation scale were significant predictors of support for aggression in the ambiguous version of each scenario. Further, in a scenario where hostile intent was not ambiguous, scores on the scale were not predictive.

Self-Efficacy. Participants were given a 10-item measure to assess their level of general self-efficacy (Appendix B-6). The measure was created by Jerusalem and Scharzer in 1979 and was first translated into English in 1985 and revised in 2000.
(Scholz, Doña, Sud, & Schwarzer, 2002). The scale has acceptable internal consistency ($\alpha = .86$) and test-retest reliability (ranges between .55 and .75 over a two-year period). The internal consistency for the current sample was similar ($\alpha = .85$). Each item is answered using a four-point scale using “not at all true”, “hardly true”, “moderately true”, and “exactly true”. Scores can range from 10 through 40. An example of an item on the scale is, “I am confident that I could deal efficiently with unexpected events”.

Concurrent validity has been assessed by comparing scores on general self-efficacy to scores on measures of other related constructs. Specifically, high self-efficacy has been found to be significantly positively correlated with optimism ($r = .45$), perception of challenge in stressful situations ($r = .45$), and negatively associated with procrastination ($r = -.56$; Scholz et al., 2002).

Two additional self-efficacy measures were used. The first was a 3-item scale (Appendix B-7) created by Prothrow-Stith with an additional item added by DeJong, Spiro, Brewer-Wilson, Vince-Whitman, Prothrow-Stith, and Cross (as cited in Center for Disease Control - National Center for Injury Prevention and Control). This scale was used to measure a participant’s belief in his or her ability to stay out of fights. Items were rated on a four-point scale measuring agreement with each statement. Possible scores on the measure range from 4-16. The second measure was the Self-Efficacy – Teen Conflict Survey (Bosworth & Espelage, 1995 as cited in CDC-NCIPC; Appendix B-8) which contained five items. This scale measured the participants’ confidence in their ability to cope with their anger and their ability to identify nonviolent responses to provocation. The items were rated on a five-point scale. Possible scores on the measure range from 5-
25. The scale was previously used with middle school students and achieved an internal consistency of .85.

*Positive Outcome Expectancy and Positive Attitude Toward Aggression.* Respondents were given a measure concerning their attitudes towards violence created by Slaby and Guerra (1988). Vernberg, Jacobs, and Hershberger (1999) revised the scale using principle components analysis with orthogonal rotation, resulting in the retention of 16-items (Appendix B-7). The three factors on the scale include: aggression is legitimate and warranted (eight items), aggression enhances status and power (five items), and one should not intervene in fights (three items). The Aggression Legitimate scale was used to assess attitude toward aggression; the Aggression Pays scale was used to assess outcome expectations for aggressive acts. Outcomes included getting things from others, feeling dominant, and getting respect. For the current sample, the Aggression is Legitimate scale attained a high internal consistency (α=.83); the Aggression Pays scale internal consistency was also acceptable (α=.74).

*Aggression Inventory.* Buss and Perry (1992) constructed a 29-item questionnaire to measure aggression using factor analysis, a methodological advance over previous aggression measures (Appendix B-8). Specifically, items were placed on factors using statistical methods, items that loaded significantly on more than one scale were dropped from the final questionnaire, and construct validity was demonstrated using peer nominations. The factors include physical aggression (9 items), verbal aggression (5 items), anger (7 items), and hostility (8 items). Questions were answered using a five-point scale ranging from “extremely uncharacteristic of me” to “extremely characteristic of me”. This measure was used to assess current levels of aggression. This measure was
chosen because of its reputation in the area of aggression measurement (P. Giancola, personal communication, April 28, 2004).

Internal consistency was previously assessed for the aggression inventory resulting in high alpha levels for the total measure and all four scales. The total measure’s internal consistency was .89 (Buss & Perry, 1992). On the individual factors, the physical aggression scale attained an alpha of .75; the verbal aggression scale attained an alpha of .70; the hostility scale attained an alpha of .82; and the anger scale attained an alpha of .80. Further supporting the aggression inventory’s reliability, test-retest estimates across seven months were .75 for the physical aggression scale, .81 for the verbal aggression scale, .67 for the hostility scale, and .82 for the anger scale (Harris, 1997). For the current sample, internal consistencies were all acceptable, total measure, .92, physical aggression factor, .85, verbal aggression factor, .75, anger factor, .79, and hostility factor, .88.

Construct validity has been demonstrated by correlating scores on the aggression inventory with other measures of aggression. Specifically, the verbal scales from the aggression inventory and from the Personality Assessment Inventory (PAI; Morley, 1991) were highly correlated (r = .67). The physical aggression scale from the aggression inventory and the PAI were also significantly correlated (r = .54). The hostility scale was found to be correlated between the aggression inventory and the PAI scale negative relations (r = .59). Finally, the anger scale on the aggression inventory was found to be strongly correlated with the PAI aggressive attitude scale (r = .76; Harris, 1997).

Procedure

Participants were recruited through an on-line experiment sign-up. Sessions were held in classrooms in the Department of Psychology and were run in groups no larger
than 25. At the beginning of the session, the facilitator passed out and read aloud the consent form (see Appendix A-1). Participants were ensured of the answer confidentiality and were encouraged to write no identifying information on the questionnaires. Packets included the questionnaires (see Table 1 for list of all scales given during the session) and a calendar. The calendar was provided in order for the participants to write in school names, teacher names, friend names, jobs, and milestones to assist them in remembering past experiences (Appendix B-9). Rivers (2001) asserts that using such calendar reference points increases the likelihood and accuracy of victimization and bullying recall. The calendar was not used in the analysis and was only for the participant to organize time. Participants were told that the calendars are for their reference only. After filling out the calendar, participants filled out the questionnaires. After completing all the questionnaires, the participants were provided a debriefing form (see Appendix A-2).

Analyses

Table 2 summarizes the variables being tested in this study and the measures being used to assess them. Chi-square analyses will be conducted on the relationship between demographic variables and bully group status.

Hypotheses concerning gender differences will be analyzed using both independent-samples t-tests and Chi-square analyses. Gender differences for current aggression levels will be analyzed with independent-samples t-tests; gender differences between types of bully experienced will be analyzed using Chi-squares.

A one-way analysis of variance (ANOVA) will be performed to test the hypothesis concerning group differences between bully group and current aggression
Table 2

*Proposed Variables and Measures*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Variable</th>
<th>Range of Possible Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olweus Bully/Victim Questionnaire</td>
<td>Bully Status</td>
<td>1-5</td>
</tr>
<tr>
<td>Berger and Shiltz</td>
<td>Aggression type</td>
<td>20-160</td>
</tr>
<tr>
<td>Awareness of Motivation Scale</td>
<td>Hostile Attributional Bias</td>
<td>10-50</td>
</tr>
<tr>
<td>Attitudes and Beliefs Regarding Aggression</td>
<td>Positive Attitude toward Aggression</td>
<td>8-24</td>
</tr>
<tr>
<td>General Self-Efficacy Scale</td>
<td>Self-Efficacy</td>
<td>10-40</td>
</tr>
<tr>
<td>Prothrow-Stith</td>
<td>Self-Efficacy to Control Anger</td>
<td>4-16</td>
</tr>
<tr>
<td>Self-Efficacy – Teen Conflict Survey</td>
<td>Self-Efficacy to Stay Out of Fights</td>
<td>5-25</td>
</tr>
<tr>
<td>Aggression Questionnaire</td>
<td>Current Aggression Level</td>
<td>29-145</td>
</tr>
</tbody>
</table>
levels. The planned comparison will assess if those involved in bullying as either the bully or the victim will be more aggressive than those not involved.

The next hypothesis concerning bully status and type of aggression endorsed (proactive, reactive, both, or neither) will be tested using one-way ANOVA. If the ANOVA is significant, planned comparisons will be performed to test the specific differences hypothesized.

Correlations will be used to test the hypothesis concerning the relationship between social information processing variables and bully status followed by a discriminant analysis to predict bully group membership from social information processing measure scores.

Results

Bully Frequency

Bully status was identified by responses to the bully measure concerning bully experiences during elementary, middle, and high school. Participants were considered bullies or victims if they endorsed experiencing bullying as either the perpetrator or the victim at least two or three times a month for any of the bullying behaviors. This cutoff was used for several reasons. First, bully experiences are defined as repeated. To be identified as not a victim or not a bully, the participants endorsed either never experiencing bullying or perpetrating bullying or experiencing or perpetrating only once or twice. Participants who endorsed the bullying experiences occurring at least two or three times a month on both bully and victim questions were labeled accordingly.
Further, use of this cutoff is based in the literature for this particular instrument (Olweus, 1993a; Smith et al., 1999; Solberg & Olweus, 2003).

This classification resulted in 83 (25.8%) pure victims, 25 (7.8%) pure bullies, 44 (13.7%) who were both bullies and victims, and 170 (52.8%) were not involved in bullying as either the bully or the victim. There were no significant differences among bully status with regards to age, year in school, or ethnicity.

Continuous Variable Descriptives

Table 3 lists the means and standard deviations for the continuous variables. Table 4 lists the intercorrelations of the continuous variables.

Gender Hypotheses

An independent-samples t-test was conducted to compare the means between men and women for current aggression level as measured by the Aggression Questionnaire (Buss & Perry, 1992). Results of the analysis indicated that men and women were different for their scores on the Aggression Questionnaire, $t(320) = 7.47, p < .001$ (two-tailed). Review of the means suggested men ($M = 77.49, SD = 19.1$) scored higher on the questionnaire than women ($M = 61.90, SD = 16.57$). The effect size for this comparison was large per Cohen’s (1988) guidelines ($\eta^2 = .15$).

A Chi-square analysis was conducted to assess whether men and women differed with respect to their reporting of frequency of bullying others while in grade school. Table 5 summarizes the relationship between gender and bullying frequency. The Chi-square was significant ($\chi^2(4, N = 322) = 13.76, p < .01$), indicating a relationship between gender and frequency of bullying others. The adjusted residual analysis of the
<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggression Questionnaire</td>
<td>66.84</td>
<td>18.85</td>
<td>33 – 130</td>
</tr>
<tr>
<td>Proactive Aggression</td>
<td>26.63</td>
<td>13.48</td>
<td>10 – 70</td>
</tr>
<tr>
<td>Reactive Aggression</td>
<td>38.11</td>
<td>13.43</td>
<td>11 – 79</td>
</tr>
<tr>
<td>Hostile Attribution</td>
<td>29.76</td>
<td>4.54</td>
<td>14 – 50</td>
</tr>
<tr>
<td>General Self-Efficacy</td>
<td>32.52</td>
<td>3.91</td>
<td>21 – 40</td>
</tr>
<tr>
<td>Self-efficacy to Stay out of Fights</td>
<td>12.68</td>
<td>2.11</td>
<td>4 – 16</td>
</tr>
<tr>
<td>Self-efficacy to Control Anger</td>
<td>21.28</td>
<td>2.91</td>
<td>10 – 25</td>
</tr>
<tr>
<td>Positive Expectations for Aggressive Behavior</td>
<td>9.04</td>
<td>2.80</td>
<td>5 – 20</td>
</tr>
<tr>
<td>Positive Attitude toward Aggression</td>
<td>11.25</td>
<td>3.64</td>
<td>8 – 30</td>
</tr>
</tbody>
</table>
Table 4

**Intercorrelations of Continuous Variables**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General Aggression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Proactive Aggression</td>
<td>.65**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Reactive Aggression</td>
<td>.65**</td>
<td>.45**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Hostile Attribution</td>
<td>.47**</td>
<td>.33**</td>
<td>.36**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. General Self-Efficacy</td>
<td>-.17**</td>
<td>-.04</td>
<td>-.18**</td>
<td>-.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Stay out of fights</td>
<td>-.43**</td>
<td>-.33**</td>
<td>-.42**</td>
<td>-.25**</td>
<td>.23**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Control Anger</td>
<td>-.57**</td>
<td>-.42**</td>
<td>-.62**</td>
<td>-.28**</td>
<td>.38**</td>
<td>.48**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Positive Expectations</td>
<td>.15**</td>
<td>.21**</td>
<td>.12*</td>
<td>.14*</td>
<td>-.05</td>
<td>.01</td>
<td>-.12*</td>
<td></td>
</tr>
<tr>
<td>9. Positive Attitude</td>
<td>.54**</td>
<td>.60**</td>
<td>.37**</td>
<td>.25**</td>
<td>-.04</td>
<td>-.32**</td>
<td>-.40**</td>
<td>.23**</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
Table 5

The Relationship between Gender and Bullying Behavior

<table>
<thead>
<tr>
<th>Bully Frequency</th>
<th>Once or</th>
<th>Monthly</th>
<th>Once a Week</th>
<th>Several Times a Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>25 (24.5%)</td>
<td>46 (45.1%)</td>
<td>18 (17.6%)</td>
<td>5 (4.9%)</td>
</tr>
<tr>
<td>Women</td>
<td>75 (34.1%)</td>
<td>107 (48.6%)</td>
<td>31 (14.1%)</td>
<td>4 (1.8%)</td>
</tr>
</tbody>
</table>
observed cell frequencies and the expected cell frequencies were computed to assess which cells were contributing to the overall significant Chi-square statistic. Results of this analysis indicated that two cells had significant differences; women’s report of never bullying was significantly different from the expected and men’s report of bullying several times a week was significantly different from the expected suggesting women were bullies less than expected and men bullied more frequently than expected.

Hypotheses concerning gender and types of bullying behaviors experienced in grade school as either the bully or the victim were analyzed using Chi-square statistics. The Yates’ Correction for Continuity was applied to compensate for the overestimation of the Chi-square statistic when using a two by two contingency table.

It was hypothesized that women would report using more social manipulation in grade school to bully than men. The Chi-square was nonsignificant ($\chi^2(1, N = 322) = 1.39, p = .24$). There was no difference between men and women and their use of social manipulation to bully others. The next hypothesis was that men would endorse more physically aggressive bullying than women. Results of the statistical analysis supported this hypothesis ($\chi^2(1, N = 322) = 17.95, p < .01$). Men were more likely to use physical bullying than women. It was hypothesized that men would more likely be the victim of physical bullying than women. The Chi-square was significant for this comparison ($\chi^2(1, N = 322) = 5.21, p = .02$). Men were more likely to be physical victims than women. Finally, it was hypothesized that women would be the victims of social manipulation more than men. This statistic was nonsignificant ($\chi^2(1, N = 322) = 1.20, p = .27$). There was no difference between men and women and being the victim of social manipulation.
Table 6 summarizes the percentages of men and women by type of bully victimization and bully perpetration.

**Current Aggression Level Hypotheses**

One-way between-groups analyses of variance (ANOVAs) were conducted to explore the effect of bully status on current aggression level as measured by Buss and Perry’s (1992) Aggression Inventory. Specifically, it was hypothesized that those involved in bullying in the past would currently be more aggressive than those not involved in past bullying behavior. Further, those who, in the past, bullied others would be more aggressive than those who were only past victims of bullying. The omnibus test was significant indicating a difference between past bully status on their current aggression scores, F(3, 321) = 17.92, *p* < .01, and allowed the planned comparisons to be analyzed. The effect size for this difference was large (eta squared=.14).

Means for each group were: not involved, M = 60.94, SD = 16.29; pure victims, M = 68.92, SD = 18.28; pure bullies, M = 76.72, SD = 21.87; both victim and bully, M = 80.13, SD = 17.95. Review of the means indicated those not involved in bullying had the lowest score on the aggression measure. Further, those who were involved by bullying others had higher means than those who were victims. Tukey’s HSD post-hoc tests were conducted to assess the differences between each group. Victims scored significantly less than those who were both bullies and victims only. Bullies were only significantly different from those who were not involved. Those who were both bullies and victims were not different from those who were only bullies.
<table>
<thead>
<tr>
<th>Gender</th>
<th>Bullying using Social Manipulation</th>
<th></th>
<th>Bullying using Physical Methods</th>
<th></th>
<th>Victimization by Physical Bullying</th>
<th></th>
<th>Victimization by Social Manipulation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>87 (85.3%)</td>
<td>11 (10.8%)</td>
<td>96 (94.1%)</td>
<td>79 (77.5%)</td>
<td>23 (22.5%)</td>
<td>156 (70.9%)</td>
<td>64 (29.1%)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>15 (14.7%)</td>
<td>1 (0.5%)</td>
<td>6 (5.9%)</td>
<td>23 (22.5%)</td>
<td></td>
<td>64 (29.1%)</td>
<td></td>
</tr>
</tbody>
</table>
Dummy coding was utilized to test the first planned comparison; the participants were divided into either involved or not involved in bullying (not involved=-3, pure victims=1, pure bullies=1, both bully and victim=1). This first analysis was significant, F(1, 321) = 47.09, \( p < .01 \). The effect size was moderate (eta squared=.13). The results suggested that those who were involved in bullying were more likely to endorse current aggressive tendencies than those who were not involved in bullying. The second planned comparison was also performed using dummy coding (not involved=0, pure victims=-2, pure bullies=1, both bully and victim=1). This comparison was significant, F(1, 321) = 10.68, \( p < .01 \). The effect size was small (eta squared=.03). Those who bullied others in grade school had higher endorsement of current aggression than those who were victims only.

Another ANOVA was conducted which assessed the difference in current general aggression scores by individuals’ frequency of bullying in grade school. This ANOVA was significant, F(1, 321) = 14.51, \( p < .01 \). The effect size was large (eta squared = .15). The means for the bullying frequency were: never bullied, M = 59.39, SD = 17.44; bullied once or twice, M = 66.28, SD = 16.79; bullied two to three times a month, M = 75.64, SD = 16.73; bullied about once a week, M = 83.02, SD = 20.24; and bullied several times a week, M = 90.00, SD = 26.04. Review of the means show a steady increase of current aggression level as the past bullying frequency increases. Tukey HSD analyses indicate that the group that never bullied others was different from the other four groups. Bullying only once or twice was also different from all other groups. Bullying two to three times a month, bullying once a week, and bullying several times a week were not significantly different.
Proactive aggression and reactive aggression were measured using the scale created by Berger and Shiltz (2000). The two types of aggression were significantly correlated in the expected direction, $r(322) = .45$, $p < .01$ such that high scores on one type of aggression is related to high scores on the other type of aggression. Crosstabs were computed to assess the percentages of those participants who were reactively aggressive only, proactively aggressive only, and both reactively and proactively aggressive. To be considered as either reactively or proactively aggression, the participant must have scored one standard deviation higher than the mean score for the sample. Most of the participants in the study were not aggressive by these standards (71.1%). Of those who were aggressive, 40.9% of the participants were proactively aggressive only, 39.8% of the participants were reactively aggressive only, and 19.4% were pervasively aggression, i.e., they scored one standard deviation higher on both the reactive and the proactive aggression measures.

The hypotheses concerning bully status (bully only, victim only, both a bully and a victim, not involved in bullying as either the bully or victim) and type of aggression (proactive aggression and reactive aggression) were analyzed using one-way ANOVA. Means and standard deviations of type of aggression by bully status are presented in Table 7. There was a difference between groups on the proactive aggression measure, $F(3, 318) = 10.84$, $p < .01$ and on the reactive aggression measure, $F(3, 318) = 9.39$, $p < .01$.

The first planned comparison was designed to determine if those who were bullies scored higher on the proactive and reactive aggression measures than those who were not
Table 7

Means (SD) of Scores on Proactive and Reactive Aggression by Bully Status

<table>
<thead>
<tr>
<th>Bully Status</th>
<th>Bully</th>
<th>Victim</th>
<th>Both Bully and Victim</th>
<th>Not Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proactive Total</td>
<td>35.76 (17.50)</td>
<td>24.66 (12.01)</td>
<td>33.67 (13.35)</td>
<td>24.43 (12.42)</td>
</tr>
<tr>
<td>Reactive Total</td>
<td>42.60 (14.23)</td>
<td>38.94 (13.59)</td>
<td>45.76 (12.30)</td>
<td>35.07 (12.56)</td>
</tr>
</tbody>
</table>
bullies. Dummy coding was used (not involved=1, pure victim=1, pure bully=-1, both bully and victim=-1). There was a difference between those who were bullies and those who were not bullies on the proactive aggression measure, F(3, 318) = 30.84, \( p < .01 \). There was also a significant difference between those who were bullies and those who were not bullies on the reactive aggression measure F(1, 318) = 15.27, \( p < .01 \).

Post hoc analyses using Tukey HSD were conducted to identify differences between those who were involved in bullying and proactive aggression. Victims scored significantly lower on proactive aggression than those who were bullies and those who were both bullies and victims. There was no significant difference between proactive aggression scores and pure bullies and those who were both bullies and victims.

The second planned comparison compared those who were victims to those who were not victims on the reactive aggression measure. Dummy coding was again utilized (not involved=1, pure victim=-1, pure bully=1, both bully and victim=-1). The test statistic was approaching significance, F(3, 318) = 3.67, \( p = .06 \).

Post hoc analyses using Tukey HSD test indicated group differences between those who were involved in bullying and reactive aggression. Those who were not involved in bullying as either the victim or the bully were not significantly different from those who were victims only. However, those who were both bullies and victims scored significantly higher on the reactive aggression measure than those who were not involved in bullying and those who were victims only. This would seem to indicate that those who were victims and those who were both bullies and victims are fundamentally different in their endorsement of aggressive beliefs and tendencies. Those who were bullies scored similarly to those who were both bullies and victims on the reactive aggression measure.
Bully Status and Social Information Processing Hypotheses

The Prediction of Proactive and Reactive Aggression. The relationships between the social information processing variables and bully status were computed to measure the significance of association. Multicollinearity was assessed first by computing the correlations between the social information processing variables. No correlation was larger than the recommended ct-off by Tabachnick and Fidell (2001) of .70.

Analyses predicting type of aggression using the social information processing variables was computed. A bivariate simple linear regression was conducted to assess whether hostile attribution scores predicted reactive aggression. Hostile attribution scores accounted for 13% of the variance in reactive aggression scores which was significant, $F(1, 321) = 47.71$, $p < .01$.

A multiple regression analysis was conducted to assess the predictability of five social information processing variables for the proactive aggression measure including self-efficacy to stay out of fights, self-efficacy to control anger, general self-efficacy, positive expectations for aggression, and positive attitude toward aggression. All social information processing variables were entered at one time in order to test the model as a whole. Two cases had data missing on at least one social information processing variable and were excluded in the model which contained those variables. Table 8 displays the results of the multiple regression analysis including the unstandardized regression coefficients ($B$), the standardized regression coefficients (beta), and the t-score and significance. The five social information processing variables accounted for 41.4% of the variance in proactive aggression and was significant, $F(5, 319) = 44.38$, $p < .01$. This confirms that the social information processing variables are doing an adequate job of
Table 8

*Summary of Multiple Regression Analysis for Variables Predicting Proactive Aggression Scores (n=320)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>Beta</th>
<th>t</th>
<th>sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy stay out of fights</td>
<td>-.64</td>
<td>-.10</td>
<td>-2.00</td>
<td>.05</td>
</tr>
<tr>
<td>Self-efficacy control anger</td>
<td>-.96</td>
<td>-.21</td>
<td>-3.76</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>General Self-Efficacy</td>
<td>.30</td>
<td>.09</td>
<td>1.84</td>
<td>.07</td>
</tr>
<tr>
<td>Positive Expectations</td>
<td>.42</td>
<td>.09</td>
<td>1.95</td>
<td>.05</td>
</tr>
<tr>
<td>Positive Attitude</td>
<td>1.73</td>
<td>.47</td>
<td>9.41</td>
<td>&lt; .01</td>
</tr>
</tbody>
</table>
predicting proactive aggression scores. A review of the regression coefficients identified that possessing a positive attitude toward aggression, self-efficacy to stay out of fights, and self-efficacy to control anger as the significant variables in the prediction of proactive aggression scores. The belief that aggression increases power and status was marginally significant.

A multiple regression analysis was conducted to assess the predictability of five social information processing variables for the reactive aggression measure. These variables included self-efficacy to stay out of fights, self-efficacy to control anger, general self-efficacy, positive expectations for aggression, and a positive attitude toward aggression. All the variables were entered into the model. Two cases had missing data and were excluded from the analysis. Table 9 displays the results of the multiple regression analysis. The five social information processing variables accounted for 42% of the total variance in reactive aggression scores. This percentage was significant, $F(5, 314) = 45.03, p < .01$. Self-efficacy to stay out of fights and self-efficacy to control anger were both significant negative predictors of reactive aggression. Possessing a positive attitude toward aggression was a significant positive predictor. The other two variables, general self-efficacy and positive expectations for aggression were not significant predictors of reactive aggression.

**Bully Status and Social Information Processing Variables.** The frequency of victimization was combined into one variable. As noted before, frequencies for this variable are on a scale from one to five. For this variable, the victim’s highest level of experience with the bullying behaviors was recorded. Frequency of bullying others was computed using the same process. Specifically, if the participant’s highest frequency for
Table 9

*Summary of Multiple Regression Analyses for Variables Predicting Reactive Aggression Scores (n=321)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>Beta</th>
<th>t</th>
<th>sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy stay out of fights</td>
<td>-1.00</td>
<td>-0.16</td>
<td>-3.12</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Self-efficacy control anger</td>
<td>-2.40</td>
<td>-0.52</td>
<td>-9.51</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>General Self-efficacy</td>
<td>0.21</td>
<td>0.06</td>
<td>1.27</td>
<td>.20</td>
</tr>
<tr>
<td>Positive Expectations</td>
<td>0.19</td>
<td>0.04</td>
<td>0.88</td>
<td>.38</td>
</tr>
<tr>
<td>Positive Attitude</td>
<td>0.37</td>
<td>0.10</td>
<td>2.02</td>
<td>.04</td>
</tr>
</tbody>
</table>
any of the bullying experience items was “once a week” then the frequency in the final variable was recorded as a “4”.

Spearman’s Rank Order Correlation (rho) was computed for the individual social information processing measures to assess the relationship with bullying frequency or victimization frequency. For each of the hypotheses being tested with Spearman’s rho, a direction of association was specified, thus, the one-tailed correlation significance level was used.

It was hypothesized that victims would endorse a higher level of hostile attribution bias than those who were not involved in bullying. The relationship between victim frequency and hostile attribution bias was not significant, \( r(322) = .02, p = .39 \).

Contrary to the hypothesis that past bullying frequency would be positively related to higher reports of general self-efficacy, the results indicated a significant negative relationship, \( r(322) = -.17, p = .02 \). The self-efficacy measures that assessed participants’ level of self-efficacy to stay out of fights and control their anger were negatively related to past bullying frequency, as hypothesized; the correlation for self-efficacy to stay out of fights was \( r(321) = -.20, p < .01 \) and the correlation for self-efficacy to control their anger and to identify nonviolent responses to provocation was \( r(322) = -.35, p < .01 \).

It was hypothesized that the more the participants had participated in childhood bullying behaviors, the higher their positive expectations toward aggression would be. This was supported by the significant correlation, \( r(321) = .10, p = .03 \). This correlation needs to be reviewed further. With the large sample size, small correlations (r ranging from .10 to .29) may be significant. Thus instead of relying on the significant correlation
only, the coefficient of determination was calculated. This procedure leads to the recognition that only 1% of variance is shared by the two variables. There is not much overlap of the variables and the significant correlation is no longer important.

It was hypothesized that the more participants bullied others, the more positive their attitudes toward aggression would be. This hypothesis was supported by a significant Spearman’s rho, \( r(321) = .35, p < .01 \).

**Prediction of Group Membership from Social Information Processing Variables.** A direct discriminant function analysis was performed using six measures of social information processing as predictors of membership in four groups of bully status. Discriminant function analysis was used due to the variable being predicted having four levels. The predictors were hostile attribution score, general self-efficacy, self-efficacy for staying out of fights, self-efficacy to control their anger and to identify nonviolent responses to provocation, possessing positive expectations for aggression, and possessing a positive attitude toward aggression. The four bully status groups are victims, bullies, both bullies and victims, and not involved in bullying. Of the 322 participants, two were dropped from the analysis because of missing data.

Three discriminant functions were calculated with a combined \( \chi^2 (18, N = 320) = 61.44, p < .01 \). The first discriminant function accounted for 76.9% of the variance of the between-group variability, the second accounted for 18.2%, and the third accounted for 4.8%. Table 10 of functions at group centroids illustrates how the functions discriminate between bully status groups. The first discriminant function separates the pure bullies and those who were both bullies and victims from the pure victims and those who were not involved. Discriminant function two separates the pure bullies from the other groups.
Table 10

*Functions at Group Centroids for Discriminant Function Analysis Predicting Bully Status from Social Information Processing Variables*

<table>
<thead>
<tr>
<th>Bully Status</th>
<th>Function 1</th>
<th>Function 2</th>
<th>Function 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not involved</td>
<td>-.264</td>
<td>.092</td>
<td>.047</td>
</tr>
<tr>
<td>Victim</td>
<td>-.075</td>
<td>-.209</td>
<td>-.128</td>
</tr>
<tr>
<td>Bully</td>
<td>.840</td>
<td>.443</td>
<td>-.144</td>
</tr>
<tr>
<td>Bully and Victim</td>
<td>.694</td>
<td>-.217</td>
<td>.146</td>
</tr>
</tbody>
</table>
Table 11

Structure Matrix for Discriminant Function Analysis Predicting Bully Status from Social Information Processing Variables

<table>
<thead>
<tr>
<th>Scale</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Hostile Attribution</td>
<td>.295</td>
</tr>
<tr>
<td>Self-efficacy stay out of fights</td>
<td>-.400</td>
</tr>
<tr>
<td>Self-efficacy to control anger</td>
<td>-.780</td>
</tr>
<tr>
<td>General Self-Efficacy</td>
<td>-.291</td>
</tr>
<tr>
<td>Positive Expectations</td>
<td>.337</td>
</tr>
<tr>
<td>Positive Attitude</td>
<td>.828</td>
</tr>
</tbody>
</table>
Discriminant function three is not readily interpretable. Table 11 identifies the loadings of the predictor variables on each function. The loadings suggest that the best predictors for distinguishing between bullies and those who were both bullies and victims and the two other groups are having a positive attitude toward aggression and having low self-efficacy in ability to stay out of fights. Specifically, those who were involved in bullying as the bully endorsed a more positive attitude toward aggression in that they believed aggression is legitimate and warranted. Those who were involved as bullies were less likely to endorse that they believed in their ability to control anger and resolve conflicts without aggression. Loadings less than .50 are not interpreted. After removal of the first function, a significant association between groups and predictors no longer existed, thus, only the first discriminant function was interpreted.

Classification results for the discriminant analysis indicate that 53.1% of the participants were correctly identified. 92.9% of those not involved in bullying were correctly identified, 4.8% of pure victims were correctly identified, 20% of pure bullies were correctly identified, and 9.3% of those who were both bullies and victims were correctly identified.

A direct logistic regression analysis was performed to predict whether the participants had been bullies during grade school using five measures of social information processing. Logistic regression analysis was used at this step because the predicted group contained only two levels, either being a bully or not a bully. Further, logistic regression is less stringent in the assumptions that must be met for interpretation. The measures of social information processing included general self-efficacy, self-efficacy for staying out of fights, self-efficacy to control their anger and to identify
nonviolent responses to provocation, possessing positive expectations for aggression, and possessing a positive attitude toward aggression.

A test of the full model with all five predictors against a constant-only model was statistically significant, $\chi^2 (5, N = 320) = 39.04, p < .01$, indicating that when all predictors are in the model bullies can be reliably distinguished from those who did not bully. Prediction success was mixed, with 19.1% of those who were bullies and 97.2% of those who were not bullies accurately predicted for an overall success rate of 80.6%.

Table 12 shows the regression coefficients, Wald statistics, and the significance level for each of the predictors. According to the Wald criterion, only self-efficacy to control anger and to identify nonviolent responses to provocation and having a positive attitude toward aggression reliably predicted bully status. Specifically, a lower self-efficacy and a more positive attitude toward aggression predicted whether the participant was a bully.

A backward logistic regression was performed to identify the most parsimonious model to predict whether or not a participant had been a bully in grade school. The method used included all predictor variables in the model and removed each variable that was not contributing enough to the regression equation. The final model contained two variables, self-efficacy to control anger and possessing a positive attitude toward aggression. The chi-square for the model with all variables was not significantly larger than the chi-statistic for the final model, $\chi^2 (2, N=320) = 37.86, p < .001$, indicating that the two variables remaining were the only significant contributors. Prediction success was 79.4% overall; the model predicted those who were nonbullies in grade school.
Table 12

*Logistic Regression Analysis of Bully Status as a Function of Social Information Processing Variables*

<table>
<thead>
<tr>
<th>Scale</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Self-Efficacy</td>
<td>-.021</td>
<td>.041</td>
<td>.276</td>
<td>.599</td>
</tr>
<tr>
<td>Stay out of fights</td>
<td>.013</td>
<td>.085</td>
<td>.023</td>
<td>.881</td>
</tr>
<tr>
<td>Control Anger</td>
<td>-.162</td>
<td>.060</td>
<td>7.260</td>
<td>.007</td>
</tr>
<tr>
<td>Positive Expectations</td>
<td>.049</td>
<td>.054</td>
<td>.833</td>
<td>.362</td>
</tr>
<tr>
<td>Positive Attitude</td>
<td>.137</td>
<td>.042</td>
<td>10.648</td>
<td>.001</td>
</tr>
</tbody>
</table>
correctly 96.4% of the time and predicted those who were bullies correctly 16.2% of the time.

Due to the low prediction rate, further exploration of the model was conducted. The participants were selected by gender and the logistic regression analysis was recomputed. For men, the only significant predictor of being a bully was having a positive attitude toward aggression as indicated by the significant Wald statistic, $\chi^2(1, N = 100) = 8.25, p < .01$. The model with men predicted 40% of the bullies correctly and 91.4% of the nonbullies correctly with an overall correct prediction of 76%. For women, the significant predictor was self-efficacy to control anger; the significant Wald statistic was $\chi^2(1, N = 220) = 6.96, p = .01$. The beta weight was negative, i.e., women who had low self-efficacy in their ability to control their anger were more likely to be bullies. The model that included only women correctly predicted bullies 5.3% of the time, nonbullies 97.8% of the time, with an overall correct prediction of 81.8%.

**Secondary Analyses**

*Analyses Concerning Type of Aggression Used in Childhood.* Due to availability of data, further analyses were conducted. First, type of bullying in childhood was assessed as it related to current levels of proactive aggression. Of interest was the percentage of those who were proactively aggressive who used physical bullying, verbal bullying, and social manipulation bullying. Participants were designated as proactively aggressive if their score on the proactive measure was one standard deviation above the mean of the entire sample. In the current sample, those who scored above 40 were considered to be proactively aggressive. 56 people scored above 40.
Of those who endorsed current proactive aggression, 16.1% reported using physical means to bully others while in grade school. Of the remaining sample that were not proactively aggressive, only 1.1% used physical bullying. Similarly, 39.3% of those who were proactively aggressive employed verbal aggression to bully others in childhood. Only 12.8% of those who were not proactively aggressive used verbal bullying. Finally, 25% of those who were proactively aggressive used social manipulation methods to bully others where as only 8.3% of those who were not proactively aggressive used social manipulation.

Analyses were run determining the type of bullying perpetrated by bully status. Specifically, use of physical, verbal, and social manipulation was identified by whether the participant was a pure bully or was both a bully and a victim in childhood. Contrary to previous literature (Unnever, 2005), a smaller percentage of those who were both bullies and victims in childhood than those who were pure bullies used physical means to bully others in childhood (11.4% cf. 28.0%). However, consistent with Unnever’s (2005) findings, a larger percentage of those who were both bullies and victims reported being the victim of physical aggression as children than those who were pure victims (13.6% cf. 2.4%).

**Stability of Bullying Experiences.** Analyses were conducted to assess if those who bullied others during childhood continued to bully others after graduating high school (during college years). 9.9% of the total sample reported bullying others since graduating high school. Of those who bullied others in childhood, 31.9% reported bullying others since graduating high school. Only 4.0% of the participants reported bullying others after high school only, with no previous bullying in childhood. Indeed, most of those who
reported being a bully after graduating high school had a history of bullying others during childhood. 11.8% of the participants reported being victimized since graduating high school. Of those who were victims in childhood, 23.6% were also bullied since graduating high school. Similarly to being a bully, most of those who were victimized after graduating high school were also victims during childhood.

**Bullying Experiences since High School and Aggression Measures.** Previous analyses identified that those who were bullies in childhood were higher on the general aggression measure than those who were not bullies is childhood. This remained true for those who bullied other after high school, $t(320) = 3.36, p < .01$ (two-tailed).

Analyses included the planned comparisons that were performed on childhood bullying experiences and aggression scores. First, an ANOVA was conducted to assess the difference between bully groups since graduating high school and proactive aggression. The omnibus test was significant, $F(3, 318) = 9.84, p < .01$. An ANOVA was also conducted to test bully group differences on the reactive aggression measure. Again, the omnibus test was significant, $F(3, 318) = 3.59, p = .01$.

As before, the planned comparisons were computed. Similar dummy coding was used. Those who report bullying others since graduating high school were significantly higher on the proactive measure than those who were not bullies, $F(3, 318) = 11.66, p < .01$. Those who were bullies were also significantly higher on reactive aggression than those who were not bullies after high school, $F(3, 318) = 4.35, p = .04$. Those who reported being victims of bullying since graduating high school were marginally higher than those who were not victims, $F(3, 318) = 3.84, p = .05$. 
Chronicity of Bullying Experiences. Chronicity was totaled from zero to four depending on how many periods the participant reported being involved in bullying. Thus if they reported being a bully in elementary school and high school, they received a “two” on this variable; if they reported being a bully in elementary school, middle school, high school, and since graduating high school, they received a “four” on this variable.

Spearman’s Rho was computed to measure the degree of association between time periods that participants reported bullying others and the measure of general aggression. There was a significant positive correlation between number of time periods participants reported bullying others and measure of general aggression in that the more time periods a participant bullied another, the higher their score on the general aggression measure, r(322) = .26, p = .02.

Early versus Late Bullying. Analyses of early versus late experiences with bullying and measures of aggression were analyzed using ANOVA. Groups were divided into early and late bullying. Specifically, those who bullied others in elementary or middle school only were considered early bullies. Those who bullied others in high school or after graduating high school were considered late bullies. Those who bullied others during both an early period and a late period were characterized as both early and late. Means and standard deviations are presented in Table 13.

On the general aggression measure, there was a significant difference between groups, F(3, 318) = 17.12, p < .01. Post hoc analyses used Tukey HSD and indicated that those who never bullied were significantly different from those who were late bullies and those who bullied both early and late. However, those who never bullied others did not
Table 13

Means (SD) of Scores of Current Aggression by Early and Late Bullying

<table>
<thead>
<tr>
<th>Aggression Measure</th>
<th>Never Bullied N=243</th>
<th>Early Bullying N=21</th>
<th>Late Bullying N=27</th>
<th>Both Early and Late Bullying N=31</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Aggression</td>
<td>63.11 (17.16)</td>
<td>72.42 (15.17)</td>
<td>75.86 (18.27)</td>
<td>84.47 (21.33)</td>
</tr>
<tr>
<td>Proactive Aggression</td>
<td>24.03 (11.64)</td>
<td>32.31 (14.38)</td>
<td>33.51 (15.62)</td>
<td>37.16 (16.31)</td>
</tr>
<tr>
<td>Reactive Aggression</td>
<td>36.08 (12.95)</td>
<td>45.14 (12.24)</td>
<td>40.31 (12.29)</td>
<td>47.35 (13.63)</td>
</tr>
</tbody>
</table>
score significantly differently on the general aggression measure than those who were early bullies only.

Group differences between early and late bullies on the proactive aggression measure were also analyzed. There was a significant omnibus test, $F(3, 318) = 14.55, p < .01$. However, post hoc analyses revealed that the only difference between groups was that those who were not bullies scored lower on proactive aggression than the other three groups. There was no difference between early and late bullies on proactive aggression measure.

Group differences were further analyzed on the reactive aggression measure. Again, a significant omnibus test was returned, $F(3, 318) = 9.63, p < .01$. On reactive aggression, post hoc analyses revealed that those who were never bullies scored lower than those who were early bullies and those who were bullies both early and late. None of the other groups were significantly different.

_Early versus Late Victimization._ Early and late victimization and aggression measures were also analyzed. As with those who were bullies, victims were divided into four groups: those who were not victims, those who were early victims (elementary and or middle school), those who were late victims (high school and or after graduating high school), and those who were both early and late victims. Means and standard deviations for victims on the aggression measures are presented in Table 14.

All three measures of aggression were significantly different among the four groups. Specifically, the omnibus test for general aggression was significant, $F(3, 318) = 12.96$, the omnibus test for proactive aggression was significant, $F(3, 318) = 2.70$, $p <$
Table 14

*Means (SD) of Scores of Current Aggression by Early and Late Victimization*

<table>
<thead>
<tr>
<th>Aggression Measure</th>
<th>Never Victimized</th>
<th>Early Victimized</th>
<th>Late Victimized</th>
<th>Both Early and Late Victimization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=187</td>
<td>N=59</td>
<td>N=27</td>
<td>N=49</td>
</tr>
<tr>
<td>General Aggression</td>
<td>62.56 (17.30)</td>
<td>68.37 (18.92)</td>
<td>68.90 (19.76)</td>
<td>80.20 (17.70)</td>
</tr>
<tr>
<td>Proactive Aggression</td>
<td>25.62 (13.52)</td>
<td>24.96 (12.37)</td>
<td>30.00 (12.32)</td>
<td>30.63 (14.47)</td>
</tr>
<tr>
<td>Reactive Aggression</td>
<td>36.07 (13.10)</td>
<td>38.98 (13.22)</td>
<td>37.28 (11.84)</td>
<td>45.31 (13.55)</td>
</tr>
</tbody>
</table>
and the omnibus test for reactive aggression was significant, $F(3, 318) = 6.57, p < .01$.

Post hoc analyses were conducted to identify which groups were significantly different. On the general aggression measure, those who were early and late victims were significantly higher than the three other groups. There were no other significant differences. On the proactive aggression measure, Tukey HSD returned no significant group differences. Finally on the reactive aggression measure, those who were never victimized scored significantly lower than those who were both early and late victims.

**Long-term Bullies and Victims.** Those who were long-term bullies, long-term victims, and long-term bullies and victims were compared on the aggression measures. Four time periods were considered (elementary school, middle school, high school, after graduation from high school). The participant was considered long-term if they reported bullying experiences in three or four time periods.

All three measures of aggression were significantly different between the four groups. Specifically, general aggression was significantly different, $F(3, 318) = 16.34, p < .01$. Proactive aggression was significantly different, $F(3, 318) = 12.15, p < .01$. Finally, reactive aggression was significantly different among the four groups, $F(3, 318) = 8.00, p < .01$. Means and standard deviations are presented in Table 15.

Post hoc analyses indicated that on the general aggression measure, those who were neither long-term bullies nor long-term victims scored lower that the three other groups. There were no differences between the remaining three groups. On the proactive aggression measure, those with no long-term bullying experiences scored less than those who were long-term bullies and those who were both long-term bullies and long-term
Table 15

*Means (SD) of Scores of Current Aggression by Long-term Bullying and Long-term Victimization*

<table>
<thead>
<tr>
<th>Aggression Measure</th>
<th>No long-term Bully</th>
<th>Long-term Victim</th>
<th>Long-term Bully</th>
<th>Long-term Victim and Bully</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=281</td>
<td>N=21</td>
<td>N=8</td>
<td>N=12</td>
</tr>
<tr>
<td>General Aggression</td>
<td>64.34 (17.34)</td>
<td>78.10 (17.57)</td>
<td>89.77 (25.88)</td>
<td>90.33 (18.56)</td>
</tr>
<tr>
<td>Proactive Aggression</td>
<td>25.39 (12.50)</td>
<td>27.33 (14.96)</td>
<td>44.75 (15.69)</td>
<td>42.26 (14.57)</td>
</tr>
<tr>
<td>Reactive Aggression</td>
<td>36.91 (12.99)</td>
<td>41.90 (14.68)</td>
<td>51.50 (10.99)</td>
<td>50.75 (11.31)</td>
</tr>
</tbody>
</table>
victims. Long-term victims were significantly lower on proactive aggression that those who were long-term bullies and those who were both long-term bullies and long-term victims. Finally, on the reactive aggression measure, only those who were not involved in bullying over a long-term were different from those who were long-term bullies and those who were both long-term bullies and long-term victims. There was no difference between those who were long-term victims and those who were not involved in bullying over a long-term.

Stability of Bullying Experiences and Social Information Processing Variables. Group differences between number of periods participants experienced bullying and social information processing variables were analyzed using ANOVA. The first analysis involved the number of time periods the participants reported being the victim of bullying and hostile attribution measure scores. There were four possible time periods that the participants could report victimization (elementary school, middle school, high school, and after graduating high school). Those who were never victims were not included in the analysis. The omnibus test indicated that there was no difference on hostile attribution scores between groups, $F(3, 131) = 1.53, p = .21$.

The second set of analyses under this section included examining the number of time periods participants reported bullying others and social information processing variables. Those who did not report bullying others were not included in this analysis. Group differences in the number of time periods bullying others was reported only occurred in one of the five social information processing variables. The number of time periods by positive expectations for aggression was significant, $F(3, 77) = 3.27, p = .03$. 
Post hoc analyses indicated that those who bullied others during three time periods were significantly higher from those who bullied others during two time periods.

Discussion

Overview of Findings

Bullying during childhood has been examined at great length. The current research was conducted to explore the dynamics of previous bullying experiences on current measures of aggression and social information processing variables. The current study supports previous data to a degree. Specifically, some of the gender differences in type of bullying were not significant. Also, the social information processing variables were not all correlated in the expected direction.

Contrary to the research hypotheses, women were not more likely to report using social manipulation to bully others in grade school or to be the victims of social manipulation than men. Men were just as likely as women to report that they been left out of social events on purpose, excluded from their group of friends, completely ignored, or that other students told lies or spread false rumors and tried to make others dislike them as well as using these techniques to bully others. This is contrary to previous literature that found women to be more likely to use the social network to bully others (Björkqvist et al., 1992; Crick & Grotpeter, 1995; Lagerspetz et al., 1988). The Crick and Grotpeter sample found 17.4% of girls and 2.0% of boys perpetrated social manipulation; the current study found 9.5% of women and 14.7% of men reported using social manipulation.

One explanation for the absence of a gender effect in the current study is that men were more likely in general to admit to bullying behaviors. This may be due to the need
for women to respond in a socially desirable manner. Paulhus (1991) found that women, compared to men, are more likely to use impression management, a type of socially desirable responding. Impression management is the tendency to create a favorable self-image for others. Specific to the current sample, these women are all adults and may be more likely to underreport adverse behaviors that are less acceptable when displayed by women. In the Crick and Grotpeter (1995) sample, the participants were still in middle school. As they matured, women in the current sample may have yielded to the pressure to respond in a socially desirable manner. In the current study, women are more likely to attempt to create a favorable self-image by underreporting bullying others in any form.

The idea of women responding in a more socially desirable manner was echoed in their reporting of using physical methods to bully others. Among females aged 11 through 16, Ahmad and Smith (1993) found 2.7% of girls reporting using physical methods to bully others. In the current study, only .5% of women reported physical bullying. The differences between the previous literature and the current study may be attributed to the use of retrospective data and thus participants underreporting of events. However, in the current study, only one woman reported using physical means to bully. This would seem to support women’s desire to underreport due to social desirability factors.

Finally, women may be less likely to acknowledge the social manipulation as bullying. In the current study, items were given that asked specifically about social manipulation, however, the question was prefaced by describing the social manipulation as bullying. There was some interpretation of the questions in that the respondents were asked to distinguish between behaviors that were bullying and those that were not
bullying. Physical aggression and verbal aggression have been measured for a longer period of time than social manipulation. Relational aggression research has been conducted in the past (Feshbach, 1969 as cited in Crick & Grotpeter, 1995) but has not gained the attention of both the research community and the general public until recently. This is evident from the literature available on bullying as assessed through a PsychInfo literature review. The paucity of literature may be partially due to the difficulty in measuring social manipulation. Much of the research on children and adolescents rely on multi-source reporting including teacher report. Social manipulation bullying is more covert and may not be easily observed by teachers.

Additional analyses found that those who endorsed proactive aggression were more likely than their non-proactive counterparts to engage in physical, verbal, and social manipulation of their peers. This was not unexpected as bullying is a type of proactive aggression. Complimentary of previous research by Unnever (2005), those who were both bullies and victims in childhood reported being the victim of physical bullying more than those who were pure victims. Contrary to previous literature by Unnever, those who were both bullies and victims in childhood reported using physical bullying less than pure bullies. This was a surprising result. However, it is known that bullies have lower academic achievement and those who are both bullies and victims have poor psychosocial correlates (Nansel et al., 2001). The current sample included college students and thus may not have captured an accurate picture of those who were both bullies and victims in childhood.

The data supported the hypothesis that those students engaging in bullying behavior in grade school would report higher levels of current general aggression than
those who were not bullies. This finding is similar to previous research that indicates a
continuity of aggressive behaviors (Olweus, 1993b; Salmivalli et al., 1998; Smith et al.,
2003; Stephenson & Smith, 2002; Sourander et al, 2000). By definition, bullies are
aggressive. This higher level of aggression has followed them into adulthood.

Further analyses included bully group status since graduating high school. Those
who had reported bullying others since high school were also more aggressive than those
who did not bully others. This is consistent with the data that indicated that most
individuals who reported bullying others since high school had a history of bullying
others in childhood. The results concerning current general aggression and previous
bullying were expected.

Research has consistently demonstrated that victims of bullying are often
characterized by reactive aggression and that bullies endorse higher rates of both
proactive and reactive aggression (Camodeca et al., 2002; Pellegrini et al., 1999; Price &
Dodge, 1989; Salmivalli & Nieminen, 2002). This connection between proactive and
reactive aggression and bully status was supported in the current study. Further, those
who reported bullying others since graduating high school also scored higher on the
proactive measure. However, contrary to previous literature, there was no difference
between those who were pure bullies in childhood and those who were both bullies and
victims in childhood on the proactive aggression measure. This was also true when tested
using bullying since graduating high school. This last finding does not support the
literature which found that those who were both bullies and victims scored significantly
higher than those who were pure bullies (Salmivalli & Nieminem, 2002).
An explanation for this finding is that those who report being both bullies and victims in grade school may not accurately reflect the population of those who were both bully and victims. The literature indicates those who were both bullies and victims in grade school showed the least optimal psychosocial functioning (Haynie et al., 2001). They had more depressive symptoms, poorer school functioning, and lower levels of school adjustment, three variables that may have limited entrance into college and thus in the current sample. In the current study, the sample labeled both bullies and victims may not be a representative sample of the population examined in previous literature. Further analysis of early versus late bullying did not contribute to the understanding of this phenomenon.

The current study found support for the original hypotheses that those who were victims would exhibit higher levels of reactive aggression measure than those who were not victims by means on the reactive aggression measure. Further, those who were bullies scored higher on both the reactive aggression measure and the proactive aggression measure. Previous research has demonstrated that victims exhibit reactive aggression and bullies exhibit proactive and reactive aggression (Camodeca et al., 2002; Pellegrini et al., 1999; Price & Dodge, 1989; Salmivalli & Nieminen, 2002). Other research has connected specific social information processing biases to type of aggression exhibited (Crick & Dodge, 1996). The current study sought to make the connection between all three constructs (type of aggression, bully status, and social information processing biases) with one sample that could be analyzed at one time.

In addition to the analyses that collapsed bullying experiences over time, additional analyses were included that compared those who had early bullying
experiences to those who had late bullying experiences. It would be expected that those who were involved in bullying both early and late and late only would exhibit higher levels of proactive aggression than those who were involved in bullying early only. This is because bullying is a specific type of proactive aggression. It seems that those who discontinue bullying others will be generally lower on the proactive aggression measure. However, the only significant difference was between those who never bullied and the other groups. This was an unexpected result. However, this finding may be explained by assuming those individuals who endorse proactive aggression will be more likely endorse proactive aggression.

Reactive aggression levels were consistent with the research hypotheses. As was expected, those who were not victimized had lower levels of reactive aggression than those who were victims both early and late. There were no other significant group differences. It was expected in that victims would be higher on reactive aggression. The results would seem to indicate that those who are victimized at any time remain reactively aggressive.

Finally, analyses were conducted on aggression measures focusing on participants identified as long-term bullies and long-term victims by the number of periods in which they reported bullying experiences. As expected, those who did not report long-term bullying experiences were less generally aggressive than those who did report long-term bullying experiences. Similarly, those who were long-term bullies and both long-term bullies and long-term victims scored higher on the proactive aggression than those who did not experience bullying long-term and those who were long-term victims. The results were consistent with previous analyses concerning bully status and proactive aggression.
scores. Unexpectedly, those who were long-term victims were not higher on reactive aggression than those who were not involved in bullying in the long-term.

The social information processing variables predicted reactive aggression as well as proactive aggression. This result was unexpected as the social information processing variables entered into both models were expected to predict proactive aggression only due to previous literature. It would seem to indicate that these variables do not reliably distinguish between proactive aggression and reactive aggression as the literature suggests. Previous research by Crick and Dodge (1996) looked at proactive aggression being predicted by a combination of social information processing variables. The researchers did not conduct analyses predicting reactive aggression. The results would need to be replicated in order to support the current findings. Due to the high correlation between proactive and reactive aggression scores, it was not surprising to find this result.

Analysis of the social information processing variables yielded inconsistent relationships to bullying experiences than what was expected. Hostile attribution bias was expected to be correlated with victimization frequency. During step two in the social information processing model, individuals incorporate past experiences to produce an understanding of the current event. It was expected that victims of bullying would use their past victimization as an indicator of the meaning of the current act. Specifically, victims would identify current situations as similar to past experiences in which they were the targets of aggression. This schema would be easily activated, especially for those who experienced frequent bullying. This would lead them to identify the perpetrators of current actions as having hostile intent when the actual meaning of the act is ambiguous. This hypothesis was not supported by the data. Victim frequency was not
significantly correlated with making hostile attributions in ambiguous situations. Further analysis used the number of time periods participants reported being the victim of bullying. Although speculative, it was expected that those who were victimized over a longer period of time would endorse higher levels of hostile attribution. There was no difference between number of time periods and level of hostile attribution. The result was surprising due to the association between reactive aggression scores and hostile attribution scores and the association between reactive aggression and victimization. It seems possible that the relationship between victimization and reactive aggression can be accounted for by a number of other variables besides hostile attributions.

First and most importantly, the lack of a significant relationship between victimization frequency and hostile attributions can be found with review of the scale. Specifically, internal consistency was low ($\alpha = .39$) and numerous correlations among items in the scale were negative and ranged from -.21 to .42. This indicated that the scale is not measuring a unitary construct and may not be adequately measuring hostile attributional biases in this sample. None of the analyses involving this scale yielded significant results. The lack of internal consistency and failure to support past finding indicates the need for a better measure of hostile attributions. Even if the expected results were returned, the results would remain uninterpretable because of the poor psychometrics associated with the current measure.

The hostile attribution measure included common situations that the participants may have had more experience with. For example, one measure item was, “A telemarketer calls at 7:15, interrupting dinner or a TV show. I feel sorry for anyone who has to make a living like this”. This question had the smallest difference between victims
and those who were not victims. Some of the participants made a specific note on the survey by the item to say that they had worked as a telemarketer and instead of getting upset with the interruption, they felt bad for someone who had to work such an unpleasant job. Research has not been conducted in this area and future research may focus on identification and measurement of these mediating variables that could explain this discrepancy.

During step five of the social information processing model, individuals make an assessment of their belief in their ability to carry out specific behaviors in order to choose which behavior to enact. As previously discussed, general self-efficacy is a measure of individuals’ global confidence in their ability to cope with a variety of situations and a wide range of positive self-beliefs (Scholz et al, 2002). Woodruff and Cashman (1993) hypothesized that after repeated successes, ratings of general self-efficacy may transfer to other domains. Bullying, by definition, is repeated over time. Although speculative, it would seem that the bullying behavior would persist only if the bullying was successful. Thus, if the assertions by supporters of general self-efficacy were correct then bullies should have a higher belief in their general self-efficacy which would transfer to having more confidence in their ability to carry out aggressive behaviors. The current study did not measure the specific self-efficacy of the participants’ belief in their ability to carry out an aggressive act. However, due to the arguments of advocates of general self-efficacy, it was believed that general self-efficacy would provide a measure that would pertain to the specific self-efficacy of interest.

Self-efficacy measures that were specific to anger and fighting were significantly related to bullying frequency. General self-efficacy, however, was not. Frequency of
bullying others was negatively related to scores on general self-efficacy. Bullies and non-bullies were significantly different on five questions from the general self-efficacy measure. Bullies rated only one item significantly higher: “If someone opposes me, I can find the means and ways to get what I want”. A part of this statement is instrumental in that there are clear goals that the individual is attempting to achieve however, it is not necessarily aggressive and may simply be a measure of the individual’s resourcefulness.

Those who were not bullies in grade school rated themselves higher in their belief in their ability to find several solutions to problems and to deal effectively with unexpected events. This finding suggests that nonbullies are able to find alternate solutions that do not involve aggression. In the social information processing model during step four, nonbullies are able to identify more responses to the situation including responses that are nonaggressive.

Another explanation for the negative association between general self-efficacy and bullying frequency is that there is a likely relationship between the level of self-efficacy being measured and the specific behavior that is being measured. Indeed, researchers have found that the predictive ability of a self-efficacy measure is increased when the specificity of the construct is closely linked with the task being measured (Bandura, 1997). Specifically, to get the most predictive measure for one’s belief in their ability to carry out an aggressive act, a measure should consist of numerous aggressive acts with which the individual is likely to encounter or already have had some experience.

An individual’s current expectation for positive outcomes for aggression was related to past bullying frequency as was the individual’s current more positive attitude
toward aggression. Further analyses indicated that those who were bullies over multiple time periods scored higher on their expectation for positive outcomes for aggression. This compliments previous findings by bully researchers (Olweus, 1993a; Vernberg et al., 1999) that found similar results when the bullying was currently being experienced. The significant findings in the current study combined with the significant findings from the previous literature lend support to step five of the social information processing model which involves deciding on the response to the social situation. Specifically, those who were and are bullies have a positive attitude toward aggression in aggression will enhance his or her social standing. Further, they believe that aggression is legitimate. These two sets of beliefs will allow an individual to choose an aggressive response to a social situation.

Evidence has been presented that identified characteristic biases in decision making among children who exhibit proactive and reactive aggression (Crick & Dodge, 1996; VanOostrum & Horvath, 1997; Vernberg et al., 1999). Further examination revealed that the variables that best predicted proactive aggression were also the best predictors of an individual’s odds of being a bully. Specifically two variables, having a low belief that they could control their anger and possessing a positive attitude toward aggression, were both significantly related to proactive aggression and being a bully in childhood.

*Implications of Findings*

The current study identified numerous social information processing biases that are likely to occur in adulthood among past bullies. Specifically, bullies have a lower belief in their ability to control their anger and they have a positive attitude toward
aggression. Other social information processing variables should be considered for future research as the measures in this study only assessed a small part of the model. Other variables include analyses of the individual’s beliefs for the cause of the social cue, goals that are identified for social situations, responses that are generated for the social situation, and how an individual evaluates these responses that are generated.

Clinically, the social information processing model has been used to conceptualize and treat conduct disorders in children and adolescence (Pettit, Polaha, & Mize, 2001). The focus of this particular therapy has been on steps one and two of the social information processing model. Pettit et al. (2001) discussed how aggressive behaviors are created in a situation. Specifically, past experiences create schemas that the child employs to decide on which action is most appropriate. The current study supports the use of other steps in the model that can be a target of therapy, specifically, clarification of goals (step 3) and response decision (step 5). Treatment should use the clarification of goals step when treating bullies. As found in the current study, bullies are more likely to believe that their aggression will enhance their status. Identifying this as a goal for behavior and using this in treatment can be helpful in decreasing aggressive responses. Specifically, treatment could focus on alternate ways of achieving a goal. A client with aggression problems can be introduced to the negatives of aggression and the negative attitude that people have for aggression while focusing on other ways of building their social standing. During step 5, in choosing the behavior to enact, bullies are more likely to choose an aggressive act because they do not believe that they can control their anger. This acquiescence may increase their likelihood of choosing an aggressive response. Focus in treatment can be on building self-efficacy for appropriately coping
with situations instead of using aggression. More often than not, people use responses that they are comfortable with because they have used it previously and been successful. It is difficult for people to try novel techniques. Increasing an aggressive person’s self-efficacy in their ability to carry out new behaviors or to face failure as a learning experience can help them choose nonaggressive behaviors to enact. Treatment can also focus on the response access and generation step (step 4). Aggressive children often have only a few alternative solutions and few are nonaggressive (Crick & Dodge, 1994). Treatment can focus on learning prosocial techniques and responses in order for the individual to enact a more socially responsible behavior.

Pettit et al. (2001) identified the use of the model in children. The current study supports the use of the model to conceptualize aggressive problems in adults. Knowledge of what biases are most related to previous bullying behavior can be used in treatment. It may be a concern that by adulthood, the typical responses have been ingrained into the individual’s internal working model. Identification of what individuals are doing though, may help to focus treatment into more succinct topics that allow for real change in behavior.

The current study found support for the use of the social information processing model among adults as some of the biases did indeed exist in adulthood. With this information, further identification of other biases commonly found among children who experience bullying may be conducted to identify if these other biases also exist in adulthood.

Experimental research can be conducted to assess other steps of the social information processing model. Experiments of this type on victims may focus on step one
(encoding of cues), step three (clarification of goals), and step four (response access or construction). It would be interesting to have participants experience a situation in which there is ambiguous intent and have them identify goals and possible responses for their behavior. Experiments involving bullies might also focus on the generation of responses and comparing the responses as being aggressive or nonaggressive. Further, the number of responses generated may be included to identify if impulsivity remains a factor.

Measures should be developed for further research in the area of social information processing and bullying. As mentioned before, the hostile attribution scale did not appear to be measuring a unitary construct. Identification and validation of a better measure with the population of interest would be useful. In the area of self-efficacy, it would be useful to develop a measure that can assess the bully’s belief in his or her ability to carry out an aggressive act. The measure should include both their belief in their ability to carry out physical aggression and their belief in their ability to effectively use social manipulation and verbal aggression. Future research should also include other measures that identify bullies such as measures of mood and anxiety.

Limitations of the Study

The current study was limited in a number of ways. First, the study relied on the recall of bullying experiences from childhood. The participants were all under 22-years old indicating that some the experiences were more than 15 years prior when they were in elementary school. A calendar was used to help aid in the recall of such events as recommended by previous research (Rivers, 2001). However, in retrospective data, there is always the tendency to misreport information, particularly when such experiences may be aversive to remember (Dube et al., 2004). The number of participants reporting both
bullying behavior and victimization exceeded the expectations and underreporting did not appear to be an issue in the current study. Previous research by Dube et al. has supported the use of retrospective and achieved test-retest reliability to an acceptable degree. It is not believed that retrospective reporting was a major impediment for the current study but ideally longitudinal data would be desired.

Another limitation of the study was the use of a college population. Bullies have significantly lower academic achievement (Nansel et al., 2001) and are thus probably less likely to go to college. Further, bullies are more likely to participate in criminal behavior. One longitudinal study found that 60% of boys who had been bullies between ages 11 and 14 had at least conviction by the time they were 24-years old. More than half of these participants had three or more convictions (Olweus, 1993a).

Those who are both bullies and victims have the worst psychosocial adjustment of any bully group (Nansel et al., 2001). These individuals feel that they do not fit in and because of their aggressive nature may be being avoided by other children. The current study, despite having a respectable percentage of people reporting past bullying experiences, may not be capturing the real picture of bullies and only a special population of high achieving or high functioning bullies. Future research using a community sample instead of a college population may capture a better overall picture of those who were bullies and those who were both bullies and victims in childhood.

The measure of proactive aggression contained some overlap with questions identifying participants as bullies. Specifically, on the proactive aggression measure, one question asked if the participant bullied others. Other questions asked about the use of intimidation and threats. Bullies’ average scores on all proactive aggression items were
significantly higher than those who were not bullies even those that did not directly reflect specific bullying behaviors. However, the overlap between proactive aggression questions and bullying behaviors may be seen as a limitation in that the current study is not getting a clean picture of those who are proactively aggressive but not bullies. Dodge’s (1991) definition of proactive aggression specifies bullying as a special case of proactive aggression.

For future research, it would be useful to identify measure items that do not directly reflect bullying behaviors. This is a difficult endeavor as bullying has been viewed as a specific form of proactive aggression (Dodge, 1991). Proactive aggression is differentiated from bullying in that the behavior does not necessarily have to be repeated to be considered proactive. Further, the requirement of a power differential in order for a behavior to be considered bullying is not included in proactive aggression. Providing scenarios to individuals instead of one-sentence items may be a better indicator of proactive aggression that is not bullying.

The high correlation between proactive and reactive aggression is cause for concern in both the current study and in the literature. However, it is not unexpected that the types of aggression would be correlated (Vitiello & Stoff, 1997). Vitiello and Stoff (1997) assert that the same individual is likely to show both types of aggression at different times as it relates to different situations. These researchers propose a dimensional measure of proactive and reactive aggression instead of forcing individuals into dichotomous categories.

Prospective research would be ideal for this type of research paired with multiple sources of information. The current study relied on self-identification of bully status.
Also, it would be helpful to be able to compare scores on the social information processing variables over time. It is unclear which comes first, bully status or the social information processing biases. Previous literature that has identified typical biases (Crick & Dodge, 1996) was used to infer a continuance into adulthood. However, measurement over time with the same sample would confirm this connection. This would be the best method to determine the occurrence of the social information processing biases in relation to bully experiences.

Another limitation of the study was the small percentage of previous bullies who were identified with the social information processing variables. Indeed, the variables better predicted those who were not involved in bullying in grade school. This limits the applicability of the findings to a clinical environment as people who are seeking treatment are not those without aggressive difficulties. More research needs to be conducted in order to elucidate a better picture of the biases.

**Conclusions**

The model in the current study has a higher accuracy of identifying those who were not bullies in grade school than identifying those who were bullies. Those who were not bullies were not aggressive and believed that they could control their anger and stay out of fights. Further, the need to be aggressive in order to gain status and power was not present among those who were not bullies. Further, nonbullies were not as aggressive as bullies and did not have a positive attitude toward aggression.

Future research should focus on other steps of the social information processing model as only a few of the steps were measured in the current study. Specifically, steps 2, 3, and 5 were assessed with a limited number of measurements. Each of the steps could
be measured and analyzed including differences on which steps are more important in prediction than others. Further, research should focus on other steps in general and on other measures that assess the specific steps in the model.

Missing from the current study, is a more complex picture of those who bully others in order to make better predictions concerning who bullies. Some typical characteristics have been identified but the model is only accurately predicting less than 20% of bullies. The current study identified the important steps in the social information processing model that can be used to assess if a bullying response will be chosen in the situation. Other variables, in addition to the social information processing variables, can be added to the model to increase the prediction rate of bullies.

The current study has helped bolster the bulling literature. Missing from the literature is information concerning those who bully others in the long-term. At the current time, the information available is limited to knowing that bullies are more likely to be in the legal system as an adult. The current study identified other long-term issues that bullies exhibit. The model supports a difference in how bullies and nonbullies respond in a social situation. It is important to continue this line of research as it will help identify the long-term biases of bullies.
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Appendix A-1

Ohio University
Human Subjects Consent Form

Title of Research: Bullying Experiences
Principal Investigators: Amy Nigoff
Department: Psychology

I. Federal and university regulations require us to obtain signed consent for participation in research involving human participants. After reading the statement in II below, please indicate your consent by signing this form.

II. Statement of Procedure:

Research has shown that bullying experiences have a long-term effect on ways that individuals view the world and their current experiences. The present study was designed to measure these different ways of thinking by asking questions about how you view situations and how you deal with these situations when they arise. The results gleaned from this study will contribute to our understanding of the long-term effects of bullying experiences.

Many questionnaires will be used to assess bullying experiences and ways that you may view situations. The surveys will ask about both current and past experiences. Questions involve normal experiences however, you may feel some discomfort when asked to remember possibly negative experiences from your past. Please consider before participation whether you may be embarrassed, offended, or upset by the sensitive content of such materials. Participation is voluntary and may be discontinued at any time without penalty.

If you choose to participate, you will be asked to fill out questionnaires. Your participation will take approximately one hour. You will receive one experimental credit points toward your psychology class.

All answers are anonymous. There will be no identifying information on the questionnaires that would allow any trace back to you.

The primary risk associated with this study is discomfort in answering questions about personal or private information. However, your participation is entirely voluntary, and you may withdraw from the study at any time without penalty or negative consequences.

As a research participant, you will be exposed to psychological research and may gain insight into your own adjustment and life experiences. In addition, you will receive 1 experimental credit for your participation.
If you have any questions or concerns the experimenter will be available for one half hour at the end of each session. In addition, you may feel free to call Amy Nigoff at 593-1088 or e-mail her at an124302@ohio.edu or Dr. Christine Gidycz at 593-1092 or gidycz@ohiou.edu.

If you have any questions regarding your rights as a research participant, please contact Jo Ellen Sherow, Director of Research Compliance, Ohio University, (740)593-0664.

I certify that I have read and understand this consent form and agree to participate as a subject in the research described. I agree that known risks to me have been explained to my satisfaction and I understand that no compensation is available from Ohio University and its employees for any injury resulting from my participation in this research. I certify that I am 18 years of age or older. My participation in this research is given voluntarily. I understand that I may discontinue participation at any time without penalty or loss of any benefits to which I may otherwise be entitled. I certify that I have been given a copy of this consent form to take with me.

Signature: ___________________________ Date: ___________

Print: ___________________________
DEBRIEFING FORM

Thank you for your participation in this research project. This study was designed to investigate if bullying experiences has a long term effect on an individual’s behavior as measured by current levels of aggression and ways that social information in processed. The information provided by these questionnaires will help psychology researchers and clinicians learn more about the relationship between various different constructs. In doing so, psychologists will better be able to use this questionnaire in researching a variety of social-related issues in a reliable manner.

As a reminder, all of your questionnaire responses will remain strictly confidential. If you have any further questions regarding the nature of this study, or would like to request details of the results of the study, please feel free to contact one of the following:

Graduate Researcher: Amy Nigoff
Porter Hall – Office 044-T
593-1088

Faculty Researcher: Christine A. Gidycz
Porter Hall – Room 231
593-1092

In addition, if you are concerned about the study materials used or questions asked and wish to speak with a professional, or if you would like more information or reading material on this topic, please contact one of the following resources:

Ohio University Counseling and Psychological Services: 593-1616
Psychology and Social Work Clinic: 593-0902
Tri-County Mental Health Services: 592-3091
Careline (24-hr Hotline): 593-3344
Appendix B-1

Demographic Questionnaire

We would like to ask some general questions about you first.

1. What is your gender?
   a. Male
   b. Female

2. How old are you?
   a. 18
   b. 19
   c. 20
   d. 21
   e. 22
   f. 23 or older

3. What is your race or ethnic background?
   a. White (Non-Hispanic)
   b. Black (Non-Hispanic)
   c. Hispanic
   d. Asian or Pacific Islander
   e. American Indian or Alaska Native
   f. Other

4. What year are you?
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior
   e. Other

5. What type of school did you attend in elementary school (if more than one type, circle the school at which you spent the most time)?
   a. Public
   b. Private
   c. Private Religious
   d. Home school
   e. Other

6. What type of school did you attend in middle school (if more than one type, circle the school at which you spent the most time)?
   a. Public
   b. Private
   c. Private Religious
   d. Home school
   e. Other
7. What type of school did you attend in high school (if more than one type, circle the school at which you spent the most time)?
   a. Public
   b. Private
   c. Private Religious
   d. Home school
   e. Other

8. How many good friends did you have during elementary school?
   a. None
   b. 1-2
   c. 3-5
   d. 5-10
   e. More than 10.

9. How many good friends did you have during middle school?
   a. None
   b. 1-2
   c. 3-5
   d. 5-10
   e. More than 10.

10. How many good friends did you have during high school?
    a. None
    b. 1-2
    c. 3-5
    d. 5-10
    e. More than 10.

11. What types of friends did you have in elementary school?
    a. Mainly bully victims
    b. Some were bully victims.
    c. Mainly kids who bullied other kids.
    d. Some were kids who bullied other kids.
    e. None of my friends were involved in bullying as either the bully or the victim.

12. What types of friends did you have in middle school?
    a. Mainly bully victims
    b. Some were bully victims.
    c. Mainly kids who bullied other kids.
    d. Some were kids who bullied other kids.
    e. None of my friends were involved in bullying as either the bully or the victim.

13. What types of friends did you have in high school?
    a. Mainly bully victims
    b. Some were bully victims.
    c. Mainly kids who bullied other kids.
    d. Some were kids who bullied other kids.
e. None of my friends were involved in bullying as either the bully or the victim.
Appendix B-2
Olweus Bully/Victim Questionnaire Revised

About being bullied by other students

Here are some questions about being bullied by other students. First we define or explain the word bullying. We say a student is being bullied when another student, or several students

- say mean and hurtful things or make fun of him or her or call him or her mean and hurtful names
- completely ignore or exclude him or her from their group of friends or leave her or her out of things on purpose
- hit, kick, push, shove around, or lock him or her inside a room
- tell lies or spread false rumors about him or her or send mean notes and try to make other students dislike him or her
- and other hurtful things like that

When we talk about bullying, these things happen repeatedly, and it is difficult for the student being bullied to defend himself or herself. We also call it bullying, when a student is teased repeatedly in a mean and hurtful way.

But we don’t call it bullying when the teasing is done in a friendly and playful way. Also, it is not bullying when two students of about equal strength or power argue or fight.

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Please read and answer the following questions by circling the best response(s).

1. How often were you bullied at school?
   a. I haven’t been bullied at school.
   b. It happened only once or twice.
   c. 2 or three times a month.
   d. About once a week.
   e. Several times a week.

Please answer the following questions using the scale below and circling the best response.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>It hasn’t happened to me</td>
<td>Only once or twice</td>
<td>2 or 3 times a month</td>
<td>About once a week</td>
<td>Several times a week</td>
</tr>
</tbody>
</table>

Were you bullied at school in one or more of the following ways?

2. I was called mean names, was made fun of, or teased in a hurtful way. 1 2 3 4 5
3. Other students left me out of things on purpose, excluding me from their group of friends, or completely ignored me.  
   1 2 3 4 5

4. I was hit, kicked, pushed, shoved around, or locked indoors.  
   1 2 3 4 5

5. Other students told lies or spread false rumors about me and tried to make others dislike me.  
   1 2 3 4 5

6. I had money or other things taken away from me or damaged.  
   1 2 3 4 5

7. I was threatened or forced to do things I didn’t want to.  
   1 2 3 4 5

8. I was bullied with mean names or comments about my race or color.  
   1 2 3 4 5

9. I was bullied with mean names, comments, or gestures with a sexual meaning.  
   1 2 3 4 5

10. I was bullied in another way (Please write in what way _______________________________).  
    1 2 3 4 5

11. In which class(es) were the student(s) who bullied you?  
   a. I haven’t been bullied at school  
   b. In my class.  
   c. In a different class but same grade (year).  
   d. In a higher grade.  
   e. In a lower grade  
   f. In different grades

12. Were you bullied by males or females?  
   a. I haven’t been bullied at school.  
   b. Mainly by 1 female.  
   c. Be several females.  
   d. Mainly by 1 males.  
   e. By several males.  
   f. By both males and females.

13. By how many students were you usually bullied?  
   a. I haven’t been bullied at school.  
   b. Mainly by 1 student.  
   c. By a group of 2-3 students.  
   d. By a group of 4-9 students.  
   e. By a group of more than 9 students.  
   f. By several different students or groups of students.

14. How long did the bullying last?  
   a. I haven’t been bullied at school.  
   b. It lasted one to two weeks.
c. It lasted about a month.
d. It lasted about six months.
e. It lasted about a year.
f. It went on for several years.

15. Did you tell anyone that you had been bullied at school?
   a. I haven’t been bullied at school. (Skip to question #16)
   b. No (skip to question #16)
   c. Yes (please answer 15a-15f)

I have been bullied and I told:
   15a. your class (home room) teacher  Yes  No
   15b. another adult at school  Yes  No
   15c. your parent/guardian  Yes  No
   15d. your brother or sister  Yes  No
   15e. your friend(s)  Yes  No
   15f. somebody else (Please specify who ________________).  Yes  No

16. How often did the teachers or other adults at school try to put a stop to it when a student was being bullied at school?
   a. Almost never
   b. Once in a while
   c. Sometimes
   d. Often
   e. Almost always

17. How often did other students try to put a stop to it when a student was being bullied at school?
   a. Almost never
   b. Once in a while
   c. Sometimes
   d. Often
   e. Almost always

18. Did any adult at home contacted the school to try to stop your being bullied at school?
   a. I haven’t been bullied at school.
   b. No, they haven’t contacted the school.
   c. Yes, they contacted the school once.
   d. Yes, they contacted the school several times.

19. When you saw a student your age being bullied, what did you feel or think?
   a. That is probably what he or she deserves
   b. I don’t feel much
c. I feel a bit sorry for him or her  
d. I feel sorry for him or her and want to help him or her

About Bullying Other Students

1. How often did you take part in bullying another student at school?  
a. I haven’t bullied another student at school.  
b. It only happened once or twice.  
c. 2 or 3 times a month.  
d. About once a week.  
e. Several times a week.

Please answer the following questions using the scale below and circling the best response.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>It hasn’t happened to me</td>
<td>Only once or twice</td>
<td>2 or 3 times a month</td>
<td>About once a week</td>
<td>Several times a week</td>
</tr>
</tbody>
</table>

Did you bully another student at school in one or more of the following ways?

2. I called another student mean names, made fun of, or teased him or her in a hurtful way.  
3. I kept him or her out of things on purpose, excluding him or her from my group of friends or completely ignored him or her.  
4. I hit, kicked, pushed and shoved him or her around or locked him or her indoors.  
5. I spread false rumors about him or her and tried to make others dislike him or her.  
6. I took money or other things from him or her or damaged his or her belongings.  
7. I threatened or forced him or her to do things he or she didn’t want to do.  
8. I bullied him or her with mean names or comments about his or her race or color.  
9. I bullied him or her with mean names, comments, or gestures with a sexual meaning.  
10. I bullied him or her in another way (Please write in what way ____________________________).  

11. Did your class (home room) teacher or any other teacher talk with you about your bullying other students at school?  
a. I haven’t bullied other students at school.  
b. No, they didn’t talk with me about it.
12. Did any adult at home talk with you about your bullying other students?
   a. I haven’t bullied other students at school.
   b. No, they didn’t talk with me about it.
   c. Yes, they did talk with me about it once.
   d. Yes, they did talk with me about it several times.

13. Do you think you could have joined in bullying a student whom you didn’t like?
   a. Yes.
   b. Yes, maybe.
   c. I don’t know.
   d. No, I don’t think so.
   e. No.
   f. Definitely no.

14. How did you usually react if you saw or understood that a student your age was
    being bullied by other students?
   a. I have never noticed that students my age have been bullied.
   b. I take part in bullying.
   c. I don’t do anything, but I think the bullying is OK.
   d. I just watch what goes on.
   e. I don’t do anything, but I think I ought to help the bullied student.
   f. I try to help the bullied student in one way or another.

15. How often were you afraid of being bullied by other students in your school?
   a. Never
   b. Seldom
   c. Sometimes
   d. Fairly often
   e. Often
   f. Very often

16. Overall, how much did you think your class (home room) teacher has done to
    counteract bullying?
   a. Little or nothing
   b. Fairly little
   c. Somewhat
   d. A good deal
   e. Much
Appendix B-3

1. How often have you been bullied since graduating high school (including college experiences)?
   a. I haven’t been bullied since graduating high school.
   b. It happened only once or twice.
   c. 2 or three times a month.
   d. About once a week.
   e. Several times a week.

Please answer the following questions using the scale below and circling the best response.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>It hasn’t happened to me</td>
<td>Only once or twice</td>
<td>2 or 3 times a month</td>
<td>About once a week</td>
<td>Several times a week</td>
</tr>
</tbody>
</table>

Were you bullied in one or more of the following ways since graduating high school?

2. I was called mean names, was made fun of, or teased in a hurtful way.  
   1 2 3 4 5

3. Other people left me out of things on purpose, excluding me from their group of friends, or completely ignored me.  
   1 2 3 4 5

4. I was hit, kicked, pushed, shoved around, or locked indoors.  
   1 2 3 4 5

5. Other people told lies or spread false rumors about me and tried to make others dislike me.  
   1 2 3 4 5

6. I had money or other things taken away from me or damaged.  
   1 2 3 4 5

7. I was threatened or forced to do things I didn’t want to.  
   1 2 3 4 5

8. I was bullied with mean names or comments about my race or color.  
   1 2 3 4 5

9. I was bullied with mean names, comments, or gestures with a sexual meaning.  
   1 2 3 4 5

10. I was bullied in another way (Please write in what way_______________________________).  
    1 2 3 4 5

11. How often did you take part in bullying another person since graduating high school?
   a. I haven’t bullied another person since graduating high school.
   b. It only happened once or twice.
   c. 2 or 3 times a month.
   d. About once a week.
e. Several times a week.

Please answer the following questions using the scale below and circling the best response.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>It hasn’t happened to me</td>
<td>Only once or twice</td>
<td>2 or 3 times a month</td>
<td>About once a week</td>
<td>Several times a week</td>
</tr>
</tbody>
</table>

Did you bully another student in one or more of the following ways since graduating high school?

12. I called another person mean names, made fun of, or teased him or her in a hurtful way.

13. I kept him or her out of things on purpose, excluding him or her from my group of friends or completely ignored him or her.

14. I hit, kicked, pushed and shoved him or her around or locked him or her indoors.

15. I spread false rumors about him or her and tried to make others dislike him or her.

16. I took money or other things from him or her or damaged his or her belongings.

17. I threatened or forced him or her to do things he or she didn’t want to do.

18. I bullied him or her with mean names or comments about his or her race or color.

19. I bullied him or her with mean names, comments, or gestures with a sexual meaning.

20. I bullied him or her in another way (Please write in what way _____________________________).
Appendix B-4

Proactive/Reactive Measure
Berger and Shiltz (2000)

Please indicate your agreement with the following items by circling the appropriate number.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Completely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
</tbody>
</table>

1. When angry, I keep my cool  
2. I know how to use aggression to get what I want  
3. I sometimes threaten others  
4. When angry, I am patient with others  
5. When angry, I calm down faster than most other people  
6. I have threatened other people before  
7. When angry, I lose my temper  
8. Intimidation can be a useful tool  
9. I lose my temper easily  
10. Violence can be useful in some situations  
11. When angry, I can stop myself from losing my temper  
12. I sometimes take charge of a situation by using intimidation  
13. I will intimidate others to win a game  
14. I am willing to fight in order to gain control  
15. I am a hotheaded person  
16. When angry, I try to be tolerant and understanding  
17. I have used friends to intimidate others  
18. I fly off the handle easily  
19. When angry, I control my temper  
20. I sometimes bully others
Appendix B-5

Awareness of Motivation Scale

For each of the following statements, indicate the extent to which it does or does not sound like you by circling how much each statement is like you.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all like me</td>
<td>Sometimes</td>
<td>A lot like me</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Someone cuts in front of me in traffic without signaling. I assume that they don’t give a damn about other drivers.  1 2 3 4 5
2. Someone is late for a meeting with me. I worry that they have been unavoidably stuck in traffic.  1 2 3 4 5
3. I am trying to sleep in and a neighbor is up early moving his lawn. I’d like to catch him sleeping sometime so I can make a lot of noise.  1 2 3 4 5
4. A co-worker doesn’t do his job. I figure he’s slacking off to stick someone else with his work.  1 2 3 4 5
5. I send someone a wedding or graduation gift and do not receive a thank-you card. I am worried that they have never received the gift.  1 2 3 4 5
6. The line has been moving painfully slowly. Someone cuts in several places ahead of me. I feel like yelling, “No cuts.”  1 2 3 4 5
7. I return to my parked car and see a dent in my back fender. I figure someone must have backed into me and driven off without realizing it.  1 2 3 4 5
8. I find some wrappers from a fast-food restaurant littering the front of my house. I believe that someone deliberately threw them out of their car window.  1 2 3 4 5
9. A store clerk gives me change for a $10 bill instead of a $20. I point it out to her and then she gives me the correct change. I believe she simply made an honest mistake.  1 2 3 4 5
10. A telemarketer calls at 7:15, interrupting dinner or a TV show. I feel sorry for anyone who has to make a living like this.  1 2 3 4 5
Appendix B-6

General Perceived Self-Efficacy Scale
Schwarzer and Jerusalem (1995)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all true</td>
<td>Hardly true</td>
<td>Moderately true</td>
<td>Exactly true</td>
</tr>
</tbody>
</table>

1. I can always manage to solve difficult problems if I try hard enough. 1 2 3 4
2. If someone opposes me, I can find the means and ways to get what I want. 1 2 3 4
3. I am certain that I can accomplish my goals. 1 2 3 4
4. I am confident that I could deal efficiently with unexpected events. 1 2 3 4
5. Thanks to my resourcefulness, I can handle unforeseen situations. 1 2 3 4
6. I can solve most problems if I invest the necessary effort. 1 2 3 4
7. I can remain calm when facing difficulties because I can rely on my coping abilities. 1 2 3 4
8. When I am confronted with a problem, I can find several solutions. 1 2 3 4
9. If I am in trouble, I can think of a good solution. 1 2 3 4
10. I can handle whatever comes my way. 1 2 3 4
Appendix B-7

Self-Efficacy
Prothrow-Stith (1987)
Additional Item Developed by DeJong et al. (1992)

1. I am confident in my ability to stay out of fights.
   Strongly Disagree 1  Disagree 2  Agree 3  Strongly Agree 4

2. If someone called me a bad name, I would ignore them or walk away.
   Strongly Disagree 1  Disagree 2  Agree 3  Strongly Agree 4

3. I don’t need to fight because there are other ways to deal with anger.
   Strongly Disagree 1  Disagree 2  Agree 3  Strongly Agree 4

4. I can get along well with most people.
   Strongly Disagree 1  Disagree 2  Agree 3  Strongly Agree 4
Appendix B-8

Self-Efficacy – Teen Conflict Survey
Bosworth and Espelage (1995)

<table>
<thead>
<tr>
<th>Very Confident</th>
<th>Somewhat Confident</th>
<th>Unsure</th>
<th>Not Very Confident</th>
<th>Not at All Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

How confident are you in your ability to
1. stay out of fights? 1 2 3 4 5
2. understand another person’s point of view? 1 2 3 4 5
3. calm down when you are mad? 1 2 3 4 5
4. talk out a disagreement? 1 2 3 4 5
5. learn to stay out of fights? 1 2 3 4 5
Appendix B-9

Attitudes Toward Peer Aggression
Vernberg, Jacobs, and Hershberger (1999)

<table>
<thead>
<tr>
<th>Don’t agree at all</th>
<th>Agree a little</th>
<th>Agree a lot</th>
<th>Completely agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It’s okay for students to fight each other.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Bullies get what they want from other students.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. When two students are fighting each other, it’s all right to stand there and watch.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. When a student is getting picked on or pushed around, other students should try to stop it.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Sometimes a student deserves to be pushed around by other students.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Students who get picked on or pushed around usually did something to deserve it.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. It’s okay for students to make fun of other students.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. It makes a student feel big and tough to be a bully.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. When two students are fighting each other, it’s okay to cheer for them.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. When two students are fighting each other, other students should stop them.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Students can make other students do what they want by yelling at them.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Sometimes it’s okay to be a bully.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Students get respect when they boss other students around.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. It’s important for students to show they are ready to fight anyone who picks on them.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Students can get what they want from other students by fighting with them.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. When two students are fighting each other, other students should stay out of it.</td>
<td>1 2 3 4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B-10

Aggression Questionnaire
Buss & Perry (1992)

Please answer each question using the scale below and circling the most appropriate answer.

<table>
<thead>
<tr>
<th>Extremely uncharacteristic of me</th>
<th>Extremely characteristic of me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

1. Once in a while I can’t control the urge to strike another person. 1 2 3 4 5
2. Given enough provocation, I may hit another person. 1 2 3 4 5
3. If somebody hits me, I hit back. 1 2 3 4 5
4. I get into fights a little more than the average person. 1 2 3 4 5
5. If I have to resort to violence to protect my rights, I will. 1 2 3 4 5
6. There are people who push me so far that we came to blows. 1 2 3 4 5
7. I can think of no good reason for ever hitting a person. 1 2 3 4 5
8. I have threatened people I know. 1 2 3 4 5
9. I have become so mad that I have broken things. 1 2 3 4 5
10. I tell my friends openly when I disagree with them. 1 2 3 4 5
11. I often find myself disagreeing with people. 1 2 3 4 5
12. When people annoy me, I may tell them what I think of them. 1 2 3 4 5
13. I can’t help getting into arguments when people disagree with me. 1 2 3 4 5
14. My friends say that I am somewhat argumentative. 1 2 3 4 5
15. I flare up quickly but get over it quickly. 1 2 3 4 5
16. When frustrated, I let my irritation show. 1 2 3 4 5
17. I sometimes feel like a powder keg ready to explode. 1 2 3 4 5
18. I am an even-tempered person. 1 2 3 4 5
19. Some of my friends think I’m a hothead. 1 2 3 4 5
20. Sometimes I fly off the handle for no good reason. 1 2 3 4 5
21. I have trouble controlling my temper. 1 2 3 4 5
22. I am sometimes eaten up with jealousy. 1 2 3 4 5
23. At times I feel I have gotten a raw deal out of life. 1 2 3 4 5
24. Other people always seem to get the breaks. 1 2 3 4 5
25. I wonder why sometimes I feel so bitter about things. 1 2 3 4 5
26. I know that “friends” talk about me behind my back. 1 2 3 4 5
27. I am suspicious of overly friendly strangers. 1 2 3 4 5
28. I sometimes feel that people are laughing at me behind my back. 1 2 3 4 5
29. When people are especially nice, I wonder what they want. 1 2 3 4 5
During your participation in this study, you will be asked to think about the past. This table was designed to help you remember where you were and what you were doing during specific periods in your life. Use the last column to write in any milestones that happened during that time period. Include any exciting or important event in your life such as a memorable vacation, a new job, etc. Write in anything that would help you remember that time. You can use initials or other shorthand to fill out the table as it will not be used in the study analysis.

<table>
<thead>
<tr>
<th>School Names</th>
<th>Friends’ Names</th>
<th>Favorite Teachers’ Names</th>
<th>Milestones/Special Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary School (Pre-school through 5th Grades)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle School (6th through 8th Grades)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School (9th through 12th Grade)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following research study has been approved by the Institutional Review Board at Ohio University for the period listed below. This review was conducted through an expedited review procedure as defined in the federal regulations as Category(ies): 7

Project Title: Social Information Processing and Bullying: Do the characteristic Mistakes Continue into Adulthood?

Project Director: Amy Nigoff

Faculty Advisor (if applicable): Christine Gidycz

Department: Psychology

Jacqueline Legg, M.B.A., Chair
Institutional Review Board

Approval Date 8/27/04
Expiration Date 8/26/05

This approval is valid until expiration date listed above. If you wish to continue beyond expiration date, you must submit a periodic review application and obtain approval prior to continuation.

The approval remains in effect provided the study is conducted exactly as described in your application for review. Any additions or modifications to the project must be approved by the IRB (as an amendment) prior to implementation.

Adverse events must be reported to the IRB promptly, within 5 working days of the occurrence.
Appendix C-2

The amendment, detailed below, and submitted for the following research study has been approved by the Institutional Review Board at Ohio University. Approval date of this amendment does not affect the expiration date of the original approval.

Amendment: Additional Questionnaires

Project: Social Information Processing and Bullying: Do the characteristic Mistakes Continue into Adulthood?

Project Director: Amy Nigoff

Advisor: Christine Gidycz

Department: Psychology

Rebecca G. Cale
Institutional Review Board

10/18/04
Date