

ABSTRACT

Title of dissertation: THE INTENTIONALITY AND SOCIAL INFORMATION PROCESSING PATTERNS ASSOCIATED WITH ETHNIC MINORITY CHILDREN'S AGGRESSION

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According to Dodge and colleagues' social information processing model (e.g. Crick and Dodge, 1994) when faced with social situations, children engage in five components of decision making. In previous research using the model and corresponding social information processing (SIP) instruments, deficiencies in different components corresponded with childhood aggression. In particular, a tendency to interpret others' intentions as hostile is associated with aggression. Dodge and his colleagues cite schemas, or mental structures, as responsible for SIP deficiencies. However, the relationship between schemas and childhood aggression has not been systematically examined.

This study investigated the social information processing patterns and schemas of ethnic minority children in relation to reactive and proactive aggression, as rated by teacher, peer, and self informants. The SIP instrument measured participants' social information processing patterns and the Thematic Apperception Test (TAT) assessed schemas underlying aggression using portions of Teglassi's coding system (2001) and coding procedures developed to capture SIP components.

The TAT and SIP instruments were not correlated with one another and each correlated with different aspects of aggression. The SIP correlated primarily with teacher rated reactive aggression whereas the TAT correlated primarily with both peer and teacher rated proactive aggression. Prior research using the SIP instrument which found relationships between intentionality and aggression were not replicated. The TAT showed that among second and third grade children, most do not spontaneously consider the intentionality behind a provocation (intent attribution) but do consider the intention behind their response to a provocation (goal formation). Older age—within the two year span, significantly correlated with improved performance on some aspects of the SIP and TAT. On the SIP, girls were more likely than boys to select aggressive responses to a hypothetical situation, but expressed these in proactive ways while boys expressed more reactive aggression. Gender differences on the TAT were not present. Overall the TAT was a better predictor of both aggression types than the SIP and this was true for all informants.

The use of multiple measures and multiple informants to capture various aspects of aggression is discussed along with implications for theory and practice, and directions for future research.

THE INTENTIONALITY AND SOCIAL INFORMATION PROCESSING
PATTERNS ASSOCIATED WITH ETHNIC MINORITY
CHILDREN'S AGGRESSION

By

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Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2009

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Chapter 1: Introduction

Rationale for Studying Aggression

Due to highly publicized incidents of school violence, as well as the prevalence of bullying and other peer conflicts amongst youths, aggression is an increasingly important topic of study for today's researchers and school professionals. Aggression not only manifests in obvious forms such as verbal and physical fighting; it also has indirect effects on student well-being including social adjustment and learning difficulties. The study of aggression is sometimes complicated by the vast number of definitions and theoretical approaches that surround the topic. Broadly defined, aggression is a behavioral act that results in harming or hurting others. Because aggression varies depending upon the intentions of the aggressor as well as the circumstances surrounding a situation, it is generally conceptualized according to type. Essentially, aggression is considered to be either proactive or reactive; as well as verbal, physical, or relational (Werner & Crick, 2004).

Developmentally, a certain amount and type of aggression is considered normal and even adaptive during certain life stages. For example, most preschool aged children typically throw temper tantrums two to three times per week (Ounsted & Simons, 1978); behaviors which have important implications for the development of self-control and socialization skills. The distinction between adaptive and maladaptive aggression is not only a matter of degree, it is also a matter of the appropriateness of the behaviors to the situation or provocation and correspondence with developmental stage.

Theories of Aggression

Maladaptive aggression has been studied through the lens of a variety of theoretical approaches, many of which overlap in key areas. In particular, theories that address the cognitive processes underlying behavior have shown much usefulness in understanding childhood aggression. The major overarching theoretical frameworks applied to the study of aggression are Attachment Theory and Social Cognition, from which are derived a subset of approaches including Contextualism, Interpersonal Schema Theory, Normative Beliefs, Script Theory, and Moral Domain Theory. Common to both Attachment Theory and Social Cognition is the concept of mental structures known as **schemas**. In both theories, schemas are understood as contributing to interpersonal adjustment since they organize knowledge and facilitate problem solving. There are, however, some differences in schema conceptualization based on their parent theories: Social Cognitive approaches emphasize primarily external experiences such as behaviors and consequences in the formation of schemas. Attachment Theory perspectives not only emphasize this external approach, but also internal influences such as emotions. Both conceptualizations recognize the importance of past experiences and present contexts in the formation of schemas.

Unfortunately, the differences between schema conceptualizations have created some confusion within current research, thereby diminishing the application and study of schema theory in relation to overt behaviors, such as aggression. In response, Teglasi (2001) has advanced a schema theory which importantly unites these two, sometimes disparate approaches. In her view, schemas can be broken down into two major classifications, Personal and Public, which incorporate principles from both

Attachment and Social Cognition Theories. Briefly, Personal schemas are “unique to the knower” and include personal experiences and interpretations of these experiences, while Public schemas are “independent of the knower” and refer to common knowledge and societal expectations (p.5). In general, Personal schemas are more complex than Public schemas and must consist of many optimally working parts in order to be considered adaptive. For instance, when faced with a new situation, an adaptive Personal schema must consider past experience, size up and accurately interpret present circumstances, and sufficiently organize old and new information. When Personal schemas consist of poorly functioning parts or do not also employ Public schemas when needed, maladaptive behaviors can ensue such as acting without thinking and aggression.

Poorly functioning schemas can also negatively impact upon **Social Information Processing** skills, as initially conceptualized by Dodge (1986) and later updated by Crick and Dodge (1994). As with Teglasi’s (2001) schema theory, Dodge and colleague’s Social Information Processing model incorporates ideas from both Attachment theory and Social Cognitive approaches, and is the most popular concept applied to aggression research, today. The Social Information Processing model (SIP) consists of six steps which come into play whenever social judgment and decision-making is necessary in response to a provocation. These six steps are: 1) encoding of cues; 2) interpretation; 3) goal selection; 4) response generation; 5) response evaluation and 6) behavior enactment. Although seemingly linear, the authors conceptualize the SIP steps as connected by schemas and thereby non-linear in formation and expression. The Social Information Processing model is directly tied into an assessment device,

known as the “SIP instrument”, which presents hypothetical provocation situations to which an examinee must respond. The SIP instrument is the dominate assessment tool used in research examining the cognitive bases of aggression.

Much research has used the SIP instrument to link aggression with maladaptive processing at step two, “interpretation.” From these studies, a causal relationship has been concluded between hostile attribution biases and aggression where aggressive children tend to make biased interpretations during ambiguous situations, viewing a hypothetical person’s intentions as overly hostile. (e.g. Dodge, 1980; Crick & Dodge, 1996; Dodge & Tomlin, 1987; McGlothlin & Killen, 2005). Aggressive behaviors have also been linked with step four, “response generation”, where aggressive children generate significantly more aggressive responses than non-aggressive children (Dodge, 1980). Finally, distortions at step five, “response evaluation” have been linked with aggression where aggressive children tend to anticipate more positive outcomes from their aggressive responses, than do non-aggressive children (1990).

Statement of the Problem

Although insightful, Dodge and colleague’s SIP model and its supporting research falls short of capturing important elements of aggression. First, although intention attribution biases have been clearly indicated as pivotal to aggression, there is no evidence for why such biases exist, although Dodge and others have hinted at maladaptive schemas as the cause. For example, one study found that aggressive children make more presumptions of hostile intent than non-aggressive children, even when both groups are primed for nonhostility (Graham & Hudley, 1994). The authors explain this surprising finding by postulating that aggressive individuals tend to carry with them causal beliefs, or

schemas, that lead them to anticipate others' motives as ill-intended no matter how unfounded. Dodge and Tomlin (1987) also found a link between aggressive persons' interpretations and influential schemas. The authors discovered that when judging a hypothetical social situation, aggressive children tend to rely upon personal past experiences or "self-schemas" rather than current situational cues, more often than do their well-adjusted peers. These "self-schemas", then, are postulated to contaminate the aggressive child's understanding of a hypothetical other's behaviors and intentions. Finally, in two different studies Zelli (1995; 1996) found that highly aggressive individuals make hostile inferences in their recall for trait-relevant behaviors, even when there is seemingly no reason for doing so. As with the previously mentioned studies, Zelli hypothesized that highly accessible, hostile schemas influence how an individual encodes social information. Although the above authors' hypothesis of schemas underlying intention attributions is probably true, there is no proof, since only the SIP instrument was used which generally does not assess or provide information about underlying schemas. Without information about the content and complexity of the schemas related to aggression, little insight can be gained into the reasons behind maladaptive social information processing.

Another gap in social information processing research using the SIP instrument exists because "goal selection," its third step, has not been explored in relation to aggression. Such a lapse in research is surprising since goal selection centers as much upon intentionality -- the most founded link to aggression--as does SIP step two, interpretation. In other words, how a person understands a provoker's intentions (interpretation), should directly affect the intentions or goals behind a response to the

provocation (goal selection). It is these intentions or goals behind a response that drive the subsequent SIP steps, including response generation and evaluation.

Existing research using the SIP model and accompanying instrument has minimally addressed the distinction between aggression types, particularly proactive and reactive aggression. An exception is two studies which parceled out proactive and reactive aggression in order to uncover any differences in information processing patterns. The authors found that reactive aggressors possess a hostile attribution bias more frequently than proactive aggressors (Crick & Dodge, 1996), while proactive aggressors cite positive outcomes to their aggressive actions more often than reactive aggressors (Smithmyer, Hubbard & Simons, 2000). Though the findings are compelling, their usefulness for understanding proactive aggression is limited as only Dodge and colleagues' SIP instrument was used, which pulls solely for reactive aggression.

Finally, aggression research has largely not used peer informants to rate levels of aggression, even though peers are often the victims of or bystanders to aggressive acts.

Summary of Study Goals and Research Questions

Based upon the literature and existing gaps within this literature, the present study uses a projective storytelling method (i.e. Thematic Apperception Test: "TAT"), in addition to the commonly used SIP instruments. The TAT assesses schema content and complexity in order that additional information is revealed about the maladaptive social information processing of aggressive children. Moreover, the TAT allows for more authentic comparisons of the information processing patterns associated with

proactive and reactive aggression. The present study also extends aggression research by including this piece in evaluating aspects of social information processing in a single study including interpretation and goal selection (referred to as Intention Steps), as well as response generation and response evaluation (referred to as Response Formation Steps). Unlike previous studies, the various steps are examined here simultaneously. Gender and age variables are examined in terms of their relation to social information processing patterns as well as aggression types. Finally, the study participants are from a predominately African-American and Latino ethnic background and of mixed socioeconomic status, as the social information processing patterns and schemas of these groups have been largely under-examined. Briefly, the overarching question is as follows: How does social information processing as measured by the SIP and TAT relate to various ways of sub-typing aggression including reactive and proactive? The individual questions and a brief description of data analyses are further discussed in the review of literature and methods. Specific questions addressing the larger question are:

1. How do the SIP measures' intention and response formation steps relate to proactive and reactive aggressive behavior in the classroom as rated by teachers, peers, and the self? The relationship between the SIP instrument and aggression subtypes are examined through correlation analysis.

2. How are these same variables, noted above, reframed when measured in the context of a TAT story? A combination of correlation and descriptive analyses are used to determine, for example, how often various social information processing steps are conveyed spontaneously.

3. How do personal schemas and information processing skills, as measured by the TAT, relate to proactive and reactive aggressive behavior as rated by teachers, peers, and self? Correlations are calculated to examine the relationship between schemas and aggressive behavior.

4. How do demographic variables (i.e. gender and age) relate to aggression and social cognition? Correlation analyses are used to examine this relationship.

5. When predicting aggression from self, peer, and teacher perspectives, what are the unique contributions of schema and social information processing components? In order to address this question, multiple regression analyses are conducted.

Chapter 2: Overview of the Literature

The Problem that is Aggression

Aggression is a problem that is both highly prevalent among today's children and adolescents, and indicative of a variety of developmental difficulties. In particular, high levels of aggression amongst elementary school children have been shown to be related to school dropout during adolescence (Cairns, Cairns & Neckerman, 1989); peer rejection (Coie, Dodge & Kupersmidt, 1990); juvenile delinquency (Loeber & Stouthamer-Loeber, 1987) and adult criminality and psychopathology (Kohlberg, Ricks & Snarey, 1984). Further, aggressive children appear to struggle more in the classroom than their non-aggressive peers, both academically and socially, and there is evidence these trends continue into adulthood (Kazdin, 1987). As early as the first grade, aggressive behavioral responses amongst children have consistently been shown to predict later aggressive behaviors, conduct disorder, and drug abuse (Tremblay et al., 1992). Follow-up studies similarly indicate that aggressive children are more likely to exhibit alcoholism, accidents, unemployment, divorce, and both physical and psychological illnesses as adults (Caspi, Elder, and Bem, 1987). Finally, children who are chronically aggressive and thus, socially rejected by peers, experience rates of aggressive behaviors and rejection that are highly stable over time without intervention (Olweus, 1979). Without question, it is clear that high levels of aggression are detrimental to healthy development. For this reason, there has been a recent burgeoning of interest and research in this critical area.

Defining Aggression

Before examining the prevalence and rates of aggression, it is first important to understand what is meant by the term “aggression”. In the most general sense, aggression is defined as “an action aimed at harming another person” (Perry, Perry & Boldizar, 1990). Some researchers draw distinctions between different types of aggression based on the aggressive act that occurs, as is the case with verbal and physical and overt and covert aggression. Others divide aggressive acts into proactive and reactive aggression based on the circumstances surrounding the behavior, with proactive aggression referring to a deliberate behavior enacted to obtain a desired goal, and reactive aggression referring to an “angry, defensive response to a....provocation” (p. 993, Crick & Dodge, 1996). Finally, verbal aggression is sometimes further broken down into the most recent category of aggression, “relational aggression”. Also sometimes referred to as “covert aggression”, relational aggression refers to acts intended to damage peer relationships and social status through rumor spreading and teasing (Crick & Grotpeter, 1995).

Reactive and proactive aggression. The distinction between reactive and proactive aggression is important to highlight for the purposes of the present study. According to Dodge and Coie (1987), significant inter-observer agreements have been reliably documented during direct observations of third and fourth grade children’s play indicating the validity of separate reactive and proactive aggression constructs. In addition, several researchers have persuasively argued that important differences exist between the underlying cognitive processes of proactive versus reactive aggression (e.g. Crick & Ladd, 1990; Perry, Perry, & Rasmussen, 1986; Dodge & Coie, 1987). To

illustrate, Dodge and Coie (1987) examined the cognitive mechanisms behind chronic reactive and proactive aggressive behaviors and found that cognitive biases and deficits were related to reactive aggression, but not to proactive aggression. Specifically, children with high levels of reactive aggression tended to incorrectly attribute negative intentions to hypothetical peers during ambiguous situations significantly more frequently than did children with high levels of proactive aggression. Other researchers have found that biases do exist for proactive aggression, however the biases for proactive and reactive aggression are different. Specifically, proactive aggressors tend to possess a bias for perceiving favorable consequences of aggression more frequently than do reactive aggressors (Smithmyer, Hubbard & Simons, 2000). The correlates of proactive and reactive aggression also differ where reactive aggression is associated with peer rejection and victimization, whereas proactive aggression is not (Dodge, Lochman, Harnish, Bates & Pettit, 1997). In addition, in developing the Reactive-Proactive Aggression Questionnaire, its authors found further differences between aggression types. Specifically, proactive aggression was uniquely characterized at age seven by initiation of fights and poor school motivation, and at age 16 by delinquency and psychopathic personality. Reactive aggression, on the other hand, was uniquely characterized at age 16 by impulsivity, social anxiety, and unusual perceptual experiences (Raine et. al., 2006). It is important to remember, however, that even the most reliably distinguished proactive and reactive aggression constructs often co-occur within children. In other words, many children who display high rates of reactive aggression also tend to display high rates of proactive aggression. (Dodge & Coie,

1987). In fact, recent research has shown a correlation between teacher-rated reactive and proactive aggression as high as .845 (Gocool, 2006).

In sum, several researchers have discovered important cognitive distinctions between proactive and reactive aggression, while others have revealed the high correlation that exists between the two types of aggression, arguing that they may be difficult to tease apart. In fact, the cognitive distortions associated with both reactive and proactive aggression have important implications for understanding the reasons behind aggressive behavior. Unfortunately, current aggression studies examining cognition have largely neglected proactive aggression since the studies rely predominately on Dodge and colleagues' Social Information Processing instrument (SIP, discussed later) which presents situations involving only reactive aggression. As such, there exists a paucity of research examining proactive aggression and distinguishing it from reactive aggression. In response, the present study will address both reactive and proactive aggression by using storytelling techniques as well as Dodge and colleague's SIP instrument.

Adaptive Aggression Development

Certain amounts and instances of aggression are considered to be a normal part of healthy child development. In order to properly address youth aggression, it is important to first understand the developmental course of normal, adaptive aggression so that maladaptive aggression can be more clearly distinguished. Specifically, the developmental trend of adaptive aggression rates, triggers, goals, and expressive forms will be discussed.

Adaptive aggression rates. A certain degree and somewhat frequent occurrence of aggression is considered to be normal in young, developing children. As early as 3 months of age, infants can recognize facial expressions associated with anger (Izard et.al., 1995). When a child reaches the age of 12-18 months, observational studies have shown that approximately 50% of social interchanges amongst “normal” children in a nursery school setting could be considered conflictual or disruptive (Holmberg, 1980) and are most often directed toward a child’s peers rather than toward adult caregivers. These early interpersonal conflicts with peers serve to (1) provide important assertiveness training for infants and young children, (2) teach lessons about object ownership and establishing healthy boundaries, and (3) establish guidelines for resolving future social conflicts. Additional healthy byproducts of adaptive aggression include increased social assertiveness, adaptive competitiveness in games, and an overall success in meeting daily challenges (Connor, 2002). When a healthy developing child nears age 2 ½, most will dramatically decrease these rates of conflictual or disruptive social interchanges from 50% to 20% (Izard et al, 1995).

Adaptive aggression triggers. In conjunction with normal development’s decreased rates of adaptive aggression, the triggers of adaptive aggression also change. During infancy, aggression expressed through anger outbursts are usually precipitated by a need for attention or physical discomfort. As infants develop into toddlers, peer conflicts over the possession of objects and subsequent anger outbursts become increasingly common until the “normally developing” child reaches 5 years of age (Hartup, 1983). Between the ages of 6 through pre-adolescence, aggression triggers tend to center around peer and adult insults, including negative social comparisons such

as tattling and criticism. As the child becomes an adolescent then young adult, social dominance becomes increasingly important and aggression triggers tend to revolve around feelings of a disrupted or inadequate social standing (Loeber, 1990). In general, aggression triggers become increasingly complex with age and are representative of a child becoming adept at evaluating situations involving peer conflicts (Cummings et al, 1991).

Adaptive aggression goals. The goals of adaptive aggression also appear to shift as a result of developmental maturation. For example, children younger than 6 years of age tend to engage in large quantities of “instrumental aggression”, or aggression enacted in order to obtain objects, privileges, or territory from others. Between the ages of 6-7 years, children increasingly engage in “hostile” aggression for the purpose of retaliating toward another child over presumed threats to their personal self-esteem or attainment of a goal (Parke & Slaby, 1983). And from adolescence into young adulthood, the goals of aggression should increasingly center upon one’s social standing and positioning on the social hierarchy.

Adaptive aggression forms. It has long been established that between the ages of 2 and 4, a “normal” child’s physical forms of aggression, such as hitting, gives way to increasingly verbal forms of aggression, such as insults and threats (Goodenough, 1931). As such, elementary children and adolescents become increasingly more likely to act on their feelings of aggression using verbal aggression, rather than through physically aggressive means (Parke and Slaby, 1983). As a child continues to mature into adolescence and young adulthood, covert or hidden aggression such as cheating,

stealing, or lying, increasingly take the place of overt forms of aggression such as physical fighting and temper tantrums (Loeber, 1990).

Conclusion. In sum, it appears as though levels of normal and adaptive aggression subside with age, displays of aggression manifest in increasingly socially acceptable ways and children are more adept at recognizing conflict becoming increasingly accurate in their evaluations of situations involving peer conflicts (Cummings et al, 1991). Furthermore, the goals of adaptive aggression tend to be positive given that they benefit the person performing the aggressive act.

Maladaptive Aggression

Maladaptive aggression, however, appears to be a different story: Without intervention, individuals with maladaptive levels and types of aggression appear to aggress at either consistent or increasing levels, become less accurate in their evaluations of situations involving peer conflict, and display aggressive behaviors in socially unacceptable ways. Furthermore, the goals of maladaptive aggression appear to be different from the goals of adaptive aggression. In other words, in addition to benefiting oneself, maladaptive aggression may also possess a goal of harming others. This is particularly true for proactive aggression.

In sum, an awareness of the developmental stages of appropriate aggression assists in the critical task of identifying and providing early intervention for maladaptive aggression. When the rates, intensity, forms or goals of aggression are not in line with normal development, aggression is considered to become maladaptive and is of concern (Connor, 2002).

Prevalence Rates of Maladaptive Aggression

Unfortunately, aggression that is considered to be maladaptive is highly prevalent, although specific rates of maladaptive aggression in large community samples both in the United States and other countries can be difficult to ascertain. The occurrence of Conduct Disorder is often used as a large-scale rough indicator of aggression since this psychiatric diagnosis includes varied acts of maladaptive aggression. Criminal justice data is also used with some frequency to provide a benchmark for aggression rates. Importantly, Conduct Disorder refers almost exclusively to proactive acts of aggression, rather than reactive aggression.

Unfortunately, though limited, such data coupled with criminal justice appear to be the best wide-scale determinants of aggression rates currently available. More positively, as mentioned above, proactive and reactive aggression are highly correlated and as such, Conduct Disorder and criminality rates may well be a rough indicator of both types of aggression.

Conduct disorder rates. Conduct Disorder refers to a disturbance of behavior lasting at least 6 months in which the basic rights of others and/or age-appropriate norms and rules of society are repeatedly violated (American Psychological Association, 1994). Examples of aggressive behaviors common to Conduct Disorder include overt physical acts of aggression such as fighting, and more covert forms of physical aggression, such as fire setting, vandalism, and stealing. Conduct Disorder data collected between 1987 and 1996 in the United States, Canada, Puerto Rico, New Zealand, Germany, and the Netherlands suggest that maladaptive aggression as indicated by a diagnosis of Conduct Disorder, is not rare amongst youth of different

countries and is somewhat comparable to rates in the United States (Connor, 2002).

Amongst pre-adolescents, boys have a higher prevalence rate than girls; however during adolescence the rate of Conduct Disorder rises for female adolescents and can approach the prevalence rate of boys by late adolescence (Kashani et al., 1987).

Criminal justice statistics. Another method for determining prevalence rates of maladaptive aggression for children and adolescents are criminal justice statistics, including annual crime indices. The annual crime indices portray a rather grim picture of juvenile experiences with violence. In-school violent victimization data in grades 6-12 during 1997-1998 suggest that youths in grades 6-8 are victimized more frequently in school than older high school students are (Snyder & Sickmund, 1999). Most alarmingly, 45% of surveyed ninth-graders in 1997 reported having been in a physical fight one or more times in the past 30 days and only 5% of those surveyed reported being injured in the fight (Maguire & Pastore, 1999). In addition, teenage arrests for violent crime have increased 75% over the decade from 1985 to 1994 (Federal Bureau of Investigation, 1994). Unfortunately, little is known about violent victimization rates and physical fight involvement in grades K-5, as these ages were not included in the sample. It is important to note that criminal justice statistics are likely an underestimate of adolescent antisocial behaviors as only those behaviors that are “caught” are included in the data. In response, “self-reported delinquency methodology”, where information about the frequency of non-personal or covert aggressive acts is gathered from multiple informants and analyzed, is utilized as an attempt to correct such underestimates. The self-reported delinquency data indeed suggests even higher levels

of delinquency amongst the juvenile population than are indicated via the criminal justice statistics.

Overall, long-term Conduct Disorder prevalence rates and criminal justice statistics suggest that the rates of maladaptive aggression and resulting antisocial behaviors have increased in severity and frequency amongst children and adolescents in the United States over the past 50 years. In the late 1980's and early 1990's, the prevalence of youth aggression peaked and appears to be slowly decreasing as the new century begins; however, the overall rates of aggression remain at historically high levels (Connor, 2002). A recent public opinion survey (1996) suggests that for many adolescents in the United States, issues of aggression, violence, and safety in schools are a daily concern. The majority of adolescents surveyed endorsed "violence and crime" as the most important problem facing the United States at the time of the survey, and in the future (Maguire & Pastore, 1997). Undeniably, youth aggression is a serious and highly prevalent problem in the United States and abroad.

Age and Aggression

Of all age groups studied, pre-adolescents and adolescents (age 10-18) are the most glaringly disproportionate perpetrators and victims of acts of aggression and violence. Although adolescents comprise only 14.7% of the total U.S. population, a full 25% of these adolescents are reported to be at-risk for school failure, violence, and early death (The National Commission for Children, 1991). Furthermore, 25% of these at-risk adolescents are also susceptible to having these difficulties continue into adulthood (Dryfoos, 1990). Also disturbing, the American School Health Association (1988) surveyed adolescents regarding aggressive incidents and found that 50% of

males and 25% of females had been in at least one fight during the year preceding the study. In addition, 23% of males admitted to carrying a knife and 3% admitted bringing a gun to school during the year surveyed.

Of course, the statistics of aggression and violence among adolescents are not completely reliable, as many aggressive acts may be unreported by victims or perpetrators. It has also been suggested that some of the variation existing among crime statistics reports may be due to the political motivation of some police precincts and politicians to either over or under-represent crime statistics in certain areas (Hammond, 1995). This suggestion, however, has not been fully substantiated.

Unfortunately, prevalence statistics capture only extreme aggressive behaviors and none of the processes behind these behaviors. Because of this, they can be misleading in suggesting that aggression is only a problem for adolescents. On the other hand, aggressive cognitions and behaviors are stable across the lifespan and often occur as young as the first grade. For example, amongst first graders, aggressive behavioral responses have consistently been shown to predict later aggressive behavior, conduct disorders, and drug abuse (Tremblay et al. 1992). Further, young children who are chronically aggressive and thus, socially rejected by peers, experience an elevated incidence of aggressive behaviors that is highly stable over time (Olweus, 1979). As previously discussed, the increased use of verbal, rather than physical forms of aggression often increases with age. Moreover, the only age effect found for reactive versus proactive aggression, is the tendency for reactive aggression to be correlated with younger age (Connor, Stengard, Cunningham, Anderson & Melloni, 2004).

As will be discussed later, the cognitive processing patterns of young children between the ages of 6 and 8 are some of the most useful predictors of present and future aggressive behavior (Dodge & Price, 1994). Meanwhile, researchers such as Eron (1990) suggest that aggressive behaviors and cognitions become crystallized as early as age 8. Given school psychology's recent emphasis on prevention (e.g. Sheridan & Gutkin, 2000; Sugai, 2003) and its effectiveness in curtailing later undesirable behaviors such as aggression, there is a need for studies that examine the cognitive processes of young children and the relation of such processes to aggression. Such studies should provide valuable insight into prevention practices and interventions most likely to prevent future aggression.

Gender and Aggression

Across most cultures, boys are consistently found to display more aggressive behaviors than are girls (Connor, 2002). In their meta-analysis, Maccoby and Jacklin (1974) concluded that boys across a variety of cultures exhibit more aggressive behavior than girls from the age of two through their lifespan. In addition, the Baltimore Preventions Trials study (1994) noted that in all grade levels in inner city Baltimore schools, boys are more likely than girls to score high on teacher and peer ratings of aggressive behavior. A meta-analysis of 75 studies by Hyde (1984) further qualified gender differences, and indicated that although gender differences are well-established, they only accounted for an average of five percent of the variance in the aggression of combined-sex subjects. Across all studies, Hyde reported an aggression level mean approximately a half standard deviation higher for males than for females. Hyde also noticed that gender differences were larger when aggression was measured

using direct observations, projective techniques, or peer reports than when measured using self, parent, or teacher reports.

When considering Hyde's results, it is important to note that her meta-analysis sample included studies conducted with young children through college students. The gender differences for aggression tended to be larger for studies conducted with younger children (on average, accounting for 7 percent of the variance) than for studies conducted with college students (on average, accounting for only 1 percent of the variance). Murray and colleagues (1998) suggest that the reasons for this maturational narrowing of the aggression gap between boys and girls is due to the decreasingly physical form of boys' aggression as they mature; as such, the form of boys' aggression more closely resembles the aggressive behaviors of girls over time.

In addition to alleged differences in aggression rates, there seem to be gender differences in the way that aggression is expressed, although study findings are often complex and sometimes contradict one another. Two meta-analyses (Hyde, 1984; Maccoby & Jacklin, 1974) found that the apparent differences between levels of male and female aggression were larger and more consistent with physical, rather than with verbal forms of aggression. Archer and Weissman (1981) experienced similar findings, however, the researchers concluded from their study that much of the gender differences found for physical aggression were due to extremely aggressive behaviors by only a few boys, while Murray and others (1998) found that gender differences for aggression in younger children are due to the tendency of boys' aggressive behaviors to be markedly destructive.

Such findings are somewhat consistent with the gender differences in aggression noted by the Baltimore Prevention Trials study (1994), however important distinctions between the study findings exist. For example, unlike Murray and others (1998), the researchers found little narrowing of the gender gap for aggressive behaviors during middle school and found an overall increase in aggressive behavior for both genders over time. Given that normal and adaptive levels of aggression are supposed to decrease over time as maturational development occurs, it would seem that there are higher levels of maladaptive aggression in the Baltimore City Schools.

In addition to gender aggression differences, the Baltimore Prevention Study also discovered some striking similarities between genders and their aggressive behaviors: Community violence affected the aggressive behavior of girls almost as much as it affected the aggressive behavior of boys, and the types of aggression expressed by each gender were similar including physical, overt aggression; relational, covert aggression (teasing and spreading rumors); and property destruction, although the rates of these aggressive behaviors were consistently higher for boys. Such study findings suggest that boys and girls do not seem to differ so much in the type of aggression expressed, but in the amount.

Further gender differences were explored by Crick and Grotpeter (1995) who similarly found important differences in the types of aggression that third through sixth grade girls and boys expressed, using peer, teacher, and self-report data. The authors found that girls more than boys use relational aggression, which is defined by the authors as harming or intending to harm others through manipulation and/or damage to close peer relationships. Examples of relational aggression include verbal insults and

spreading damaging rumors. An updated meta-analysis of gender differences by Hyde (2005) found that even greater differences exist for relational aggression when direct observation methods are used, where girls are significantly more likely to use such aggression methods than are boys.

Sumrall, Ray and Tidwell (2000) rationalize Crick and Grotpeter's findings using Bjorkquist's effect/danger ratio (1994). According to his ratio, Bjorkquist postulates that the gender differences in aggression forms, are due to the tendency of an aggressor to decide which aggressive tactics to use based on perceived effectiveness of the strategy and evaluations of possible danger involved. To illustrate, Crick (1996) hypothesized that when boys or girls attempt to harm others, they intend to damage the valued goals of their targets. Because girls are often in conflict with other girls, and because they view relational aggression to be the most harmful form of aggression (Crick et al, 1996), targeting group social status and harming social relationships through covert forms of aggression is perceived as having the maximum potential of harming the target. In addition, such aggression tactics are perceived as having a minimum risk of harm, since most forms of relational aggression can be conducted anonymously. Boys, on the other hand, cite physical aggression as the most harmful form of aggression (Crick et al, 1996) and place importance upon the dominance hierarchies established in boys groups. Thus, the authors reason that boys are more likely to aggress in overtly physical ways for the purpose of effectively disrupting the hierarchical status of their target (Crick, 1996).

In short, the Baltimore Prevention study and Crick and Grotpeter's study had very different results. Specifically, the Baltimore Prevention study found no gender

differences for type of aggression but did find differences in the amount of aggression. On the other hand, Crick and Grotpeter (1995) found differences in both aggression type and amount, although Murray and others (1998) question the validity of a true gender difference in aggression rates.

Possible explanations for such apparent differences in findings between the Baltimore Prevention Study (1994) and Crick and Grotpeter's study (1995) include the very different methodologies utilized by each research team to gauge levels and types of aggression. For instance, the Baltimore Prevention Study utilized only peer and teacher (and not self) ratings of perceived levels and types of aggressive behavior, which have been noted by Hyde (2005) to have a limited ability to detect gender differences. Also, the Baltimore Prevention Study used data based on perceptions of actual student behavior and conflicts while Crick and Grotpeter merely examined hypothetical conflict situations. Another disparity concerns the differences in sample age across both studies with The Baltimore Prevention Study spanning across grades one through seven in its sample, and Crick and Grotpeter's sample including only grades three through six. Finally, and perhaps most importantly, the studies' contextual environments were different where the Baltimore Prevention Study was conducted in predominately low socio-economic status, inner-city schools while Crick and Grotpeter's sample was conducted with predominately middle-class populations. As such, some of the divergence in study findings and levels of aggression amongst the various studies could be attributable, at least in part, to socioeconomic status, levels of community violence, and setting.

Unfortunately scant studies have evaluated gender differences in relation to proactive and reactive forms of aggression. One recent study revealed similarly high rates of proactive and reactive aggression in both male and female youths, with differences only in the correlates associated with both types of aggression. Specifically, hyperactive/impulsive behaviors were correlated with male reactive aggression, while a low verbal IQ and early age of traumatic stress were correlated with female proactive aggression. All other correlates of reactive and proactive aggression were similar for males and females (Connor, Steingard, Anderson & Melloni, 2003).

Socioeconomic Status and Aggression

Data from the Center for the Study and Prevention of Violence (Hawkins, 1996) indicates that geographical location and socioeconomic status may indeed play a substantial role in levels of aggression. For instance, in 1989 firearm death rates for African American males ages 15-19 in the United States ranged from 15.5 per 100,000 for those residing in non-metropolitan areas, to 143.9 per 100,000 for those residing in central cities. Amongst Caucasian males of the same age range, firearm death rates ranged from 3.0 per 100,000 in non-metropolitan areas, to 21.5 per 100,000 in central cities. Non-firearm death rates showed a similar geographical and race pattern for both groups. Finally, African American and Caucasian females showed similar race and geographical patterns, although rates were significantly lower than their male counterparts (Hawkins, 1996).

In a study that examined the relationship of low socioeconomic status to aggression, teachers rated children in Head Start (i.e. of low SES status) as more physically aggressive than they rated a random sample of comparison preschoolers

(Kupersmidt, Bryant, & Willoughby, 2000). Interestingly, these researchers also found that preschoolers in the comparison group engaged in more verbal aggression (i.e. name calling and teasing) than the Head Start preschoolers, suggesting that child SES influences both aggression forms and rates, or at the very least, a teacher's perception of that child's aggression.

Ethnicity/race and Aggression

Much of the research focusing on differences in rates and types of aggression amongst the various ethnic minority groups has been conducted with adolescents or adults rather than with children. However, these studies are worth mentioning in any review of maladaptive aggression.

The U.S. Census and other sources of data indicate that there are differences among ethnic groups. Of all ethnic groups, African American adolescents have the highest representation both as victims and perpetrators of aggression and violence. Specifically, African-American adolescents are at four times greater risk of being victims of homicide compared with other adolescent groups in the United States (National Center for Health Statistics, 1992). Furthermore, during the late 1980's, there was a 55% rise in the homicide rate for African-American males between the ages of 15 and 19 (Centers for Disease Control, 1990). Although this rise has subsided somewhat, rates of homicide amongst African American males are still alarmingly high. When this disproportion of ethnicity/race experience of aggression is put into more specific statistics, they become even more disturbing. For instance, Sheley, McGee and Wright (1992) found that 20% of inner-city predominately African-American adolescents had been threatened with a gun and a full 12% had been shot at with a gun. Most often, the

aggressor or perpetrator of these violent acts is also an African-American (i.e. 90% of their perpetrators were also African-Americans) (Federal Bureau of Investigations, 1989). Finally, African American males are more likely than any other ethnic group to experience the correlates of maladaptive aggression, such as school dropout in adolescence, peer rejection, juvenile delinquency, and adult criminality and psychopathology (Graham, Hudley & Harris, 1992).

Although the rates of violence amongst other minority ethnic groups may not be as collectively extreme as amongst African American adolescent males, they are alarming nonetheless. Amongst the Latino population, males ages 15 to 24 have a homicide victimization rate of 97.3 per 100,000 as compared to 185.1 for African-American males and 10.0 for Caucasian males. Individuals of Asian or European ancestry are far less likely to be victims and perpetrators of lethal violence than are African Americans, Native Americans and Latinos. Unfortunately, little is known about the distribution of violent acts within the diverse ethnic groups that comprise people of Asian, Latino, and European descent (Hawkins, 1996).

It is important to remember that biases may exist in the reported criminal data of ethnic minority groups. The Uniform Crime Reports have consistently indicated that African Americans, Native Americans and Latinos in the United States are substantially over represented among those arrested for interpersonal acts of violence (Hawkins, 1996). In addition, most statistics on violence and ethnicity focuses on lethal forms of violence. As such, it is unclear whether significant race and class differences exist in the rate of involvement in non-lethal forms of violence and aggression (Hawkins, 1996).

Taken together, it appears as though ethnic minority groups from a low socioeconomic status background are at a heightened risk for aggression and its negative outcome correlates. As such, there is a need to further examine the factors that facilitate aggression with this population. Furthermore, given the mixed findings of studies examining gender differences in aggression possibly due to measurement differences, as well as varying socioeconomic backgrounds, studies should be representative of gender and use both self report and teacher/peer ratings of aggression.

Finally, there is a need for studies that examine the cognitive processes of elementary school children, preferably between the ages of six and eight, and the relation of these cognitive processes to aggression. Such focus on cognition is particularly critical given the limitations of studying aggression solely via overt behaviors. Merrell, Buchanan and Tran (2006) recently experienced such limitations in their observational study of elementary-aged children at play during school recess. The authors found that direct observation alone is a poor differentiator amongst the various forms of aggression (i.e. verbal, physical, and relational). In order to give preference to studying the cognitive processes behind aggression and examine the differences in cognitive processes due to demographic variables, it is first essential to understand why maladaptive aggression occurs.

Theories of Aggression

Because maladaptive aggression is common and tends to remain stable, developing early in life and predicting negative outcomes throughout adolescence and adulthood, many researchers have prioritized understanding the development of aggression. While the stability of aggression may imply a predisposition to aggressive

behaviors due to genetic or physiological causes, it is likely the case that other variables such as social, environmental, and cognitive factors contribute mightily (Crick & Dodge, 1994).

The present study primarily focuses on the cognitive processes underlying childhood reactive aggression, while readily admitting that individual differences in aggression cannot be explained by cognition alone. For instance, a child's temperament, environmental factors, familial upbringing, and biological makeup may contribute to a child's aggressive behaviors. In addition, a child's ability to self-regulate emotions and a child's strength of emotional arousal may also be determining factors. However, as Dodge and Coie argue (1987), "many of these factors can best be understood in terms of the cognitive processes that underlie them (p. 1153)." The influence is, of course, cyclical where these "factors" also influence the cognitive processes that justify aggressive behavior.

There are several theories that attempt to explain the cognitive processes behind maladaptive levels and patterns of child aggression. These theories range from a focus on the importance of past experiences and relationships, to an emphasis on current context and experience, to theories of social problem solving, to on-line information processing. Many of these theories admit to a combination of external and internal factors contributing to the occurrence of maladaptive aggression, and all reference a similar unit for understanding human behavior. This unit is conceptualized differently according to the different theories and is given a variety of titles including "internal working model", "schemas", and "scripts". Given both the overlap and influence of the various theories, each theory will be individually discussed below.

Past Relationships

Attachment theory. Attachment theory is perhaps the most well-known theory of child development in relation to past experiences. Attachment theory traditionally emphasizes the importance of child and primary caregiver relationships in a child's social development, with special import given to mothers (Bowlby, 1988). Within this relationship, children are said to develop either a secure or insecure attachment to their primary caregiver based on whether or not the child perceives the caregiver as available, responsive, and able to restore feelings of security in threatening situations (Ainsworth, Blehar & Waters, 1969; Bowlby, 1988). Based on repeated experiences with the caregiver, the child develops an internal working model which remains somewhat stable throughout the lifespan. For example, in Grossman and Grossman's study (1991), attachment categories assigned in infancy were found to remain consistent for 87% of the sample when attachment was again measured at age six. When changes in attachment classification did occur, they tended to correspond with life changes such as those stemming from the occurrence of stressful life events.

Several attachment theorists have suggested the possibility of altered internal working models based on subsequent relationships with significant others outside of the caregiver-child relationship (e.g. Jacobsen & Willie, 1986; Miller, 1993). If the subsequent relationship is consistent with caregiver-child experiences, the child's internal working model is confirmed, thereby strengthening it and adding to its stability. If the subsequent relationship is incongruent with caregiver-child experiences, the child's internal working model is disconfirmed and may be gradually altered over time to better represent new relationships. Although it may be possible for

a working model to change over time and with experience, most attachment theorists agree that they generally remain relatively stable (Lewis, 2001).

One increasingly influential child relationship outside of the caregiver-child dyad is peer relationships. In peer and other relationships, the internal working model functions as a prototype for both anticipating and interpreting the behavior and intentions of others, while contributing to the intentions and planning of one's own behavior. As such, the internal-working model serves as a link between prior interpersonal relationships and present social behaviors. In support of the connection between attachment theory and social behaviors, Rosenblith's (1992) meta-analysis surveyed attachment research and concluded that securely attached children are perceived as being more friendly and cooperative with peers and adults than are insecurely attached children. Main and Weston (1981) discovered further attachment differences where 57% of insecurely attached children, compared with only 4% of securely attached children, exhibited conflict behavior while playing with peers. Aggression level was also concluded to be affected by attachment status, where Matas, Arend, and Sroufe (1978) reported that securely attached toddlers were less aggressive, more compliant, and displayed more positive affect, than did toddlers rated as insecurely attached.

An example of attachment theory as applied to child aggression can be conceptualized as follows: A child with aggressive parents may learn to expect that subsequent relationships will be characterized by similarly aggressive behaviors. This expectation may become a self-fulfilling prophecy where the child's learned aggressive role in a peer relationship elicits peer aggression in return. In addition, the child may

misread a peer's intentions as being aggressive, based on his or her internal working model comprised of experiences with aggressive parental intentions.

Indeed, a study by Huesmann and colleagues (1984) suggests that aggressive parents do tend to have aggressive children. Using a longitudinal design, Huesmann and colleagues assessed study participants and their parents when the participant was age 8 (i.e. at time one). At age 30, the participants were again assessed for aggression, and the participants' children were also assessed (i.e. at time two). Huesmann and colleagues found that the correlation between the participant's level of aggression at ages 8 and 30 was .46. A stronger correlation of .58 was found between the 30-year-old participant's aggression with their parents' aggression, measured when the participant was 8 (i.e. at time one). Finally, the participant's 8-year-old child correlated .55 with his or her own aggression.

Unfortunately, although research examining internal-working models and their influence on social behavior is needed, much of the current attachment research looks only at attachment categorization and later overt social behaviors while assuming that the variables accurately represent internal working models. For example, it is unclear from Huesmann and colleagues' study what role genetics and learned social behavior plays in the maintenance of aggressive behavior because the study did not examine the social cognitive properties underlying the aggression, which may have revealed such information.

Another limitation of such attachment studies is that they often assume that the relation between early attachment behaviors and later social functioning reflects the stability of the attachment construct (Lewis, 2001). However, as Waters, Posada,

Crowell, and Lay (1993) argue, by assuming stability, these studies and their interpretation mistakenly promote a trait-like view of attachment as a stable individual characteristic that spans across one's lifetime. Such conclusions, the authors contend, are not always in line with the basic premises of attachment theory which include the possibility of an altered internal working model. As such, the authors argue that attachment theory may not be ready to contribute to our understanding of everyday occurrences, particularly disruptive behavior problems.

Contextualism. A contextual framework, rather than a more organismic or trait-like attachment framework, is likely of greater usefulness for understanding aggression and other everyday behavior problems. A **contextual** model differs from a pure attachment model since it takes into account present behavior in context, while influences from the past are given less emphasis. However, the contextual model, while giving less prominence to past events, highlights the role of memory and the conceptualization of past events. Since our act of remembering occurs in the present, a contextual approach argues that our memory is impacted by the present situation and may have little resemblance to what actually occurred (Ford & Lerner, 1992). A contextual model also emphasizes the role of an active self as the center of growth and change, where "our memory or history has to do with the goals and desires we have at that point of remembering" (James, 1975). A contextual model is an attempt to "not only explain our past but also explain who we are now" (Bruner, 1990). A contextual model, thus, moves beyond attachment theory to place greater emphasis on the present, while accounting for the effects of past caregiver relationships in the form of current memory structures. Extended to the understanding of aggressive behaviors in a child, a

contextualist approach would minimize the importance of early caregiver aggression in favor of the import of a child's memory of early experiences as influenced by present circumstances.

A longitudinal study by Lewis, Rosenthal & Feiring (2000) illustrated the impact of the present context and thus instability of attachment status. The authors obtained the attachment classification of children at years 1 and 18 and found that of the insecure 1-year-olds, only 38% are insecurely attached at 18 years old, and 43% of securely attached infants are insecurely attached at age 18. Lewis and colleagues' study builds on Grossman and Grossman's (1991) study (mentioned earlier) by extending the length of the lifespan studied and provides an explanation for the 13% of 6 year olds whose attachment categories changed since infancy, based on life stressors in the present. The authors conclude that contextual factors influence and ultimately change attachment behaviors during child development, thus emphasizing the power of the present. Given that contextualist approaches appear to better capture the complexity behind behaviors than more static approaches, theories that fall under a contextualist framework will be underscored.

Interpersonal Schema Theory. Interpersonal schema theory is an attachment-derived theory that incorporates contextualist principles into its cognitive-interpersonal framework. In his persuasive paper, Shirk (1998) posits that interpersonal schemas serve as the key mediators that link past interpersonal experiences with current social and emotional functioning. Like attachment theory's internal working model, interpersonal schemas refer to expectations about how others will behave toward oneself. Perhaps to a greater extent than attachment theory's internal working models,

interpersonal schemas are not viewed as static, but are dynamic and play a functional role in organizing experience and behavior in the present, oftentimes without conscious effort or awareness (Bargh, 1984).

Interpersonal schema theory also differs from the concept of attachment theories' working model in their degrees of abstraction. In other words, interpersonal schema theory suggests that schema are first derived from specific relationships, but then evolve into more abstract, generalized representations of the self in relation to others (Shaver, et al, 1996) whereas attachment theory's working model ties directly to specific relationships throughout the lifespan. In addition, interpersonal schemas differ from internal working models in that they refer to a variety of interpersonal relationships, such as peer relationships, and memories or representations of these relationships, rather than being tied to the early caregiver relationship that is emphasized in attachment theory.

Interpersonal schemas are thought to influence social behaviors by impacting one's interpretation of social experiences, the emotions one feels from this interpretation, and the priming of strategies for social interaction and regulating emotions (Fiske & Pavelchak, 1986). For example, a study by Shirk, Burton and Van Horn (1997) found that children with negative interpersonal expectations focus on negative aspects of events and thus, endorse negative social information more rapidly than do children with more positive interpersonal expectations. The authors explain these findings by concluding that negative interpersonal expectations or "schemas" served to negatively bias children's attention and encoding of a social situation that included both negative and positive aspects. Shirk, Burton and Van Horn's explanation

is supported by Dodge and Tomlin's (1987) study which found that aggressive children appear to rely more heavily on prior information when assessing new social events, in comparison with their well adjusted peers. The authors posit that this heavy reliance on information gleaned from prior situations (i.e. their "self schemas") may curtail attempts to effectively evaluate new situations thus resulting in inappropriately aggressive social behaviors during the new situation. In addition, there is evidence that these children may further contribute to any maladjustment by not actively improving upon negative schemas. For instance, Van Horn (1996) found that young adolescents who evidenced negative schema were less likely to report seeking support from others when upset, than were youth with positive schema.

Although the concept of schemas has become recognized by several authors, research on maladaptive schemas and children's social-emotional functioning is just beginning to emerge. One reason for the relative paucity of interpersonal schema research is the challenge of determining how to best assess maladaptive interpersonal schemas. From the existing research, however, the conclusion can be made that exploring schema-related processes is vital for understanding the interpersonal difficulties of children (Shirk & Russell, 1996).

Social Cognition

Bandura's social learning theory (1977) has been the guide for some research examining the social cognitive factors associated with childhood aggression. Such research uses social cognitive models which focus on the cognitive processes that differentiate aggressive from non-aggressive children. Social cognitive models appear to take a bi-directional approach to understanding aggression such that children develop

patterns of aggressive behavior to external stimuli through modeling and experience, and manage these behaviors through internalized thought processes. These thought processes, in turn, determine and maintain their behavior (Slaby & Guerra, 1988). Drawing from social cognitive research, Huesmann (1997) has articulated his own well-known schema theory called “script theory”. Script theory incorporates principles of social learning theory as well as cognitive theory’s concept of internalized thought processes. For Huesmann, schemas are comprised of scripts and normative beliefs and are used to evaluate environmental cues.

Script theory. Central to the composition of Huesmann’s schemas are “scripts” which are strategies and sequences stored in the memory and used as guides for social problem solving and social behavior. In any given situation, these “scripts” are used to direct an individual’s actions. Very much in line with social learning theory, scripts are based upon observational learning experiences and personal lessons learned from associating consequences with behaviors. Moreover, script theory can be considered to be a “contextualist” approach since one’s current memory of learning experiences influences behavior.

Aggressive scripts, according to Huesmann, are the most readily accessible social scripts for aggressive children. Supporting this hypothesis, Slaby and Guerra (1988) reported that adolescents incarcerated for aggressive acts gave more aggressive responses and fewer competent responses to hypothetical social problem situations. Similarly, studies have shown that scripts retrieved by aggressive children to solve hypothetical, interpersonal problems included more physically aggressive responses (Waas, 1988; Rubin et al., 1991).

Normative beliefs. Huesmann (1977) argues that scripts are inextricably linked with and both inform and are informed by normative beliefs, another schema component that may influence aggressive behavior. Huesmann's (1997) concept of normative beliefs refers to cognitive representations of what one should or should not do based, in part, on social and cultural norms. These normative beliefs, in turn, are thought to regulate actual behavior and stem from the same learning experiences that steer the development of scripts.

According to Huesmann, the normative beliefs of aggressive children are more supportive of aggression, than are the normative beliefs of nonaggressive children. Furthermore, Huesmann argues that once formed, normative beliefs endorsing aggressive behaviors will cause aggressively biased cognitions and behaviors to occur frequently. Huesmann and Guerra (1997) developed a scale which examined the normative beliefs about aggression held by first through fourth grade students. Although the first version of the scale produced somewhat low correlations of normative beliefs with peer and teacher rated aggression, the revised scale showed greater promise. The authors reported that first through fourth grade children who endorsed normative beliefs about aggression were significantly more likely to be rated as aggressive by peers ($r=.23$) and teachers ($r=.10$).

An additional finding of the Huesmann and Guerra (1997) study was that there was little stability in children's normative beliefs about aggression between the first and second grades, however, normative beliefs became moderately stable by the fourth grade. Zelli, Dodge, Lochman, Laird and the Conduct Problems Prevention Research Group (1999) similarly found in their later study that individual differences in

normative beliefs about aggression were relatively stable across the later years of elementary school. In another study, Zelli and colleagues found that stability was strongest for normative beliefs concerning retaliation aggression, which refers to aggression in response to a perceived provocation ($r=.44$) compared with general beliefs about aggression. ($r=.18$). Taken together, the study findings indicate that normative beliefs are related to aggression, are most susceptible to outside influences during the early elementary years, and become increasingly stable as time continues; this pattern is particularly evident for retaliatory forms of aggression. It should be mentioned, however, that reported normative beliefs may or may not be an accurate representation of how a study participant will actually behave in a real-world situation. Factors such as perceived social acceptability are a considerable threat to measures of normative beliefs, because the measurement scales tend to be transparent (i.e. one can easily differentiate a “good” from a “bad” belief and respond accordingly).

Although compelling, the concepts of scripts and normative beliefs may not be sufficient on their own for explaining aggressive behavior. As Crick and Dodge (1994) have suggested, social cognitive schemas and processes are likely shaped by past social interactions with family members. Specifically, Crick and Dodge’s Social Information Processing model (discussed later) posits that early family experiences and biologically based abilities, such as memory and cognitive functioning, interact to play a role in a child’s developing schemas (i.e. knowledge and feelings about others and themselves) (Dodge, 1993). These schemas, in turn, influence an individual’s everyday social interactions with peers. In order to examine the validity of Crick and Dodge’s emphasis on early family experiences and their impact on social behavior, Gomez and colleagues

(2001) investigated the relationship between child aggression as rated by parents, and child perception of their mother's level of control and supportiveness. The researchers found that negative child perceptions of maternal support influences cognitive social information processes and thus predicts higher levels of aggressive behavior. In another study, Dodge, Bates, and Pettit (1990) interviewed the mothers of 210 children about their disciplinary practices and examined the relationships between childhood physical abuse and their child's later aggressive behavior. In their study, Dodge and his colleagues similarly demonstrated the impact of early experiences on social behavior and found that early abuse negatively impacted the children's ability to process new social information, thus resulting in increased aggressive behavior.

Moral domain theory. A final social cognition model for understanding how children develop the knowledge and understanding of events is Moral Domain theory. Moral Domain theory is concerned with the concepts of harm, welfare, and fairness (Piaget, 1965; Arsenio & Lemerise, 2004) as well as stereotypic expectations of others based on their group membership (Killen, Margie & Sinno, 2006). Moral Domain theory diverges from the concept of Normative Beliefs since morals are more likely than normative beliefs to transcend social convention and cultural norms. As such, moral cognition is concerned with the effects that actions have upon the well-being of others, irregardless of the relevant social rules concerning the action. Moral Domain theory is also divergent from Crick and Dodge's Social Information Processing Model (1994), although researchers have recently attempted to merge the two social cognitive theories (Arsenio & Lemerise, 2004). The distinction can be found within the theories' emphases and scope: Moral Domain theory is singularly concerned with the mental

operations of thinking and reasoning and how these relate to knowledge and understanding, whereas Social Information Processing is concerned with all mental operations behind overt social behavior (Dodge & Rabiner, 2004). As such, moral dimensions are implicit within Social Information Processing theory, but are generally not explicitly stated nor examined.

In sum, Moral Domain Theory, Normative Beliefs, Script Theory, and Social Information Processing contribute uniquely to a broad social cognitive approach to understanding aggression. Given the important contributions of both social cognition and attachment theory to understanding the ways in which schemas influence aggressive behavior, understanding and combining elements of both theories is optimal.

Comparing Schema Theories

Although both interpersonal schema theory and script theory refer to mental structures consisting of internal representations of past experiences which guide the interpretation of new experiences (Teglasi, 2001), several important distinctions exist between the two theories. One overarching distinction concerns the foundation of the theories, where interpersonal schema theory derives from Attachment theory and script theory derives from Social Learning theory. These differences in origin have much to do with the conceptual variations between the two theories.

Probably the largest distinction between the theories is the emphasis that interpersonal schema theory places on both internal and external experiences, while script theory primarily addresses external experiences. External experiences refer to behaviors, environmental cues, and anything else that can be seen. Thus, script theory often links behavior to consequences, such as the reactions of others, any rewards or

punishments, attainment of a goal, and social lessons learned, when processing a social situation. Internal experiences, on the other hand, refer to the emotions that one feels and the impact that these emotions have while processing a social situation. These emotions may stem from the expectations that an individual has for a given social situation based upon past interpersonal experiences. Internal experiences might also include moral values, and the influence of such values on social decision-making (Frost, Ko & James, 2007).

A similarity between the two theories is their tendency to adhere to a contextual notion, whereby what influences behavior is not the actual past experience, but mental representations of the past, which are heavily influenced by an individual's present circumstances.

Personal and Public Schemas

The distinction between the two schema theories as described above does not always find its way into the literature and as a result, distinguishing lines are often blurred, resulting in confusion. For example, for Tomkins (1987), a respected researcher within the social cognition literature, emotions are a central component to what he refers to as script theory. Within Tomkins' work, then, script theory is parallel with the tenets of interpersonal schema theory, though at first glance it appears to fit within a social learning framework. In order to provide conceptual clarity, Teglasi (2001) suggests viewing both interpersonal schema theory and script theory within a broad framework of different types of schemas used to process any social situation.

Incorporating both schema theory and script theory, Teglasi draws from the work of earlier researchers (e.g. Epstein, 1994; Mandler, 1982; Wozniak, 1985) and

posits that there are two types of knowledge which organize experience: Public schemas and personal schemas. According to Teglasi, **public schemas** refer to knowledge structures that are “independent of the knower” and consist of both general knowledge, such as the formula for calculating velocity, and “general expectations or scripts about commonly occurring situations, such as ordering a meal in a restaurant” (p.5). Public schemas can also include classroom behaviors that are deemed as acceptable and possibly, one’s normative beliefs about aggression. Public schemas are further described by Teglasi as able to be verified by others, and schemas that are widely shared within a culture. As such, morals derived from cultural traditions such as religion, might also be conceptualized as a public schemas.

Teglasi (2001) defines **personal schemas**, on the other hand, as knowledge structures that are “unique to the knower” and consist of mental representations of “personal experiences and the processes contributing to the organization of those experiences” (p.5). Personal schemas comprise an individual’s interpretation of themselves, the world around them, and the relationship between themselves and the world. These interpretations are influenced by a variety of factors including maturation, temperament, cognitive development, and socialization (Stark, Rouse & Livingston, 1991). Given the changing nature of these factors, personal schemas are dynamic and may change.

The construct of a personal schema incorporates temperament theory (Lohr, Teglasi & French, 2004) perception, cognition, memory, affect, action and feedback. In addition, both script theory as described by Tomkins (1987) (i.e. inclusive of emotions) and interpersonal schema theory, are represented within its construct. To

clarify, a script theory that does not incorporate an internal world, but includes only responses to external stimuli based on past social experiences and expected consequences to behavior, is still represented within a “personal schema” construct. However, this personal schema would be viewed as less complex and potentially maladaptive because internal emotions in oneself and others were not taken into account. Finally, a script theory that only consists of rote, non-personal responses to external stimuli based on perceived consequences to behavior generally shared by society (e.g. you shouldn’t steal because you might go to jail) is akin to public schema theory.

According to Teglasi (2001), in order to accurately process a new experience, an individual must access both personal schemas and public schemas. If only personal schemas are utilized, an individual may inappropriately respond to a social situation without taking into account what is considered to be socially appropriate behavior in that situation. On the other hand, if only public schemas are utilized, an individual might mistakenly respond in the same way to every comparable social situation no matter how dissimilar. In addition, in order to accurately process a new experience, both public and personal schemas must remain flexible and open to change, should expectations based on previous experiences be repeatedly disconfirmed.

Schema complexity. Schemas are expected to become increasingly complex amongst normally developing, healthy children. As children mature, responses to the environment should become increasingly filtered through the lens of prior learning, rather than merely evoked by imposing internal or external stimuli (Teglasi, Cohn & Meshbesher, 2004). Moreover, normally developing children should develop a process

and framework for organizing knowledge gained from prior experiences (i.e. schemas), otherwise such information would become confusing (Lohr, Teglassi & French, 2004). How an individual organizes prior experiences and the thoughts and emotions that go with them, determines the usefulness and accessibility of one's schemas, and has a direct impact on schema complexity. Without such organization or schema complexity, the likelihood of reactive and uncontrolled thoughts and actions significantly increases (Fiske & Taylor, 1984).

Personal schemas are generally more complex than public schemas and thus must consist of many optimally functioning parts in order to be considered adaptive. Specifically, when faced with a new situation, an adaptive personal schema must coordinate what one "perceives in the present with what one knows from previous experience" (Teglassi, 2001). At the same time, adaptive personal schemas must accurately process external information, such as the environment and behaviors of others, without neglecting internal information, such as their emotional state. Maladaptive personal schemas, on the other hand, may be inflexible, inaccurate, overly biased toward positive or negative cues, or may not effectively combine internal and external sources of information (Beck & Clark, 1997; Ingram, Miranda & Segal, 1998; Teglassi, 2001). Such maladaptive schemas can result in negative behaviors such as high levels of reactive and proactive aggression.

To date, Dodge and colleagues' conceptualization of Social Information Processing has predominated the study of social cognition in relation to aggression and as such, important aspects of schema development have not been incorporated. For example, the relationship between inadequately developed schemas and childhood

aggression has not been adequately explored. Because Teglasi's (2001) notion of personal and public schemas addresses levels of schema complexity, while integrating the essential elements of Interpersonal Schemas, Scripts, and Contextual models into its framework, Teglasi's schema conceptualization is used in conjunction with the widely-used Social Information Processing model, throughout the present study. Moreover, a narrative projective instrument is used to supplement Dodge and Colleague's social information processing instruments in order to capture schema complexity, including both schema organization and schema content.

Social Information Processing

Social-information-processing models operationalize the theories behind social behaviors by extending these theories to proposed social decision-making models. These social information processing models serve as important bridges linking schemas to overt behaviors. For example, Price and Landsverk (1998) examined the social information processing patterns and social behaviors of maltreated 5 through 10 year-olds placed in foster care, and found that processing patterns contributed unique information about a child's behavior. Specifically, the maltreated children who displayed ineffective social information processing were viewed 6 months later by their caregivers as displaying more behavior problems, including aggression. In aggregate, these ineffective processing patterns accounted for a significant proportion of the variance in outcome measures above and beyond early childhood experiences. Similarly, Dodge, Pettit and Bates (1990) found that aggregate social information processing patterns mediated the relationship between childhood physical abuse and aggressive behavior. Further, when the researchers controlled for processing patterns,

the relationship between early abuse and aggression was weakened. From these and other studies (Dodge & Price, 1994; Slaby & Guerra, 1988) it is clear that social information processing patterns significantly contribute to our understanding of the link between schemas (which are comprised, in part, of prior experiences), and resulting social behaviors.

Crick and Dodge's Social Information Processing Model

The most well-researched and popular model for understanding the social cognitive bases and decision making processes behind childhood aggression is Crick and Dodge's (1994) social-information processing model. Crick and Dodge's model is directly tied into and measured with the authors' Social Information Processing interview instruments, referred to as the "SIP". The various SIP instruments, including "The Home Interview with Child" and "Things That Happen to Me", are used in the majority of recent research examining information processing patterns and aggression.

In their model, Crick and Dodge (1994) hypothesize that there are six sequential processes which lie behind competent performance in any social situation. These six processing "steps" are hypothesized to occur in "real-time", or in other words, occur simultaneously within the context of different kinds of social situations. The six processes or "steps" are 1) encoding of relevant stimulus cues 2) accurate interpretation of those cues 3) goal selection based on an interpretation of the situation as well as memory of past experiences 4) response generation 5) response evaluation and 6) behavioral enactment of a selected response. Consistent with tenets of schema theory and contextualism (though not necessarily drawing from these theories), children are seen as coming into social situations with different sets of past experiences, as well as different

mental representations or memories of these experiences. These past experiences, along with prior knowledge, constitute latent mental structures that interact with and influence on-line or “real-time” processing (Crick & Dodge, 1994). To illustrate Crick and Dodge’s Social Information Processing model, consider the following scenario taken from Arsenio and Lemerise (2004):

“...Imagine a child trips on a classmate’s foot when getting up to sharpen a pencil. The child must figure out what happened (“I tripped on his foot”) and why it might have happened (“he tripped me” or “it was an accident”). In the next step of the model, guided by his or her understanding or misunderstanding of the situation and ‘latent mental structures’ [sic], the child must clarify and select goals for the situation (“I just want to get my work done” or “I’m going to show that kid he can’t do this to me”). Then...the child generates possible responses to the situation and evaluates them in terms of his or her self-efficacy and the likely consequences of performing the response. Finally...the child enacts his or her selected response.” (p.989)

Characteristic patterns at each step of this model have been empirically tested and were found to significantly correlate with extreme-group differences in socially competent behavior including levels of aggression (Dodge, 1986; Rubin & Krasnor, 1986). At the first step, encoding, Dodge and Tomlin (1987) found that socially rejected, aggressive children are less attentive to relevant social cues than are their less aggressive peers. At the second step, interpretation, aggressive children have been found to make significantly less accurate depictions of peer intentions than their non-aggressive peers (Dodge, Murphy & Buchsbaum, 1984; Waldman, 1988), and show a marked bias toward hostile attributions in ambiguous situations (Dodge, 1980). When

forming responses, socially rejected and incompetent children have been found to access more aggressive responses and fewer competent responses to interpersonal problems (Renshaw & Asher, 1983). When evaluating their responses, aggressive children anticipate more positive interpersonal and instrumental outcomes from aggressing, than do their nonaggressive, more competent peers (Crick & Ladd, 1990). Finally, at the last Social Information Processing step, response generation, aggressive children have been found to display relatively poor skills at performing competent behavioral responses to interpersonal situations (Dodge, McClaskey & Feldman, 1985). Unfortunately there has been a paucity of research examining SIP step 3, goal selection, perhaps because this step is a recent addition to Crick and Dodge's Social Information Processing model.

A shared characteristic of the above studies is that they were conducted using contrasting extreme groups, such as children with high aggression and low aggression scores. The studies did not look at children with aggression or competence scores falling somewhere in the middle, between high and low ranges. Given the tendency for an extreme-group design to yield stronger correlation coefficients than may be found in a general population, it was unclear how processing patterns are related to competence in a normal population. Further, since most aggression research examines groups who are extremely and physically aggressive according to behavior ratings, there are far greater numbers of boys than girls represented in most samples.

In response to this deficit in the social information processing literature, Dodge and Price (1994) examined the social information processing patterns of a general sample of first, second, and third grade boys and girls using the authors' SIP interview

instruments. The authors then assessed teacher-rated behavioral competence using the Taxonomy of Problematic Social Situations (TOPS; Dodge et al., 1985) and peer-rated behavioral competence, using peer nominations for six descriptions of personal behaviors. Information processing patterns were correlated with peer and teacher-rated behavioral competence to yield the following results: The correlations between social information processing and interpersonal competence were more modest for their “normal” sample than is the case for extreme groups, however significance was found. Further, no gender differences were evident for the relationship between social information processing and socially-competent behavior. In addition, although all six social information processing steps showed a significant correlation within one of three different types of interpersonal situations, the most modest correlations were found within the second SIP step, interpretation (i.e. $p < .10$). Specifically, a modest significance was found only for interpretation errors characterized by a hostile bias. However, all six social information processing steps were demonstrated to provide incremental value toward their succeeding steps in the prediction of behavioral performance. In other words, the multiple correlations from all six social information processing steps across the three situations were quite powerful in predicting behavioral performance (Entry $R = .34$; Provocation $R = .39$; Authority $R = .35$). The authors hypothesized that weaker interpretation correlations were found because the social information processing interpretation step may be more strongly related to specific behaviors, such as aggression, than it is to general ratings of competence. An additional hypothesis for low interpretation correlations is that Dodge and Price (1994) evaluated interpretation only by using Dodge’s own social information processing instruments,

which, as will be discussed later, may not be sufficient for capturing all aspects of this critical processing step.

SIP mental representation steps. When examining how social information processing patterns relate to reactive aggression, the “mental representation” steps are probably the most founded and critical SIP steps (Price & Landverk, 1998). The SIP “mental representation” steps include both the interpretation steps (i.e. encoding and interpretation steps) and what is referred to by Tur-Kaspa (2004) as the response decision steps (i.e. goal formation, response generation, and response evaluation steps). It is important to note that all mental representation steps, as conceptualized by SIP theory, refer to situations that prompt a reaction and thus represent reactive aggression modes. This is because Crick and Dodge’s SIP instruments set up artificial situations to which an individual must react in an aggressive or nonaggressive manner. In real-life situations, individuals may not access all of the “response decision” steps that are pulled for by the SIP instrument, or may have proactive aggressive tendencies in addition to the SIP-favored reactive tendencies. Unfortunately, the SIP decision-making model, particularly the mental representation SIP steps, may have limited applicability to the study of proactive aggression.

Generally, much importance has been given to the attributions of others’ intentions and the generation of response strategies. In fact, Crick and Dodge’s (1994) review of their social information processing model concluded that there is enough strong evidence to support a causal relationship between childhood reactive aggression and hostile biases at the interpretation step. Of course, the interpretation step also depends upon what an individual pays attention to at the encoding step. If the

individual is experiencing a negative emotion like anger or sadness, for example, researchers have found that the individual may focus on predominately negative aspects of a situation (Kavanagh & Bower, 1985) thus impacting which cues are available for interpretation. Further, one's interpretation of an event is conceptualized as impacting the subsequent social information processing step, goal formation, or the desired outcome of a response.

Attributions. According to Crick and Dodge (1994), at the interpretation step individuals make attributions or attempts to explain and evaluate a behavior. For the purposes of their model, Crick and Dodge (1994) emphasize the automaticity and rapidity of making on-line social information processing attributions so that some decision can be made. These on-line SIP attributions differ from attributions that take much time, effort, and explicit gathering of information, such as the kinds of careful and deliberate attributions that jury members must make during a trial (Bell-Dolan & Anderson, 1999).

There are generally two types of attributions that can be made at the SIP interpretation step: Causal attributions and intent attributions. Both attribution types are influenced by latent mental structures, such as mental representations of past experiences and knowledge, as well as by one's biological makeup. Causal attributions refer to an attempt to understand the causes of an interpersonal event. Within the SIP model, probably the most prominent and well-researched dimension of a causal attribution is that of "locus of control" (Anderson & Weiner, 1992). Locus of control examines whether an individual ascribes events to causes that are internal (e.g. "I hit my brother because I felt angry") or external (e.g. "I hit my brother because he was

being mean”). Intent attribution differs slightly in that it refers to the aim or objective that one ascribes to an event, putting the onus on either oneself (e.g. “I wanted to get him into trouble”) or another person (e.g. “she wanted to hurt me”). Both causal and intent attributions are tied to several behavioral and emotional outcomes (Silverman & Peterson, 1993; Bell-Dolan & Anderson, 1999). For example, aggression is associated with making external attributions for perceived inflictions (e.g. “she did that on purpose to be mean”), while depression is associated with making both internal attributions for negative events (“I deserved to be laughed at by my classmate because I’m stupid”) and external attributions for positive events (“she’s being nice to me because the teacher forced her”).

Attributions and aggression. For reactively aggressive individuals, causal attributions are largely external where the locus of control is on the other person or environment. This tendency toward an external locus of control places the blame squarely on the perceived perpetrator (e.g. “it’s her fault I pushed her; she gave me a dirty look”) rather than taking personal responsibility (e.g. “I pushed her because I can’t control my temper”) (Silverman & Peterson, 1993). Intent attributions are highly useful for understanding reactive aggression, and translate to one’s inferring of intentions to a “provoker”, as well as one’s own intentions behind responses to the provocation. In other words, in social information processing step two, interpretation, the intention attributed to a provoker leads directly into step three, where one’s own intentions influence the goal formation behind a response. For instance, if an aggressive child perceives someone bumping into them as an intentionally hostile act, he or she

will similarly intend harm in their response. In a sense, then, the punishment would fit the perceived crime.

Of course, attributions do not need to be accurate in order to be considered “attributions”. In fact, amongst reactively aggressive individuals, attributions are often inaccurate. Research has shown that aggressive children differ from non-aggressive children in the types of intention attributions they make, where aggressive children attribute hostile intentions to others, regardless of the actual “aggressiveness” of another's actions. For example, guided by his social information processing model, Dodge (1980) used his SIP interview and presented elementary and middle school children with hypothetical stories containing negative outcomes (e.g. a child is hit by a ball) as a result of a peer's behavior involving ambiguous intent. Dodge found that aggressive children were 50% more likely than non-aggressive children to assume hostility when the intent was ambiguous. In a similar study, Waas (1989) also found that aggressive third and fifth grade boys made more hostile attributions in comparison with low aggressive peers, while Price and Landsverk’s (1998) research findings revealed that increased hostile attribution biases significantly predicted maladaptive aggressive behaviors in a sample of children placed in foster care.

As illustrated above, reactive aggressive children tend to over-attribute hostile intentions to peers in comparison with non-aggressive peers. There is evidence, however, that such attribution bias primarily occurs in ambiguous social situations. In other words, similar to non-aggressive children, aggressives alter their intention attribution appropriately when information about a peer's intention is clearly presented (Parke & Slaby, 1983). For example, Waas (1988) found no differences between the

attributions of aggressive children and non aggressive children, when both groups were presented with information about a child's characteristic peer interaction behaviors. However, when the children were presented with ambiguous situations where no information about a child's intentions or social behavior was provided, aggressive children made more hostile attributions than did non aggressive children.

It is important to remember that the above studies relied exclusively on Dodge and colleagues' SIP instrument which focuses on reactive aggression. For this reason, it remains unclear whether similar SIP attribution patterns could be found for proactive aggression, although Crick and Dodge (1996) found no significant relation between proactive aggression and hostile attribution biases using only their SIP instrument. Seemingly more clear is that existing SIP research supports a positive correlation between intention biases and reactive aggression. However, additional uncertainty stems from the reliance on the SIP instrument since intent attributions are directly elicited from the examinees (i.e. examinees are asked "why" a hypothetical person did something to them). As such, it is possible that children who typically do not process intentionality in making judgments would simply equate a negative action with a negative intention and respond in kind. Whether aggressive children actually take the time to consider their own or another person's intentions when responding is, as of yet, uncertain

Attributions and ethnicity. Research findings highlighting the influence of attribution bias on behavior were further extended and replicated by Graham, Hudley, and Williams (1992), with a sample of 7th and 8th grade African-American and Latino students living in an urban environment and of a predominately low socioeconomic

status. Although the initial subject pool consisted of approximately the same number of boys and girls, the classification of aggression (based on teacher ratings and peer nominations) extended predominately to boys (37 boys vs. 7 girls), as is typically the case in aggression research. For the ethnic minority study sample, the authors replicated the well-documented finding that aggressive children and adolescents infer biased intentions in ambiguous situations which, in turn, results in anger and an endorsement of hostile responses to the perceived intent. The authors further contended that the emotion of anger (how they feel) mediates the relationship between perceived intent (what they think) and intentions or goals behind responses (how they intend to act). In a later study by the authors (Graham & Hudley, 1994), aggressive and nonaggressive African American males were primed or not primed to perceive a peer provocation as intentional, and then attributed intentionality to that peer. Results revealed that even when aggressive males were not primed to perceive acts as intentional, they tended to make more hostile attributions of intent than did nonaggressive males.

Additional research examining child attribution biases and ethnicity were conducted within a social-cognitive domain framework using instruments other than Crick and Dodge's SIP instruments. Although the procedures and measures differed from those used by Dodge and Colleagues, study findings provide revealing information regarding the effects of ethnicity on social decision-making and attribution biases. In the studies, (i.e. Margie, Killen, Sinno & McGlothlin, 2005; McGlothlin, Killen, & Edmonds, 2005; and McGlothlin & Killen, 2006a) third and fourth grade participants were given pictures of four ambiguous situations reflecting potential transgressions involving money, toys, an academic scenario, and playground swings.

For each situation, there was a cross-race version in which the White character was the potential perpetrator and the African-American character was the victim, and vice-versa. Following exposure to each card, the participants were asked a series of questions regarding their interpretation of the scenario including intention attribution, along with questions about other relevant topics. All studies differed on the participants examined (i.e. ethnic majority—White versus ethnic minority—African American, Asian, and Latino) as well as their contextual environments (i.e. ethnically heterogeneous or homogenous school).

Results of the studies revealed that White participants attending an ethnically homogeneous school displayed a racial bias when attributing intentions to children involved in interracial situations. With one small exception, a similar race attribution bias was not found for White or non-White (i.e. African-American, Latino, and Asian American children) participants attending an ethnically heterogeneous school, thereby demonstrating the import of one's contextual environment upon racial biases. Upon further analysis (McGlothlin & Killen, 2006b), results revealed that the bias displayed by the White children attending homogenous schools was not one of out-group negativity, but of a positive in-group bias. In other words, the White participants attending homogenous schools rated the behavior of pictured White characters as more positive than did the children in the heterogeneous schools; they did not, however, rate the behavior of the African-American characters as any more negative than did the students attending heterogeneous schools. Differences in race-related attribution biases for gender and age were examined but not found.

In conclusion, important information regarding the import of contextual environment on race-related attribution biases has been revealed for schools of a mostly White and mixed-race composition, and has not yet been examined for schools of a mostly non-White population.

Attributions and socioeconomic status. Community health research has further examined the role of socioeconomic status on intention attribution and resulting behavior. In this research, poverty has been identified to be a strong predictor of levels of continuing violence, while lower socioeconomic status in children is associated with higher levels of hostile attributions, even in ambiguous situations, resulting in a higher rate of aggressive behaviors (Chen & Matthews, 2001; Pettit, Dodge & Brown, 1988). Furthermore, this heightened occurrence of aggressiveness in young children of lower socioeconomic status is not fully explainable by family structures (Stanton, Oei, & Silva, 1994).

Response generation and aggression. The hostile attributions that children make about a peer's intentions serve as a strong predictor of the behaviors generated in response to a social situation. For example, Dodge (1980) found that when second, fourth, and sixth grade children attributed behavior to a hostile intent, they would respond with aggression 60% of the time, as compared with only 24% of the time when behavior was attributed to a benign intent. Both aggressive and nonaggressive children showed this pattern of aggressive responses in accordance with intention attribution. Intuitively such a pattern makes sense, as even nonaggressive children can feel justified responding with aggression if they perceive a malicious intent. However, Dodge's study (1980) also found that when the situation is ambiguous, only aggressive boys

reported that they would respond with aggression, thus differentiating them from their nonaggressive peers. Unfortunately, Dodge's study did not differentiate between proactive and reactive aggression. As such, it is unclear whether response generation and aggression is different for both subtypes of aggression.

Response evaluation and aggression. Aggressive children also tend to evaluate their responses differently than do their nonaggressive peers. A study by Crick and Ladd (1990) examined the response evaluations of third and fifth grade children using Dodge and colleagues' SIP instrument. Results indicated that socially incompetent, aggressive children tend to anticipate more positive instrumental and interpersonal outcomes from their aggressive responses than do more competent peers. In order to determine whether the study's finding of increased positive evaluations for aggressors applied only to reactive aggression, a follow up study parceled out and compared proactive and reactive aggressors. Smithmyer, Hubbard, and Simons (2000) collected outcome expectancies for aggression data, as well as staff-ratings of proactive and reactive aggression for a sample of 86 incarcerated adolescent boys ages 13 to 18. The authors discovered that although both types of aggressors evaluate their responses positively, proactive aggressors tend to perceive favorable consequences of aggression significantly more frequently than do reactive aggressors. Moreover, this finding was supported regardless of whether the outcome expectancies were assessed using hypothetical vignettes describing proactive or reactive aggressive behaviors. The authors conclude that proactive and reactive aggressors indeed hold social cognitions that are different from one another, and should be studied accordingly.

Developmental trends in social information processing. Although social information processing theorists emphasize stability and innateness to processing styles, they also indicate that development does occur in the types of strategies used by children to process information (Siegler, 1983; Dodge & Price, 1994). In a study examining age differences and social information processing, 7, 9, and 12 year old boys were presented with a variety of aggressive incidents, some involving a child attacking another child and others appearing more accidental (Shantz and Vogdanoff, 1973). The authors found that the younger the child, the less able he was to distinguish between accidental and intentional incidents, and the more likely he was to react similarly to intentional or aggressive provocation. It is important to note that the above aggressive incidents contained a high degree of subtleness and ambiguity; conversely, as mentioned earlier when a situation is unambiguous even preschool children have been found to correctly discern information about an aggressive act such as a provoker's intentions (Rotenberg, 1980).

In an additional study examining social information processing and age differences amongst 1st, 2nd, and 3rd graders (Dodge & Price, 1994), the authors found that older children were more relevant than younger children in the following social information processing skills: Encoding of hostile and non-hostile cues; accurately interpreting hostile and non-hostile intentions; generating more behavioral responses; endorsing fewer aggressive responses; and demonstrating greater skill with enacting selected responses. Amongst what the authors referred to as “non-skill” processing variables, only one significant effect was found: When presented with ambiguous situations, older children were significantly more likely to demonstrate a hostile

attribution bias to a hypothetical peer, than were younger children. The same pattern of increased hostile attribution bias with age was not found for hypothetical teachers.

Unfortunately, inaccurately biased interpretations of ambiguous situations, often have negative consequences. For example, in an earlier study, Dodge and Coie (1987) found that third graders who inaccurately interpreted peer intentions were significantly more likely than same-age, accurate peers to display over-reactive aggressive behaviors. A similar effect was not found for the study's first graders.

In sum, research suggests that the accuracy and slant by which an individual interprets peer intentions is predictive of aggression levels and is influenced by age. At present, an explanation for this phenomenon of increased attribution errors toward peers and thus, aggression with age has not yet been determined, although the authors note that they are "surprised" by the findings. One possible explanation could be as follows: With maturation comes increased experience and hence, additional opportunities to develop biased schemas. These biased schemas, in turn, hinder an individual's ability to accurately surmise and interpret a social situation leading to socially maladaptive behaviors such as aggression. Unfortunately, such hypotheses have not been examined because existing aggression and social information processing studies have not yet explored the role of schema-formation in social information processing skills in general, and interpretation skills, in particular. Moreover, it is important to consider that the intent attributions cited in the above aggression studies were directly elicited. It is possible that children who, in real life, do not process intentionality when making judgments simply equate an action with a negative intention when explicitly prompted to give an intent attribution.

The Present Study

Taken together, it is clear that schemas and social information processing skills are theoretically interrelated and serve as strong predictors of aggression. Although related, the specific SIP steps have been studied with schemas only inferred as influencing the SIP steps. For instance, Crick and Dodge (1994) have conjectured that aggressive children possess aggressive schemas which influence social information processing, particularly at the encoding, interpretation, and goal formation steps, resulting in the enactment of dysfunctional social behaviors. Concurrently, these social behaviors are said to impact upon a social interaction, thus resulting in the confirming or disconfirming of existing schemas. The schema-SIP cycle, then, has been conceptualized by Dodge and his colleagues as reciprocal, although no studies have explored and hence substantiated this conceptualization.

One explanation for this gap in research is the limited information gleaned from favored measurement instruments such as the SIP instruments. The present study, then, attempts to fill in some existing gaps in aggression research by revealing and investigating the underlying schemas and information processing skills associated with reactive and proactive aggression. Parallel with existing research, the study focuses on the intent and response generation aspects of social information processing by elementary students, and how these relate to reactive and proactive aggression in both overt and covert forms. However, the present study is unique in its investigation of these social information processing steps using a variety of measurement instruments, and not just Dodge and colleague's popular SIP instruments. The reasons for using additional instruments include the ability to obtain information that is generally not

covered by Dodge and colleague's SIP instruments such as information about the social cognitive skills and processes that lie behind aggressive behaviors, as well as information pertaining to schemas.

Limitations of Current Assessment Strategies

Dodge and his colleagues have underscored an attachment-based schema theory to guide their social information processing model, and have posited that a link between schemas and aggressive behavior are responsible for their research findings. For example, Crick and Dodge (1994) hypothesized that an "over-reliance on preexisting schemas may be partly responsible for problematic social behavior and resulting social maladjustment" (p.78). Further, they proposed that such "schema-based processing" may interrupt the deliberate and careful processing of social cues, thus resulting in inaccurate and biased interpretations of social interactions. Crick and Dodge's hypothesis was based, in part, on earlier research conducted by Dodge and Tomlin (1987) who found that aggressive children tended to rely more heavily on information not presented in the social stimuli (i.e. schemas), when interpreting and responding to social situations. In addition, Dodge and Newman (1981) found that aggressive boys use fewer environmental cues when processing social information, than do nonaggressive boys.

Despite Dodge and colleague's reliance on schema theory, their social information processing instruments do not measure many aspects of personal schemas (although public schemas may be uncovered). At times, in fact, it can be difficult to distinguish between public schemas (i.e. stereotyped responses based on cultural norms, or what a person thinks he/she should do) and personal schemas, (i.e. individual

responses, or what a person actually thinks he/she would do in a given situation). In addition, the schemas behind the answers are generally not accessible through SIP answers. In other words, the Social Information Processing scale will convey whether or not the child attributes hostile intent to a hypothetical peer's neutral behavior; however, one cannot determine the reasons for this attribution. For example, is the hostile attribution due to a general mistrust of people's motives because of past poor relationships or is it because the child does not take the time to or does not have the schema complexity needed to consider a peer's intentions before reacting? Crick and Dodge (1994) admit that under certain conditions, children's responding may not result in the enactment of all social information processing steps. For example, in situations involving high arousal, the authors contend that processing without thinking is more likely. Moreover, the SIP instrument vignettes only pull for reactions to a perceived provocation; therefore, the SIP primarily assesses reactive and not proactive aggression. If we are to understand how intentionality and other SIP steps relate to childhood reactive and proactive aggression, then the underlying schemas need to be uncovered.

Projective Instruments

Projective instruments are a commonly used method for assessing schemas. Such methods are more proficient than self-reports at revealing underlying schemas since one's awareness of and ability to report schemas becomes less likely over time, as schema automaticity is achieved (Shirk, 1998). Furthermore, projective instruments are able to reveal schemas oftentimes without examinee awareness. Self-reports, on the other hand, generally elicit only consciously held generalizations about relationships that are both socially acceptable and defensible. Of course, in order to assess schemas, they

must first be activated since research has shown that schemas, though present, will not be reported if they are not first activated (Segal, 1988). As such, Persons (1993) advises assessing schemas using projective stimuli general enough to be self-relevant or emotionally evocative, rather than merely using the characteristically inert questionnaires and rating instruments used in most research on aggression.

Specifically, the use of projective stories or narratives to assess schemas has been recommended by Westin and colleagues (1992), as well as by Shirk (1998). The authors reason that such instruments will likely uncover schemas, since the act of forming narratives involves activating schemas (Buchsbaum, et al, 1992). These activated schemas, of course, have been formed by prior interpersonal experiences which, in turn, depict actual functioning. In a study by Van Horn (1996), participants were presented with an emotionally laden vignette and then asked to imagine themselves in the depicted situation and predict others' responses to their predicament. Van Horn found that the participants' interpersonal predictions were significantly correlated with their actual past interpersonal experiences in similar situations, as well as with their levels of depression.

In addition to gleaning important information about past experiences, narrative techniques are valuable tools for evaluating the social cognitive bases of aggression, including social information processing steps, because of their use of a story format. Social information processing steps, even as conceptualized by Dodge and colleagues, tend to fit naturally into the structure of a story where there is a beginning, a middle, and an end. The "story" depicted within the SIP is the language of experience, both in the form of a hypothetical social situation, as well as the prior experiences influencing

decision-making in that social situation. The greatest difference between SIP hypothetical stories and projective narrative stories, is the scope of the story elicited by the examiner. The SIP stories elicit only pieces of an examinee's experiences i.e. those which apply directly to a hypothetical situation. Projective narratives, on the other hand, are general enough to elicit any variety of experiences, depending on what is most salient to the examinee. From projective narratives, examinees generally provide information about how they define and understand a problem, as well as information about how such definitions and understandings relate to actions taken. Furthermore, projective narratives do not provide explicit prompts that elicit intention attributions or outcome expectations; if an individual is not prone to consider another's intentions or consequences of their actions before responding, that tendency is made obvious on a projective narrative. As such, projective narratives have the potential to uncover different and more complex qualities of social cognitions than do Dodge and Colleagues' SIP instruments. Additionally, projective narratives have the ability to elicit social cognitions related to both proactive and reactive aggression, whereas the SIP instruments pull for reactive aggression.

In sum, it is clear that projective narrative instruments hold much potential for revealing important information about the social cognitive bases of aggression.

Unfortunately, despite apparent benefits, projective narratives have yet to be utilized in research studying the social-cognitive bases of aggression. In response, the present study goes beyond present research to not only assess social information processing patterns using Dodge and colleagues' SIP instruments, it also uses a projective narrative

instrument to assess both social information processing patterns and the schemas that drive them.

Summary

In summary, the present study investigates how the intent and response generation aspects of information processing by a “normal” population of elementary students relates to reactive and proactive aggression, as rated by teachers, peers, and the self. Given the low inter-rater agreement noted in previous aggression studies (e.g. Crick & Dodge, 1994; Dodge & Coie, 1987), the multiple informants used in this study i.e. the classroom teacher, other students, and oneself, should similarly disagree about aggression levels. “Aggression”, for the purposes of this study, is limited to reactive and proactive aggression taking into consideration its overt and covert forms. Additionally, the cognitive processes underlying both reactive and proactive aggression are examined since they so often co-occur (Gocool, 2006), are rarely studied together, and have distinct implications for understanding aggression.

The cognitive processes associated with aggression in children are examined using a variety of instruments: Dodge and colleague’s SIP instrument is used to capture intention attributions and resulting responses in a hypothetical situation. A storytelling technique is used to assess information processing, in order to reveal additional information about the intent, response generation, and outcome expectation steps captured in the SIP. For example, information about underlying relationship schemas and information processing skills is revealed by the projective instrument. This information helps to determine, for example, whether differences in aggressive behaviors exist between children who make biased intention attributions, and children

who have low information processing skills. Moreover, the information yields valuable information about how the perceived purpose or intent behind a provocation relates to the intention behind the response. Finally, the present study includes children with a range of socioeconomic status and mixed gender in a sample comprised of mostly Latinos and African Americans, and examines effects of gender and age on the intent and response generation aspects of information processing, as well as on aggression.

Research Questions and Hypotheses

As previewed in chapter one (introduction), the overarching research question is as follows: How does social information processing as measured by the SIP and TAT relate to various ways of subtyping aggression including reactive and proactive, as well as verbal and physical aggression as reported by teachers, peers, and self?

Unlike previous studies which treated SIP steps as distinct entities and often tended to study selected steps, this investigation examines the various steps simultaneously. In addition, the present study examines how the SIP and TAT predict the various types of aggression. Finally, gender and age variables are examined in terms of their relation to social information processing patterns as well as aggression types. Listed below are the five research questions with their hypotheses, rationale behind the hypotheses and data analyses procedures.

The following individual research questions are investigated:

1. How do the SIP measures' intention and response formation steps relate to proactive and reactive aggressive behavior in the classroom as rated by teachers, peers and self?

For the purposes of this study, intention steps refer to SIP step two, “interpretation” and SIP step three, “goal selection.” These are two perspectives on “intent,” one—attribution of intent of the ambiguous provocation and two—intent behind the response to the provocation or the goal that the response is aimed to attain. Response formation steps include SIP step four, “response generation” and SIP step five, “response evaluation.” The intention and response formation steps (and the four SIP steps that comprise them) are examined in terms of their relation to proactive and reactive aggression using correlation analyses.

It is hypothesized that the findings gleaned from the SIP instruments will largely parallel those of Dodge and colleagues (e.g. Dodge and Price, 1994; Dodge and Tomlin, 1987). Specifically, it is reasonable to expect the following: 1a) A hostile attribution bias will be positively correlated with reactive aggression, but not necessarily to proactive aggression (Crick & Dodge, 1996). 1b) In addition, hostile intent attributions should be correlated with higher aggression scores overall. 2) A hostile attribution bias (i.e. interpretation of another person’s intentions) will be positively correlated with an individual’s own intent or goal of malice behind their aggressive response. Any differences for proactive and reactive aggressors are uncertain as research has not yet examined aggression types in relation to the SIP response generation step 3) Perceived positive outcomes for aggressive behaviors should be correlated with proactive aggression, but not reactive aggression, as previously demonstrated (Smithmyer, Hubbard & Simons, 2000). 4) The SIP response generation step is more likely to be associated with self-reported aggression than with peer and teacher-rated aggression. The correlation between SIP and self-reported

aggression should be stronger than the relationships between SIP and both peer and teacher rated aggression. The rationale behind a stronger expected relationship between SIP and self-reports of aggression is that the SIP functions as a self-report of how one would react to a hypothetical situation. This connection is not necessarily expected between TAT measures and source of rating.

An expected pattern based on the literature is that correlations will be modest since the present study examines a “normal” population, similar to Dodge and Price’s study (1994), that has not been selected based on extreme group membership by way of aggression. In addition, correlations for the various SIP steps in relation to proactive and reactive aggression may be diminished due to the high correlation (.845) documented between proactive and reactive aggression. (Dodge & Coie, 1987; Gocool, 2006). In an attempt to correct for the blending of reactive and proactive aggression as illustrated by their high correlations, only those components which are determined via factor analyses to be distinct categories are used (Potter, 2006).

2. How are these same variables, noted above, reframed when measured in the context of a TAT story?

The information gleaned from this question are based on correlation analysis, and concentrate on the overlaps and associations between social information processing steps and schemas. The hypotheses pertaining to this question, therefore, are as follows:

5) The conceptualization of the various social information processing steps by the SIP and TAT will be very different, such that the two instruments will not be related to one another. This hypothesis is expected because TAT stories tend to be more naturally formatted where the examinee is not instructed about what kind of story to tell, and is

not asked specific questions about the story. On the other hand, the SIP instruments provide a story for the examinee that contains a repeated theme (i.e. the participant as the victim of an ambiguous unpleasant action by another person). The examinee is then asked a series of scripted questions about the story which are tied directly to the social information processing steps as conceptualized by Crick and Dodge (1994). As such, the SIP instrument format tends to be less natural and may not accurately reflect what a person would actually do in a given situation. The information pertaining to this hypothesis is dealt with descriptively. 6) It is also hypothesized that less accurate, less complex, and less organized schemas, as measured by the TAT, are expected to positively correlate with aggressive and reactive cognitions as measured by the SIP. This pattern is expected since poorly organized schemas will likely take needed resources away from social information processing resulting in a failure to consider a person's intentions and the consequences of one's actions before reacting to a provocation. It follows, then, that 7) stories not dealing with intention at all (i.e. intention attribution and goal formation) will likely be associated with hostile intent attribution and aggressive response as measured by the SIP.

The questions regarding whether an intention is actually stated, as well as whether the intention is hostile or neutral, is addressed using correlation analysis. Moreover, correlation analysis was used to determine whether schema complexity, as measured by the TAT, is related to a hostile attribution bias, as measured by the SIP. Addressing these questions will provide information regarding (a) whether social information processing steps are spontaneously provided when telling a story and (b) whether individuals who act or react in an aggressive manner and/or have poor schema

complexity actually consider the intentions of others when determining how to behave in a given situation.

3. How do schemas, as measured by the TAT, relate to proactive and reactive aggressive behavior as rated by teachers, peers, and self?

Differences between proactive and reactive aggressors' intentions are expected to be revealed on the TAT using correlation analysis since unlike the SIP instruments the TAT presents mostly ambiguous situations that pull for neither proactive nor reactive aggression. The TAT was coded using portions of Teglasi's Coding System (2001) as well as a coding system designed for the present study which captures components of a story specific to Dodge and colleague's social information processing steps.

Although not yet researched with the TAT, it is likely that the two components of intentionality (i.e. perceived intent of others and one's own intentions behind actions) will differ for proactive and reactive aggressors. As such the following hypotheses are expected: 8) Parallel to Crick and Dodge's (1996) study using only the SIP instruments, the inaccurate perception of others' intentions as hostile will be positively correlated with reactive but not proactive aggression. As such, though not explored in Crick and Dodge's study, it is hypothesized that 9) On the TAT, presence of goals/intentions and congruence between actions and outcomes will correlate with peer and teacher rated aggression, both reactive and proactive. It is also possible that some reactive aggressors will have no intentions behind their actions, since their response to a provocation, insult, or adversity may occur as an impulse and without a clear goal. On the other hand, it is hypothesized that 10) the actions of proactive

aggressors will be driven by a clear goal and will not share an intention of self-defense since hostile attribution biases are less likely amongst this group. Instead, proactive aggressors will likely intend for their actions to be instrumental in meeting some pre-determined goal. It is important to again mention that an accurate differentiation between reactive and proactive aggression is challenging due to overlap between the two types of aggression. However, only those components which are determined via factor analyses to be distinct categories are used.

At this time, research literature has not examined the relationship between TAT performance and peer, teacher, and self reported aggression. Previous studies have focused on the aggressive content of TAT stories, (see review by Teglasi, 1993) however there has not been an investigation that used a variety of informants or focused on the qualities of schemas and general intent as reactive or instrumental. As such, it is unclear which informant's ratings will have the strongest relationship with TAT variables, still there are some expected patterns: It is possible that peer reports might relate more closely with performance on the TAT storytelling task, since peers may be the more accurate gauges of behavior. On the other hand, the peers in the current study are young (i.e. 6-8 years old) and may not yet perceive peer behaviors with accuracy. Teachers, on the other hand, may be privy to more socially desirable behaviors amongst their students. As such, teacher reports may correlate more strongly with the SIP instruments which similarly pull for socially desirable information. Self reports of one's own behavior may be less accurate due to the reporter's desire to appear socially desirable, thus diminishing self-report correspondence with the TAT. However, the SIP instruments are essentially a self-report and this source overlap may result in

stronger relations between self-report and SIP than other informants. Although the above possibilities are, as of yet unfounded, what is founded and thus expected, is that participant aggression levels will be influenced by their informants, where teacher, peer, and self-raters will likely rate student aggression differently.

4. How do demographic variables (i.e. gender and age) relate to aggression and social cognition?

The answer to this question, based on correlational analyses, involves the following hypotheses: 1) Gender differences for the relationship between social information processing and socially competent behavior are not expected. As such, findings are expected to parallel Dodge and Price's (1994) study findings for a "normal" population of boys and girls, as well as McGlothlin and Killen's (2006) findings of no gender effects for attribution biases based on race.

What is unclear is whether females will display similar differences for the aggression types. Expected patterns based on the literature (i.e. Crick and Grotpeter, 1995) include a possible increase of proactive aggression levels for girls and not boys, manifesting in decreased levels of overt aggression for females.

Also examined using correlation analysis is differences due to age. Given the very slight age range within this study (i.e. 7-9 year olds), age effects are expected to be small. Even so, an expected pattern based on existing literature is that any differences in social information processing due to age should parallel the trend found by Dodge and Price (1994) where older age is associated with greater relevancy encoding environmental cues and fewer endorsements of aggressive responses. Also like Dodge and Price's study, a slightly greater hostile attribution bias is possible for older children

toward hypothetical peers on both the SIP instruments and the TAT. Similarly, the trend toward fewer aggressive responses with age should occur primarily for less aggressive study participants; older, aggressive participants should display a greater hostile attribution bias and respond in kind. Finally, reactive aggression rates may lessen somewhat, since reactive aggression is generally correlated with younger age (Connor, Stengard, Cunningham, Anderson & Melloni, 2004).

Importantly, the present study sample consists of children from predominately African American, and to a lesser extent Hispanic, ethnic/race backgrounds. In addition, the sample is of a mixed socioeconomic status (i.e. approximately one-half qualifies to receive “free lunch” at school). As such, it is possible that study findings could mirror those of the Baltimore Prevention Trials study (1994) where both male and female aggressive behavior rates increased with age and were higher than studies conducted with higher SES samples. Moreover, although some differences are expected for male and female forms of aggression, these differences are likely to be small. Such low within group variations are expected given the findings of the Baltimore Prevention Trials (1994), which suggest that low SES may be related to decreased gender differences for aggression.

5. When predicting aggression from self, peer, and teacher perspectives, what are the unique contributions of schema and social information processing components?

In order to address this question, multiple regression analyses is run to confirm or disconfirm the following hypotheses: 12) TAT variables are more predictive of teacher and peer-rated aggressive behaviors than SIP variables and 13) SIP variables are more predictive of self-rated aggressive behaviors than TAT variables. The above

hypotheses are expected because the TAT measures a person's personality and what a person would actually do in a given situation. Similarly, teachers and peers are more likely to observe what that person actually does, thereby likely corresponding more closely with the TAT. On the other hand, the SIP instruments measure a set of skills that are influenced by an awareness of what constitutes socially desirable behaviors, in other words, how a person should respond in certain situations. Because self-ratings of aggression are likely to be influenced by the same awareness of socially desirable behaviors, self-ratings should be better predicted by the SIP.

Chapter 3: Methods

Study Design

The present study was part of a larger longitudinal project in which children were interviewed during the fall and spring of the 2002-2003 academic year. Depending upon the instrument used, archival data from either fall (time 1) or spring (time 2) was used.

Participants

The participants in this study included 107 children enrolled in a public elementary school located outside of Washington, D.C. The elementary school population was culturally and racially diverse, although the clear majority of students were of African-American descent. In addition, the participants were of mixed socioeconomic status with 48.3 percent of the elementary school students qualifying to receive free/reduced lunch. Participants were from three second grade classrooms. Fifty seven second graders participated (23, 19, and 15 from each class; 53%) and 50 third graders participated (16, 16, and 18 from each class; 47%).

The participants consisted of 64 males (60%) and 43 females (40%). Approximately 67% of the children were classified by the school as African-American, 17% as Latino, 11% as Asian, and 5% as White. In addition, according to their general and special education teachers, several children were receiving special services where 26.2% received ESOL services (English for Speakers of Other Languages), 3.7 % received special education services, and 0.9% received speech and language services.

Procedure

Six trained school psychology graduate students, including the author of this study, administered two one-hour interviews to individual study participants in the Fall of 2002. Both interviews (i.e. interview one and interview two) occurred within two weeks of each other, and were conducted by the same interviewer. Prior to data collection, the supervising school psychologist and two school psychology graduate students spoke with each classroom about the study, citing the study's purpose as "activities about friendship and how children get along with others." Letters were sent home to student families describing the study, along with consent forms which were to be signed and returned to the classroom teacher. The wording of the letters and informed consent forms varied according to which of three experimental conditions the child's classroom was assigned. All children, regardless of assigned experimental condition, were asked to participate in the two interviews and all informed consent forms included permission for these interviews and for teachers to complete several measures.

To encourage timely return of consent forms, children were promised a choice of school-appropriate rewards or "prizes" such as markers and stickers in exchange for signed forms. Graduate students visited participating classrooms and publicly distributed the rewards, which were made visible through a clear, plastic bag. Children were given their choice of rewards for returning signed consent forms regardless of whether their parents or guardians gave or withheld consent. Only those children whose parents or guardians gave consent were selected to participate in the study.

Classroom teachers were given standardized behavior rating forms to complete for each participating child. Substitute teachers were arranged for a half-day in order to allow teachers time to complete the forms. Meanwhile, child participants were individually escorted from the classroom by a graduate student for their one-on-one interviews. Interviews were conducted in a variety of private settings including the school counselor's office, a testing room, and a storage space.

In an effort to minimize potential effects due to multiple interviewers, the graduate student interviewers trained one another on the various instruments. In addition, the graduate students practiced standardized interview introductions and assessment administrations, and administered all protocols in the same order. Due to variability of participant reading level, interviewers read protocol items to participants and also provided a written version for them to follow. Confidentiality issues were discussed with students prior to beginning both interviews. Specific administration procedures differed somewhat for the two interviews and are detailed below.

Interview one. At the start of the first interview, the interviewer presented the child participant with an assent form, written in age-appropriate language. The form briefly described the study and asked the participants whether they would agree to answer questions about their feelings, classroom experiences, and relationships with peers. If the child agreed to be interviewed, he or she was asked to sign the assent form. If the child chose not to participate, he or she was escorted back to the classroom. All of the children elected to participate in the interviews.

Once child assent was obtained, the interviewer proceeded with the standardized introduction and administered the Social Information Processing (SIP) instruments

(i.e. “Home Interview with Child” and “Things That Happen to Me”), followed by Thematic Apperception Test (TAT) cards #1, 2, 4, 7GF and 8 BM and concluding with The Listening Test. Participant responses to the SIP instruments and TAT were recorded verbatim onto a recording form and sheets of paper, respectively. In addition, responses were audio-taped in order to ensure that all responses were captured. At the conclusion of interview one, the child was given a piece of candy, sticker, or colorful pencil as a token of appreciation for participating, and escorted back to the classroom.

Interview two. Interview two was conducted within two weeks of interview one. Each child participant was reminded of interview one’s signed assent form, and was asked whether he or she would still like to participate. Upon ascertaining participant agreement, each child was handed a depiction of their classroom layout, including seating locations for each of their classmates. Administration of the sociometric peer nomination measure followed and participant nominations were recorded onto an accompanying form. A qualitative measure to gauge children’s understanding of peer support, as well as a measure rating the importance of peer support was then administered, though not used in the current study. The Bullying Behavior and Peer-Victimization Scales, a self-report instrument, was then administered. Upon completion of interview two, the student was again given a token of appreciation (e.g. stickers, candy), and escorted back to the classroom.

Measures

Social Information Processing Measures

The following section is organized into brief descriptions of each instrument

used in the current study, followed by administration and coding procedures, and concluding with each instrument's psychometric properties.

Dodge and Colleagues' Social Information Processing Instrument (SIP)

Description. Dodge and his colleagues originally developed their SIP Scale due to an "interest in the specific processing and judgment events leading to aggression in situations of interpersonal confrontation or conflict" (Zelli & Dodge, 1999). Each SIP Scale subtest measures specific social information processing steps. In the current investigation, two SIP Scale subtests were used to assess the four social information processing steps of elementary-aged children. Specifically, the subtest "Home Interview with the Child" measured *Intent Attributions* and *Response Selection*, while "Things that Happen to Me" measured *Goal Clarification* and *Outcome Expectations*. Both SIP subtests share four hypothetical scenarios, two of which involve ambiguous situations that are provocative (e.g. bumped into by another student), and two involving problematic peer-group entry (e.g. not being allowed to join a lunch table). All scenarios were designed so that the intention of the peer(s) is ambiguous (Price & Landsverk, 1998). These particular scenarios were considered relevant and problematic situations for elementary school-age children (Dodge, 1993).

Administration and coding. For each scenario or "story" children were asked to imagine themselves as the protagonist involved in the situation. They were then informed that they would be asked some questions about "why the other kid in the story did what he/she did, and what they would do about it." During administration, antagonist names were altered within the scenarios in order to match the participant's gender, since most young children have been found to connect more readily to same-

gender peers (Fabes, Martin, & Hanish, 2003). All scenarios were read to the children by the examiner and accompanied by a laminated drawing depicting the situation, in order to ensure participant comprehension. Participant responses were audiotaped and recorded verbatim on the standardized administration form. An example of a hypothetical scenario used in the study is below:

“Pretend that you are standing on the playground playing catch with a kid named Todd/Jessica and he/she catches the ball. You turn around and the next thing you realize is that Todd/Jessica has thrown the ball and hit you in the middle of your back. The ball hits you hard and it hurts a lot.”

Following each scenario, the examiner asked study participants questions pertaining to the specified social information processing steps.

Intentions and response access. The “Home Interview with the Child” assessed examinee interpretations of the antagonist’s intentions, as well as response access. Following the reading of a hypothetical scenario, children’s attributions of antagonist intentions were attained by asking participants to state why the antagonist in the scenario acted the way he or she did. The responses were immediately coded by the interviewer using binary coding with a code of (1) as benign / non-hostile intent and (2) as hostile intent, with the higher score (i.e. “2”) considered aggressive. In the event of a vague participant response (e.g. “he hit me in the back with a ball, because he’s mad”), examiners used scripted queries until the response was scorable. The range of possible scores across the four scenarios is 4 through 8 with 4 being less aggressive and 8 being most aggressive. The children were then prompted to verbalize what they would do in response to the hypothetical situation. These responses were immediately coded as (1)

doing nothing, (2) a comment or question (such as “why”), (3) commanding the peer or seeking adult intervention, (4) threatening the peer or seeking adult punishment, and (5) retaliating physically or verbally. Of the five codes, only the last two response codes are considered to be aggressive, according to Dodge and colleagues’ conceptualization.

Response codes were evaluated individually across the four scenarios with the range of possible scores as 4 through 20 with 4 being least aggressive and 20 being most aggressive. Response codes were also summed with intention attribution scores, with higher scores indicating elevated levels of aggression. The range of possible scores for combined response with intention attribution scores is 8 through 28 with 8 being least aggressive and 28 being most aggressive.

Goal clarification and outcome expectations. The “Things That Happen to Me” scale immediately followed the “Home Interview with the Child” and assessed children’s goal setting and evaluations of aggressive responses to peer relationship dilemmas. During administration, the interviewer again read the four scenarios aloud to the child, one-at-a-time, then asked the child to answer two sets of questions about how effective aggressive responses would be. The child was prompted to answer “yes” or “no” to indicate whether the aggressive response was 1) effective at maintaining friendship with a peer in the scenario (i.e. friendship goal), 2) instrumental in achieving a desired outcome (i.e. instrumental goal), and 3) whether it would be acceptable to other children (i.e. social acceptance goal). In accordance with documented scoring procedures (e.g. Zelli & Dodge, 1999; Dodge & Price, 1994), the positive (yes) responses were considered to be aggressive and assigned a higher score (i.e. 2) while the “no” responses were considered less aggressive and assigned a lower score (i.e. 1).

The responses were then summed with the total across all responses to each of four questions from four scenarios (total items = 16) ranging from 16 (less aggressive) to 32 (most aggressive). Finally, the child was prompted to endorse one of these goals as most important to him or her when formulating a response; such information assesses the child's intentions behind their responses to peer provocation. A numeric code was assigned to each endorsed goal (e.g. friendship, instrumental, or social acceptance goal) in order to descriptively differentiate one code from another. Specifically, the following codes were assigned to goals: (1) in order to be friends with him or her (2) so he/she would stop (action) (3) so everyone else thinks I did the right thing. The numeric codes will be included in the present study in a descriptive manner in order to show what types of goals the study participants endorse.

SIP instrument validity. Structural equation modeling with latent variables and a series of confirmatory factor analyses were performed to examine the validity of both SIP Scale subtests (i.e. Home Interview with Child and Things That Happen to Me) over three years (Zelli, Dodge, Lochman, and Laird, 1999). In particular, confirmatory factor analyses were used to test four-factor measurement models, for each of three years, that (a) allowed each of the measures' items to load onto its hypothesized factor (b) included one aggression beliefs latent factor and three social information-processing latent factors (i.e. Intent Attributions, Response Access, and Response Evaluation) for a total of four factors, and (c) proposed inter-factor correlations amongst latent constructs. Results revealed a goodness-of-fit index of .96 or higher for each model, suggesting very adequate model fitting. Moreover, all item loadings of the three social information processing factors were statistically significant (Zelli & Dodge, 1999).

A nested-model approach examined any change in model-fitting due to either (a) omitting clear distinctions among the three social-information processing variables or (b) considering a single generalized cognitive construct. Results revealed a decline in model fitting when compared with the four factor model, thus demonstrating discriminate validity in the hypothesized constructs.

SIP instrument reliability. Inter-rater reliability was calculated in the current study for three trained raters based on their scoring of ten items per section, for a total of 20 items in the “Home Interview with the Child”, and 20 items in the “Things That Happen to Me” instruments.

The inter-rater reliability for the “Home Interview with the Child” was high for Dodge & Price (1994) where two coders were present during the interview for 52 subjects and independently scored subject responses. Independent coder agreement was 100% for intention attribution and 84% for response access. In the current study, reliability was determined across three trained raters where each rater coded then compared 10 randomly selected items from the intention attribution and 10 randomly selected items from the response access SIP steps. For intention attribution the inter-rater agreement between three trained raters was calculated to be 90% (i.e. all three scorers agreed 90% of the time). For response access, the inter-rater agreement was sufficient for the three trained raters and calculated to be 80% (i.e. all three scorers agreed 80% of the time). The original rater’s score was kept for each component of the SIP instrument because of the high consistency amongst raters.

The inter-rater reliability for the “Things that Happen to Me” SIP instrument was high for Dodge & Price (1994). Once again, a second coder was present during

participant interviews and both coders independently scored responses. Independent coder agreement was 100% for response evaluation. In the present study, the same three trained raters described earlier also scored then compared 10 randomly selected items in the goal clarification and outcome expectations sections for a total of 20 items. The three rater's reliability was calculated to be 90% (i.e. all three scorers agreed 90% of the time). Again, the original rater's score was kept for each component of the SIP instrument because of the high consistency amongst raters.

Thematic Apperception Test (TAT)

The following section is organized into a brief description and rationale for using the Thematic Apperception Test (TAT), followed by administration and coding procedures, and concluding with the TAT's psychometric properties (Murray, 1943).

Description. The Thematic Apperception Test (TAT) is a projective instrument where pictures are selected from among 30 cards that depict one or more characters involved in an emotionally ambiguous situation, about which examinees tell stories. According to Frank (1948), a fundamental assumption of the TAT is the “projective hypothesis” which conceptualizes that a person's specific needs, motives, feelings, and cognitive structures influences how that person organizes and perceives environmental stimuli. This original projective hypothesis is supported by contemporary schema theory. The building blocks underlying the “projection” are **schemas**, defined by Teglas (2001) as “mental structures constituting internal representations of past experiences that guide the interpretation of new experiences.” The TAT captures a person's past perceptions and assists in the understanding of how past perceptions influence how one interprets current situations (Fiske, Haslam & Fiske, 1991).

Rationale. The TAT necessitates that the examinee tell a story about a pictured scene that is emotionally charged, yet mostly ambiguous in content; as such, it differs from the task posed by the SIP procedure. First, although the SIP vignettes are ambiguous as to intent, the problem-solving steps are specifically prompted. Thus, the child is asked to provide the intent and the response. In contrast, the narrator of a TAT story is given the freedom to include or exclude elements such as “intentions” and “response selection.” Moreover, aggression may or may not even occur in the story. Equally important is that the story reveals the nature of the intentions (maintain relationships, accomplish a task, attain a reward or avoid discomfort). In effect, the TAT story reveals the schemas that are hypothesized to drive responses to the SIP thereby going beyond the SIP to capture not only currently available information (e.g. environmental cues), but also the past information that is organized in memory (e.g. relationships, cause-and-effect association). The TAT story reveals how the narrator sizes up what is happening, including how events are organized (logical or cause effect connections, time frame, source of positive or negative emotions). As such, the content and organization of the schemas add to understanding social-cognitive processes that underlie interpersonal behaviors, in general, as well as aggression. Questions about SIP data that are potentially answerable through using the TAT include: “Is a child spontaneously considering intent or merely giving attributions in response to prompting in a hypothetical situation?” In other words, in day to day interactions does the child actually consider intent? Does the child generate a response without being prompted? Does a child have the cause effect understanding (skills) necessary for attributing intent? The TAT can provide additional information about the relationship between

intention attribution and subsequent actions taken since it allows for a more spontaneous connection between actions and intentions that is not necessarily tied to an aggressive context, permitting underlying schema to be revealed. Moreover, the story simultaneously connects all of the pieces which are separately evoked by the SIP instructions.

Administration. Standard administration procedures for the TAT were used (Murray, 1943). In other words the examinees were instructed to provide the general components of stories including what is happening in the pictured scene, what came before, what the person or persons are thinking and how they are feeling, and finally, how the story ends. The following TAT cards were selected for administration to all study participants: 1, 3BM, 4, 7GF, and 8BM. These five TAT cards were selected because they were varied in regard to age and gender, and “pull” for themes related to interpersonal relationships. Moreover, the TAT cards chosen are among the most popular and highly recommended cards by researchers and clinicians (e.g. Teglasi, 1993; Hartman, 1970; and Arnold, 1962). All participant responses were tape recorded and transcribed verbatim, including examiner prompts and examinee comments. It should be noted that although the TAT stories do not prompt specifically for intention or actions, they do allow for the evaluation of cognitions that connect them. (See Appendix E for a brief description of TAT cards used in the present study)

Coding. The TAT stories were coded using portions of Teglasi’s coding system (2001) and specific coding that aligns with SIP steps. Specifically, the following dimensions were coded, as outlined within Teglasi’s coding system: “Cognition”, “Emotion”, “Relationships”, and “Self-Regulation”. Additional coding units were

developed for the study to examine social information processing steps as delineated in the SIP. Each dimension is described below and coding procedures are detailed.

Cognition. Cognition during storytelling involves how one perceives stimuli, organizes past and present information, and applies information to an ambiguous situation. Schemas are conceptualized as both influencing and being impacted by cognitive elements. In this sense, schemas are incorporated into cognitive elements in order to provide the “sets” from which TAT stories are produced. Through Teglasi’s coding system, how one attends to, organizes, and responds to TAT pictures can be examined to reveal deficient schemas. Poorly organized, inappropriate, or incomplete schemas will manifest in inaccurate interpretations of pictures or a disarray of ideas. In this study, the perceptual integration aspects of cognition are examined to reveal important information about schemas. Specifically, the Perceptual Integration coding uncovers how the narrator perceives then creates meaningful relationships amongst pictured elements, and was coded using a four point scale involving the accuracy in sizing up and organizing the pictured cues with an emphasis on emotions and relationships. Cognitive-Experiential Integration is coded using a five point scale involving the relationship between story details, themes, and the pictured stimulus with an emphasis on emotions and intention attribution.

Emotion. Emotions are often embedded in the schemas to which they are attached. They can manifest during storytelling as simplistic reactions to impinging stimuli with little thought or planning involved, or emotions can be complex in their ties to external or internal triggers. Problems with self-regulating emotion become apparent on the TAT coding system, and generally stem from insufficient schema

complexity where self-control is underdeveloped, and schemas are poorly organized. Problems with emotion can also result when emotions are directed toward maladaptive goals, as is often the case with bullying behaviors. Of course, when presented with a stimulus, one's current emotional state can influence which schemas are activated and how well they are applied. As such, strong coping skills are essential for ameliorating the potential damage of negative emotions to on-line social processing. In this study two categories of emotions will be coded: Source of Affect (what, if anything, the individual attributes feelings to) and Coping with Affective Tensions (in stressful situations, the coping strategies that an individual typically uses and their effectiveness). Source of Affect is coded using four categories involving whether the affect is attributed to specific external sources, to internal psychological processes, or to some combination. Coping with Affective Tensions is coded using three categories involving whether the narrator addresses negative affect through reactive impulses or through solution-focused problem solving.

Relationships. The concept of relationships, for TAT interpretation, draws directly from Schema theory and Object Relations theory. Considering the high degree of overlap between object relations and schema theories, object relations can be considered interpersonal schemas that govern social information processing (Teglasi, 2001). Such information about relationship schemas is critical, since it has been shown to relate to social adjustment (Westen, 1993). Schemas about relationships are coded from TAT stories on a five point scale that measures the accuracy, complexity and organization of how people are viewed as individuals and how they are connected with others.

Self-regulation. An important component of self-regulation on the TAT is motivation. In other words, what goals motivate an individual to act, and how the individual intends to reach these goals. Selected goals become sources of self-regulation as they regulate what one pays attention to (e.g. information in the environment or one's memory), steps taken to pursue intentions, and the energy exerted toward overcoming internal or external barriers in pursuit of goals (Gollwitzer & Moskowitz, 1996). Self-regulation can best be understood as the pursuit of goal-directed activities that are complimentary to one's true self. Maladaptive self-regulatory activities include over-reactivity to circumstances due to a lack of goals, imposing negative emotions, or poorly organized schemas where the individual is not able to see the "big picture" (Teglasi, 2001).

On the TAT, the three aspects of self-regulation are effectively captured in examinee stories: Self-monitoring, self-direction, and self-determination. Self-monitoring refers to how one responds to their immediate environment including actions and reactions. Self-direction is more pro-active in meeting goals, whereas self-monitoring is reactive to the current situation. Self-direction entails one's ability to prioritize, sustain, and monitor behavior over time to fulfill more distant social concerns beyond the immediate situation. Finally, self-determination is the highest level of self-regulation, in which one's decisions, goals, and actions are based on multiple considerations including inner values, societal expectations, and external cues. In the present study, these three levels of self-regulation are subsumed within five levels or codes. Levels of self-regulation are coded from the most basic level of

reacting to the immediate situation, to the most complex level of pursuing long-term goals or ideals (Teglasi, 2001).

Social Information Processing and TAT story. An additional coding scheme that more closely mirrors Dodge and colleagues' SIP steps was added to Teglasi's TAT coding system (2001) for the purposes of the present study. Like Dodge and colleagues' SIP scale, the TAT "social information processing" coding scheme captures the following SIP steps: Interpretation of others' intentions (step two), goal formation / intentions (step three), and actions and outcomes (steps four and five).

It should be noted that assembling a social information processing TAT scheme, as conceptualized by Dodge and colleagues, was challenging for several reasons. First, Dodge and colleagues' SIP conceptualization fits "neatly" into steps, in part, because the authors' instrument pulls for discrete steps in response to verbal scenarios that are repetitive in that they comprise physical and verbal affronts and specific prompts to assess social information processing elements (intent attribution, etc.). The TAT, on the other hand, does not pull for discrete steps, and each pictured scenario is different from the last. Hence the first task of the narrator is to encode the stimulus by sizing up the pictured cues. In the SIP instruments, this step is given in the description of the scenario.

A second challenge for assembling discrete steps of social information processing from TAT stories to match those of the Dodge and colleagues' SIP instruments is due to its being confined to aggression-specific responses. A third challenge is that the SIP prompts for the specific steps and the TAT allows for inclusion or exclusion of those steps. For all of these reasons, the translation of Dodge and

colleagues' SIP steps onto a TAT coding scheme is not exact, and the TAT coding scheme will likely be much more comprehensive in its formulation of social information processing

As noted earlier, the more spontaneous connection between actions and intentions that are not specifically linked to aggressive contexts, permit underlying schema to be revealed. As such, more detailed information about the connections between intention attribution, response generation, and the intentions or goals behind these responses, can be revealed on the TAT. Moreover, the TAT coding system can more effectively delineate various intentionality perceptions present in a story. The first point in a story where perceptions of intentionality are salient is when sizing up the situation, the characters within the situation, and any events that led up to the situation. The second point in a story containing intention perceptions is when a character is setting goals in response to a situation, provocation, or another character's intentions. The first kind of intentionality refers to the SIP instruments' step "intention attribution", while the second refers to the SIP steps "goal formulation and response selections". Differentiating between the two types of intention are important characteristics of the TAT coding system measuring the SIP steps.

The TAT coding system representing the SIP steps contains three categories which are analogues to SIP steps two through five. Each of the three categories contains three levels with various sublevels. The categories are Intent Attributions (SIP step two), Goal Formation/Intentions (SIP step three), and finally, Actions and Outcomes (SIP steps four and five). The *Intent Attributions* category determines whether there is an intention attributed to another's actions, and if so, whether the

intention ascribed was a momentary reaction to a situation, or whether it was long-term and durable. When the intent was momentary or durable, it was assigned a sublevel coding of harmful or positive/neutral. The *Goal Formation/ Intentions* category determines whether there is a goal or intention ascribed to a character's reaction to the identified situation or intention of others. If there is a goal or intention behind a reaction, the coding system pulls for whether the goal was short term or long term. When the goal is short or long term, it is also assigned a sublevel coding of purpose to gain relief from adversity, gain something positive or neutral, and finally, gain something at the expense of another or retaliate in a hostile manner. Lastly, the *Actions and Outcomes* category determines whether there is a response stated, and if so, whether the response is negative or positive/prosocial. If there is a stated response, it is also assigned a sublevel coding of whether or not the response was linked to a desired and favorable outcome. All levels and sublevels are converted to points, with higher levels / sublevels translating to a higher point value. For example, level one, sublevel "a" translates to one point, level one, sublevel "b" becomes two points, level two, sublevel "a" receives three points and so on.

For this and all of Teglasi's TAT coding systems used in the current study, higher levels and sublevels assigned to the various categories generally denote more well-developed and adaptive schemas.

Psychometric properties. The TAT is psychometrically sound when procedures for coding are well detailed. Therefore, reliability is not established generically but documented separately for each administrative procedure, interpretative method, and set of pictures (Teglasi, 2001). Taking into account this consideration, the TAT has

demonstrated test-retest reliability where structural characteristics of TAT stories tend to remain stable (Locraft & Teglasi, 1997). In addition, internal consistency is strong for structural and formal qualities of the stories. In general, inter-rater reliability for the TAT tends to be adequate (above .80) when interpretive criteria are clearly presented and interpreters are well trained in the rating system (Karon, 1981).

Teglasi's coding system has certainly demonstrated strong reliability amongst its raters: Blankman, Teglasi, and Lawser (2002) coded 32 stories using the following TAT variables: Levels of perceptual integration, levels of abstract thinking, process of reasoning, cognitive-experiential integration, associative thinking, and self-regulation. Using these variables, the authors found high reliability coefficients (.93 to .94). In another study (McGrew & Teglasi, 1990), Teglasi's coding system was used to differentiate "emotionally disturbed" and "normal" groups of children. Results indicated that the coding system correctly classified 95% of the normal group members and 85% of the emotionally disturbed group members. Moreover, emotionally disturbed boys differed from a comparison group on seven formal scoring categories that were hypothesized to differentiate the groups (McGrew & Teglasi, 1990). A study by Blankman, Teglasi, and Lawser (2002) found that listening comprehension, as measured by a standardized instrument, and cognitive processes, as assessed by the TAT, were strongly related (over 74% shared variance). Performance on the TAT via storytelling, and reading comprehension were also linked (over 37% shared variance). Finally, Lohr, Teglasi, and French (2004) established TAT reliability in their study by using the SPSS reliability program with 45 stories unrelated to their study to establish initial rater reliability between two of the authors for each coded variable. The two

raters then checked reliability with the first five protocols and then with every fifth protocol thereafter to assure that reliability was maintained throughout the study. The initial and maintenance reliabilities respectively for each coded variable were calculated to be as follows: Perceptual Integration, .86,.90; Abstract Thinking, .84, .85; Process of Reasoning, .83, .85; Cognitive-Experiential Integration, .84, .92; Associative Thinking, .82, .89; and Self-Regulation, .84, .92.

In the present study, reliability was established for each of the five pre-existing TAT coding dimensions (Teglasi, 2001) along with the TAT-SIP dimensions which were developed for use in this study. First, intraclass correlation coefficients were calculated for all TAT dimensions. Next, two raters independently coded the five transcribed TAT stories of the first 30 study participant protocols for a total of 150 TAT stories. The two raters then checked reliability for the remaining 69 study participant protocols to ensure maintenance of reliability in the following manner: The non-primary coder scored ten percent of the remaining participant protocols, who were selected at random, for a total of 7 protocols or 35 TAT stories. The initial and maintenance percentage of agreement between two raters for each coded variable were calculated to be as follows: Perceptual Integration, .82, .83; Source of Affect, .87, .92; Coping with Affective Tensions, .84, .86; Relationships, .84, .87; Self-Regulation, .85, .86; Intent Attributions .86, .86; Goal Formations/Intentions .80, .84; and Actions and Outcomes .82, .85.

The Listening Test.

Description and rationale. The Listening Test (Barrett et al, 1992) is commercially available and was used in the present study to both 1) ensure that study

participants are attending to verbal information, thereby serving as a proxy for Social Information Processing (SIP) step one, “encoding” (Crick and Dodge, 1994), since both the Listening Test and SIP step one require that an examinee listen to then repeat information. In addition, the Listening Test was used in the present study to 2) bolster the integrity of social information processing data in the present study via the SIP instrument TAT, since the Listening Test is a robust and normative measure.

In general, the Listening Test is an individually administered and standardized assessment instrument containing five subtests: Main Ideas, Details, Concepts, Reasoning, and Story Comprehension. Each of the five subtests contains 15 items. The main idea task requires the examinee to identify the main idea of a short paragraph. The details task requires the examinee to attend to and process details while listening to a short paragraph, then use this information to answer questions. The concepts task requires the examinee to apply basic concept and vocabulary knowledge to follow a direction or answer a question. The reasoning task requires the examinee to make a conjecture or conclusion after listening to a paragraph. Finally, the story comprehension task requests that the examinee answer questions after listening to a narrative.

Administration and scoring. The Listening Test items are read to the participant by the examiner in an individualized setting; items are not verbally repeated. All but 8 of the Listening Test items require an examinee verbal response; the other 8 items require the child to point to a picture in response to the examiner prompt.

Each subtest item is assigned a score of “1” for a correct response or “0” for an incorrect response. Item scores are summed for each of the five subtests, in order to yield individual subtest raw scores. Raw scores are then converted to standard scores,

according to normative guidelines. In addition, all subtest raw scores are totaled to yield an overall listening ability standard score with higher scores indicating better listening skills.

Psychometric properties. Internal consistency and validity are acceptable as reported in the test manual (Barrett et al, 1992). The test-retest reliabilities for children ages 6 to 11 were strongest for the total test score (.86 - .97). Individual test-retest reliabilities for each subtest were lower (.75-.93), though still acceptable.

Aggression Measures: Teacher Report

Behavior Assessment System for Children (BASC).

Description. The BASC was created by Reynolds and Kamphaus (1992) and is designed to measure both maladaptive and adaptive dimensions of children's behavior. The instrument includes three possible rating forms: parent, teacher, and self; each of these forms consists of three targeted age groups: preschool (ages 4-5), child (ages 6-11), and adolescent (ages 12-18). In the present study, the BASC Teacher Rating Scale (TRS) was utilized for children. The BASC TRS contains 14 behavioral scales grouped into five categories. In the present study, only the aggression behavioral scale was used.

Administration and scoring. Teachers were given one rating scale for each student. Teachers rated 139 items on a 4-point scale (i.e. (1) Never (2) Sometimes (3) Often and (4) Almost always) to produce the 14 scales. In the present study, the aggression scale was used.

Psychometric properties. Reliability reports for the BASC TRS are both plentiful and strong. Specifically, the internal consistency for the BASC TRS ranges

from .82 to .90, and becomes even more reliable as the child matures in age (Flanagan, 1995). Test-retest reliability after one month is similarly high with median composites ranging from .81 to .96 (Sandoval & Enchandia, 1994). Finally, inter-rater reliability ranges from .69 to .89. The validity of the BASC TRS is also impressive, with most reports citing concurrent validity data. Correlational studies have indicated a high degree of similarity between the BASC TRS and other behavior rating instruments, such as the Teacher Report Form (Achenbach, 1991), the Child Behavior Checklist (Achenbach, 1991), and the Revised Behavior Problem Checklist (Quay & Peterson, 1983). In addition, convergent validity has been demonstrated between the BASC TRS and various clinical groups (such as emotional disturbance, depression, ADHD and behavior disorders) indicating that the BASC TRS can be useful for diagnostic purposes (Flanagan, 1995).

Aggression Measures: Peer and Teacher Reports

Sociometric Nominations

Background and history. Traditionally, sociometric nomination research has been conducted without the use of standardized or commercially published instruments. The first such use of sociometric peer nomination procedures occurred in 1934 by Moreno. Since then, several items have been published including the 20 items used in the current study (Crick & Werner, 1998; Perry, Kusel, & Perry, 1988).

Administration and scoring. Sociometric nomination procedures usually consist of examiner questions that describe kids using traits and behaviors. The examinee is typically prompted to list specific kids whom he or she knows, that match the descriptions. For the present study, participants consist of both peers and teachers.

Peer reports. Peer participants were provided a drawing of their classroom containing student names above where they sit, in order to jog participant memory. In addition, peer participants were provided with the following instructions prior to item administration:

“I’m going to say some things that describe different kinds of kids and the different things that kids may do at school. Look at the drawing to help you remember, and if what I say matches children in your class, say their names. If there’s no one who matches what I said, just say, *no one*.”

Examples of sociometric peer nomination items used in the current study are as follows:

“Kids who hit other kids”;

“Kids who call other kids names”.

The items used in the present study were selected based on their ability to measure proactive and reactive forms of aggression. The items were presented in an “unlimited choice” nomination format, which means that the examinees could nominate an unlimited number of children for each item. Unlimited choice procedures were selected based on a recent study (i.e. Terry, 2000) which found that unlimited nomination procedures have a greater range of values and more closely follow a normal distribution pattern, than do limited choice procedures. To score the instrument, tallies were conducted of the number of nominations a participant received for each question by his/her peer or teacher. Totals were summed across items, and resulting scores were transformed into z scores to control for factors unique to the class. In the present study,

only those questions which were determined via factor analysis to pull for either proactive aggression or reactive aggression are used.

Teacher reports. Teachers rated students' aggressive behavior using the Teacher Rating Scale for Aggressive Classroom Behavior (Dodge & Coie, 1987). This scale contains items that measure both reactive and proactive aggressive behaviors, however only those items determined by factor analysis to clearly load onto one of two factors (reactive/overt or proactive/covert) are used. Teachers were asked to rate students on items assessing aggression using the following 5-point Likert scale: never, rarely, sometimes, often, and almost always. Examples of items include the following: "When this child has been teased or threatened, he or she gets angry easily and strikes back" and "This child spreads rumors or gossips about other children". Dodge and Coie (1987) reported the internal consistency of reactive aggression was 0.88 and the internal consistency for proactive aggression was 0.87. The correlation between reactive and proactive aggression was 0.76.

Psychometric properties. In general, sociometric nomination procedures are assumed to be valid and reliable for measuring peer relationships, although agreement amongst different children's responses is not expected (i.e. participants do not always agree on who to nominate for certain items). One study examined the predictive validity of a group-administered sociometric peer-rating scale and found that the nomination procedure correlated significantly with teacher ratings of aggressiveness and with individually administered sociometric scales (Riley, 1985).

Aggression Measures: Self Report

The Bullying-Behavior Scale.

Description and background. The Bullying-Behavior Scale (Austin & Joseph, 1996) is a self-report measure designed to be embedded within the Self-Perceptions Profile for Children Scales (SPCC, Harter, 1985) so that each bully-behavior question is inserted as every sixth item on the SPCC. The Bullying-Behavior Scale consists of just six forced choice items, three of which refer to being the perpetrator of negative physical actions (i.e. hit, push, bully, pick on), and three which refer to being the perpetrator of negative verbal actions (i.e. tease, laugh at, call mean names.)

Administration and scoring. Each item consists of two descriptions, one of which the examinee must endorse as being the most like him or her. For example, “Some children do not hit and push other children but other children do hit and push other children.” Once the examinee endorses the more accurate description, he or she must indicate whether the description is “really true for me” or “sort of true for me”. The items are scored on a scale of 1 to 4 with higher scores corresponding with higher levels of bullying or proactive aggression. The final score is computed by summing all scores and dividing by the number of items. In order to make the Bullying Behavior score more consistent with the scores of other measures used in this study, correlation coefficients signs were reverse scored with higher scores corresponding with lower levels of bullying.

Psychometric properties. In a study by the scale’s authors (Austin & Joseph, 1996), the Bullying-Behavior Scale was found to have satisfactory internal reliability (Chronbach’s Alpha=.82). The internal consistency of the scale was calculated for the

current study population, and found to be slightly lower than the author's calculations, though still satisfactory (Chronbach's Alpha=.73). One possible reason for the discrepancy between internal reliability calculations was the different ages of the sample populations: Austin and Joseph's sample was 8 to 11 years old, while the current population was 7 to 9 years old.

The Peer-Victimization Scale.

Description and background. Like the Bullying-Behavior Scale, the Peer-Victimization Scale is a self-report measure inserted within the SPCC in a counterbalanced fashion with the Bullying-Behavior Scale items (Austin & Joseph, 1996). The Peer-Victimization Scale was originally created by Neary and Joseph (1994), and is a six-item self report measure which was constructed by changing the wording of items on the Bullying-Behavior Scale from active to passive voice. Three of the items refer to being the victim of negative physical actions (i.e. hit, pushed, bullied, picked on), and three items refer to being the victim of negative verbal actions (i.e. teased, laughed at, called mean names). This scale is included due to data indicating a substantial overlap between aggression and victimization (Groff, 2006).

Administration and scoring. The examinees were presented with items containing two descriptions, such as "Some kids are often picked on by other children, but other kids are not picked on by other children". The examinees selected the most fitting of the two descriptions, and rate that choice as "sort of true for me" or "really true for me". The items were scored on a scale of 1 to 4 with higher scores corresponding with lower experiences of victimization; the final score was computed

by summing all scores and dividing by the number of items (Harter, 1985; Austin & Joseph, 1996).

Psychometric properties. A study by the scale's authors (Austin & Joseph, 1996) revealed a satisfactory internal reliability (Chronbach's Alpha=.83).

Data Analysis

Each of the questions outlined in chapters one and two, explored the Social Information Processing Patterns of reactive and proactive aggressors using two measures of social information processing (i.e. SIP instruments and TAT). Using this information, a preliminary data analysis was first conducted in order to reveal any correlations and overlaps between assessments used in the present study. In addition, peer, teacher, and self rating reports were correlated in order to compare agreement between the responders. All peer-rated and teacher-rated scores were transformed into z scores in order to control for within classroom variables; many self-reported scores were also transformed so that scores across instruments will be comparable.

Correlation analysis was conducted to determine the relationship between levels and types of aggression as per teacher, peer, and self ratings; social information processing steps as conceptualized by both the SIP instruments and TAT; and demographic factors of participants, including gender and age. Correlation analysis was used to determine whether individuals who act aggressively actually consider the intentions of others, and engage in goal formation when selecting a response. In addition, the procedures were used to determine how schema complexity relates to intention attribution bias and resulting aggression. Finally, multiple regression analysis was used to determine the

unique contributions of schema and social information processing components when predicting aggression from self, peer, and teacher perspectives.

Chapter 4: Results

Data Exploration

Prior to answering the specific research questions, preliminary analyses were conducted to explore the relationship between the various measures of social information processing and aggression across study participants. First, z-scores were created based on classroom for the peer, teacher, and self aggression nominations in order to control for within classroom variables such as teacher-student group dynamics. The Z scores provide information pertaining to how typical any given rating is when compared with that classroom's population.

Second, factor analyses were conducted to determine peer and teacher aggression variables and, in both analyses, items loaded clearly onto two factors: Reactive/Overt and Proactive/Covert (see Table 1 and Table 2). Only those peer and teacher aggression variables which clearly loaded onto the two factors were used in the analyses. See Table 1 and Table 2 for a listing of the clearly loading peer aggression items (3 reactive/overt and 3 proactive/covert out of 10 peer aggression items) and teacher aggression items (3 reactive/overt and 5 proactive/overt out of 20 teacher aggression items). (See Appendix D for a list of all peer and teacher sociometric aggression items). For the remainder of the results chapter, reactive/overt will be referred to as “reactive” aggression and proactive/covert will be referred to as “proactive” aggression.

Table 1
Factor Analysis of Peer Aggression Items Post test

	Reactive/Overt Aggression	Proactive/Covert Aggression	% of Variance
Kids who when mad at a person ignore the person or stop talking to them? (C)	.379	.693	9.645
Kids who try to keep certain people from being in a group when it is time to play? (C)	.272	.712	12.367
Kids who when mad at a person get even by keeping that person from being in their group of friends? (C)	-.021	.809	41.906
Kids who hit others? (O)	.760	.442	3.351
Kids who push and shove others around? (O)	.734	.343	2.689
Kids who tell others they will beat them up unless the kid does what they say? (O)	.761	.258	3.743

Table 2
Factor Analysis of Teacher Aggression Items Post test

	Reactive/Overt Aggression	Proactive/Covert Aggression	% of Variance
Gets others to be angry at someone, ignore someone, or stop talking to them when angry? (C)	.011	.924	35.262
Keeps others from joining their group? (C)	.075	.904	15.888
Gets others in trouble with friends? (C)	.087	.860	11.208
Spreads rumors or gossips about other children? (C)	.277	.816	6.370
Gets others to gang up on a peer? (C)	-.170	.803	5.649
Teases and name calls? (O)	.773	.293	2.836
Hits others when angry (O)	.757	-.056	2.349
Starts fights with peers (O)	.753	-.139	1.858

Note. O = Reactive/Overt Aggression Variable; C = Proactive/Covert Aggression Variable. Extraction Method: Principal Component Analysis Rotation Method: Equamax with Kaiser Normalization; Proportion of variance accounted for

Alpha coefficients for each of the peer- and teacher- rated aggression scales are given in Table 3. All alpha coefficients are above the cutoff of .70, indicating good reliability (Cronbach, 1951). Pearson correlation coefficients were then calculated, and tests of statistical significance were conducted using an alpha of .05 (see Table 4). Given that the analyses were primarily exploratory, no corrections were made for the number of items being correlated.

Table 3

Internal Consistency (Standardized Alpha) for Peer- and Teacher-Rated Reactive and Proactive Aggression Scales (N = 107)

<i>Scale</i>	<i>Number of items</i>	<i>Alpha</i>
Peer reactive	3	.85
Peer proactive	3	.75
Teacher reactive	3	.90
Teacher proactive	5	.95

Note. Peer reactive and proactive=aggregated peer sociometric items selected by factor analysis; Teacher reactive and proactive=aggregated teacher sociometric items selected by factor analysis

Table 4

Correlations between Peer- and Teacher-Rated Reactive and Proactive Aggression Scales

	<i>Peer reactive</i>	<i>Peer proactive</i>	<i>Teacher reactive</i>	<i>Teacher proactive</i>
Peer reactive	--	<i>N</i> = 99	<i>N</i> = 67	<i>N</i> = 39 (<i>N</i> = 93)
Peer proactive	.57***	--	<i>N</i> = 67	<i>N</i> = 39 (<i>N</i> = 93)
Teacher reactive	.10	.24	--	<i>N</i> = 41 (<i>N</i> = 72)
Teacher proactive	-.15 (-.09)	-.07 (.10)	.22 (.39**)	--

Note. Peer reactive and proactive=aggregated peer sociometric items selected by factor analysis; teacher reactive and proactive=aggregated teacher sociometric items selected by factor analysis. Scale correlations are given below the diagonal and sample sizes are given above the diagonal. Teacher proactive raw score correlations and sample sizes are given in parentheses.

p* < .01. *p* < .001.

The peer and teacher aggression items were then aggregated within informant where the 3 peer reactive items were summed to produce a peer reactive sum; the 3 peer proactive items were summed to yield the peer proactive sum; the 3 teacher reactive items were summed to yield the teacher reactive sum; and the 5 teacher proactive items were summed to yield the teacher proactive sum. Finally, for each participant, sums were computed across the five individual TAT cards representing each construct to obtain a total construct score. Specifically, the following constructs were totaled: Perceptual Integration, Coping with affect tension, Relationships, Self-regulation, Intent Attribution (Presence), Intent Attribution (Hostility), Goal Formation (Presence, Hostility, and Aim), and Outcomes (Presence, Congruence, and Valence).

A variety of demographic and descriptive analyses were calculated for the sample. Table 5 presents frequencies and percentages for demographic characteristics of the sample.

Table 5

Frequencies for Demographic Variables (N = 107)

	<i>Frequency</i>	<i>Percent</i>
Gender		
Male	64	59.8
Female	43	40.2
Grade		
2 nd grade	57	53.3
3 rd grade	50	46.7
Race		
Black	72	67.3
White	5	4.7
Hispanic	18	16.8
Asian	12	11.2

Services		
None	74	69.2
ESOL	28	26.2
Speech and Language	1	.9
Special Ed / 504	4	3.7

The means and standard deviations for peer and teacher ratings of aggression are presented in Table 6.

Table 6

Descriptive Statistics for Peer, Teacher, and Self--Rated Aggression

	<i>N</i>	<i>M</i>	<i>SD</i>	Range
Peer-rated aggression				
Hit others (O)	99	.82	1.83	0-16
Push and shove (O)	99	.91	1.99	0-16
Threaten to beat up (O)	99	.56	1.13	0-7
Ignore when mad (C)	99	1.31	1.41	0-8
Keep others from play (C)	99	2.00	1.70	0-8
Keep out of group when mad (C)	99	1.70	1.52	0-7
Teacher-rated aggression				
Tease (O)	100	1.43	.66	1-3
Hit when angry (O)	100	1.31	.65	1-3
Start fights with peers (O)	100	1.19	.49	1-3
Get others to ignore when angry (C)	100	1.30	.63	1-4
Keep others from joining (C)	100	1.37	.77	1-4
Get others in trouble with friends (C)	100	1.35	.66	1-4
Spread rumors (C)	100	1.36	.61	1-4
Get others to gang up (C)	100	1.12	.36	1-3
BASC Aggression scale	99	44.89	6.10	40-71
Self-rated aggression				
Peer-Victimization Scale	99	3.04	.80	1-4
Bullying-Behavior Scale	99	3.49	.57	1.83-4

Note. Raw scores used to compute descriptive statistics; Peer and teacher sociometric aggression items as determined by factor analysis; Peer sociometric items=tallies of nominations with higher scores indicating higher levels of aggression; Teacher sociometric items=teachers rate each student for aggressive behaviors on scale of 1-5 with higher scores indicating greater aggression; BASC= Behavioral Assessment System for Children. Aggression subscale using T-scores where higher scores indicate higher levels of aggression; Bully=self-report with lower scores indicating more bullying behaviors; Victim=Peer-Victimization Scale. Self-report with lower scores indicating more victimization; O = Reactive/Overt Aggression Variable; C = Proactive/Covert Aggression Variable.

Sociometric nomination scales (Crick & Werner, 1998; Perry, 1988; Dodge & Coie, 1987) were used to obtain peer ratings of aggression and rating scales were used to obtain similar information from teachers. The teachers rated each student on a scale of 1-5 with higher scores indicating higher levels of aggression, using the Teacher Rating Scale for Aggressive Classroom Behavior. The item “Kids who tease others” received the highest scores (mean of 1.43) while the item “Kids who get others to gang up” received the lowest scores (mean of 1.12). Also for teacher rated aggression, the Behavioral Assessment System for Children (BASC) Aggression subscale was used with T-scores of ≥ 65 corresponding with higher levels of aggression (Reynolds & Kamphaus, 1999). The BASC is a widely used standardized rating system designed to assess teacher-perceptions of children’s behavior. The mean of T-scores was below the cut-off for elevated aggression (mean=44.89) indicating that most scores were not suggestive of elevated aggression, while the range 40-71 indicates the presence of scores above the T-score cutoff. Sociometric peer nominations (Crick & Werner, 1998) were used to gauge the bullying behaviors of study participants. For peer sociometrics, students were read descriptors of different kinds of kids and behaviors and asked to nominate classmates who fit the descriptors. The tallies of student nominations for each item were calculated and transformed into z scores with higher scores indicating higher levels of aggression. The item “Kids who keep others from playing with them” received the most student nominations (mean=2.00) while “Kids who threaten to beat up” (mean=.56) received the fewest student nominations.

Self-perceptions of peer victimization and bullying behavior were measured using the Peer Victimization and Bullying Behavior Scales (Austin & Joseph, 1996).

Both scales consist of six forced choice items, three of which refer to being the victim (Peer Victimization scale) or perpetrator (Bullying Behavior Scale) of physical aggression and three of which refer to being the victim or perpetrator of verbal aggression. For both scales, higher scores correspond with higher levels of victimization (Peer Victimization scale) and bullying behaviors (Bullying Behavior Scale). The two scales were included due to data indicating a substantial overlap between aggression and victimization (Groff, 2006). Table 4 indicates that there are relatively high frequencies of study participants who rate themselves as high functioning, where they are largely not victims of aggression (mean=3.04) and few self-identify as displaying bullying behaviors (mean=3.49). Next, the means and standard deviations are presented for Social Information Processing Scales in Table 7.

Table 7

Descriptive Statistics for Social Information Processing Scales

	<i>N</i>	<i>M</i>	<i>SD</i>	Range
Social Information Processing Scale				
Interpret/ Response Generation 1	101	4.15	1.35	2 – 7
Interpret/ Response Generation 2	101	4.49	1.37	2 – 7
Interpret/ Response Generation 3	101	3.57	1.26	2 – 7
Interpret/ Response Generation 4	101	3.82	1.40	2 – 7
Total Sum Interpretation	101	6.16	1.24	4 – 8
Total Sum Response Generation	101	9.87	2.98	4 – 20
Goal Selection 1	101	1.67	.71	1 – 3
Goal Selection 2	101	1.64	.64	1 – 3
Goal Selection 3	101	1.59	.72	1 – 3
Goal Selection 4	101	1.57	.68	1 – 3
Response Evaluation 1	101	4.86	.93	4 – 7
Response Evaluation 2	101	4.94	.99	4 – 8
Response Evaluation 3	101	5.00	1.06	4 – 8
Response Evaluation 4	101	4.81	1.01	4 – 8
Total Sum Response Evaluation	101	19.58	3.27	16 – 29

Note. SIP interpret/response generation=tallied interpretation and response generation scores for each of four vignettes with higher numbers indicating greater aggression; Total SIP interpretation= binary coded with (1) non-hostile intent and (2) as hostile intent tallied across four vignettes; Total SIP response generation= coded on a scale of 1 to 5 tallied across four vignettes with higher numbers indicating more

aggressive responses; SIP goal= goal formation. Three choice options ranging from most (1) to least desirable (3); SIP response evaluation= binary coded with (1) as non-aggressive and (2) as aggressive response for each of four vignettes; SIP total sum response evaluation= tallied response evaluation scores across four vignettes

The Social Information Processing Instrument (SIP) was created by Dodge and Price (1994) and was used in this study to measure each of four social information processing steps. The SIP instrument contains four hypothetical vignettes containing ambiguous and provocative social situations which were individually read to each study participant. Participants imagined themselves in the situation and answered a series of questions linked to the four social information processing steps. Each step is coded differently. The Interpretation / Response Generation Score is a summed attribution and response generation score. The Total Sum Interpretation is the intent attribution alone and is binary coded with (1) as non-hostile intent and (2) as hostile intent across four vignettes, while the Total Sum Response Generation is coded on a scale of 1 to 5 across four vignettes with higher numbers indicating more aggressive responses. It appears that provocation vignettes 1 (mean=4.15) and 2 (mean=4.49) tended to have the highest frequency of hostile intention attributions as well as most aggressive responses. The peer entry vignettes 3 (mean=3.57) and 4 (mean=3.82) had fewer hostile intent attributions and less aggressive responses overall. Goal Selection was coded using three categories across the four vignettes with no true hierarchy of scores. For Goal Selection, participants were presented with a question tailored to the vignette containing three choice options. For example, for vignette 1 the following question with three choice options was presented: "Pick the one that is most important to you when deciding what you want to do about Todd/Jessica throwing the ball at you." (1) Remaining friends with Todd/Jessica? (2) Making sure he/she never threw the ball at

you again? and (3) Making sure that everyone watching thinks you handled things well? Goal selection variables were conceptualized to occur along a continuum of categories similar to that put forth by the SIP instrument author and others (e.g. Dodge, Laird, Lochman & Zelli, 2002; Crick & Dodge, 1996) while drawing on a social competence framework (Rubin, Mills & Rose-Krasner, 1989) which assumes a problem solving goal hierarchy from most to least desirable of initiating joint friendship, stopping others' undesirable actions, and seeking attention or approval. In the present study, goals exist on a similar continuum with the following hierarchy from most to least desirable: goal selection one (friendship) is considered to be the most prosocial and desirable, goal two (prevention of others' undesirable actions) is instrumental, and goal three (social approval) is the least prosocial and desirable. Across all four vignettes, goal choice three pertaining to making sure everyone watching thinks things were handled well was selected infrequently (12 % of the time across four vignettes). The provocation vignettes 1 and 2 had a more frequent selection of the goal choice two pertaining to making sure the situation never happened again than did the peer entry vignettes 3 and 4 (43% of the time for provocation; 34% of the time for peer entry). On the other hand, the peer entry vignettes 3 and 4 had a more frequent selection of goal choice one, pertaining to making friends than did provocation vignettes 1 and 2 although the difference was small (49% of the time for peer entry; 45% of the time for provocation). Response Evaluation consisted of binary coding with (1) as non-aggressive response and (2) as aggressive response across four vignettes. Specifically, participants were asked to answer 'yes' or 'no' regarding how effective each of three aggressive responses would be to the vignette. In general, participants more frequently

endorsed aggressive responses for peer entry vignette 3 (mean=5.00), and endorsed the least aggressive responses for peer entry vignette 4 (mean=4.81).

Table 8

Descriptive Statistics for the Listening Test

Listening Test				
Main Idea	101	92.26	14.31	57 – 123
Details	101	88.50	16.37	54 – 119
Concepts	101	89.34	15.51	54 – 136
Reasoning	101	91.80	14.97	55 – 125
Story Comprehension	101	93.97	16.25	54 – 120
Total	101	90.78	15.37	54 – 123

Note. Listening Test=Standard score calculated which yield a total listening ability score, as well as five subscale scores. Mean=100; Standard Deviation=15.

The Listening Test is a standardized instrument used to ensure that study participants were attending to verbal information as related to SIP step one: Encoding. The Listening Test is individually read to the participant and yields standard scores which have an average of 100 and a Standard Deviation of 15 in a normative sample. The Listening Test is comprised of five subtests and a total score. Overall, the studied population's Total score (mean=90.78) and all five subtest scores fall within the average range. The Story Comprehension subtest had the highest mean score (mean=93.97), while the Details subtest had the lowest mean score (mean=88.50). Overall, the sample's scores on The Listening Test were more than half a standard deviation below national norms.

Finally, the means and standard deviations for the aggregated data are presented in Table 9. Specifically, both the aggregated TAT scores and Peer and Teacher rated z scores are presented below.

Table 9

Descriptive Statistics for Aggregated TAT Scores and Aggregated Peer- and Teacher-Rated z-scores

	<i>N</i>	<i>M</i>	<i>SD</i>	Range
Aggregated TAT scores				
Perceptual integration	102	12.00	2.88	6 – 19
Coping with affect tension	102	8.31	2.00	5 – 14
Relationships	102	12.07	3.49	6 – 22
Self-regulation	102	12.32	3.53	6 – 22
Intent attribution (presence)	101	5.67	1.08	5 – 10
Intent attribution (hostility)	102	6.63	1.24	5 – 10
Goal formation (presence)	101	8.04	2.04	5 – 14
Goal formation (hostility)	102	5.72	1.18	5 – 10
Goal formation (aim-long and short term)	102	9.05	2.82	5 – 15
Outcomes (presence)	102	8.30	2.23	5 – 14
Outcomes (congruence)	102	9.95	3.31	5 – 15
Outcomes (valence)	102	9.08	1.19	5 – 10
Aggregated peer- and teacher-ratings				
Peer reactive sum	99	0.00	1.00	-2.42 – 13.16
Peer proactive sum	99	0.00	1.00	-3.77 – 7.64
Teacher reactive sum	72	0.00	1.00	-2.39 – 10.46
Teacher proactive sum	41	0.00	1.00	-4.43 – 17.16

Note. Aggregated TAT scores are all total scores created by summing across five cards; Perceptual integration=coded using a scale from 1-4 where higher scores indicate more well-developed perceptual integration; Coping with affect tension=coded using a scale from 1-3 where higher scores indicate better coping; Relationships=coded using a scale from 1-5 where higher scores indicate more adaptive relationship schemas; Self-regulation=coded using a scale from 1-5 where higher scores indicate more well-developed self-regulation /self-control; Intent attributions (presence, hostility)=coded using a 3 point and 2 point scale where higher scores indicate the presence of a long-term, less hostile intention; Goal-formation (presence, hostility, aim)=coded using a 3 point, 2 point, and 3 point scale where higher scores indicate the presence of a long term, less hostile goal with adaptive intentions behind the goal; Outcomes (presence, congruence, valence) = Actions/outcomes coded using a 3 point, 3 point, and 2 point scale where higher scores indicate the presence of a planned action with congruent outcome that is positive. Peer reactive and proactive=aggregated peer sociometric items selected by factor analysis; teacher reactive and proactive=aggregated teacher sociometric items selected by factor analysis

For aggregated peer and teacher aggression ratings on the Sociometric

Nomination Scales, as is the case for individual items, a higher score represents a higher level of aggression. As can be seen in Table 9, the N for teacher proactive sum is much smaller than for teacher reactive sum and both peer aggregates. The smaller N is due to minimal variability for teacher ratings on proactive aggression items where many

teachers provided a rating of “1”, which resulted in several participant ratings to be dropped when the raw scores were converted to z scores. Because of the resulting small N’s, several correlations did not reach significance even though they had the same magnitude as teacher reactive and peer aggression aggregate correlations which were significant. To resolve this issue, raw teacher proactive aggregates were used in addition to z scores in the applicable correlations and multiple regressions, and are presented in parentheses in relevant tables as noted.

For the TAT instrument (Murray, 1943), a higher score indicates a higher degree of functioning for all variables. The TAT consists of pictures that depict one or more characters involved in an emotionally ambiguous situation about which examinees tell stories. Five pictures were used in this study. A pre-existing coding method was used (Teglasi, 2001) to examine cognition, emotions, relationships, and self-regulation. An additional coding method was developed for the current study which lined up with Dodge and colleague’s SIP scale steps. The varying sizes in means for the TAT do not necessarily indicate higher functioning for a particular variable since the TAT variables differ in their number of “levels”. For instance, the TAT variable “Relationships” contains five levels, while “Affect Coping” contains three levels. Table 9 indicates that the studied population had overall large frequencies of low functioning across all areas with the exception of Outcomes-valence which used binary coding for 1=negative or no change and 2=positive. For the studied sample, Outcomes-valence was largely positive revealing that most participants gave stories a happy ending (mean=9.08; range=5-10).

Research Question 1

Research Question 1: How do the SIP measures' intention and response generation steps relate to proactive and reactive aggressive behavior in the classroom as rated by teachers, peers, and self? Four hypotheses were included under this research question. The results of the analyses that were used to address each hypothesis are addressed in turn below.

Hypothesis 1. Hypothesis 1 (a) stated: A hostile attribution bias will be positively correlated with reactive aggression, but not necessarily with proactive aggression, and (b) Hostile intent attributions should be correlated with higher aggression scores. This hypothesis (Part A) was tested by computing Pearson correlations between the SIP interpretation variable, where higher scores mean more hostile attribution, and the measures of proactive (proactive) and reactive (reactive) aggression as rated by peers and teachers. All correlations presented in this study will be Pearson correlations unless otherwise noted. The peer- and teacher- rated aggression correlations with SIP interpretation are presented in Table 10. Correlations for any individual peer- or teacher-rated reactive or proactive items are presented in the Results Appendix. As can be seen in Table 10, SIP interpretation was not significantly correlated with any of the peer- or teacher-rated reactive or proactive aggression variables. Thus, the part of Hypothesis 1 that proposed a relationship between hostile intent attribution and reactive aggression was not supported. See Appendix Tables A1 and A2 for correlations with individual aggression items.

Table 10

Correlations between Social Information Processing (SIP) Variables with Aggregated Peer-Rated and Teacher-Rated Reactive and Proactive Aggression Ratings

	1	2	3	4	5	6
1. SIP interpretation	--					
2. SIP response evaluation	.27**	--				
3. SIP response generation	.35***	.39***	--			
4. Peer reactive aggression	-.08	.15	-.00	--		
5. Peer proactive aggression	-.06	.04	.13	.57***	--	
6. Teacher reactive aggression	.15	.28*	.36**	.10	.24	--
7. Teacher proactive aggression	.06 (.05)	.06 (.16)	.11 (.14)	-.15 (-.09)	-.07 (.10)	.22 (.39**)

Note. SIP interpretation=binary coded with (1) as non-hostile intent and (2) as hostile intent tallied across four vignettes; SIP response evaluation=binary coded with (1) as non-aggressive and (2) as aggressive response for each of four vignettes; SIP response generation= coded on a scale of 1 to 5 tallied across four vignettes with higher numbers indicating more aggressive responses; Peer reactive and proactive=aggregated peer sociometric items selected by factor analysis; teacher reactive and proactive=aggregated teacher sociometric items selected by factor analysis.

Sample sizes are $N = 101$ for SIP correlations, $N = 97$ for peer aggression correlations, $N = 68$ for teacher reactive aggression correlations, and $N = 39$ for teacher proactive aggression correlations. Teacher proactive raw score correlations are given in parentheses: $N = 94$ with SIP variables, $N = 93$ with peer-rated aggression, $N = 72$ with teacher reactive aggression.

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

Hypothesis 1 (Part B) was tested by computing correlations between SIP interpretation (hostile intent) and various measures of aggression. Table 11 presents the correlations between SIP interpretation (hostile intent) and three more measures of aggression: The Bullying Scale (self-rated), the BASC (teacher-rated), and the Peer Victimization Scale (self-rated). All of the correlations between SIP interpretation and any of these measures of aggression from Tables 10 and 11 were close to zero and non-significant. Thus, the second part of Hypothesis 1 was also not supported.

Table 11

Correlations between Social Information Processing (SIP) Total Sum Interpretation and Total Sum Response Generation with Social Information Processing Goal Selection across Four Vignettes, Bullying Behavior, the BASC Aggression Scale, and Peer Victimization

	1	2	3	4	5	6	7	8
1. SIP interpretation	--							
2. SIP response gen.	.35**	--						
3. SIP vignette 1 goal	.05	.20*	--					
4. SIP vignette 2 goal	.15	.13	.22*	--				
5. SIP vignette 3 goal	.07	.05	.23*	.27**	--			
6. SIP vignette 4 goal	.11	.23*	.40***	.47***	.47***	--		
7. Bully (self)	.09	-.03	-.09	-.04	-.05	-.07	--	
8. BASC (teach)	.05	.16	-.08	.04	.10	.02	-.24*	--
9. Victim (self)	.02	-.06	-.02	-.06	-.09	-.06	.53***	-.19

Note. SIP interpretation=binary coded with (1) as non-hostile intent and (2) as hostile intent across four vignettes; SIP response gen.= response generation. Coded on a scale of 1 to 5 across four vignettes with higher numbers indicating more aggressive responses; SIP goal= goal formation. Three choice options ranging from most desirable (1) to least desirable (3); Bully=self-report with lower scores indicating more bullying behaviors; BASC= Behavioral Assessment System for Children. Aggression subscale using T-scores where higher scores indicate higher levels of aggression; Victim=Peer-Victimization Scale. Self-report with lower scores indicating more victimization

Sample sizes range from $N = 96$ to 101. Correlations involving Goal Selection variables are Spearman rank correlations.

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

Hypothesis 2. Hypothesis 2 stated: A hostile attribution bias on the SIP measure (i.e., interpretation of another person's intentions) will be positively correlated with an individual attribution of malice behind aggressive response selection in the SIP measure. In other words, the intentions attributed to a provoker's action should positively correlate with the goals behind the response to that action where both will be hostile. This hypothesis was tested by computing correlations between the SIP interpretation variable and the four measures of goal selection (i.e., vignettes 1 – 4). Table 11 presents these correlations. Because the goal selection variables are considered ordinal in nature, Spearman rank correlations were used to compute any correlations with these variables. As mentioned previously, Goal selection variables were conceptualized to occur along a continuum of categories from most desirable to least, similar to that put forth by the SIP instrument author and others (Dodge, Laird, Lochman & Zelli, 2002; Crick & Dodge, 1996; Rubin, Mills & Rose-Krasner, 1989) such that goal one (friendship) is considered to be most desirable and prosocial, goal two (prevention of others' undesirable actions) is instrumental, and goal three (social approval) is the least desirable and prosocial. Spearman correlations are the nonparametric alternative to Pearson correlations, and are appropriate for correlations involving ordinal variables. None of the correlations between SIP interpretation and the goal selection variables for vignettes 1 through 4 was significant. Thus, Hypothesis 2 was not supported.

Hypothesis 3. Hypothesis 3 stated: Perceived positive outcomes for aggressive behaviors should be correlated with proactive aggression but not reactive aggression. This hypothesis was tested by computing Pearson correlations between the SIP response evaluation variable and the measures of proactive (proactive) and reactive (reactive)

aggression as rated by peers and teachers. The aggregated peer- and teacher-rated aggression correlations with SIP response evaluation are presented in Table 10. As can be seen in Table 10, SIP response evaluation was not significantly correlated with either the peer-rated reactive or proactive aggression variables. As can also be seen in Table 10, SIP response evaluation was significantly correlated with the teacher ratings of reactive aggression, $r = .28, p < .05$, but not with the teacher-ratings of proactive aggression. Thus, Hypothesis 3 was not supported. See Appendix Tables A1 and A2 for correlations with individual peer- and teacher-rated items of reactive and proactive aggression. It is worth noting that overall, the SIP variables were more closely correlated with teacher reactive ratings (4 out of 9 possible correlations) than teacher proactive (2 out of a 15 possible correlations).

Hypothesis 4. Hypothesis 4 stated: Correlational patterns will show that SIP [response generation] is more likely to be associated with self-reported aggression than with peer and teacher-rated aggression. This hypothesis was tested by computing Pearson correlations between the SIP response generation variable and the measures of proactive (proactive) and reactive (reactive) aggression as rated by peers and teachers, as well as with the self-rated bullying behavior and victimization scales and the teacher-rated BASC aggression scale. As can be seen in Tables 10 and 11, SIP response generation was not significantly correlated with any of the peer-rated reactive or proactive aggression variables, with the bullying scale, the victim scale, or with the BASC. As can be seen in Table 10, however, SIP response generation was significantly correlated with teacher ratings of reactive aggression, $r = .36, p < .01$. Thus, Hypothesis 4 was not supported because the self-rated measures of aggression (i.e., the Bullying Behavior Scale and Peer

Victimization Scale) were not correlated with SIP response generation, whereas the teacher-rated reactive aggression measure was significantly positively correlated with SIP response generation.

Research Question 2

Research Question 2 asked: How are these same variables reframed when measured in the context of a TAT story? Three hypotheses were addressed under this research question. The results of the analyses that were used to address each hypothesis will be addressed in turn below, but first, the reader should be reminded that each TAT construct was measured by five separate cards (i.e., cards 1, 3, 4, 7, & 8). When coded responses were continuous, the five cards were summed to produce a total score for each TAT construct. Hypotheses 5, 6, and 7 use TAT total scores.

Hypothesis 5. Hypothesis 5 stated: The conceptualization of the various social information processing steps by the SIP and TAT will be very different, such that the two instruments will not be related to one another. This hypothesis was tested by computing Spearman correlations between SIP interpretation/response generation, SIP goal selection and all TAT SIP variables including intent attribution (presence and hostility), goal formation (presence, hostility, and aim), and actions and outcomes (presence, congruence, and valance). Pearson correlations were computed between all TAT SIP variables and SIP total sum interpretation, SIP total sum response generation, SIP total sum interpret/response, and SIP response evaluation across four vignettes. As can be seen in Table 12, SIP interpretation / response generation for vignettes 3 and 4 (peer-entry) were significantly correlated with goal formation (hostility) on the TAT SIP coding scheme. There were no significant correlations between any other SIP variables and TAT

SIP variables. Thus, Hypothesis 5 is mostly supported since there were only two significant correlations out of nearly one hundred correlations between the measures thereby demonstrating that the two measures are largely unrelated.

Table 12

<i>Correlations between Social Information Processing (SIP) Variables in Rows with TAT SIP Variables in Columns</i>								
	IA (pres)	IA (host)	GF (pres)	GF (host)	GF (aim)	AO (pres)	AO (congr)	AO (val)
SIP vignette 1 (interpret/ response)	-.021	.067	.091	-.144	.042	-.090	-.047	-.026
SIP vignette 2 (interpret/ response)	-.050	.112	.030	-.034	-.055	-.123	-.021	.029
SIP vignette 3 (interpret/ response)	.173	.105	.098	.203*	.084	.094	.110	.031
SIP vignette 4 (interpret/ response)	.109	.187	.182	.242*	-.002	-.079	-.041	.010
SIP total sum interpretation	.085	.079	-.043	-.099	.003	-.035	.053	-.123
SIP total sum response generation	-.007	.184	.125	.098	.022	-.115	-.021	.087
SIP total sum (interpret/ response)	.023	.179	.088	.046	.019	-.107	.001	.030
SIP vignette 1 (goal selection)	-.091	.152	.010	.063	.047	-.134	-.081	.002
SIP vignette 2 (goal selection)	-.019	.056	.010	-.113	-.010	-.044	-.032	-.042
SIP vignette 3 (goal selection)	-.070	.076	-.063	.084	-.024	-.027	.002	-.059
SIP vignette 4 (goal selection)	.028	.112	-.014	.046	-.051	-.147	-.121	.054
SIP vignette 1 (response evaluation)	-.166	.092	-.044	-.017	-.046	-.010	.055	.118
SIP vignette 2 (response evaluation)	-.185	.087	.116	.054	.155	.098	.131	-.064
SIP vignette 3 (response evaluation)	-.177	.129	-.051	.072	.103	.000	.124	.071

SIP vignette 4 (response evaluation)	-.150	.101	.048	.015	.028	-.016	.034	.087
SIP total sum response evaluation	-.181	.138	.035	.045	.089	.036	.119	.057

Note. SIP interpret / response generation=tallied interpretation and response generation scores for each of four vignettes with higher numbers indicating greater aggression; SIP interpretation= binary coded with (1) as non-hostile intent and (2) as hostile intent tallied across four vignettes; SIP response generation= coded on a scale of 1 to 5 tallied across four vignettes with higher numbers indicating more aggressive responses; SIP goal= goal formation. Three choice options ranging from most desirable (1) to least desirable (3); SIP response evaluation= binary coded with (1) as non-aggressive and (2) as aggressive response for each of four vignettes; SIP total sum response evaluation=tallied response evaluation scores across four vignettes; TAT scores are all total scores created by summing across five cards; IA (pres, host)=Intent attributions (presence, hostility) coded using a 3 point and 2 point scale where higher scores indicate the presence of a long-term, less hostile intention; GF (pres, host, aim)=Goal-formation (presence, hostility, aim) coded using a 3 point, 2 point, and 3 point scale where higher scores indicate the presence of a long term, less hostile goal with adaptive intentions behind the goal; AO (pres, cong, val)=Actions/outcomes (presence, congruence, valence) coded using a 3 point, 3 point, and 2 point scale where higher scores indicate the presence of a planned action with congruent outcome that is positive.

Hypothesis 6. Hypothesis 6 stated: Less accurate, less complex, and less organized schemas, as measured by the TAT, are expected to positively correlate with aggressive and reactive cognitions as measured by the SIP. This hypothesis was addressed by computing correlations between the TAT perceptual integration total score and several SIP variables, namely, the four SIP vignettes' interpretation/ response generation, total SIP interpretation, and total SIP response generation. These correlations are presented in Table 13. There were no significant correlations, thus, Hypothesis 6 was not supported by the data.

Table 13

Correlations between Social Information Processing (SIP) interpretation and response generation cards 1-4, Total Sum Interpretation and Total Sum Response Generation with TAT Cognition, Intent Attributions, and Goal Formation Total Scores

	1	2	3	4	5	6	7	8
1. SIP vignette 1 (interpret/ response)	--							
2. SIP vignette 2 (interpret/ response)	.37***	--						
3. SIP vignette 3 (interpret/ response)	.17	.21*	--					
4. SIP vignette 4 (interpret/ response)	.19	.28**	.38***	--				
5. SIP total sum interpretation	.36***	.48***	.39***	.47***	--			
6. SIP total sum response generation	.63***	.65***	.61***	.65***	.35***	--		
7. TAT perceptual integration	-.03	-.08	.04	.04	-.04	.01	--	
8. TAT intent attributions (presence)	-.04	-.10	.10	.11	.08	-.01	.10	--
9. TAT goal formation (presence)	.06	.03	.07	.08	-.04	.12	.38***	.05

Note. SIP interpret / response generation=tallied interpretation and response generation scores for each of four vignettes with higher numbers indicating greater aggression; SIP interpretation= binary coded with (1) as non-hostile intent and (2) as hostile intent tallied across four vignettes; SIP response generation= coded on a scale of 1 to 5 tallied across four vignettes with higher numbers indicating more aggressive responses; TAT scores are all total scores created by summing across five cards; TAT Perceptual integration=coded using a scale from 1-4 where higher scores indicate more well-developed perceptual integration; TAT Intent attributions (presence)= coded using a 3 point scale where higher scores indicate the presence of a less hostile intention; Goal-formation (presence)=coded using a 3 point scale where higher scores indicate the presence of a long term goal. Sample sizes range from $N = 100$ to 101 .

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

Hypothesis 7. Hypothesis 7 stated: TAT stories not dealing with intention at all (intention attribution and goal formation) will likely be associated with hostile intent attribution and aggressive response as measured by the SIP. This hypothesis was addressed by calculating correlations between (a) the TAT intent attribution total score and several SIP variables, including SIP interpretation, and SIP response generation, and (b) the TAT goal formation total score and the same SIP variables (i.e., SIP interpretation, and SIP response generation). These correlations are also presented in Table 13. There were no significant correlations, thus, Hypothesis 7 was also not supported by the data.

Research Question 3

Research Question 3 asked: How do schemas, as measured by the TAT, relate to proactive and reactive aggressive behavior as rated by teachers, peers, and self? Three hypotheses were subsumed under this research question. The results of the analyses that were used to address each hypothesis are addressed in turn below. The following hypotheses were analyzed with both the individual cards as well as the total scores. Correlations between TAT total scores are presented in Table 14.

Table 14

Correlations TAT Total Scores

	1	2	3	4	5	6	7	8	9	10	11
1. Perceptual integration	--										
2. Cope with affect tension	.66***	--									
3. Relationships	.70***	.80***	--								
4. Self-regulation	.78***	.81***	.89***	--							
5. Intent att. (presence)	.10	.10	.03	-.01	--						
6. Intent att. (hostility)	-.18	-.12	-.28**	-.18	.36***	--					
7. Goal form. (presence)	.38***	.52***	.51***	.56***	.05	-.10	--				
8. Goal form. (hostility)	-.21*	-.30**	-.28**	-.28**	.23*	.43***	.14	--			
9. Goal form. (aim)	.17	.27**	.28**	.30**	.06	.04	.68***	.28**	--		
10. Outcomes (presence)	.48***	.67***	.62***	.66***	.23*	.07	.54***	.08	.46***	--	
11. Outcomes (congruence)	.44***	.59***	.58***	.61***	.16	.11	.33**	-.04	.37***	.86***	--
12. Outcomes (valence)	.19	.31**	.21*	.26**	.06	.14	.29**	.15	.30**	.23*	.24*

Note. Sample sizes range from $N = 101$ to 102 . TAT scores are all total scores created by summing across five cards; Perceptual integration=coded using a scale from 1-4 where higher scores indicate more well-developed perceptual integration; Cope with affect tension=coded using a scale from 1-3 where higher scores indicate better coping; Relationships=coded using a scale from 1-5 where higher scores indicate more adaptive relationship schemas; Self-regulation=coded using a scale from 1-5 where higher scores indicate more well-developed self-regulation /self-control; Intent attributions (presence, hostility)=coded using a 3 point and 2 point scale with higher scores indicating the presence of a long-term, less hostile intention; Goal-formation (presence, hostility, aim)=coded using a 3 point, 2 point, and 3 point scale with higher scores indicating the presence of a long term, less hostile goal with adaptive intentions behind the goal; Outcomes (presence, congruence, valence)=Actions/outcomes coded using a 3 point, 3 point, and 2 point scale with higher scores indicating the presence of a planned action with congruent outcome that is positive. * $p < .05$. ** $p < .01$. *** $p < .001$.

Hypothesis 8. Hypothesis 8 stated: The inaccurate perception of others' intentions as hostile will be positively correlated with reactive but not proactive aggression. Each individual TAT card, as well as the total score of the five cards, used to measure Intent Attributions (hostility) were correlated with the measures of proactive (proactive) and reactive (reactive) aggression as rated by both peers and teachers. The aggregated peer- and teacher-rated aggression correlations with the TAT intent attribution hostility total score are presented in Table 15.

Table 15

Correlations between TAT Total Scores with Aggregated Peer-Rated and Teacher-Rated Reactive and Proactive Aggression Ratings

	<i>Peer reactive</i>	<i>Peer proactive</i>	<i>Teacher reactive</i>	<i>Teacher proactive</i>
1. Perceptual integration	-.16	-.09	.06	-.24 (-.23*)
2. Cope with affect	-.19	-.09	-.03	-.22 (-.18)
3. Relationships	-.13	-.11	-.01	-.25 (-.22*)
4. Self-regulation	-.15	-.10	-.05	-.23 (-.24*)
5. Intent att. (presence)	.04	.12	.03	-.04 (-.02)
6. Intent att. (hostility)	.23*	.24*	.17	-.14 (.05)
7. Goal form. (presence)	-.07	.14	-.01	-.05 (-.04)
8. Goal form. (hostility)	.42***	.43***	.19	.27 (.23*)
9. Goal form. (aim)	.20*	.38***	.14	.09 (.10)
10. Outcomes (presence)	.05	.12	-.00	-.22 (-.12)
11. Outcomes (congr.)	.10	.12	.10	-.30 (-.20)
12. Outcomes (valence)	.08	.14	-.00	-.22 (-.17)

Note. TAT scores are all total scores created by summing across five cards; Perceptual integration=coded using a scale from 1-4 where higher scores indicate more well-developed perceptual integration; Cope with affect tension=coded using a scale from 1-3 where higher scores indicate better coping;

Relationships=coded using a scale from 1-5 where higher scores indicate more adaptive relationship schemas; Self-regulation=coded using a scale from 1-5 where higher scores indicate more well-developed self-regulation /self-control; Intent attributions (presence, hostility)=coded using a 3 point and 2 point scale where higher scores indicate the presence of a long-term, less hostile intention; Goal-formation (presence, hostility, aim)=coded using a 3 point, 2 point, and 3 point scale where higher scores indicate the presence of a long term, less hostile goal with adaptive intentions behind the goal; Outcomes (presence, congruence, valence)=Actions/outcomes coded using a 3 point, 3 point, and 2 point scale where higher scores indicate the presence of a planned action with congruent outcome that is positive. Peer reactive and proactive=aggregated peer sociometric items selected by factor analysis; teacher reactive and proactive=aggregated teacher sociometric items selected by factor analysis.

Sample sizes range from $N = 96$ to 97 for peer-rated aggression correlations, from $N = 67$ to 68 for teacher-rated reactive aggression correlations, and from $N = 38$ to 39 for teacher-rated proactive aggression correlations. Teacher proactive raw score correlations are given in parentheses ($N = 94$ to $N = 95$).

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

Table 16 presents Individual card correlations with both peer- and teacher-ratings.

Table 16

Significant Correlations between Individual TAT Cards with Aggregated Peer-Rated and Teacher-Rated Reactive and Proactive Aggression Ratings

	<i>Peer reactive</i>	<i>Peer proactive</i>	<i>Teacher reactive</i>	<i>Teacher proactive</i>
1. Perceptual integr (card 1)	-.07	-.06	.04	-.33* (-.29**)
2. Cope with affect (card 4)	-.22*	-.12	-.01	-.03 (-.02)
3. Cope with affect (card 8)	-.20*	-.22*	.05	-.25 (-.20*)
4. Relationships (card 4)	-.02	-.11	-.16	-.14 (-.21*)
5. Relationships (card 7)	-.26*	-.12	-.05	-.35* (-.25*)
6. Relationships (card 8)	-.22*	-.17	-.04	-.21 (-.24*)
7. Self-regulation (card 1)	-.11	-.04	-.08	-.18 (-.20*)
8. Self-regulation (card 7)	-.13	-.08	-.02	-.34* (-.23*)
9. Self-regulation (card 8)	-.18	-.12	-.16	-.22 (-.28**)
10. Intent att. (hostility card 1)	.13	.20*	.12	.08 (.111)
11. Intent att. (hostility card 3)	.28**	.31**	.04	-.12 (-.053)
12. Intent att. (hostility card 7)	.25*	.16	.24*	-.10 (.097)

13. Goal form. (aim card 1)	.05	.22*	.03	.03 (.01)
14. Goal form. (aim card 3)	.24*	.40***	.02	.16 (.14)
15. Goal form. (aim card 4)	.14	.22*	.20	.06 (.09)
16. Goal form. (aim card 7)	.14	.23*	.13	.06 (.01)
17. Goal form. (aim card 8)	.16	.29**	.13	.04 (.11)
18. Goal form. (host card 1)	.40***	.33**	.18	.32* (.20*)
19. Goal form. (host card 3)	.39***	.38***	.03	.17 (.14)
20. Goal form. (host card 4)	.27**	.32**	-.15	.20 (.04)
21. Goal form. (host card 7)	.13	.13	.37**	.10 (.19)
22. Goal form. (host card 8)	.28**	.32**	.15	.21 (.20)
23. Outcomes (congr card 1)	.08	.09	-.004	-.38* (-.13)
24. Outcomes (congr card 8)	.08	.12	-.01	-.28 (-.20*)
25. Outcomes (valence card 7)	.15	.21*	.04	-.06 (.02)

Note. Perceptual integration=coded using a scale from 1-4 where higher scores indicate more well-developed perceptual integration; Cope with affect tension=coded using a scale from 1-3 where higher scores indicate better coping; Relationships=coded using a scale from 1-5 where higher scores indicate more adaptive relationship schemas; Self-regulation=coded using a scale from 1-5 where higher scores indicate more well-developed self-regulation /self-control; Intent attributions (hostility)=coded using a 2 point scale where higher scores indicate a non-hostile intention; Goal-formation (hostility, aim)=coded using a 2 point, and 3 point scale where higher scores indicate a non-hostile goal that is more long term; Outcomes (congruence, valence)=coded using a 3 point and 2 point scale where higher scores indicate a congruent outcome that is positive. Peer reactive and proactive=aggregated peer sociometric items selected by factor analysis; teacher reactive and proactive=aggregated teacher sociometric items selected by factor analysis; Peer and teacher sociometric aggression items as determined by factor analysis
Sample sizes are $N = 97$ for peer-rated aggression correlations, $N = 68$ for teacher-rated reactive aggression correlations, and $N = 39$ for teacher-rated proactive aggression correlations. Teacher proactive raw score correlations are given in parentheses ($N = 94$ to $N = 95$).

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

As can be seen in Table 15, the TAT intent attribution hostility total score was significantly correlated with peer-rated reactive aggression ($r = .23, p < .05$), but it was also significantly correlated with peer-rated proactive aggression ($r = .24, p < .05$). Table 16 shows that the individual intent attribution TAT cards showed some significant

correlations with reactive and proactive peer-rated aggression. Table 15 also shows that the TAT intent attribution hostility total score was not significantly correlated with either of the teacher-rated aggression variables, but Table 16 indicates that Intent Attribution hostility card 7 was correlated with teacher-rated reactive aggression ($r = .24, p < .05$). Thus, the results for Hypothesis 8 were mixed. For peer-rated aggression, the correlations with intent attribution were both significant (reactive and proactive) and for teacher-rated aggression, neither proactive nor reactive aggression showed significant correlations with intent attribution total scores. Individual cards showed a mixture of significant correlations with both reactive and proactive ratings from peers, but only for one reactive rating by teachers. Of the 48 total TAT correlations, 10 of the correlations were significant. Approximately 2 correlations out of 100 should have been significant by chance. Out of the 100 individual card correlations, 36 of the correlations were significant. Approximately 5 correlations out of 100 should have been significant by chance. Therefore, results can be presented with confidence.

Hypothesis 9. Hypothesis 9 stated: On the TAT, presence of goals/intentions and congruence between actions and outcomes are expected to correlate with peer and teacher rated aggression, both reactive and proactive. Each individual card, as well as the total score of the five cards, used to measure Goal Formation (presence, hostility, and aim) and Outcomes (congruence) were correlated with the measures of reactive (overt) aggression and proactive (covert) aggression as rated by both peers and teachers. The peer- and teacher-rated aggression correlations with the TAT total scores are presented in Table 15. Individual card correlations are presented in Table 16.

As can be seen in Table 15, the TAT goal formation (hostility) total score was significantly correlated with peer-rated reactive aggression ($r = .42, p < .001$) and the TAT goal formation (aim) total score was significantly correlated with peer-rated reactive aggression ($r = .20, p < .05$). There were also significant correlations for peer-rated proactive aggression with the TAT goal formation (aim) total score ($r = .38, p < .001$) and with the TAT goal formation (hostility) total score ($r = .43, p < .001$). For teacher ratings, only teacher-rated proactive aggression was significantly correlated with the TAT goal formation (hostility) total score ($r = .23, p < .05$). Table 16 additionally shows that all five of the TAT goal formation individual cards also had significant correlations with the aggregated peer-rated reactive aggression measure (see Table 16 for details). Table 15 shows that none of the TAT goal formation total scores nor the outcome congruence total score were significantly correlated with teacher-rated reactive aggression, but Table 16 indicates that goal formation hostility card 7 was significantly correlated with teacher-rated reactive aggression ($r = .37, p < .01$). For proactive aggression, Table 16 also shows that peer-ratings were significantly correlated with all five TAT goal formation (aim) individual cards, as well as four out of five TAT goal formation (hostility) cards. Teacher ratings of proactive aggression only correlated with one TAT goal formation (hostile) individual card as well as two TAT outcomes congruence individual cards. The results partially support Hypothesis 9.

It is worth noting that overall, the TAT variables were more closely correlated with teacher proactive ratings (11 out of 60 possible correlations) than teacher reactive ratings (0 out of 36 possible correlations), which is a different pattern than the SIP

variables (See Appendix Tables A2 and A3 for correlations with teacher-rated SIP and TAT items of reactive and proactive aggression.)

Hypothesis 10. Hypothesis 10 stated: The actions of proactive aggressors will be driven by a clear goal and will not share an intention of self-defense since hostile attribution biases are less likely amongst this group. Instead, proactive aggressors will likely intend for their actions to be instrumental in meeting some pre-determined goal. Therefore the following correlations are expected to occur between aggression types and TAT instrument variables: First, hostile attribution biases, as measured by the TAT instrument, are expected to be correlated with reactive and not proactive aggression. As can be seen in the results of the analysis that were used to address hypothesis 8, hostile attribution biases are significantly correlated with both proactive and reactive aggression. Next, significant correlations are expected between the TAT instrument's goal formation (aim) and proactive aggression. To address this hypothesis, each individual card, as well as the total score of the five cards, used to measure Goal Formation (presence, hostility, and aim) and Outcomes (congruence) were correlated with the measures of proactive (covert) aggression as rated by both peers and teachers. The peer- and teacher-rated (aggregated scores) aggression correlations with the TAT total scores are again presented in Table 15. Individual card correlations are presented in Table 16.

As can be seen in Table 15, the TAT goal formation (hostility) total score was significantly correlated with both peer-rated proactive and reactive aggression ($r = .43, p < .001$; and $r = .42, p < .001$ respectively) and the TAT goal formation (aim) total score was significantly correlated with peer-rated proactive aggression ($r = .38, p < .001$) and only modestly correlated with reactive aggression ($r = .20, p < .05$). Table 16 additionally

shows that several of the TAT individual cards for goal formation (9 total significant correlations of a possible 10) also had significant correlations with peer-rated proactive aggression (see Table 16 for details). Individual card correlations were also evident for peer rated reactive aggression and goal formation (5 total significant correlations of a possible 10). For teacher ratings of aggression, Table 15 shows that the TAT goal formation hostility total score was significantly correlated with proactive aggression ($r=.23$, $p<.05$), but not with reactive aggression. Table 16 indicates that two of the individual cards (one goal formation correlation and one outcome congruence correlation) showed significant correlations with the teacher-rated proactive aggression, while just one individual card (goal formation) was significantly correlated with teacher rated reactive aggression. Thus, Hypothesis 10 is partially supported by the data since there are a larger number of correlations between proactive aggression and goal formation, than between reactive aggression and goal formation for both peer and teacher ratings. However, there are significant correlations for both reactive and proactive aggression with goal formation. For the interested reader, correlations between TAT total scores and individual peer-rated measures of reactive and proactive aggression are presented in the Appendix in Table A3. Correlations between TAT total scores and individual teacher-rated measures of reactive and proactive aggression are presented in the Appendix in Table A4. Correlations between individual TAT cards and individual peer-rated measures of reactive and proactive aggression are presented in the Appendix in Table A5. Correlations between individual TAT cards and individual teacher-rated measures of reactive and proactive aggression are presented in the Appendix in Table A6.

Finally, although not included in the hypotheses regarding correlations, correlations between TAT total scores and the BASC, bully, and victim scales are presented in Table 17 because they will be important for the regression analyses that follow later. It is worth noting that there are more significant correlations between TAT individual cards and both the victimization scale (5 out of a possible 10 correlations) and the BASC (6 out of a possible 10 correlations) than there are with the bullying scale (1 out of a possible 10 correlations).

Table 17

Correlations between TAT Total Scores with BASC (Teacher-Rated), Bullying (Self-Rated), and Victimization (Self-Rated)

	<i>BASC</i>	<i>Bully</i>	<i>Victim</i>
1. Perceptual integration	-.16	.05	-.04
2. Cope with affect	-.08	-.03	-.12
3. Relationships	-.08	-.08	-.14
4. Self-regulation	-.11	.04	-.07
5. Intent att. (presence)	.08	.04	.12
6. Intent att. (hostility)	.18	.02	-.06
7. Goal form. (presence)	-.03	.00	-.20
8. Goal form. (hostility)	.28**	-.14	-.25*
9. Goal form. (aim)	.18	-.03	-.06
10. Outcomes (presence)	.18	-.05	-.16
11. Outcomes (congr.)	.20*	-.01	-.16
12. Outcomes (valence)	-.08	-.10	-.14

Note. TAT scores are all total scores created by summing across five cards; Perceptual integration=coded using a scale from 1-4 where higher scores indicate more well-developed perceptual integration; Cope with affect tension=coded using a scale from 1-3 where higher scores indicate better coping; Relationships=coded using a scale from 1-5 where higher scores indicate more adaptive relationship

schemas; Self-regulation=coded using a scale from 1-5 where higher scores indicate more well-developed self-regulation /self-control; Intent attributions (presence, hostility)=coded using a 3 point and 2 point scale where higher scores indicate the presence of a long-term, less hostile intention; Goal-formation (presence, hostility, aim)=coded using a 3 point, 2 point, and 3 point scale where higher scores indicate the presence of a long term, less hostile goal with adaptive intentions behind the goal; Outcomes (presence, congruence, valence)=Actions/outcomes coded using a 3 point, 3 point, and 2 point scale where higher scores indicate the presence of a planned action with congruent outcome that is positive. BASC= Behavioral Assessment System for Children. Aggression subscale using T-scores where higher scores indicate higher levels of aggression; Bully=self-report with lower scores indicating more bullying behaviors; Victim=Peer-Victimization Scale. Self-report with lower scores indicating more victimization; Sample sizes range from $N = 96$ to 97 .
 $*p < .05$. $**p < .01$.

Table 18 then presents significant correlations between the individual TAT cards and the BASC, bully, and victim scales for the same reason.

Table 18

Significant Correlations between Individual TAT Cards with BASC (Teacher-Rated), Bullying (Self-Rated), and Victimization (Self-Rated)

	<i>BASC</i>	<i>Bully</i>	<i>Victim</i>
1. Cope with affect (card 3)	.01	-.11	-.26*
2. Relationships (card 1)	.08	-.24*	-.30**
3. Self-regulation (card 8)	-.21*	.04	-.02
4. Intent att. (hostility card 3)	.29**	-.09	-.02
5. Goal form. (presence card 1)	-.001	-.05	-.24*
6. Goal form. (hostility card 1)	.24**	-.08	.00
7. Goal form. (hostility card 3)	.29**	-.15	-.21*
8. Goal form. (hostility card 8)	.23*	-.04	-.30**
9. Outcomes (presence card 1)	.24*	-.12	-.12
10. Outcomes (congruence card 1)	.24*	-.13	-.11

Note. Cope with affect tension=coded using a scale from 1-3 where higher scores indicate better coping; Relationships=coded using a scale from 1-5 where higher scores indicate more adaptive relationship schemas; Self-regulation=coded using a scale from 1-5 where higher scores indicate more well-developed self-regulation /self-control; Intent attributions (hostility)=coded using a 3 point and 2 point scale where higher scores indicate a non-hostile intention; Goal-formation (presence, hostility)=coded using a 3 point and 2 point scale where higher scores indicate the presence of a long term, non- hostile goal; Outcomes (presence, congruence) = coded using a 3 point and 3 point scale where higher scores indicate the presence of a planned action with congruent outcome. BASC= Behavioral Assessment System for Children.

Aggression subscale using T-scores where higher scores indicate higher levels of aggression; Bully=self-report with lower scores indicating more bullying behaviors; Victim=Peer-Victimization Scale. Self-report with lower scores indicating more victimization.

Sample sizes are $N = 96$ for all BASC correlations and $N = 97$ for all bully and victim correlations.

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

Research Question 4

Research Question 4 asked: How do demographic variables (i.e., gender and age) relate to aggression and social cognition? One hypothesis was used under this research question. The results of the analyses that were used to test this hypothesis will be addressed below.

Hypothesis 11. Hypothesis 11 stated: Gender differences for the relationship between social information processing and socially competent behavior are not expected. Correlations between gender and (a) all of the TAT (total and individual) scales, (b) peer-rated aggression variables, (c) teacher-rated aggression variables, (d) four SIP variables, (e) two self-rated scales (bullying behavior and peer victimization), and (f) the teacher-rated BASC were calculated to address this hypothesis. Gender was coded as 1 = Male and 2 = Female so that positive correlations indicate higher scores for females and negative correlations indicate higher scores for males. TAT total score correlations are presented in Table 19.

Table 19

<i>Correlations between Gender and Age with TAT Total Scores</i>		
	<i>Gender</i>	<i>Age</i>
1. Perceptual integration	.11	.19
2. Cope with affect tension	.11	.14
3. Relationships	.07	.30**
4. Self-regulation	.08	.32**

5. Intent att. (presence)	.09	.19
6. Intent att. (hostility)	-.12	.12
7. Goal form. (presence)	.14	.14
8. Goal form. (hostility)	-.04	.02
9. Goal form. (aim)	.16	.15
10. Outcomes (presence)	-.02	.32**
11. Outcomes (congruence)	-.05	.35***
12. Outcomes (valence)	.02	.06

Note. TAT scores are all total scores created by summing across five cards. Gender is coded as 1 = Male and 2 = Female. Positive correlations indicate higher scores for females and negative correlations indicate higher scores for males. Perceptual integration=coded with scale from 1-4 where higher scores indicate better developed perceptual integration; Cope with affect tension =coded with scale from 1-3 where higher scores indicate better coping; Relationships=coded with scale from 1-5 where higher scores indicate more adaptive relationship schemas; Self-regulation=coded with scale from 1-5 where higher scores indicate more well-developed self-regulation; Intent attributions (presence, hostility)=coded with 3 point and 2 point scale where higher scores indicate the presence of a long-term, less hostile intention; Goal-formation (presence, hostility, aim)=coded with 3 point, 2 point, and 3 point scale where higher scores indicate the presence of a long term, less hostile goal with adaptive intentions behind the goal; Outcomes (presence, congruence valence)=Actions/outcomes coded with 3 point, 3 point, and 2 point scale where higher scores indicate presence of a planned action with congruent outcome that is positive. Sample sizes range from $N = 101$ to 107 .

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

Significant TAT individual card correlations are presented in Table 20.

Table 20

Significant Correlations between Individual TAT Cards with Gender and Age

	<i>Gender</i>	<i>Age</i>
1. Perceptual integration (card 4)	.12	.21*
2. Relationships (card 1)	-.04	.21*
3. Relationships (card 4)	.04	.35***
4. Relationships (card 8)	.09	.28**
5. Self-regulation (card 1)	.04	.26**
6. Self-regulation (card 3)	.06	.25*

7. Self-regulation (card 4)	.04	.36***
8. Self-regulation (card 8)	.03	.26**
9. Intent att. (hostility card 3)	-.20*	.14
10. Goal form. (aim card 8)	.11	.21*
11. Outcomes (presence card 3)	-.03	.32**
12. Outcomes (presence card 4)	.004	.25*
13. Outcomes (presence card 8)	.03	.22*
14. Outcomes (congruence card 1)	-.22*	.07
15. Outcomes (congruence card 3)	-.04	.38***
16. Outcomes (congruence card 4)	.001	.37***

Note. Gender is coded as 1 = Male and 2 = Female such that positive correlations indicate higher scores for females and negative correlations indicate higher scores for males. Perceptual integration=coded using a scale from 1-4 where higher scores indicate more well-developed perceptual integration; Relationships=coded using a scale from 1-5 where higher scores indicate more adaptive relationship schemas; Self-regulation=coded using a scale from 1-5 where higher scores indicate more well-developed self-regulation /self-control; Intent attributions (hostility)=coded using a 2 point scale where higher scores indicate non-hostile intention; Goal-formation (aim)=coded using a 3 point scale where higher scores indicate adaptive intentions behind the goal; Outcomes (presence, congruence)=coded using a 3 point and 3 point scale where higher scores indicate the presence of a planned action with congruent outcome. Sample sizes range from $N = 102$ to 107 . * $p < .05$. ** $p < .01$. *** $p < .001$.

Aggregated peer- and teacher-rated aggression variable correlations are presented in Table 21 (with the individual peer- and teacher-rated item correlations in the Appendix in Table A7).

Table 21
Correlations between Gender and Age with Aggregated Peer- and Teacher-Rated Reactive and Proactive Aggression

	<i>Gender</i>	<i>Age</i>
1. Peer reactive aggression	-.23*	-.02
2. Peer proactive aggression	.05	-.01
3. Teacher reactive aggression	.07	.01
4. Teacher proactive aggression	.29 (.22*)	-.22 (-.18)

Note. Gender is coded as 1 = Male and 2 = Female such that positive correlations indicate higher scores for females and negative correlations indicate higher scores for males; Peer reactive and proactive=aggregated peer sociometric items selected by factor analysis; teacher reactive and proactive=aggregated teacher sociometric items selected by factor analysis.

Sample sizes range from $N = 41$ to 100 for z-score correlations. Teacher proactive raw score correlations are given in parentheses ($N = 100$).

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

SIP variable correlations are presented in Table 22 as well as the two self-rated scales and the BASC.

Table 22

Correlations between Gender and Age with SIP Total Scores and Other Measures of Aggression

	<i>Gender</i>	<i>Age</i>
1. SIP interpretation	.06	-.16
2. SIP response generation	.32**	-.19
3. SIP sum total (interpret and response)	.29**	-.21*
4. SIP response evaluation	.03	-.18
5. Bullying behavior scale (self)	.32**	-.23*
6. Peer victimization (self)	.19	.11
7. BASC aggression scale (teacher)	-.08	-.05

Note. Gender is coded as 1 = Male and 2 = Female such that positive correlations indicate higher scores for females and negative correlations indicate higher scores for males; SIP interpretation=binary coded with (1) as non-hostile intent and (2) as hostile intent tallied across four vignettes; SIP response generation= coded on a scale of 1 to 5 tallied across four vignettes with higher numbers indicating more aggressive responses; SIP sum total (interpret and response)=tallied interpretation and response generation scores across four vignettes with higher numbers indicating greater aggression; SIP response evaluation=tallied response evaluation scores across four vignettes; BASC= Behavioral Assessment System for Children. Aggression subscale using T-scores where higher scores indicate higher levels of aggression; Bully=self-report with lower scores indicating more bullying behaviors; Victim=Peer-Victimization Scale. Self-report with lower scores indicating more victimization

Sample sizes range from $N = 99$ to 101.

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

As can be seen in Table 19, there are no significant correlations between gender and TAT total scores. Table 20 displays that only two individual TAT cards show significant correlations with gender, such that males show higher scores on these two

cards: (a) Intent Attributions hostility card 3 ($r = -.20, p < .05$) and (b) Outcomes congruence card 1 ($r = -.22, p < .05$). Table 21 presents correlations between gender and the peer- and teacher-rated measures of reactive and proactive aggression. There were two significant correlations such that boys scored significantly higher on peer-rated reactive aggression ($r = -.23, p < .05$) and girls scored significantly higher on teacher-rated raw score proactive aggression ($r = .22, p < .05$). Note that the correlation for teacher-rated z-score proactive aggression was higher ($r = .29$), but was not significant due to the small sample size ($N = 39$). Finally, Table 22 shows that SIP response generation was significantly correlated with gender where girls scored higher ($r = .32, p < .01$) and SIP response generation / intention attribution overall was significantly correlated with gender also such that girls scored higher ($r = .29, p < .01$). Gender was also significantly positively correlated with the self-rating of the bullying behavior scale ($r = .32, p < .01$), indicating that females have higher scores on the bullying behavior scale which translates to more adaptive functioning and less bullying.

Although not specifically stated in Hypothesis 11, the same correlations were also run for age. Table 19 shows that age was positively correlated with four of the TAT total scores (see Table 15 for details). Table 20 shows that age was significantly positively correlated with 14 TAT individual cards. Age was not significantly correlated with any of the aggregated peer- or teacher-rated aggression variables (see Table 21). Finally, age was significantly negatively correlated with SIP overall ($r = -.21, p < .05$)--but not its separate components--and the self-rated bullying behavior scale ($r = -.23, p < .05$), indicating that younger children have higher scores on these two scales (see Table 22).

Research Question 5

Research Question 5 asked: When predicting aggression from self, peer, and teacher perspectives, what are the unique contributions of schema and social information processing components? Two hypotheses were addressed under this research question. The results of the analyses that were used to address each hypothesis will be addressed in turn below.

Hypothesis 12. Hypothesis 12 stated: TAT variables will be more predictive of teacher and peer-rated aggressive behaviors than SIP variables. This hypothesis was addressed by multiple regression analyses. There are a total of five peer- or teacher-rated aggression variables (i.e., peer-rated reactive aggression, peer-rated proactive aggression, teacher-rated reactive aggression, teacher-rated proactive aggression, and teacher-rated BASC). Therefore, five separate multiple regressions were calculated to address this hypothesis with each of the five aggression variables as the criterion variable for each regression and any significant TAT and SIP variables as predictors for each regression.

Table 23 displays the results for the first regression analysis for predicting peer-rated reactive aggression from significant TAT and SIP variables. TAT total scores, which were sums across the five cards for each TAT construct, that had significant zero-order correlations with this aggression variable, were entered into the regression equation. Any individual TAT cards that showed significant zero-order correlations with the aggression variable and that were not included in the significant total scores were also entered. There were no SIP variables with significant correlations with this aggression variable; therefore, no SIP variables were entered. Because gender showed a significant

zero-order correlation with peer-rated reactive aggression, gender was also entered in the equation as a control variable, so as not to influence the equation outcome.

This equation used three TAT total scores and four additional cards (see Table 23). The overall equation was significant, $F(8, 88) = 4.12, p = .000$, explaining 27.3% of the variance in the dependent variable. There were three significant predictors: gender, total goal formation (hostility) and total goal formation (aim), all $ps < .05$. Thus, Hypothesis 12 was supported for the peer-rated reactive aggression variable because the TAT variables were more predictive of this aggression variable than were the SIP variables.

Table 23

Regression Analysis for Predicting Peer-Rated Reactive Aggression from Significant TAT Variables with Gender as Covariate

	B	SE B	β	R^2
Gender	-1.12	0.49	-.22*	.273
Total intent attributions (hostility)	0.05	0.22	.03	
Total goal formation (hostility)	0.54	0.26	.25*	
Total goal formation (aim)	0.20	0.10	.22*	
Cope with affect tension card 4	-0.47	0.44	-.11	
Cope with affect tension card 8	-0.16	0.54	-.03	
Relationships card 7	-0.27	0.35	-.09	
Relationships card 8	-0.18	0.36	-.06	

Note. Peer rated reactive aggression=aggregated peer sociometric items selected by factor analysis. Peer sociometric items=tallies of nominations calculated with higher scores -higher levels of aggression; Gender is coded as 1 = Male and 2 = Female; Total intent attributions (hostility)=coded using a 2 point scale higher scores-less hostile intention attributions; Total goal formation (hostility, aim)=coded using a 2 point and 3 point scale higher scores- a non-hostile goal with adaptive intentions behind the goal; Cope with affect tension=coded using a scale from 1-3 higher scores-better coping; Relationships=coded using a scale from 1-5 higher scores- more adaptive relationship schemas.

Gender was included because it showed a significant zero-order correlation with the dependent variable. Total TAT scores (sums across the five cards) that showed significant zero-order correlations with the dependent variable were entered next. Significant individual cards not part of a significant total score also entered. The overall model was significant, $F(8, 88) = 4.12, p = .000$. The constant for the model = -1.57. * $p < .05$.

Table 24 displays the results for the second regression analysis for predicting peer-rated proactive aggression from significant TAT and SIP variables. TAT total scores, which were sums across the five cards for each TAT construct, that had significant zero-order correlations with this aggression variable, were entered into the regression equation. Any individual TAT cards that showed significant zero-order correlations with the aggression variable and that were not included in the significant total scores were also entered. There were no SIP variables with significant correlations with this aggression variable; therefore, no SIP variables were entered.

This equation used three TAT total scores and two additional cards (see Table 24). The overall equation was significant, $F(5, 91) = 7.81, p = .000$, explaining 30.0% of the variance in the dependent variable. There were two significant predictors: total goal formation (hostility; $p < .05$) and total goal formation (aim; $p < .01$). Thus, Hypothesis 12 was supported for the peer-rated proactive aggression variable because the TAT variables were more predictive of this aggression variable than were the SIP variables.

Table 24

Regression Analysis for Predicting Peer-Rated Proactive Aggression from Significant TAT Variables

	B	SE B	β	R^2
Total intent attributions (hostility)	0.16	0.19	.08	.300
Total goal formation (hostility)	0.51	0.22	.25*	
Total goal formation (aim)	0.25	0.08	.29**	
Cope with affect tension card 8	-0.70	0.41	-.16	
Action/outcomes (valence) card 7	0.84	0.64	.12	

Note. Peer rated proactive aggression=aggregated peer sociometric items selected by factor analysis. Peer sociometric items=tallies of nominations calculated with higher scores indicating higher levels of aggression; Total intent attributions (hostility)=coded using a 2 point scale where higher scores indicate less hostile intention attributions; Total goal formation (hostility, aim)=coded using a 2 point and 3 point

scale where higher scores indicate a non-hostile goal with adaptive intentions behind the goal; Cope with affect tension=coded using a scale from 1-3 where higher scores indicate better coping; Actions/outcomes (valence) coded using a 2 point scale where higher scores indicate a positive outcome.

Total TAT scores (sums across the five cards) that showed significant zero-order correlations with the dependent variable were entered first. Significant individual cards that were not part of a significant total score were also entered. The overall model was significant, $F(5, 91) = 7.81, p = .000$. The constant for the model = -6.65.

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

Table 25 displays the results for the third regression analysis for predicting teacher-rated reactive aggression from significant TAT and SIP variables. There were no TAT total scores with significant zero-order correlations with this aggression variable; thus, any individual TAT cards that showed significant zero-order correlations with the aggression variable were entered into the equation. SIP variables with significant correlations with this aggression variable were also entered into the equation.

This equation used two individual TAT cards and two SIP variables (see Table 25). The overall equation was significant, $F(4, 63) = 4.97, p = .002$, explaining 24.0% of the variance in the dependent variable. There were two significant predictors: total goal formation (hostility; $\beta = .24, p < .05$) and SIP response generation ($\beta = .26, p < .05$). The standardized regression coefficient (β) was higher for SIP response generation—but the two were similar; thus, Hypothesis 12 was not supported for the teacher-rated reactive aggression variable because the significant SIP variable was similar to the TAT variable in the prediction.

Table 25

Regression Analysis for Predicting Teacher-Rated Reactive Aggression from Significant TAT and SIP Variables

	B	SE B	β	R^2
Intent attributions (hostility) card 7	0.72	0.77	.12	.240
Goal formation (hostility) card 7	1.62	0.82	.24*	

SIP response generation	0.23	0.11	.26*
SIP response evaluation	0.09	0.10	.11

Note. Teacher rated reactive aggression=aggregated teacher sociometric items selected by factor analysis. Teacher sociometric items=teachers rate each student for aggressive behaviors on scale of 1-5 with higher scores indicating greater aggression; Intent attributions (hostility)=coded using a 2 point scale where higher scores indicate non-hostile intention attributions; Goal formation (hostility)=coded using a 2 point scale where higher scores indicate a non-hostile goal; SIP response generation= coded on a scale of 1 to 5 tallied across four vignettes with higher numbers indicating more aggressive responses; SIP response evaluation=binary coded with (1) as non-aggressive and (2) as aggressive response for each of four vignettes;

No total TAT scores (sums across the five cards) showed significant zero-order correlations with the dependent variable. Significant individual TAT cards were entered first. Significant SIP variables were also entered. The overall model was significant, $F(4, 63) = 4.97, p = .002$. The constant for the model = -6.91.

* $p \leq .05$.

Table 26 displays the results for the fourth regression analysis for predicting teacher-rated proactive aggression from significant TAT and SIP variables. There were no TAT total scores with significant zero-order correlations with this aggression variable; thus, any individual TAT cards that showed significant zero-order correlations with the aggression variable were entered into the equation. There were no SIP variables with significant correlations with this aggression variable; therefore, no SIP variables were entered.

This equation used five individual TAT cards (see Table 26). The overall equation was significant, $F(5, 33) = 2.55, p = .047$, explaining 27.9% of the variance in the dependent variable. There were no significant predictors, likely due to the small number of participants who had complete data for all of these variables. Thus, Hypothesis 12 could not be tested with this data set. However, TAT action/outcomes (congruence) card 1, had a p -value that approached significance ($p = .091$), and since there were no SIP variables that even had significant zero-order correlations with teacher-rated proactive aggression, with a larger sample size, it is likely that this TAT card would show significant predictive power.

Table 26

Regression Analysis for Predicting Teacher-Rated Proactive Aggression from Significant TAT Variables

	B	SE B	β	R ²
Perceptual integration card 1	-0.16	1.28	-.03	.279
Relationships card 7	-1.27	2.20	-.25	
Self-regulation card 7	0.48	2.31	.09	
Goal formation (hostility) card 1	4.01	2.39	.27	
Action/outcomes (congruence) card 1	-1.58	0.91	-.33	

Note. Teacher rated proactive aggression=aggregated teacher sociometric items selected by factor analysis. Teacher sociometric items=teachers rate each student for aggressive behaviors on scale of 1-5 with higher scores indicating greater aggression; Perceptual integration=coded using a scale from 1-4 where higher scores indicate more well-developed perceptual integration; Relationships= coded using a scale from 1-5 where higher scores indicate more adaptive relationship schemas; Self-regulation=coded using a scale from 1-5 where higher scores indicate more well-developed self-regulation /self-control; Goal formation (hostility)=coded using a 2 point scale where higher scores indicate a non-hostile goal; Actions/outcomes (congruence) coded 3 point scale where higher scores indicate a congruent outcome.

No total TAT scores (sums across the five cards) showed significant zero-order correlations with the dependent variable. Significant individual TAT cards were entered. The overall model was significant, $F(5, 33) = 2.55, p = .047$. The constant for the model = 1.51.

Table 26a displays the results for another regression analysis for predicting teacher-rated proactive aggression using *raw* scores from significant TAT and SIP variables. There were four TAT total scores with significant zero-order correlations with this aggression variable and two more individual cards that were not included in these total scores. There were no SIP variables with significant correlations with this aggression variable; therefore, no SIP variables were entered.

This equation used four total TAT scores and two individual TAT cards (see Table 26a). The overall equation was significant, $F(7, 87) = 2.53, p = .020$, explaining 16.9% of the variance in the dependent variable. The only significant predictor was gender, thus, this analysis did not support the hypothesis that TAT variables would better predict the dependent variable than would SIP variables unless one considers that several

TAT variables had significant zero-order correlations with the dependent variable, whereas no SIP variables did.

Table 26a

Regression Analysis for Predicting Teacher-Rated Proactive Aggression in Raw Scores from Significant TAT Variables

	B	SE B	β	R ²
Gender	1.48	0.54	.27**	.169
Total perceptual integration	-0.10	0.15	-.10	
Total relationships	0.02	0.17	.02	
Total self-regulation	-0.06	0.19	-.08	
Total goal formation (hostility)	0.39	0.24	.17	
Coping with affect tensions card 8	-0.28	0.55	-.06	
Action/outcomes (congruence) card 8	-0.24	0.36	-.08	

Note. Teacher rated proactive aggression=aggregated teacher sociometric items selected by factor analysis. Teacher sociometric items=teachers rate each student for aggressive behaviors on scale of 1-5 with higher scores indicating greater aggression; Gender is coded as 1 = Male and 2 = Female; Total perceptual integration=coded using a scale from 1-4 where higher scores indicate more well-developed perceptual integration; Total relationships= coded using a scale from 1-5 where higher scores indicate more adaptive relationship schemas; Total self-regulation=coded using a scale from 1-5 where higher scores indicate more well-developed self-regulation /self-control; Total goal formation (hostility)=coded using a 2 point scale where higher scores indicate less hostile goals; Coping with affect tensions=coded using a scale from 1-3 where higher scores indicate better coping; Actions/outcomes (congruence) coded 3 point scale where higher scores indicate a congruent outcome.

Gender was included because it showed a significant zero-order correlation with the dependent variable. Total TAT scores (sums across the five cards) that showed significant zero-order correlations with the dependent variable were entered next. Significant individual cards that were not part of a significant total score were also entered. The overall model was significant, $F(7, 87) = 2.53, p = .020$. The constant for the model = 4.98.

Table 27 displays the results for the fifth regression analysis for predicting the teacher-rated BASC from significant TAT and SIP variables. TAT total scores, which were sums across the five cards for each TAT construct, that had significant zero-order correlations with this aggression variable, were entered into the regression equation. Any individual TAT cards that showed significant zero-order correlations with the aggression

variable and that were not included in the significant total scores were also entered. There were no SIP variables with significant correlations with this aggression variable; therefore, no SIP variables were entered.

This equation used two TAT total scores and three additional cards (see Table 27). The overall equation was significant, $F(5, 90) = 6.12, p = .000$, explaining 25.4% of the variance in the dependent variable. There were two significant predictors: self-regulation card 8 ($p < .01$) and intent attributions (hostility) card 3 ($p < .05$). Thus, Hypothesis 12 was supported for the teacher-rated BASC variable because the TAT variables were more predictive of this aggression variable than were the SIP variables.

Table 27

Regression Analysis for Predicting Teacher-Rated BASC from Significant TAT Variables

	B	SE B	β	R^2
Total goal formation (hostility)	0.11	0.08	.14	.254
Total action/outcomes (congruence)	0.06	0.04	.21	
Self-regulation card 8	-0.38	0.13	-.31**	
Intent attributions (hostility) card 3	0.47	0.20	.23*	
Action/outcomes (presence) card 1	0.23	0.15	.17	

Note. BASC= Behavioral Assessment System for Children. Aggression subscale using T-scores where higher scores indicate higher levels of aggression; Total goal formation (hostility)=coded using a 2 point scale where higher scores indicate less hostile goals; Total actions/outcomes (congruence) coded 3 point scale where higher scores indicate a congruent outcome. Self-regulation=coded using a scale from 1-5 where higher scores indicate more well-developed self-regulation /self-control; Intent attributions (hostility)=coded using a 2 point scale where higher scores indicate a non-hostile intention attribution; Actions/outcomes (presence)=coded using a 3 point scale where higher scores indicate the presence of a planned action.

The dependent variable was a z-score. Total TAT scores (sums across the five cards) that showed significant zero-order correlations with the dependent variable were entered first. Significant individual cards that were not part of a significant total score were also entered. The overall model was significant, $F(5, 90) = 6.12, p = .000$. The constant for the model = -1.38.

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

In sum, Hypothesis 12 was clearly supported by the regression analyses for peer-rated reactive and proactive aggression and for the teacher-rated BASC where TAT

variables were significant predictors of each of the dependent variables and SIP variables were not. For teacher-rated proactive aggression, the findings were not as clear, but it is likely that with a larger sample size, this variable would also show the same pattern such where the TAT variables would be significant predictors and the SIP variables would not. Only for teacher-rated reactive aggression did a SIP variable show similar predictive power than a TAT variable in predicting the dependent variable—both contributed significantly to the variance in the criterion. Thus, there was much greater support for Hypothesis 12 than there was evidence against it.

Hypothesis 13. Hypothesis 13 stated: SIP variables will be more predictive of self-rated aggressive behaviors than TAT variables. This hypothesis was also addressed by multiple regression analyses. There are a total of two self-rated aggression variables (i.e., The Bullying Behavior Scale and the Victim Behavior Scale). Therefore, two separate multiple regressions were calculated to address this hypothesis with each of the two aggression variables as the criterion variable for each regression and any significant TAT and SIP variables as predictors for each regression.

Table 28 displays the results for the first regression analysis for predicting self-rated bullying behavior from significant TAT and SIP variables. There were no TAT total scores with significant zero-order correlations with this aggression variable; thus, any individual TAT cards that showed significant zero-order correlations with the aggression variable were entered into the equation. There were no SIP variables with significant correlations with this aggression variable; therefore, no SIP variables were entered. Gender showed a significant zero-order correlation with bully behavior; therefore, gender was entered as a control variable so as not to influence the equation outcome.

This equation used one individual TAT card and gender as predictors (see Table 28). The overall equation was significant, $F(2, 94) = 8.48, p = .000$, explaining 15.3% of the variance in the dependent variable. Both predictors were significant: gender ($p < .01$) and Relationships card 1 ($p < .05$). Thus, Hypothesis 13 was not supported for the self-rated bully behavior variable because the TAT variable was more predictive of the dependent variable than any SIP variables.

Table 28

Regression Analysis for Predicting Self-Rated Bullying Behavior from Significant TAT Variables with Gender as Covariate

	B	SE B	β	R^2
Gender	0.60	0.19	.31**	.153
Relationships card 1	-0.28	0.12	-.23*	

Note. Bullying Behavior=self-report with lower scores indicating more bullying behaviors; Gender is coded as 1 = Male and 2 = Female; Relationships=coded using a scale from 1-5 where higher scores indicate more adaptive relationship schemas.

The dependent variable was a z-score. Gender was included because it showed a significant zero-order correlation with the dependent variable. No SIP variables or Total TAT scores (sums across the five cards) showed significant zero-order correlations with the dependent variable. Significant individual TAT cards were entered. The overall model was significant, $F(2, 94) = 8.48, p = .000$. The constant for the model = -0.17.

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

Table 29 displays the results for the second regression analysis for predicting self-rated victim behavior from significant TAT and SIP variables. TAT total scores with significant zero-order correlations with this aggression-related variable (note correlation) were entered into the equation. Then, any individual TAT cards that showed significant zero-order correlations with victim rating that were not part of a previously entered total score were entered into the equation. There were no SIP variables with significant correlations with this aggression-related variable; therefore, no SIP variables were entered.

This equation used one TAT total score and three individual TAT cards as predictors (see Table 29). The overall equation was significant, $F(4, 92) = 5.72, p = .000$, explaining 19.9% of the variance in the dependent variable. One predictor was significant: Total goal formation (hostility; $p < .01$). Thus, Hypothesis 13 was not supported for the self-rated victim behavior variable because a TAT variable was more predictive of the dependent variable than any SIP variables.

Table 29

Regression Analysis for Predicting Self-Rated Victim Behavior from Significant TAT Variables

	B	SE B	β	R^2
Total goal formation (hostility)	-0.24	0.08	-.29**	.199
Cope with affect tension card 3	-0.23	0.15	-.17	
Relationships card 1	-0.25	0.13	-.21	
Goal formation (presence) card 1	-0.15	0.16	-.09	

Note. Victim Behavior=Peer-Victimization Scale. Self-report with lower scores indicating more victimization; Total goal formation (hostility)=coded using a 2 point scale where higher scores indicate less hostile goals; Cope with affect tension=coded using a scale from 1-3 where higher scores indicate better coping; Relationships=coded using a scale from 1-5 where higher scores indicate more adaptive relationship schemas; Goal formation (presence)=coded using a 3 point scale where higher scores indicate the presence of a long term goal.

The dependent variable was a z-score. No SIP variables showed significant zero-order correlations with the dependent variable. Total TAT scores (sums across the five cards) that showed significant zero-order correlations with the dependent variable were entered first. Significant individual cards that were not part of a significant total score were also entered. The overall model was significant, $F(4, 92) = 5.72, p = .000$. The constant for the model = 2.63.

** $p < .01$.

In sum, Hypothesis 13 was not supported by either of the regression equations that were used to predict self-rated bully or victim behavior.

For all multiple regression equations, Variance Inflation Factors (VIF) were calculated in order to test for multicollinearity, or the occurrence of highly correlated independent variables during regression analyses. Using the standard that VIF values

greater than 10 and less than .10 are indicative of a high degree of intercorrelation, all multiple regression data are acceptable and there are no issues with multicollinearity.

Results Appendix

Table A1

Correlations between Social Information Processing (SIP) Variables with Individual Peer-Rated Reactive and Proactive Aggression Ratings

	1	2	3	4	5	6	7	8
1. SIP interpret	--							
2. SIP resp eval	.27**	--						
3. SIP resp gen	.35***	.39***	--					
4. Hit (O)	-.08	.17	.01	--				
5. Threaten (O)	-.14	.09	-.06	.66***	--			
6. Push (O)	.02	.14	.04	.69***	.62***	--		
7. Ignore (C)	-.03	.02	.05	.60***	.35***	.54***	--	
8. Keep out (C)	-.08	.05	.20	.46***	.42***	.41***	.46***	--
9. Get even (C)	-.03	.04	.08	.36***	.24*	.29**	.46***	.60***

Note. O = Reactive/Overt Aggression Variable; C = Proactive/Covert Aggression Variable. Sample sizes range from $N = 97$ to 101.

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

Table A2

Correlations between Social Information Processing (SIP) Variables with Individual Teacher-Rated Reactive and Proactive Aggression Ratings

	1	2	3	4	5	6	7	8	9	10
1. SIP interpretation	--									
2. SIP response evaluation	.27**	--								
3. SIP response generation	.35***	.39***	--							
4. Teases and name calls (O)	.01	.12	.19	--						
5. Starts fights with peers (O)	.20	.31**	.34**	.75***	--					
6. Hits others when angry (O)	.12	.26*	.35**	.67***	.80***	--				
7. Gets others in trouble (C)	.14	.23*	.23*	.36**	.44***	.42***	--			
8. Spreads rumors (C)	-.01	.11	.16	.35**	.25*	.39**	.72***	--		
9. Keeps others from joining (C)	.08	.16	.10	.27*	.29*	.32**	.82***	.73***	--	
10. Gets others to ignore (C)	.10	.22*	.12	.18	.23*	.28*	.83***	.73***	.96***	--
11. Gets others to gang up (C)	.09	.07	.11	.26	-.02	-.03	.83***	.56***	.77***	.82***

Note. O = Reactive/Overt Aggression Variable; C = Proactive/Covert Aggression Variable. Sample sizes range from $N = 39$ to 100.

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

Table A3

Correlations between TAT Total Scores with Individual Peer-Rated Reactive and Proactive Aggression Ratings

	<i>Hit (O)</i>	<i>Threaten (O)</i>	<i>Push (O)</i>	<i>Ignore (C)</i>	<i>Keep out (C)</i>	<i>Get even (C)</i>
1. Perceptual integration	-.06	-.13	-.23*	-.04	-.12	-.06
2. Cope with affect	-.13	-.13	-.23*	-.11	-.07	-.03
3. Relationships	-.10	-.09	-.17	-.16	-.07	-.06
4. Self-regulation	-.05	-.11	-.23*	-.11	-.12	-.02
5. Intent att. (presence)	-.08	.07	.11	.03	.08	.18
6. Intent att. (hostility)	.15	.23*	.23*	.16	.24*	.18
7. Goal form. (presence)	.05	-.06	-.18	.18	.09	.08
8. Goal form. (hostility)	.36***	.39***	.36***	.33**	.45***	.26**
9. Goal form. (aim)	.33**	.08	.12	.43***	.23*	.28**
10. Outcomes (presence)	.03	.06	.04	.05	.06	.20
11. Outcomes (congr)	.08	.09	.09	-.00	.08	.22*
12. Outcomes (valence)	.07	.15	-.00	.10	.16	.08

Note. O = Reactive/Overt Aggression Variable; C = Proactive/Covert Aggression Variable. Sample sizes range from $N = 96$ to 97 . TAT scores are all total scores created by summing across five cards.

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

Table A4

Correlations between TAT Total Scores with Teacher-Rated Reactive and Proactive Aggression Ratings

	<i>Teases (O)</i>	<i>Fights (O)</i>	<i>Hits (O)</i>	<i>Trouble (C)</i>	<i>Rumors (C)</i>	<i>No join (C)</i>	<i>Ignore (C)</i>	<i>Gang up (C)</i>
1. Perceptual integration	.02	.09	.07	-.17	-.14	-.19	-.20	-.17
2. Cope with affect tension	.05	-.04	-.03	-.20	-.20	-.14	-.18	-.14
3. Relationships	.02	-.01	.02	-.22	-.17	-.23*	-.24*	-.23
4. Self-regulation	.02	-.03	-.05	-.22	-.22*	-.21	-.23*	-.19
5. Intent att. (presence)	.02	-.00	.04	-.10	.06	-.11	-.00	-.01
6. Intent att. (hostility)	.07	.18	.17	.07	.07	.13	.14	-.10
7. Goal form. (presence)	-.03	.05	.03	.04	-.12	-.04	.02	-.06
8. Goal form. (hostility)	.14	.17	.21	.27*	.27*	.19	.23*	.23
9. Goal form. (aim)	.13	.18	.17	.08	-.07	.09	.11	.11
10. Outcomes (presence)	.06	.02	-.04	-.15	-.19	-.16	-.14	-.15
11. Outcomes (congruence)	.14	.11	.05	-.23*	-.24*	-.22*	-.21*	-.26
12. Outcomes (valence)	.07	-.01	-.02	-.10	-.22*	-.12	-.09	-.10

Note. O = Reactive/Overt Aggression Variable; C = Proactive/Covert Aggression Variable. Sample sizes range from $N = 38$ to 95. TAT scores are all total scores created by summing across five cards. * $p < .05$.

Table A5

Significant Correlations between Individual TAT Cards with Peer-Rated Reactive and Proactive Aggression Ratings (N = 97)

	<i>Hit (O)</i>	<i>Threat (O)</i>	<i>Push (O)</i>	<i>Ignore (C)</i>	<i>Keep out (C)</i>	<i>Get even (C)</i>
1. Perceptual integr (card 7)	--	--	-.25*	--	--	--
2. Perceptual integr (card 8)	--	--	-.21*	--	--	--
3. Cope with affect (card 4)	--	-.24*	--	--	--	--
4. Cope with affect (card 8)	--	--	-.23*	--	-.22*	--
5. Relationships (card 7)	--	-.26*	-.27**	--	--	--
6. Relationships (card 8)	--	--	-.26*	--	--	--
7. Self-regulation (card 7)	--	--	-.20*	--	--	--
8. Self-regulation (card 8)	--	--	-.29**	--	--	--
9. Intent att. (presence card 1)	--	--	.26*	--	--	--
10. Intent att. (hostility card 1)	--	--	--	--	.23*	--
11. Intent att. (hostility card 3)	--	.22*	.31**	--	.28**	.28**
12. Intent att. (hostility card 7)	.24*	.24*	--	--	--	--
13. Goal form. (pres card 8)	--	--	--	.21*	--	--
14. Goal form. (aim card 3)	.34**	--	--	.41***	.23*	.36***
15. Goal form. (aim card 4)	.22*	--	--	.34**	--	--
16. Goal form. (aim card 7)	--	--	--	.26*	--	.21*
17. Goal form. (aim card 8)	.29**	--	--	.33**	.20*	--
18. Goal form. (host card 1)	.32**	.32**	.40***	.30**	.31**	.21*
19. Goal form. (host card 3)	.29**	.40***	.34**	.22*	.43***	.27**
20. Goal form. (host card 4)	.25*	.25*	.21*	.26**	.32**	.21*

21. Goal form. (host card 7)	--	--	--	--	.22*	--
22. Goal form. (host card 8)	.27**	.23*	.23*	.35**	.26*	--
23. Outcomes (pres card 3)	--	.20*	--	--	--	.22*
24. Outcomes (congr card 3)	--	.21*	--	--	--	.30**
25. Outcomes (valence card 7)	--	--	--	--	.20*	--

Note. O = Reactive/Overt Aggression Variable; C = Proactive/Covert Aggression Variable.

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

Table A6

Significant Correlations between Individual TAT Cards with Teacher-Rated Reactive and Proactive Aggression Ratings

	<i>Teases (O)</i>	<i>Fights (O)</i>	<i>Hits (O)</i>	<i>Trouble (C)</i>	<i>Rumors (C)</i>	<i>No join (C)</i>	<i>Ignore (C)</i>	<i>Gang up (C)</i>
1. Perceptual integration (card 1)	--	--	--	--	--	-.32**	-.27**	--
2. Cope with affect tension (card 7)	--	--	--	.22*	-.25*	--	-.23*	--
3. Relationships (card 1)	--	--	--	--	--	--	-.21*	--
4. Relationships (card 7)	--	--	--	.29**	--	-.25*	-.27**	--
5. Relationships (card 8)	--	--	--	--	--	-.23*	-.21*	--
6. Self-regulation (card 1)	--	--	--	-.22*	-.27*	-.25*	--	--
7. Self-regulation (card 7)	--	--	--	-.23*	-.27*	-.24*	-.30**	--
8. Self-regulation (card 8)	--	--	--	-.23*	--	--	--	--
9. Intent att. (hostility card 7)	--	.26*	.25*	--	--	--	--	--
10. Goal form. (presence card 7)	--	--	--	--	-.22*	--	--	--
11. Goal form. (aim card 4)	--	.24*	--	--	--	--	--	--
12. Goal form. (hostility card 1)	--	--	--	.30**	.23*	--	--	--
13. Goal form. (hostility card 3)	--	--	--	--	.24*	--	--	--
14. Goal form. (hostility card 7)	.22*	.35**	.41**	.23*	--	--	--	--

15. Goal form. (hostility card 8)	--	--	--	--	--	--	.27**	--
16. Outcomes (presence card 7)	.23*	--	--	--	--	--	--	--
17. Outcomes (congruence card 1)	--	--	--	--	--	--	--	-.33*
18. Outcomes (congruence card 4)	.21*	--	--	--	-.25*	-.22*	-.26*	--
19. Outcomes (congruence card 7)	--	--	--	--	-.26*	--	--	--
20. Outcomes (congruence card 8)	--	--	--	.28*	--	--	--	--
21. Outcomes (valence card 4)	--	--	--	--	-.26*	--	--	--

Note. O = Reactive/Overt Aggression Variable; C = Proactive/Covert Aggression Variable. Sample sizes range from $N = 39$ to 95.

* $p < .05$.

Table A7

Correlations between Gender and Age with Individual Peer- and Teacher-Rated Reactive and Proactive Aggression

	<i>Gender</i>	<i>Age</i>
1. Hit others (peer reactive)	-.16	-.05
2. Threaten others (peer reactive)	-.28**	-.00
3. Push others around (peer reactive)	-.16	-.00
4. Get mad and ignore (peer proactive)	.02	-.06
5. Keep others out of group (peer proactive)	-.01	-.02
6. Get even by keeping others out (peer proactive)	.11	.06
7. Teases and name calls (teacher reactive)	.07	.07
8. Starts fights with peers (teacher reactive)	.07	.01
9. Hits others when angry (teacher reactive)	-.02	-.06
10. Gets others in trouble (teacher proactive)	.12	-.11
11. Spreads rumors (teacher proactive)	.11	-.18
12. Keeps others from joining (teacher proactive)	.17	-.16
13. Gets others to ignore (teacher proactive)	.12	-.16
14. Gets others to gang up (teacher proactive)	.40*	-.15

Note. Sample sizes range from $N = 41$ to 100.

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

Table A8

Correlations between Gender and Age with Individual Peer- and Teacher-Rated Reactive and Proactive Aggression

	<i>Gender</i>	<i>Age</i>
1. Hit others (peer reactive)	-.16	-.05
2. Threaten others (peer reactive)	-.28**	-.00
3. Push others around (peer reactive)	-.16	-.00
4. Get mad and ignore (peer proactive)	.02	-.06
5. Keep others out of group (peer proactive)	-.01	-.02
6. Get even by keeping others out (peer proactive)	.11	.06
7. Teases and name calls (teacher reactive)	.07	.07
8. Starts fights with peers (teacher reactive)	.07	.01
9. Hits others when angry (teacher reactive)	-.02	-.06
10. Gets others in trouble (teacher proactive)	.12	-.11
11. Spreads rumors (teacher proactive)	.11	-.18
12. Keeps others from joining (teacher proactive)	.17	-.16
13. Gets others to ignore (teacher proactive)	.12	-.16
14. Gets others to gang up (teacher proactive)	.40*	-.15

Note. Sample sizes range from $N = 41$ to 100.

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

Chapter 5: Discussion

The purpose of this study was to examine social information processing patterns, particularly intentionality, associated with ethnic minority children's aggression. A primary goal was to address existing shortcomings in previous studies of social information processing including the limitations of favored measurement techniques and lack of peer reported measures of aggression. In addition, previous studies have failed to examine important variables such as subtypes of aggression, namely proactive and reactive, along with goal formation, a critical but overlooked social information processing step. Thus the present study utilized a variety of measures which examined social information processing patterns, explored the relationships among them, and examined whether or not they were differentially related to aggression and demographic variables.

Exploration of Aggression Measures

Factor analysis of peer and teacher aggression scales. As mentioned in the results chapter, prior to using the peer and teacher aggression nomination scales, exploratory factor analysis was conducted in order to determine which aggression variables loaded clearly onto two factors: Reactive/Overt and Proactive/Covert aggression. The terms "reactive and overt" aggression were paired together as were the terms "proactive and covert" aggression in the factor analysis due to the tendency for items on the covert scale to be more proactive and items on the overt scale to be more reactive. In addition, these terms are often paired together in a similar fashion within the aggression literature where overt and covert aggression have been referred to as aggression's forms, and reactive and proactive aggression have been referred to as

aggression's functions (e.g. Marsee & Frick, 2007; Brown, Atkins, Osborne & Milnamow, 1996). For the purposes of ease and clarity in the discussion chapter, "reactive/overt" aggression will henceforth be referred to as "reactive" and "proactive/covert" aggression will be referred to as "proactive". An interesting finding regarding reactive and proactive aggression is that the teacher sociometric ratings of aggression had more items load onto the two distinct factors, than did peer ratings. Specifically, ten out of a possible 29 teacher items were clearly distinct (five proactive and three reactive) compared with only six out of a possible 16 peer items (three proactive and three reactive). Perhaps teachers were better able to distinguish between forms of aggression amongst their students due to increased experience and maturity over peer raters.

Frequencies of teacher and peer aggression ratings. An interesting phenomenon for teacher ratings of aggression is the generally lower ratings for proactive sociometric items across classrooms. This trend translated to less variability of scores within each class resulting in z score distributions for two classes that were not useful. Therefore, there was a decrease in the number of z scores able to be calculated (N=41 for proactive compared with N=72 for reactive). One possible reason for this phenomenon is that the proactive aggression behaviors tended to be more behind-the-scenes and stealthy, and were therefore less obvious to teacher raters resulting in more cautious ratings. For instance, items on the proactive scale such as "students who get others to be angry at someone, ignore someone, or stop talking to them when angry" and "students who spread rumors or gossip about other children" would seemingly be difficult for a third-party rater to observe. A similar pattern of decreased endorsements for proactive aggression was not

found for peer raters perhaps because fellow students are more likely to be the victims or bystanders of such behaviors. In fact, for peer raters, there was a tendency for greater endorsements of proactive aggressive behaviors than of reactive aggressive behaviors; this finding is somewhat surprising given that proactive aggression tends to be more behind-the-scenes. One possible explanation for this surprising trend is that peer reactive aggression items tend to be more extreme behaviors i.e. “students who hit others” and “students who push and shove others” and as such, fewer classmates fit this description resulting in fewer endorsements of these items.

Agreement within and across aggression raters. The internal consistencies of both types of aggression i.e. reactive and proactive within teacher and peer informants are acceptable, above the cutoff of .70 indicating good reliability (Chronbach, 1951). There was much agreement within both peer and teacher ratings of aggression. For peer raters, aggression ratings of reactive and proactive were highly correlated ($r=.57$). For teacher raters, a similar pattern was apparent where aggression ratings of reactive and proactive were significantly correlated ($r=.39$). In addition, the BASC aggression subscale was correlated with teacher rated reactive aggression ($r=.269$) but not with teacher rated proactive aggression which is not surprising given that the BASC and reactive sociometric items similarly examine obvious aggression forms. Self reported constructs of aggression i.e. bully and victim behavior were highly correlated ($r=.53$) indicating that those individuals who view themselves as a bully also tend to perceive themselves as a victim. Likewise, those children who self-report pro-social, non-bullying behavior report low levels of victimization.

Consistent with other studies which have examined the inter-rater agreement and aggression of children using rating scales (e.g. Epkins, 1994; McEvoy, Estrem, Rodriguez & Olson, 2002) there was little agreement between peer and teacher ratings of aggression where peer-rated aggression types did not correlate with teacher-rated aggression types. Also notable is the different patterns of correlations for peer and teacher aggression ratings with social information processing categories on the TAT instrument which have important implications for how reactive and proactive aggression is conceptualized. (discussed later)

Little agreement between peer and teacher raters may be at least partly due to differing opportunities for teachers than peers to witness behavior. Specifically, teachers may be exposed to student behavior within their classrooms but not in other areas such as the playground, cafeteria, school bus and other non-classroom settings where peers may have an advantage in viewing student behavior. In addition, teachers and peers may have different definitions of what constitutes acceptable versus aggressive behaviors. Finally, students may display varying behaviors to their teachers and peers. For example, students may put on a good “show” with teachers and exhibit fewer aggressive behaviors than with peers in order to avoid negative consequences.

Relationship between the SIP Instrument and Aggression

According to Dodge and colleagues’ social information processing model (e.g. Dodge and Price, 1994; Dodge and Tomlin, 1987; and Crick and Dodge, 1994) when faced with a social situation, children will engage in five steps of decision making before responding to the situation. In previous research using Dodge and colleague’s SIP instrument, deficiencies at different steps corresponded with various subtypes of

aggression, namely proactive aggression and reactive aggression. Dodge and his colleagues cite schemas, or mental structures, as being responsible for any differences in social information processing patterns across individuals. It is these underlying schemas, then, that have been postulated to contaminate and thereby lead to deficiencies at the various SIP instrument steps. Lending support to this notion is a recent study by the SIP instrument author amongst others (Dodge, Laird, Lochman & Zelli, 2002) which used a structural equation model to demonstrate that SIP steps were generally related to teacher and parent-rated aggression only when a broader schema-personality variable (emotion understanding) was accounted for.

Past research using the SIP instrument has largely shown that a hostile attribution bias during ambiguous situations was positively correlated with teacher-rated reactive but not proactive aggression (Crick and Dodge, 1996). Based on this finding, the present study expected that only those children reported by their teacher and peers to display reactive aggression would interpret their peer's behavior as hostile when given a hypothetical ambiguous situation. In other words, comparable results to Crick and Dodge's study (1996) were anticipated since both studies used Dodge and colleague's SIP instrument, although importantly, Crick and Dodge's study only used teacher informants of aggression while the present study used both peer and teacher informants. As such, comparisons between Crick and Dodge's study (1996) and the present study will underscore teacher ratings, only. Whereas the present study similarly did not find proactive aggressors to exhibit a hostile attribution bias, it also did not find a hostile attribution bias for reactive aggressors when using the SIP instrument. This pattern was true for both peer and teacher ratings. A possible explanation for dissimilarities between

Crick and Dodge's study (1996) and teacher rated aggression in the present study is the age of study participants where the participants in the present study were younger than the participant ages for most studies which have found a connection between teacher and peer rated aggression and intent attribution (e.g. Crick & Dodge, 1996; Dodge & Tomlin, 1987). Specifically, Crick and Dodge's (1996) study participant ages have been fourth grade or older while the present study examined second and third grade social information processing patterns. Support for this explanation comes from a study by Dodge, Laird, Lochman & Zelli (2002) who examined children who were the same age as the present study's population (i.e. second and third grade), and also did not find significant correlations between hostile intention attributions and teacher/parent rated aggression. Other research has shown different social information processing patterns for 7, 9, and 12 year old boys based on age, such that the younger the child, the less able he was to distinguish intentionality (Shantz & Vogdanoff, 1973). Another possible reason for the dissimilar findings is the population studied, where previous aggression research has largely studied mostly male and extremely aggressive samples. Moreover, most research showing support for a link between SIP and aggression tended to be conducted on children who were either adolescent offenders (Slaby & Guerra, 1988) or who met DSM criteria for behavioral disorders (e.g. Matthys et al., 1999). It is expected that children who met these criteria would likely display more obvious acts of aggression as well as provide more pronounced responses on the SIP. In contrast, the present study took a cue from Dodge and Price's (1994) study which identified first, second, and third grade aggressive youth from a "normal" population of males and females using peer and teacher ratings scales and looked at their social information processing patterns. In

tandem with the present study, Dodge and Price (1994) also found weakened correlations for hostile interpretation biases with aggressive behaviors (i.e. $p < .10$) when a population similarly inclusive of varying aggression levels was studied.

The second SIP instrument component that has been examined in terms of its relationship to subtypes of aggression is outcome expectancies or how effective a child believes their proposed response will be during the hypothetical ambiguous situation. A previous study using the SIP instrument found that proactive aggressors perceive significantly more positive outcomes for their aggressive behaviors than reactive aggressors (Smithmyer, Hubbard & Simons, 2000). Given this finding, the present study similarly expected a significant relationship between outcome expectancies and proactive aggression where only proactively aggressive children were predicted to view their proposed aggressive responses as favorable. This expected finding was largely not supported where those children who were rated by both their peers and teachers as exhibiting proactive forms of aggression were not likely to perceive positive outcomes for their aggressive responses. A surprising finding was a modest but positive relationship between teacher rated reactive aggression (but not peer nominated) and perceived positive outcomes of aggressive responses ($r = .28$). Perhaps this pattern makes some intuitive sense in that covert aggression (which included the proactive items) by its very nature is “hidden” whereas overt aggression is “on display.” In other words, given the public nature of overt aggression displays, perhaps children feel more of a need to justify their openly aggressive behaviors as leading to positive outcomes.

Another possible explanation for the finding of only teacher-nominated reactive aggressors to perceive positive outcomes for aggressive responses is the sample studied.

In other words, Smithmyer, Hubbard, and Simons' (2000) widely cited study which linked proactive aggression with perceived positive outcomes sampled incarcerated boys ages 13 to 18, using detention center staff ratings of aggressive behavior. In comparison, the present study examined the social information processing patterns of second and third grade boys and girls who were rated for aggression by their peers, teachers, and self reports. The difference in sample ages may affect social information processing patterns since as children get older they have additional opportunities to respond to provocations and shape outcome expectations for their responses. It is also possible that the differential timing of the data collection had an effect on SIP and aggression relationship patterns where the SIP instrument data was collected at the beginning of the year while the aggression ratings were collected at the end of the year. In general, studies which examined aggression and social information processing did not explicitly discuss information pertaining to the time frame of data collection (e.g. Dodge & Price, 1994; Crick & Dodge, 1996) still there is no reason to believe that a time gap existed between measurements.

The present study attempted to extend existing research by evaluating SIP steps often overlooked in studies using the SIP instrument, namely the goal selection step. It seemed to make conceptual sense that a child who interpreted someone else's goals or intentions as hostile would want to respond in kind and therefore have a similarly hostile goal behind their own responses. This hypothesis, however, was unfounded and the child's goal selection was not related to their interpretation of another person's intentions on the scripted SIP instrument. One possible explanation for the tendency for SIP goal

selection to be unrelated to the interpretation step was the difference in the format for obtaining data about the various steps of information processing on the SIP.

The format for goal selection was forced choice and the format for interpretation was free response. Support for this possibility is suggested in the present study since there was a significant relationship between two SIP steps which are very similar in their formatting, namely interpretation and response generation ($r=.35$). Specifically, both interpretation and response generation are alike in that they require free, open-ended participant responses. Therefore it may be that open-ended items are more likely to correlate with other open-ended items. Conceptually, it makes sense that interpretation and response generation are related since the ways in which a person interprets a situation directly affects how that person would respond.

The SIP instruments' response generation step was also examined in the present study for its relationship to self-reported aggression where the two were expected to be related to one another since the SIP instrument functions, in a sense, as a self-report instrument. Results indicate that SIP response generation was correlated only with teacher rated reactive aggression ($r=.36$). This finding bears some parallels to a study by Crick & Dodge (1996) which also found a relationship between teacher reported aggression and hostile response generation on the SIP instrument. However because Crick & Dodge's (1996) study did not use peer or self ratings of aggression, the parallels between the two studies are limited. An additional study (Dodge, Laird, Lochman & Zelli, 2002) examined the relationship between social information processing with teacher and parent rated aggression and found a significant correlation between hostile response generation according to teacher but not parent ratings. Contrary to expectation,

response generation was not correlated with self-reported aggression. It is possible that children's social awareness impacted upon their responses where they may have felt it was less socially desirable to say they would react to a hypothetical situation in a hostile manner, and more socially acceptable to be forthcoming and admit to exhibiting aggressive behaviors when asked directly.

Social Information Processing as Measured by the TAT and the SIP

In an attempt to diversify traditional approaches to measuring social information patterns of aggression, the Thematic Apperception Test (TAT) was used in addition to the popular SIP instrument. Of note, there are many differences between these two instruments, some of which are known and some of which were anticipated.

The SIP instrument was designed to elicit separate and discrete social problem solving steps in a linear manner through direct questioning of a child about a hypothetical conflict situation. The SIP primarily measures reactive aggression since the instrument prompts for a child's reactions to an ambiguous but potentially aggressive action. The TAT, on the other hand, was designed as an open ended instrument allowing for greater flexibility and variation in examinee responses. As such, it is likely that the TAT is an authentic measure of a child's social information processing since the loosely structured format is likened to actual thought processes.

Overall, in the present study, the pattern of responses for SIP and TAT were very different and the two instruments were largely unrelated to one another, as was expected. In fact, out of nearly 100 possible correlations between the two instruments, there were only two. On the SIP instrument, social information processing steps were provided by children in a linear and highly differentiated fashion with minimal overlap due to

structured and orderly queries by the examiner. On the TAT, social information processing steps are “messier” where they were provided out-of-order, overlap with one another, and some steps were not provided at all given that the TAT provides general instructions to include feelings and thoughts and outcomes, allowing the narrator to posit connections (such as between actions and outcomes) on their own. Responding to encounters that are minimally structured mirrors how children face everyday situations in real life.

It is likely that the TAT and SIP actually measure different aspects of social information processing despite a surface similarity (such as their measurement of hostile intentions) where the SIP instrument can be considered an ‘explicit’ measure, which like a self-report assesses aspects of personality of which a person is aware whereas the TAT instrument is an ‘implicit’ measure, which assess aspects of which a person is unaware (Frost, Ko & James, 2007). The tendency for the TAT to have more significant correlations with proactive than reactive forms of aggression, as rated by teachers, confirms that the TAT is actually measuring more hidden or covert aspects of aggression of which a person may not be aware. Meanwhile, the tendency for the SIP instrument to have more significant correlations with reactive than proactive forms of aggression, as rated by teachers, likewise confirms that the SIP is actually measuring more obvious or overt aspects of personality of which a person is aware.

In summary, in the present study the social cognitions derived from the TAT were related to teacher ratings of proactive but not reactive aggression. On the other hand, teachers tended to rate students as exhibiting reactively aggressive behaviors more often than proactive aggression. It may be that teachers were more cautious raters of proactive

displays of aggression but when they did pick up on proactive behaviors, these behaviors were related to the TAT.

Schema organization, complexity, and aggressive social cognition. Less accurate, less complex, and less organized schemas, as measured by the TAT, were expected to be related to aggressive social cognitions on the SIP instrument. Despite the fact that relationships between the TAT and SIP instrument have never before been examined, this finding was anticipated since poorly organized schemas would likely take needed resources away from social information processing. In other words, if an individual is not able to recognize and account for tensions, feelings, or relationships when presented with a stimulus, it makes sense that they would not effectively use social information processing steps. The authors of the SIP instrument also hypothesized that aggressive children's schemas would influence social information processing steps on their instrument, but did not formally examine this relationship (Crick and Dodge, 1994).

Somewhat surprisingly, there were no significant relationships found between social information processing on the SIP instrument and the organization of schemas as measured by the TAT. Perhaps no relationships were found because the SIP instrument's format organizes social cognitions for children by explicitly pulling for recognition of tensions, feelings, and relationships. Therefore, individuals who would otherwise have poor schema organization on an everyday basis are provided the structure and framework needed for appearing organized on the SIP. In addition, it is possible that the differing formats of the highly structured SIP instrument (i.e. maximal performance condition) and less structured TAT instrument (i.e. typical performance condition) influenced their lack of relationship with one another.

Intentionality on the TAT and SIP instrument. In the present study and in line with the SIP instrument's conceptualization, "intentionality" was considered to consist of both intention attribution and goal formation. In other words, for SIP step two the intention attributed to a provoker is believed to lead directly into SIP step three, where one's own intentions influence their goal formation behind a response (Dodge, 1980). For instance, if a child perceives someone bumping into them as intentionally hostile, he or she may similarly intend harm in their response. The present study examined differences between the SIP instrument and TAT in capturing intentionality where fewer children were expected to provide information about intent attribution and goal formation on the TAT than the SIP since only the SIP queries directly for this information.

One major and expected finding in this study is that the majority of children do not spontaneously verbalize the intentionality behind a provocation (intent attribution) at all without prompting when sizing up a problematic social situation (i.e. only 11% provided an intent attribution for the provocation across the five TAT cards). This finding is important as it calls into question the true influence that hostile attribution biases actually have on children's aggression. While Dodge and Colleagues have found enough evidence to consider the relationship between hostile attribution and aggression to be causal (Crick and Dodge, 1994), they have done so using only their SIP instrument which, as previously stated, specifically prompts examinees to state whether or not an intention behind a provocation is hostile while assuming that intentionality is present. When intentionality was spontaneously verbalized, the majority of these intention attributions were hostile (i.e. of the 11% of children who spontaneously provided intent attributions, 71% of these are hostile). For the majority of children who did not

spontaneously provide an intent attribution but assigned the everyday dilemma to be due to other's hostile actions, most believed the situation to be due to an accident or no reason. An exception to this tendency is with TAT card 8 which "pulls" for consideration of hostility. In other words, card 8 includes a figure in the background with an object in his hand, standing over another figure who is lying down. For TAT card 8 only, there were almost equal numbers of study participants who did and did not perceive the pictured dilemma to be due to the hostile actions or to a lesser extent, hostile intentions of another. In general, without the explicit prompting that occurs on the SIP, it appears that intentionality may not play such a prominent role in social information processing and aggression.

Goal formation, a previously overlooked social information processing step, was spontaneously provided more frequently than intent attribution on the TAT (i.e. 68% provided a goal across the five TAT cards). In other words, in an everyday scenario such as if child 1 bumps into child 2 on the playground, child 2 isn't likely to consider what child 1's intentions were when he or she bumped into them. Instead, child 2 is more likely to form their own intentions or "goals" behind their response to being bumped into; on the TAT, the goal was often short-term and non-hostile. Specifically, the goals behind responses tended to be to gain relief from an adverse state or to gain something positive. Equally likely was the possibility that children will impulsively react to a potentially aggressive act without first taking the time to consider their own goals behind responses. An example of a TAT story given by a study participant that *does not* consider the intention of a provoker, but *does* include a goal behind response to a provocation is

provided below. First, some background: The TAT card depicts a woman looking at a man who is turned away from her.

“This is a love story and he’s about to go away but she doesn’t want him to go away and she feels sad that he’s going away and she’s thinking that she wants to go find somebody else. (Examiner: how does your story end?) She never sees him.”

A significant relationship was initially expected between the “intentionality” steps (i.e. intent attribution and goal formation) on the TAT and the SIP instrument where a failure to spontaneously provide intent attribution and goal formation within a TAT story was expected to significantly correlate with a hostile intent attribution as measured by the SIP instrument. The rationale behind this hypothesis was that a failure to consider such important information when encountering a social situation would suggest a tendency to react based on impulse alone (i.e. act without thinking). By extension, a reactive style was thought to relate to aggressive social information processing patterns by way of hostile attribution biases on the SIP. Interestingly, a significant relationship was not found between either TAT intentionality steps with SIP hostile attribution. A possible explanation for no relationship may be the lack of significant correlations found elsewhere in this study for the SIP instrument’s hostile attribution step with aggression. In other words, in this study, having a hostile intention attribution on the SIP was not synonymous with being aggressive. It may be, then, that the absence of TAT intentionality steps better correlates with actual peer and teacher ratings of aggression.

Relationship between the TAT Instrument and Aggression

In contrast with the SIP instrument which primarily pulls for reactive aggression, the TAT presents truly ambiguous situations that pull for neither proactive nor reactive aggression. As a result, the TAT was expected to reveal some important distinctions between the two subtypes of aggression that had not yet been explored. Specifically, it seemed to make conceptual sense that inaccurate perception of others' intentions as hostile on the TAT would be strongly linked with reactive aggression. For proactive aggression, a significant relationship was not expected. This pattern was anticipated given the preceding research which revealed a strong relationship between childhood reactive aggression and hostile attribution biases (Crick & Dodge, 1994) and no significant relationship between childhood proactive aggression and hostile attribution biases (Crick & Dodge, 1996). Interestingly, the hypothesis was only partially supported where as expected, hostile attribution biases on the TAT were significantly related to reactive aggression as rated by peers ($r=.23$); an unexpected finding was that hostile attribution biases were also significantly related to proactive aggression as rated by peers ($r=.24$). Given that the few studies which examined proactive aggression and intent attribution biases were conducted using Dodge and Colleagues' SIP instrument, which as mentioned previously focuses primarily on reactive aggression and often uses only teacher informants for aggression, different findings for proactive aggression using a different instrument may not be surprising. Perhaps, too, the strong correlation that has been found to exist between proactive and reactive forms of aggression ($r=.845$, according to Gocool, 2006) influenced the similarity between both forms of aggressions' relationship with hostile attribution biases (Price & Dodge, 1989). For instance, it is

possible that some forms of proactive aggression are a delayed reaction to an earlier episode such as when one child teases another as a reaction to being picked on earlier by a peer.

Another expected difference between aggression types concerned the second part of intentionality i.e. goal formation or in other words, the goal or purpose behind the reaction to an identified problem or intention of “others.” The hypotheses formed regarding this often neglected social information processing step were largely based on common sense and intuition rather than existing research, since this important step has not been studied. For reactive aggressors only, responses to a pictured dilemma on the TAT were expected to be centered upon self-defense through a similarly hostile action and/or upon removing adversity. This expected pattern was based on the premise that reactive aggressors would be significantly likely to hold hostile attribution biases. In other words, when one perceives that other individuals or situations are intending to harm him or her, a “natural” reaction is to respond in kind (i.e. in a hostile manner) and be on the defensive with particular concern for self-preservation. The present study lent support for this expected pattern where reactive aggression as rated by peers was significantly related to having a hostile intent or goal behind reactions to a dilemma ($r=.42$).

Interestingly, proactive aggressors as rated by peers also held similar goal formation patterns where the goal behind their actions was significantly related to hostility ($r=.43$). Though unexpected, this pattern is not surprising given the present study’s findings of similar hostile attribution biases for both aggression types on the TAT. In other words, since both types of aggressors are likely to perceive the intentions of others and situations

as hostile, it makes sense that both aggression types as rated by peers would respond in kind with a similarly hostile goal.

The goals behind the actions of proactive aggressors', on the other hand, were expected to be clearly present and instead of promoting self-defense, they were hypothesized to be instrumental in meeting some pre-determined goal. In other words within a TAT story, the purported actions of a proactive aggressor were expected to be incongruent with story outcomes where negative actions would yield positive outcomes. This pattern, then, was expected to follow Crick and Ladd's (1990) study findings which revealed that aggressive third and fifth grade children tend to anticipate more positive instrumental and interpersonal outcomes from their aggressive responses than do non-aggressive peers. Overall, this pattern was replicated in the present study where only teacher-rated proactive aggression was related to outcomes congruence, though only on two individual TAT cards. For the two cards, similar to Crick and Ladd's study (1990), hostile and aggressive goals behind proactive actions were perceived as bringing about a positive conclusion to a problem. Moreover, proactive aggression had a greater number of significant correlations with a goal or aim of seeking something positive or instrumental, than did reactive aggression ($r=.38$ for total score).

In summary, it appears that proactive aggressors like reactive aggressors, are likely to have hostile intentions behind their own actions. Unlike reactive aggressors, however, proactive aggressors are somewhat less likely to use these hostile goals to seek self-preservation and more likely to use hostile goals to attain a pre-determined, positive, and instrumental outcome. This pattern was expected to occur in the present study.

Gender and the Relationship between Social Information Processing and Behavior

Gender differences were not expected to play a role in the relationship between social information processing (as measured by the SIP and TAT) and socially competent behavior (as rated by peers, teachers, and self). This pattern was expected given the similarities between the present study's sample population with the "normal" population examined by Dodge and Price (1994) which found no gender differences, although the researchers looked at gender primarily in terms of its interaction with age. As hypothesized, no overall differences on account of gender were found when social information processing was measured using the TAT. On the other hand, gender differences were found when the SIP instrument was used to measure social information processing; these differences will be discussed later.

Different results for gender based on instrument may occur because the TAT and SIP instrument are actually measuring two different aspects of personality. A recent study examined measurement in relation to personality variables which underlie aggression. The authors (Frost, Ko & James, 2007) posited and confirmed that implicit personality relates differently to aggression than does explicit personality, however they contend that only explicit personality tends to be measured in current literature, oftentimes through self-report methods. As a result, implicit aspects of personality tend to be under represented which is unfortunate given that implicit aspects are less influenced by social desirability than explicit aspects. As discussed earlier in this chapter, an example of an implicit measure of personality is the TAT instrument, whereas the SIP instrument can be considered an example of an explicit measure of personality.

In previous studies which have examined relationships between explicit and implicit measures of personality, the two measures have often predicted very different behaviors (e.g. Bornstein, 2002; McClelland et al., 1989). Perhaps, then, a desire to appear socially desirable on the SIP instrument differentially influenced how boys and girls responded, but in unexpected ways. In other words, in the present study girls differed from boys in their response generation choice on the SIP where girls were more likely than boys to select aggressive responses to a hypothetical situation ($r=.32$). This may be influenced by the SIP instrument's scoring of retaliatory physical (or overt) and relational (or covert) aggression the same where one is not viewed as a more aggressive response than the other. So, for example, regarding a hypothetical SIP situation in which two students are playing catch and one student is hit by the ball, a stated response to being hit by the ball of "I would punch the student who threw the ball" would receive the same score as "I wouldn't be that student's friend anymore". So while girls were more likely than boys to select aggressive responses on the SIP, it is unclear which type of aggressive response they endorsed although existing research would suggest that girls are more prone to relational and covert aggression than are boys (e.g. Crick & Grotpeter, 1995; Crick et al, 1996; Hyde, 2005) while boys are more prone to physical aggression (e.g. Crick et al, 1996; Hyde, 1984). Support for the possibility that sampled girls were more prone to relational aggression is evident via this study's findings of a significant relationship between being female and exhibiting proactive forms of aggression such as "getting others to gang up on a peer", according to teacher ratings ($r=.22$). On the other hand, sampled boys were more prone to reactive aggression such as "tells others they will beat them up unless the kid does what they say", according to peer ratings ($r=-.23$). In

fact, gender differences for aggression types were so apparent that being male is a significant predictor of reactive aggression according to peer raters, while being female is a significant predictor of proactive aggression according to teacher raters. Finally, gender differences were found for an additional self-report scale which is less veiled than the SIP instrument. That is, sampled boys were more likely than girls to self-report bullying behaviors on the Bullying Behavior Scale ($r=.32$); again, the relationship between gender and self-reported aggression is strong enough where being male is a strong predictor of self-reported bullying. This pattern is in line with a study which examined middle school students and found more self-reported bullying for males than females, using the same instrument (Espelage & Holt, 2001).

In summary, it appears for the current study that boys and girls held similar implicit social information processing patterns, however the explicit expression of these patterns may have differed somewhat possibly due to what is considered socially acceptable behavior where females expressed their aggression in hidden covert ways such as orchestrating conspiracy, while males were more physical and openly overt in their expression of aggression. Differences for gender, then, may have followed the channeling hypothesis (Winter et al, 1998) which suggests that implicit aggression is channeled in accord with how the person wants to represent the self. So, it may be that there are not gender differences per se in the amount of aggression experienced, but in the way that aggression is expressed. Lending support to this notion is the current study's lack of gender differences for aggression on the TAT, an implicit measure which is generally immune to awareness regarding self representation.

Age and the Relationship between Social Information Processing and Behavior

The relationship between age differences and social information processing was explored, although formal hypotheses were not posited given the very small difference amongst participant ages (i.e. 7-9 year olds). Still, there were a few expected patterns for age based on existing literature which were supported. Specifically, as found in Dodge and Price's (1994) study of a "normal" population of 6-9 year olds, older age was significantly related to overall improved functioning on SIP steps 2 and 4 suggesting that older children had fewer endorsements of aggressive responses than did their younger counterparts ($r=-.21$). Interestingly, on the Bullying Behavior Scale a less veiled instrument than the SIP, older children tended to self-report more bullying behaviors than did their younger counterparts ($r=-.23$). Perhaps, older children more closely identified with being a bully because with maturation in age comes an increased tendency for bullying to be socially acceptable amongst peers (Espelage, Bosworth & Simon, 2001) and to enhance within-group status and popularity (Pellegrini, Bartini & Brooks, 1999). As such, it is possible that older children when compared with younger children perceived greater social desirability associated with self-disclosing bullying behaviors in a forthcoming manner on the Bullying Behavior Scale. Perhaps a similar trend was not evident on the SIP because its query for bullying behaviors is less obvious.

On the TAT, older age was significantly related to more adaptive schemas for general processing variables such as relationships ($r=.30$) and self-regulation ($r=.32$) indicating that with maturation comes an improved ability to accurately consider how people are viewed as individuals and how they are connected with others. In addition, age translates to an improved ability to self-monitor behavior, be pro-active in meeting goals,

and take into consideration inner-values, societal expectations, and external cues when working to attain goals. Also on the TAT, but for variables which align with the SIP instrument, the presence ($r=.32$) and congruence ($r=.35$) of actions and outcomes improves with age. So in other words, as children mature their actions tend to become more planned, as well as more aligned with the perceived outcomes of their actions where negative actions should result in negative outcomes and vice versa. Such patterns were expected to occur since as Teglasi, Cohn & Meshbesher (2004) pointed out as children mature schemas should become increasingly complex. An increased schema complexity, then, may curtail the likelihood of reactive and uncontrolled thoughts and actions.

Interestingly, age did not have an impact on peer and teacher ratings of aggression where similar types and rates of aggressive behaviors were reported for older and younger study participants. This pattern, then, differed from that found in the Baltimore Prevention Trials study (1994) which studied grades one through seven of inner-city Baltimore schools and revealed increased aggressive behaviors with age when compared with research which studied populations from a higher socioeconomic status (SES). A difference between the Baltimore Prevention Trials study with the present study which may help to explain different findings concerns the study sample demographics where the current population is of a mixed socioeconomic status (SES) and suburban contextual environment while the Baltimore Prevention Trials population was of a low SES and inner city contextual environment. Support for this proposed explanation of different findings comes from a study which evaluated the effects of environmental context on inner-city 5th graders and revealed that perceived neighborhood danger was associated

with strong positive beliefs about aggression which in turn was associated with high levels of aggression (Colder, 2000). In addition, low socioeconomic status was found to be negatively correlated with several factors such as exposure to aggressive adult role models, family life stressors, and peer group instability, which in turn predicted preschool to third grade children's aggressive behavior as rated by teachers (Dodge, Petit & Bates, 1994).

The Prediction of Aggression

In order to better identify social information processing patterns that are unique to aggressive children it is essential that we understand which tools best help us uncover this information. To this end, the TAT and SIP instruments were used to predict aggression according to peer and teacher ratings. Importantly, only those variables which were shown to be significantly related to one or more aggression types were explored since it is these significant variables which are likely to predict aggression. Because they did not have any significant relationships with peer-rated aggression, no SIP instrument variables were further explored. For teacher-rated aggression, the only SIP instrument variable able to be used for prediction purposes was SIP response generation as pertains to overt aggression.

A major and expected finding of the current study was that overall the TAT instrument was a better predictor of both aggression types than was the SIP instrument, although the SIP instrument's response generation predicted teacher-rated reactive aggression (discussed later). Differences in aggression prediction, was expected given that the SIP instruments more overtly measures responses whereas the TAT is a more covert measure (what is being assessed is less evident to the respondent). As such, it was

hypothesized that the TAT would better predict actual aggression as seen through the eyes of others (but not on self-ratings). In addition, the TAT captures those personality/schema variables such as emotion understanding which were recently found to largely account for the significant relationships found between SIP instrument steps and aggression (Dodge, Laird, Lochman & Zelli, 2002).

The prediction of reactive aggression. When predicting the occurrence of overt/ reactive aggression, study results show goal formation to be a useful social information processing step when measured by the TAT. In other words, when faced with a problem a reactively aggressive child's intention or goal behind their response to that problem will likely be hostile as seen in the following example, "the boy hoped she would trip so she knew how he felt." In addition, when aggression is rated by peers, the goal or aim of an aggressive child's response will often be to gain relief or to gain something positive. As such, children's TAT responses can be evaluated in terms of the hostility and aim of their stated goals in order to predict aggressive behavior. Performance on the SIP instrument's response generation step is another powerful predictor of reactive aggression, as rated by teachers, where reactively aggressive children tend to provide aggressive responses to a hypothetical situation. When considering overt and obvious displays of aggression, it may be that the TAT effectively captures the more concealed aspects of social information processing (i.e. goals behind responses) while the SIP instrument captures the more apparent aspects (i.e. the responses themselves). The differences between how the measurement instruments predict aggression falls in line with the notion that the TAT is an implicit measure while the SIP can be considered a type of explicit measure (Frost, Ko, & James, 2007).

The prediction of proactive aggression. Even more than was the case with reactive aggression, goal formation is a powerful predictor of proactive aggression (as rated by peers) though only when measured by the TAT. Again, the aspects of goal formation found to be predictive of aggression were whether or not the goals behind responses were hostile, as well as whether the goal's aim was to gain relief or attain something positive. When predicting proactive aggression according to teacher ratings, only the congruence between actions and outcomes as measured by the TAT approached significance. In other words, proactively aggressive children tended to have some incongruence between their stated actions and outcomes on the TAT. So, for example, proactively aggressive children may perceive their negative responses as leading to a positive outcome such as the following taken from TAT stories used in the present study, "she pushed him and won the fight", or their positive responses leading to negative outcomes such as the following, "the boy practiced the violin but still couldn't play." There were no SIP instrument variables found to be significant predictors of proactive aggression. Overall, then, the SIP instrument was a less powerful predictor of proactive aggression for the young children who participated in the current study; the TAT was the more powerful predictor of proactive aggression.

On the whole, when comparing the prediction models of reactive aggression with proactive aggression, it appears that similar social cognitive variables (i.e. those that include hostility) predict both types of peer-rated aggression. For teacher-ratings of aggression, the social cognitive variables are differentially related to reactive and proactive aggression. Specifically, for teacher ratings, reactive aggression relates to hostile content on both the SIP and TAT, while proactive aggression relates to the

organizations of cognitions about relationships and the connections of actions and outcomes. In general, peer rated aggression may be more “sensitive” to social cognitions about hostility since peers are likely the victims, perpetrators, or bystanders of hostile aggressive acts. On the other hand, when teachers provide ratings of aggression, they may be somewhat “sensitive” to hostile social cognitions behind reactive and obvious aggressive acts. Because teachers bring maturity and expertise to their ratings of aggression, their ratings may be more “sensitive” to the less obvious global cognitions behind proactive aggression which by its very nature tends to be more cerebral and complex (Fontaine, 2008).

The prediction of general aggression. In addition to being the stronger predictor of both reactive/overt and proactive/covert aggression, the TAT is also the stronger predictor of a more general conceptualization of aggression. That is, of aggression as conceptualized by the BASC instrument as well as self-reports of bullying and victimization.

The Behavior Assessment System for Children (BASC) is a widely used, standardized instrument upon which teachers provide general ratings of each student’s aggressive behavior. That the TAT is also predictive of aggression on this respected instrument is compelling evidence of the predictive power of the TAT. Specifically, poor self-regulation on a certain TAT card which requires much self-monitoring due to competing stimuli is predictive of aggressive behavior. Additionally, hostile intention attributions behind the situation or actions of others on a TAT card which seemingly “pulls” for hostility, predicts aggression.

Given that the SIP instrument can be considered a type of self-report because it measures explicit aspects of aggression, or those aspects of which a person is aware, the present study hypothesized that the SIP instrument would be more predictive of self-reported aggression than the TAT. Interestingly, this was not the case and the TAT was the better predictor of self-reported aggression. Specifically, a poor conceptualization of relationships on one TAT card was a significant predictor of self-reported bullying behavior. For victimization, only TAT goal formation was highly predictive where a tendency for one's own goals behind actions to be hostile significantly predicted identification of oneself as a victim. This pattern is interesting and fits in with existing research which suggests that self-rated bullying and victimization for elementary school-aged children often overlap and co-occur ($r=.46$, according to Marsh, Parada, Craven and Finger, 2004). Specifically, many studies have shown that children who frequently self-identify as being a victim of bullying are more likely to exhibit hostile behaviors and to eventually bully others (e.g. Harachi, Catalano & Hawkins, 1999; Ma, 2001). Moreover, the correlations between bully and victim factors also tend to become larger over time (Marsh, Parada, Craven and Finger, 2004). One postulated reason for the link between self-reported victimization and bullying behavior is that bully-victims often have specific temperamental characteristics such as high reactivity to challenging or threatening situations which can translate to impulsive aggressive reactions and bullying behaviors. (e.g. Teglasi & Epstein, 1998; Olweus, 1999).

General Discussion and Implications for Future Research

There are several important implications of these findings for future research and intervention. First, the Thematic Apperception Test (TAT) has been shown to be a highly

useful instrument for predicting the occurrence of aggression according to peer, teacher, and self respondents. Importantly, the TAT seems to measure the more implicit aspects of aggressive personalities, or those portions of which an individual is not aware. This is truly an added benefit of the TAT since implicit measures are less susceptible to problems of social desirability than are explicit measures, such as self-reports and by extension, the SIP instrument. As such, the TAT provides the means to accurately assess children's social cognitions while informing intervention efforts.

On the other hand, previous research which found significant relationships between the SIP instrument and social information processing patterns were not replicated with this study's younger participants suggesting that the SIP should not be the only instrument used when assessing the social information processing patterns of younger children who are aggressive. Given that the cognitive processing patterns of young children between the ages of 6 to 8 are shown to be critical predictors of present and future aggressive behavior (Dodge & Price, 1994) coupled with the current educational climate which places emphasis on prevention as the key to improving aggressive behaviors, early detection is essential. In addition, it may be the case that the SIP is not the best instrument for distinguishing between generated reactive and proactive aggression responses to a hypothetical situation since the instrument scores verbal, physical, and relational aggressive responses as being equally aggressive. This lumping together of aggression types may produce misleading results such as found within the present study which perhaps erroneously found increased aggressive responses for females versus males.

Despite some proposed shortcomings of the SIP instrument within the current study, it is likely the case that future use of both the TAT and SIP instruments together can enable the field to better understand the differences between aggressive children's implicit and explicit personality aspects. Also, the SIP can provide important information about those external aspects of aggression and personality which are influenced by social desirability, while the TAT can serve as a measure of internal facets of personality and aggression (Frost, Ko, and James, 2007). For instance, how do aggressive children report that they would react (on the SIP) and how does this compare with their implicit tendencies (on the TAT)?

Second, through the use of the TAT in the present study, important information about the social information processing patterns of aggressive children has been uncovered which bears important treatment implications. Specifically, as anticipated the intentionality aspects of social information processing have proven to be critical problem solving steps associated with aggression. Previously, based on research on aggression using Dodge and colleagues' SIP instruments, it was believed that interventions for treating aggressive children would differ depending on whether those children were proactive or reactive aggressors. Specifically for reactively aggressive children, recommended treatment focuses on changing the way a child inaccurately perceives the intentions of others as automatically hostile. This treatment is usually not recommended for proactively aggressive children because prior research using the SIP instrument has shown that these children do not inaccurately perceive others' intentions as hostile (e.g. Dodge, 1980; Pepler & Rubin, 1991). However, according to the present study's TAT responses, both proactive and reactive aggressors held implicit hostile attribution biases

that may be targeted by interventions. As such, interventions that address hostile attribution biases are pertinent to both types of aggressive children. For instance, children may benefit from observing, reading, and/or discussing hypothetical scenarios involving an ambiguous provocation with a trained adult and possibly their peers. Children should also be explicitly taught to stop and consider the intentions behind another person's actions before reacting to them since the present study suggests that most children do not automatically assign intentionality when faced with a social dilemma.

In addition to Intent Attribution, the other aspect of "intentionality" or Goal Formation, a previously overlooked social information processing step, serves as another important target for intervention. Specifically, on the TAT those few children who do spontaneously verbalize the intentions of others and perceive these to be hostile, tend to respond in kind where their own goals behind actions are similarly hostile. Not surprisingly, these children were perceived by their teachers and peers as exhibiting aggressive behaviors which past studies have shown can lead to peer rejection, poor school motivation, and juvenile delinquency (Raine et al., 2006). It is essential, then, that interventions address both sides of the "intentionality coin," that is, that interventions address both intention attributions and goal formation. For example, interventions such as the STORIES program (Teglasi & Rothman, 2001) can be used to explicitly teach children to first consider the intentionality of others and then to consider their own intentions and goals to formulate a response which meets prosocial goals when faced with a conflict situation involving others.

When considering study findings, it is important to take into account the studied population. Specifically, the study participants were mostly of an African-American and

to a much smaller extent, Latino ethnic descent. Given that some of the measures used in the present investigation, including self reports of bullying and victimization, were created using samples of primarily Caucasian British children, their utility with American ethnic minority and urban populations remains unknown (Austin & Joseph, 1996). Another important consideration concerns the racially homogenous environment in which the investigation data was collected. For example, McGlothlin and Killen (2006) found that White children attending a school of homogeneous race composition displayed a racial bias when attributing intentionality to a hypothetical scenario, while White and non-White children attending a heterogeneous school largely displayed no such attribution bias. This and other findings demonstrate the import of one's contextual environment upon attribution biases. Future studies may do well to compare current results with similar data from a racially heterogeneous setting to determine the potential influences of ethnicity as well as context on social information processing patterns and aggression.

An additional important consideration regarding the studied population is their socioeconomic status which was mixed where approximately half of the participants qualified to receive free/reduced lunch based on their household income. Most studies which have investigated the relationship between social information processing and aggression have not reported the socioeconomic status (SES) of their sample while those that have, produced results which were contrary to prior literature. Specifically, for students from a predominately low SES background, increased aggression rates were evident for both boys and girls (Baltimore Prevention Trials study, 1994) as were increased hostile intention attributions for both aggressive and non-aggressive children

(Pettit, Dodge & Brown, 1988. For the presently studied population, an observed tendency is a fair amount of social cliques and groupings based on socioeconomic status, which may have impacted upon the types of aggression displayed. For instance, the most frequently peer-nominated aggressive behaviors “keeping certain people from being in their group when it is time to do an activity” and “when mad at a person, getting even by keeping that person from being in their group of friends” are forms of proactive aggression which tend to occur with cliques. In short, it is likely that socioeconomic status may have played a role in the present study findings, some of which were contrary to prior literature; however, SES factors were unable to be examined due to privacy concerns for the studied group. Future studies, then, would do well to examine the influence of ethnicity and socioeconomic status on the social information processing patterns of aggressive children.

Finally, current study results should be considered in light of their being collected at various points during the school year (i.e. in the fall and/or in the spring). As such, future studies should collect both aggression and social information processing data at the end of the school year since peers and teachers likely become more accurate raters of children’s behaviors after they have known them for a year. In addition, students evaluated at the end rather than the beginning of the school year would have been older, and with increased age comes improved social information processing patterns (Dodge & Price, 1994; Shantz & Vogdanoff, 1973).

Despite these limitations and considerations, the differences between the TAT and SIP instrument in capturing the social information processing patterns associated with aggression has important implications for both research and practice. As anticipated, both

aspects of intentionality, that is intent attributions about past actions and intentions in forming goals for current actions, have emerged as critical components of the conceptualization and intervention of childhood aggression. In addition, the usefulness of using both implicit and explicit measures of aggression, as well as an array of informants for aggressive behavior has been demonstrated. Most of the existing research examining social information processing patterns and aggression use only explicit measures of aggression, such as the SIP instrument, and predominately use only teacher and self ratings of aggression (not peer). However, in the present study, important differences between teacher and peer ratings of aggression were observed where teacher covert, only was linked to the TAT instrument whereas peer ratings were similar across aggression types. Given the low correlation that exists in the present study, it is likely that the teacher and peer raters tended to identify different individuals as reactively and proactively aggressive, thereby underscoring the importance of including both raters so that both aggression types are captured. Lending support to the notion of increased complexity in aggression research, a study by Dodge, Laird, Lochman & Zelli (2002) examined how social cognitive factors relate to child aggression and similarly concluded that the assessment of multiple distinct, social cognitive patterns are needed in order to better understand multidimensional aspects of aggression.

Additional research using larger sample sizes are needed to further explore the relationship between demographic variables such as age, gender, socioeconomic status, and ethnicity on aggressive social information processing patterns. In addition, larger samples will enable groups to be split according to level of aggressiveness in order to enable comparisons between the social information processing patterns of aggressive and

non-aggressive youths. Also, in the present study teacher-rated covert aggression was not fully tested because of the small numbers that resulted when z scores were calculated to control for within class variables. A larger sample size will allow for within class variables to be controlled for, while enabling the testing of other variables such as gender, ethnicity, and age differences associated with different types of aggression as rated by different informants. Finally, future studies should compare the results of implicit and explicit measures of personality such as the TAT and SIP in order to substantiate the unique contributions of each as well as investigate the self-awareness of aggressive children and how this relates to future adjustment.

Appendix A

Measurements Table

	<u>Aggression</u>	<u>Social information processing</u>	<u>SIP variables in context of TAT</u>	<u>General schemas in TAT</u>
Teacher	<p>BASC: Aggression subscale (Reynolds & Kamphaus, 1992) <i>*T-scores ≥ 65 correspond with higher levels of aggression</i></p> <p>Sociometric: Teacher Rating Scale for Aggressive Classroom Behavior (Dodge & Coie, 1987) <i>*Teachers rate each student for aggressive behaviors on scale of 1-5 with higher ratings indicating higher levels of aggression; reactive aggression items transformed into Z scores and proactive aggression items presented as both raw scores and Z scores</i></p>	<p>The Listening Test (Barrett et al, 1992) <i>* Standard score calculated which yield a total listening ability score, as well as five subscale scores.</i></p> <p>Social Information Processing Instrument (SIP) Home Interview with Child (Crick and Dodge, 1994) <i>* Intent Attribution – binary coding with (1) as non-hostile intent and (2) as hostile intent</i></p> <p><i>*Response Generation – higher scores depicted higher levels of aggression</i></p>	<p>Thematic Apperception Test (Murray, 1943)</p> <p>SIP Step Two: Intent Attribution <i>*coded using a 3-point and 2-point scale depicting presence and attribution of intent (i.e. hostile?)</i></p> <p>SIP Step Three: Goal Formulation / Intentions <i>*coded using a 3-point, 2-point, and 3-point scale depicting the presence of a goal, hostility of a goal, and aim or purpose of a goal/reaction</i></p> <p>SIP Step Four & Five: Actions and Outcomes <i>*coded using a 3-point, 3-point, and 2-point scale depicting the presence of actions, congruence of the outcome, and valence of projected outcome. In other words, the link between any character's actions and the story's outcome</i></p> <p><i>For most TAT categories: Higher point value depicts more adaptive schemas. The exception is hostility—with (1) no hostility and (2) hostility</i></p>	<p>Thematic Apperception Test (Murray, 1943)</p> <p>Perceptual Integration (Teglasi, 2001) <i>*coded using a four-point scale to indicate degree of perceptual integration.</i></p> <p>Emotion (Teglasi, 2001) <i>*coded using a four-point categorical scale arranged in a continuum of categories depicting sources of affect; coded using a three-point scale to indicate coping with affective tension</i></p> <p>Relationships (Teglasi, 2001) <i>*coded using a five-point scale depicting levels of relatedness</i></p> <p>Self-Regulation (Teglasi, 2001) <i>*coded using a five-point scale depicting levels and sources of information processing and behavior</i></p> <p><i>For all TAT categories: Higher point value depicts more well-developed and adaptive schemas</i></p>
Peer	<p>Sociometric Nominations Crick & Werner, 1998; Perry, Kusel & Perry, 1988) <i>*Tallies of nominations calculated and transformed into Z scores with higher scores indicating higher levels of aggression.</i></p>	<p>Things That Happen to Me (Crick and Dodge, 1994) <i>*Goal Selection – choice of 3 items on a continuum of categories with 1 as the most desirable and 3 as the least desirable goal</i></p> <p><i>*Response Evaluation – binary coding with (1) as non-aggressive response and (2) as aggressive response</i></p>		

Self	<p>Peer-Victimization Scale (Austin & Joseph, 1996) <i>*higher scores correspond with lower levels of victimization</i></p> <p>Bullying-Behavior Scale (Austin & Joseph, 1996) <i>*higher scores correspond with more adaptive functioning; lower scores correspond with more bullying behaviors</i></p>			
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Appendix B

Time 1 and Time 2 Measures

<u>Time 1 Measures</u>	<u>Time 2 Measures</u>
The Listening Test	Self-Reported Aggression <ul style="list-style-type: none">• Peer-Victimization Scale• Bullying-Behavior Scale
Social Information Processing Instrument (SIP) <ul style="list-style-type: none">▪ Home Interview with Child▪ Things that Happen to Me	Teacher-Reported Aggression <ul style="list-style-type: none">• Sociometric (Teacher Rating Scale for Aggressive Classroom Behavior)• Behavior Assessment System for Children (BASC)-Aggression subscale
SIP variables in context of the Thematic Apperception Test (TAT) <ul style="list-style-type: none">▪ SIP Step Two: Intent Attributions▪ SIP Step Three: Goal Formulation / Intentions▪ SIP Step Four & Five: Actions / Outcomes	Peer-Rated Aggression <ul style="list-style-type: none">• Sociometric Nominations
General schemas in the Thematic Apperception Test (TAT) <ul style="list-style-type: none">▪ Cognition▪ Emotion▪ Relationships▪ Self-Regulation	

Appendix C

Thematic Apperception Test (TAT) Coding System (adapted from Teglasi, 2001)

Subject Number: _____

COGNITION

I. Perceptual Integration

Level One: Discrepant – The premise of the story is not appropriate to overall stimulus configuration due to any of the following: emotions and relationships depicted are significantly misrepresented; ages and roles of characters don't match the stimulus; tensions are not recognized or completely misread.

Level Two: Simplified – Primary misperception is in the *inferential* or *implicit* meaning of the stimulus and the response may be characterized as literal or superficial. Intentions are not durable but comprise immediate reactions that are based on simplified view of the stimulus.

Also indicate “a” or “b”

- a) **Literal** – Story details are descriptively tied to the stimulus or are very simple associations to isolated parts of the picture. The narrator may identify various people or things in the picture without positing any (or making only minimal) connections between them. Simple emotions (sad, mad, happy) may be slightly off.
- b) **Superficial** – Major elements of the scene are recognized (characters, basic emotions, relationships), but interpretation of the scene is hampered by poorly understood psychological processes (e.g., emotions or relationships are elaborated by associations to the scene that may be vague, scripted, or stereotypic). Match between the picture and the unfolding story may be imprecise as the narrator may not grasp all contextual cues, like facial expressions, and implications of background or clothing.

Level Three: Imprecise – Subtle distortions of tension state. The story generally captures the implications of the stimulus vis a vis emotions and relationships amongst stimulus components, but the fit is not precise (e.g., timing, cause–effect inference, or context are not precise). Major object ignored or misperceived but not feelings or relationships. Psychological processes including intentionality etc. are included in the story.

Level Four: Accurate – All cues and subtleties are accounted for in the interpretation of feelings and relationships (despite possible omissions or misidentification of minor details or some perceptual emphasis).

Card

1	3BM	4	7GF	8BM

EMOTION

I. Sources of Affect

One – Unrecognized. Tension depicted is not recognized
Two – Descriptive. Refers only to stimulus e.g. the boy is smiling in the picture so he must be happy
Three – External. Emotions are recognized as internal to the characters, but are elicited primarily by external sources such as actions or reactions of others, material goods, external feedback or societal demand. Emotions may be tied to pressure to conform to external standards, demands, or rules
Four – Internal. Emotions stem from self-defined standards and/or goals. Although emotions may be related to external sources, they are coordinated with inner motives and convictions, as well as deliberate, purposeful actions.

Card

1	3BM	4	7GF	8BM

II. Coping with Affective Tensions

Level One – Non-coping or unrealistic coping. Negative emotion is not recognized or there is no change in affect, self-awareness, or understanding in response to the negative emotion. The character/s react to the negative emotions by being overwhelmed, detached, resigned, hopeless, or regretful. Characters act without thinking or hope for an unrealistic, magical solution.
Level Two – Immediate or partial coping. Coping strategies decrease negative affect and/or deal with the dilemma without fully addressing the sources of the tension. Examples of coping include avoidance, temporary reassurance, or resolving to do something. Positive affect is increased or maintained by acting without considering important issues. Coping characteristics include either an excessive dependence on others or an excessive independence from others.
Level Three – Long-term or problem focused coping. Coping strategies decrease negative affect by effective problem-solving (e.g. addressing the source of the feeling or reframing). Positive affect is increased or maintained through long-term problem solving and goal setting. There is a realistic resolution of tensions without seeking/receiving help/support. If help is needed, it is sought appropriately (e.g. not passively or overly-dependent) OR is provided appropriately without a request. Advice or help given enables the character to resolve the dilemma.

Card

1	3BM	4	7GF	8BM

RELATIONSHIPS

Level One – Disorganized or detached experience of relatedness. Disorganized or highly simplified thought process disrupts the differentiation and integration of various perspectives (mutuality) and the sense of self-cohesion (autonomy). This level is characterized by impaired social reasoning where the individual is devoid of resources to understand relationships and, therefore, experiences a severe imbalance of mutuality (e.g., helpless against the whims of controlling and powerful others or detachment from relationships) and/or serious restriction of autonomy and/or poor reality testing (e.g., unrealistic expectations). Individuality (in circumstance, emotion, intention, thought) is not salient resulting in lack of differentiation or responsiveness across individuals and unrealistic coordination between the inner and outer worlds within individuals.

Level Two – Momentary experience of relatedness. Personality is not experienced as a continuous, cohesive whole, and there is rudimentary recognition of individuality. Therefore, self-esteem and relationships with others exist in the moment.. Limited autonomy pulls for differentiating others on the basis of momentary need or the immediate situation without the sense that they are whole persons. Therefore, characteristics of others are salient if they pertain to immediate needs or wants (character's portrayal in the stimulus may not even be noticed). Feelings are tied to immediate external demands, or circumstances, and remorse is tied to consequences. Perception of self and others shifts (dichotomously) according to circumstances without insight or reflection. Characters' inner attributes and individual differences are ill-defined, dichotomous, or are based on stereotypes. An imbalance of mutuality of autonomy and/or a disparity of status or of power may be explicit or implicit.

Level Three – Functional experience of relatedness. Emphasis is on the function served rather than on enduring connection with reliance on rigid quid pro quo exchanges. Approval or disapproval as well as reward or punishment contribute to the functional exchange. Characters attempt to conform to each other's expectations rather than engage in autonomous goal-directed activities or efforts to meet standards. They appear to take turns in carrying out their functional roles, and this exchange is the foundation for the relationship. Attributes that pertain to character's functions are most salient. Characters show remorse and accept punishment for wrong-doing.

Level Four – Relatedness through reciprocity and standards. A sense of fair play dictates expectations in relations with others and in self evaluation. Reciprocity is not perceived as quid pro quo but as a natural mode of relating among individuals who care about each other. Characters are clearly differentiated, autonomous, and have internalized standards and rules of conduct that permit appropriate compromise.

Level Five – Relatedness through mutuality of autonomy. Full appreciation of uniqueness and individuality, apart from the perceiver's needs or requirements of social exchange. Inner life and concerns of all characters are portrayed in ways that show full mutuality of autonomy and appreciation of subtle intra and interpersonal nuance, in keeping with the stimulus cues. A fine-tuned understanding of multiply interacting dimensions of experience includes a distinction between transient and enduring psychological experience, balance between the inner and outer worlds of self and others, and coordination of long and short term considerations.

Card

1	3BM	4	7GF	8BM

SELF-REGULATION

Level One: Dysregulation – Form and content of stories reflect fragmentation in processing life experience associated with impairment in thought organization (e.g., ideas out of context; implausible sequence of events; illogical or bizarre ideas; inconsistent level of conceptualization; perseveration). The person reacts to faulty perceptions provoked by minute, irrelevant considerations or is hopelessly immobilized. The respondent may focus narrowly on elements of the picture without capturing the meaning or may express global reactions to the stimulus as a whole. Characters act and react without awareness of causes and effects, and/or the narrator's behavior during the evaluation is clearly inappropriate. Relevant components of the immediate situation are not integrated, and the individual has difficulty monitoring routine behavior without clear guidelines.

Level Two: Immediacy – Information processing and behavior relate to the moment without adequate reflection on prior history, future consequences, or implications for others. Judgments and actions are based on what immediately dominates awareness without organization or integration of salient aspects of the current situation with important but remote implications. Self-monitoring may pass muster in the moment, but longer term self-direction is hampered by inability to maintain interest in situations that do not contribute to immediate sense of well-being. Actions are aimed at seeking immediate gain or relief. Feelings are not regulated internally but evoked by immediate external circumstances. Thus, intentions behind actions are not clearly distinct from their impact.

Level Three: External Direction – Information processing and behavior are guided by externally imposed standards, feedback, or necessity (e.g., adverse event) rather than by the provocation or whim of the moment. Various elements of the current situation and relationships are more realistically assessed than at previous levels (including a distinction between intent and impact, awareness of rules and expectations, quid pro quo reciprocity). Story content revolves around more long-term expectations, more general, less narrow or trivial concerns, but might be mildly unrealistic or naive because perceptions of self and others are not well differentiated. There may be a sense of pressure to meet demands of others or to conform to acknowledged standards of conduct rather than being directed by inner values or standards. External sources of motivation or reassurance are needed to tolerate frustration and persist in long-term instrumental action.

Level Four: Internal Direction – Information processing and behavior are implicitly guided by standards and prosocial values that are internally represented, and that the individual feels competent to attain. The individual can balance personal concerns with needs of family and friends and coordinate short and long term considerations. Task engagement and interpersonal reciprocity do not have the demanding flavor of the previous level but lack the personal conviction of the highest level. There is more initiative and greater organization of thoughts, emotions, and behaviors. Initiative and effort are appropriate for desired ends and/or for meeting adaptive demands (well-organized and long term).

Level Five: Self-Determination – Information processing is complex and responsible as indicated by stories that elaborate inner experience within or across characters in ways that are cohesive with the stimulus, described circumstance, actions, and outcomes. Thus, characters' intentions, thoughts, feelings, actions, outcomes, and story events are well-coordinated in relative emphasis, context, and time frame. Characters are invested in planful, autonomous, socially responsible, and purposeful action and are dedicated to enduring principles. Information processing is more complex than the previous level, incorporating multiple dimensions of experience and perspectives of relevant others over the long term. Therefore, people and events may be evaluated as they are, apart from the feelings or needs of the perceiver. Standards or goals are valued beyond their connection to desired ends; the instrumental activities themselves are sustaining to the individual.

Card

1	3BM	4	7GF	8BM

SOCIAL INFORMATION PROCESSING

<p>SIP STEP TWO: INTENT ATTRIBUTIONS Attribution of intent behind the current situation (what is happening and what happened before) or to the actions of “others” who create problems or enable success</p> <p><i>To have an intent, must have a person as cause of problem/dilemma</i></p>	<p>Level One: No intention attributed to others’ actions – The story may describe the behaviors of “others” who create problems or enable success, but does not reference intentions. Story characters judge others or a situation by behaviors, but not by intent.</p> <ul style="list-style-type: none"> a. No intent hostile--dilemma in the picture is due to others’ hostile action b. No intent accident-- dilemma in picture due to accident or no reason
	<p>Level Two: Intention exists in the moment – The intention may refer to the picture but generally refers to what sparks the action or emotions with no sense of ‘why’. ex. “other kids don’t want to play with me”.</p> <ul style="list-style-type: none"> a. Momentary intent--intent is harmful – a hostile intent is attributed to others’ actions, expectations or demands. ex. “she won’t play with the boy because she doesn’t like him” b. Momentary intent --intent is neutral or positive – a benign or positive intent is attributed to others’ actions, expectations, or demands. ex. “she likes him so she played with him”
	<p>Level Three: Intention attributed to others’ actions is durable--The intention attributed to others’ actions is durable beyond reaction to the moment; durable intent is often instrumental and planned</p> <ul style="list-style-type: none"> a. Durable intent - intent is harmful. ex. “the woman spread rumors about the girl not helping out in order to get her kicked out of the house.” b. Durable intent - intent is neutral or positive. ex. “a mad girl who wants to play outside but mommy says no because a criminal is outside and mommy wants her to be safe”
<p>SIP STEP THREE: GOAL FORMATION / INTENTIONS The goal or purpose behind the reaction to the identified problem or intention of “others”; The goal or purpose when dealing with the tension depicted.</p>	<p>Level One: No goal is stated or implied</p> <ul style="list-style-type: none"> a. No intent – no action b. No intent – simple reaction, hostile. ex. “when the boy was pushed, he yelled at him” c. No intent – simple reaction, non-hostile. ex. when she cried about being teased, she felt better” <p>Level Two: Short term goal or intent</p> <ul style="list-style-type: none"> a. Short term – hostile retaliation. ex. “the boy hoped she would trip so that she knew how he felt” b. Short term – gain relief from adverse state, non-hostile. Avoid feeling bored, sick etc. c. Short term – gain something positive, non hostile. ex. “the boy is waiting on the front steps for his father, who is coming home late from work”.

	<p>Level Three: Long term goal or intent--Requires a plan or strategy in order to be considered long-term</p> <ul style="list-style-type: none"> a. Long-term hostile - accomplish something at the expense of another. ex. "she started planning how she could get even with the girl who called her names" b. Long term – accomplish a prosocial purpose to remove adversity. ex. "he waited for his brother and felt sad about it, so he decided to go for a walk" c. Long term - accomplish a prosocial purpose to seek the positive. ex. "she is meeting with the babysitter to help her keep the baby safe."
<p>SIP STEPS FOUR AND FIVE: ACTIONS AND OUTCOMES</p> <p>When transcending the scene to generate an ending for the story (how the story turns out), is there a realistic link between any character's responses/actions and expected outcomes?</p>	<p>Level One: No response - no response by the person who owns the problem</p> <ul style="list-style-type: none"> a. No response helpless or detached – leaves self or others to suffer or no change. b. No response positive – positive turn of events but no action by protagonist, no rationale. c. No response rescue -- others come to the rescue without intervention or asking.
	<p>Level Two: Unplanned response is stated</p> <ul style="list-style-type: none"> a. Incongruent outcome <ul style="list-style-type: none"> 1. negative response leads to a positive outcome ex. "she pushed him and won the fight." 2. positive, vague response leads to a negative outcome b. Congruent outcome <ul style="list-style-type: none"> 1. negative response leads to a negative outcome ex. "she pushed him and got into trouble with the teacher" 2. positive, vague response leads to a positive outcome
	<p>Level Three: Planned response is stated</p> <ul style="list-style-type: none"> a. Incongruent outcome <ul style="list-style-type: none"> 1. negative response leads to a positive outcome 2. positive, vague response leads to a negative outcome ex. "the doctors tried to save him, but the man on the bed died" b. Congruent outcome <ul style="list-style-type: none"> 1. negative response leads to a negative outcome 2. positive response leads to a positive outcome ex. "she practiced everyday and finally learned to play the violin, even though everyone said she'd never learn to play"

Appendix D

Sociometric Aggression Items

Peer Sociometric Items:

(Crick & Werner, 1998)

1. Kids who try to keep certain people from being in their group when it is time to play or do an activity (C)
2. Kids who when they are mad at a person, get even by keeping that person from being in their group of friends (C)
3. Kids who call other kids mean names
4. Kids who say mean things to other kids to insult them or put them down
5. Kids who tell others they will beat them up unless the kids do what they say (O)
6. Kids who try to make other kids not like a person by spreading rumors or talking behind their back
7. Kids who push and shove others around (O)
8. Kids who when mad at a person, ignore the person or stop talking to them (C)
9. Kids who tell friends they will stop liking them unless the friends do what they say
10. Kids who hit others (O)

Teacher Sociometric Items:

Teacher Rating Scale for Aggressive Classroom Behavior (Dodge & Coie, 1987)

1. Overreacts angrily to accidents
2. Strikes back when teased
3. Blames others in a fight
4. Uses physical force to dominate
5. Gets others to gang up on a peer (C)
6. Threatens or bullies others
7. Teases and name calls (O)
8. Starts fights with peers (O)
9. Gets into verbal arguments when frustrated
10. Quick to fight
11. Breaks the rules in games
12. Responds negatively when fails
13. Hits others when angry (O)
14. Gets angry easily
15. Says mean things when angry
16. Gets others in trouble with friends (C)
17. Spreads rumors or gossips about other children (C)
18. Repeats stories or talks negatively about other children
19. Keeps others from joining their group (C)
20. Gets others to be angry at someone, ignore someone or stop talking to them when angry (C)

Note (O)=items which loaded clearly onto the reactive/overt factor and used in the current study; (C)=items which loaded clearly onto the proactive/covert factor and used in the current study

Appendix E

Thematic Apperception Test (TAT) cards used in the present study

- 1) The picture depicts a boy seated at a table with his head in his hands regarding what appears to be a book of some sort, and a musical instrument.
- 3BM) The picture depicts a person seated on the floor, with her face hidden from view behind her arm. A shadowy object lies next to her on the floor which is commonly identified as keys or a gun.
- 4) The picture depicts a woman facing a man, who is facing away from her.
- 7GF) The picture depicts a young girl holding what appears to be a baby/doll. The girl is seated next to an older woman who is looking at a book.
- 8BM) The picture depicts a young boy or girl in the foreground, with a shadowy background consisting of two men standing over a reclined figure. The men are holding an object commonly identified as a knife.

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