On-line social decision making and antisocial behavior: Some essential but neglected issues

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Abstract

The last quarter century has witnessed considerable progress in the scientific study of social information processing (SIP) and aggressive behavior in children. SIP research has shown that social decision making in youth is particularly predictive of antisocial behavior, especially as children enter and progress through adolescence. In furtherance of this research, more sophisticated, elaborate models of on-line social decision making have been developed, by which various domains of evaluative judgment are hypothesized to account for both responsive decision making and behavior, as well as self-initiated, instrumental functioning. However, discussions of these models have neglected a number of key issues. In particular, the roles of nonconscious cognitive factors, learning and development, impulsivity and behavioral disinhibition, emotion, and other internal and external factors (e.g., pharmacological influences and audience effects) have been largely absent from scholarly writings. In response, this article introduces discussion of these factors and reviews their possible roles in on-line social decision making and antisocial behavior in youth.

Keywords: Decision making; Aggression; Antisocial behavior; Violence; Social cognition

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That it is important to understand the role of social cognition in the development of antisocial behavior is undisputed. Largely advanced by social and clinical developmentists, models of social cognition and antisocial behavior in youth have received a considerable amount of theoretical and empirical attention among behavioral scientists. In particular, research programs that have been guided by social-information processing (SIP) models of youth social competence and aggressive behavior have shown promise (Anderson, Anderson, & Denser, 1996; Crick & Dodge, 1994; Fontaine, 2006a; Fontaine & Dodge, in press; Huesmann, 1998; Mize & Pettit, in press). SIP models have posited that children’s behavior results as a function of multiple series of on-line mental operations (i.e., cognitive processes that are “in the moment” and occur in real time), including encoding and interpreting stimuli, clarifying one’s goals, generating ways of responding to cues, and evaluating alternative responses across various domains (Crick & Dodge, 1994).

More recently, models of on-line, social decision making have been advanced to account for higher-ordered, microprocess cognitive operations (e.g., evaluative behavioral judgments in real time) that are hypothesized to be active during youths’ consideration of how to respond to a social stimulus in real time. These process models have been conceptualized to explain behaviors that are enacted in response to social stimuli (Fontaine & Dodge, 2006), as well as self-initiated, instrumental acts (Fontaine, 2006b, 2007b). They are designed to account for context-specific differences in individual processing as well as individual differences in social cognitive patterns that may distinguish youths’ styles of interpersonal and deviant behavior.

In addition to social cognitive models of youth antisocial behavior, criminological models of rational choice and decision making in adulthood have been expanded to account for criminal behaviors such as theft (e.g., Carroll & Weaver, 1986; Feeney, 1986), rape (e.g., Athens, 1980; Brantingham & Brantingham, 1993), and drug use (e.g., Bennett, 1986). However, these models are typically nondevelopmental—that is, they do not account for change across time. Although psychological research suggests that early patterns of social cognitive functioning may be predictive of longer-term antisocial development (e.g., Fontaine, Yang, Dodge, Pettit, & Bates, submitted for publication), development beyond adolescence continues to be in serious need of scientific investigation. In fact, recent scholarship has focused on the importance of differences between adolescents and adults with respect to decision making and antisocial behavior (e.g., see Steinberg & Scott, 2003; cf. Beyth-Marom, Austin, Fischhoff, Palmgren, & Jacobs-Quadrel, 1993; Boyer, 2006).

Current social cognitive models of youth functioning are not without their shortcomings, some of which have been formally identified in recent critical commentaries, such as emotion (e.g., Lemerise & Arsenio, 2000; Orobio de Castro, 2004), development (Mize & Pettit, in press; Orobio de Castro, 2004), and nonconscious processes (Mize & Pettit, in press). Other issues that deserve greater scholarly attention include internal context factors such as physiological states, external context factors such as audience, and impulsivity and behavioral disinhibition. These issues have either been absent or inadequately discussed in contemporary writings on on-line social decision making (Fontaine, 2006b; Fontaine & Dodge, 2006), providing more than sufficient impetus and justification for the present article. The goal of the current review is thus to organize and emphasize the importance of such issues with the intention of guiding research programs that examine the role of on-line social decision making in the development of chronic aggressive and delinquent behavior.

Herein provided is an introduction to some of the main issues of social cognitive processing—more specifically, on-line social decision making—that will need to garner greater scientific attention if the potential of these models is to be realized. Following a brief review of two contemporary frameworks of on-line social decision making and antisocial behavior in youth, this article discusses several important topics that, as described above, have become increasingly
important to social-information processing theorists and researchers (Dodge & Schwartz, 1997; Fontaine, 2006a; Lemerise & Arsenio, 2000; Orobio de Castro, 2004; Mize & Petit, in press). Among the issues that are addressed are nonconscious processes (or latent cognitive structures), development and learning, impulsivity and behavioral disinhibition, emotion, and other internal as well as external contextual factors that may impact on-line social decision making at both the event- and individual-difference levels.

1. Current modeling of on-line social decision making and antisocial behavior

The past three decades have seen advances in modeling of on-line social decision making and interpersonal behavior in children. Drawing from information processing models in cognitive psychology, Dodge (1980, 1986) introduced a social-information processing (SIP) framework of children’s social competence (readers are also referred to related social cognitive, information processing models of Huesmann (1988, 1998), and Anderson (Anderson et al., 1996; Anderson & Bushman, 2002; Anderson & Dill, 2000)). In response to a social stimulus, SIP proposes a series of mental operations that may be activated in order for a child to decide how to respond. The fourth step of Dodge’s (1986) model, called the response decision process, focuses on understanding and evaluating outcomes and consequences of possible responses. Subsequently, Crick and Dodge (1994) posited a reformulated model of SIP in which the response decision step (now step five in the model) was broadened to include processes of self-efficacy evaluations (based on the work of Bandura, 1977, 1982), and response evaluations (means-focused appraisals having to do with the social and moral qualities of the behavior, as opposed to judgments about outcomes to which the behavior may lead). These early conceptualizations of responsive decision making served as a platform for more recent, elaborate models of on-line social decision making in youth.

1.1. Response evaluation and decision (RED)

Fontaine and Dodge (2006) advanced a framework of response decision making that added substantially to early formulations of the response decision step of SIP. In their model of response evaluation and decision (RED), several dimensions of cognitive operating were advanced, some of which were developed out of early SIP theory and others of which were new and drew from bodies of empirical work from nonSIP research programs. Similar to how SIP assumes the presentation of a social stimulus, RED assumes the generation of at least one response option. It was hypothesized that, when response options are identified, multiple series of cognitive operations may be activated by which such response options and their associated outcomes may be evaluated so that a decision as to how to respond during social interaction may be made. According to RED, response options first have to pass a primary threshold of acceptability. This decision step acts as a crude filter by which behaviors that are clearly irrelevant or infeasible may be quickly ruled out, or, in situations in which the responding individual perceives great urgency or is functioning impulsively, a response may be quickly selected for behavioral enactment. Responses that pass the initial threshold of acceptability and are not immediately behaviorally enacted may be considered across further evaluative domains. Response efficacy and valuation are posited in the RED model as means-focused appraisals. Building from Bandura’s (1977, 1982) work, response efficacy involves an evaluation of how likely it is that the behavior in question may be successfully carried out, and, in this way, may be viewed as a response expectancy. Response valuation is a process by which the social and moral qualities of a considered behavior are judged. The responding individual may ask him- or herself if the type of behavior being considered matches who he or she self-identifies as a social actor and moral agent. Outcome-focused evaluative processes are also incorporated into RED. Whereas outcome expectancy acts as an estimation of the likelihood that a outcome will result from the enactment of a behavior, outcome valuation is a process by which the outcome in question is assigned some degree of positive or negative value (or weight) (see Feather, 1982). RED also incorporates a process, called response comparison, by which alternative responses may be compared and contrasted so that the “best overall” response may be identified and selected (called response selection) for behavioral enactment. Empirical support for each of these RED domains has been found (see Fontaine & Dodge, 2006, for a review).

1.2. Instrumental antisocial decision-making (IAD)

Some RED processes have been observed to be related to proactive (or instrumental) aggression, a subtype of aggression that is self-initiated, typically “cold-blooded” (or nonemotional), and carried out for personal gain (e.g., see
In addition to proactive aggression and bullying, Fontaine (2006b) identified conceptual links between multiple RED operations and various instrumental antisocial behaviors such as stealing, cheating, and illicit substance use in youth. This theoretical work called for the development of a conceptual framework of decision processes that are hypothesized to be particularly relevant to children’s self-initiated, instrumental antisocial behaviors. In contrast to RED, the heuristic model of instrumental antisocial decision-making (IAD; Fontaine, 2007b) emphasizes cognitive operations that are hypothesized to be central to deliberation and planning, such as goal identification and assessment as well as strategy development and realization. IAD presumes that the initial formulation and development of cognitive operations that have long been associated with objective-directed decision making and behavior (e.g., Slade, 1994) are essential to a comprehensive model of decision processing that may underlie proactive deviant conduct. In addition, whereas RED was designed to account for variability in aggressive behavior, IAD was formulated with a vast array of instrumental antisocial behaviors in mind, including bullying, stealing, cheating, illicit substance use, and vandalism (Fontaine, 2006b; for additional discussion that contrasts the RED and IAD frameworks, see Fontaine, in press).

1.3. RED and IAD as heuristics of social decision making in real time

Similar to SIP, part of the utility of the RED and IAD models is heuristic (although it should be noted that a computational representation of RED has been posited by Fontaine & Dodge, 2006). As heuristics, they provide an organized way to conceptualize and examine specific hypotheses about on-line social decision making and antisocial behavior in youth. Central to these models is the hypothesis that deviant cognitions that develop in youth play a critical role in the development of stable antisocial tendencies—both cognitive (e.g., stable beliefs that endorse criminal activity) and behavioral (e.g., conduct disorder)—throughout the life course. RED and IAD may be used to model decision making both within and across event or context, as well as both within and across individual. This hypothesis is central to the scientific goal of understanding individual-specific origins, mechanisms, and developmental trajectories that characterize patterns of antisocial behavior across the life course.

Certain properties that are common to RED and IAD distinguish these frameworks from previous models. First, nonlinear processing is recognized as a function of two key mechanisms—thresholds of acceptability and feedback loops—that are hypothesized to be potentially active during youths’ social decision making in real time. In addition to the primary threshold of acceptability in RED, multiple thresholds of acceptability are considered across evaluative domains, each RED dimension having a minimum standard that must be met before conceptual processing of the identified response will transpire. For instance, although a response may pass the initial threshold of acceptability, it may fail to pass a minimum threshold that is set with respect to the likelihood that the response will lead to the most highly desired outcome (i.e., response option $x$ must be at least minimally likely to lead to desired outcome $y$ before the RED domain of outcome expectancy may become fully activated). In such a case, the decision process may be required to revert back, via a feedback loop, to an earlier step of RED, or perhaps search for or construct a new response to consider. In this way, the involvement of multiple thresholds of acceptability and feedback loops allows for an infinite number of processing combinations and patterns. In addition to nonlinear processing patterns between and across on-line evaluative domains, it is important to recognize nonlinear processing between on-line (or conscious) processing and off-line (or nonconscious) cognitive structures (as stressed by Mize & Pettit, in press).

2. On-line decision making and latent cognitive structures

Social and behavioral scientists have made significant contributions toward understanding child antisocial behavior by establishing that deviant behavior in youth is related to various social factors, including exposure to criminal activity (Lamson, 1983), early contact with deviant peers (Gainey, Catalano, Haggerty, & Hoppe, 1997), parental physical punishment (Straus, 1991), and circumstances that are commonly associated with low socioeconomic status (e.g., low income, substandard educational systems, deteriorating neighborhoods, and absence of recreational facilities; Lamson, 1983). The majority of this research has been conducted by sociologists—and, unfortunately, sociological approaches tend to ignore psychological components of behavior (Akers, 1997; Endleman, 1990; Lamson, 1983). As is illustrated by current perspectives on juvenile delinquency (e.g., see Lynam, 1996), models of child deviance that are purely social in their explanatory scope are necessarily incapable of accounting for the many cognitive factors (as well as interactions...
between social, cognitive, and behavioral variables) that may influence behavioral development. Lamson (1983, p. 9) concluded: “Although criminologic research demonstrates that [various social] conditions are linked to a higher rate of delinquency than exists in materially more advantaged environments, it has also become obvious that these social conditions are neither sufficient nor necessary explanations of juvenile delinquency”. The same assertion may be made with regard to models of antisocial behavior in childhood and adolescence, as well.

Alternatively, psychological theories of development and antisocial conduct have been increasingly detailed in their elaboration of the role of cognition (e.g., Bandura, 1973; Crick & Dodge, 1994; Huesmann, 1998). If a person’s behavior is ultimately subject to his or her cognitive control (Dodge, 1986; Guerra, Huesmann, & Hanish, 1994; Guerra, Nucci, & Huesmann, 1994; Huesmann, 1988), it would seem immediately necessary to understand the cognitive processes that are associated with the behavior of interest. This is no less true for the case of youth antisocial behavior than it is for any other style of social conduct. By examining how youths make decisions—whether highly deliberative or less mindful—to enact antisocial behaviors, understanding of individual acts of deviance as well as deviant behavioral patterns and tendencies that are exhibited in youth may be gained.

2.1. On-line decision processes versus off-line (or latent) cognitive structures

The distinction between on-line cognitions and off-line (or secondary) mental structures has generally been overlooked by decision-making models. However, for several reasons, this distinction is highly important to theory and empirical study. On-line cognitive processes are defined as mental operations as they are actually occurring. On-line processes are distinguished from secondary cognitive structures, such as attitudes, beliefs, and values, in that secondary structures are latent and, unless they are accessed from memory to on-line operating, remain largely uninvolved in one’s current processing of information (Crick & Dodge, 1994). Whereas the effect of on-line processes on an individual’s emotional and behavior outputs is immediate and direct, any influence that is attributable to off-line structures is necessarily secondary and indirect (by definition of the distinction between on- and off-line).

Understanding the independent and interactive influences of on-line processes and secondary cognitive structures on behavioral decisions is essential to understand the relation between social cognition and behavior. Historically, social cognitive research has focused on latent psychological structures such as beliefs (e.g., Huesmann & Guerra, 1997), schemata or scripts (Anderson & Bushman, 2001), and values (e.g., Boldizar, Perry, & Perry, 1989). For example, in recent decades, considerable scholarly attention has been paid to children’s acquisition, categorization, and usage of social knowledge (i.e., the body of information about the social world that is possessed by the child) (e.g., Buzzelli, 1993; Bye & Jussim, 1993; Carley, 1991; Delval, 1994; Miller & Aloise, 1990; Murray, 1983; Smetana, 1997; Turiel, 1975, 1978, 1983a,b). A principal goal of research on social knowledge has been to understand how children’s conceptions of types of social-information (e.g., social rules) guide their interpersonal behavior. Although this body of research has made notable contributions to this end, it is, by itself, an insufficient answer to the question of why children behave in social contexts as they do. The truth of this assertion stems from the fact that social cognitive models of behavior that do not account for on-line processing are, by their nature, unable to explain how cognition may immediately effect behavior in a specific instance.

Compared to research on latent mental structures, significantly less theoretical and empirical attention has been paid to the role of on-line cognition in social behavior. However, over the past two decades, a trend toward focusing on on-line processes has developed in research on social-information processing bases of socially competent and aggressive behaviors (e.g., Crick & Dodge, 1996; Dodge, 1986, 1993; Dodge & Coie, 1987; Dodge, Pettit, Bates, & Valente, 1995; Dodge & Price, 1994; Fontaine & Burks, 1999; Fontaine, Burks, & Dodge, 2002; Huesmann, 1988, 1998; Waldman, 1996). For example, Dodge and his colleagues have provided considerable evidence that on-line processes (e.g., attributing hostility to ambiguous provocateurs) play a critical part in aggressive reactivity and the development of externalizing problems. Most recently, an emphasis has been placed on the potential involvement of evaluative and decision-making processes in responding aggressively in social situations. For example, Fontaine and Dodge (2006) have hypothesized that an individual’s sociomoral (a) evaluation of other individuals as wrongdoers, and (b) conclusion that punishment of others is therefore deserved, are two processes by which a person may come to decide to aggressively retaliate in social situations. Over time, these aggressogenic processes and hostile behaviors may reinforce each other, increasing the likelihood that an individual develop a more automatic tendency to respond aggressively and display pervasive antisocial behavior. Research on social-information processing and aggressive behavior strongly suggests that there is much to be learned by investigating social cognitive processes that are involved in children’s decisions to enact
deviant behaviors. By modeling decision processes that take place prior to a youth’s acting upon an antisocial interest, it may be better understood how deviant behavioral alternatives come to be enacted and how these individual behaviors may become reinforced and develop into stable behavioral patterns.

2.2. The executive program: cognitive regulation and alternative processing patterns

2.2.1. Cognitive regulation

The executive program (or operating system) oversees the flow of information through various subprocesses of the parent cognitive system. The serial course of processing that has been outlined by human information processing models poses problems due to its inability to reflect contingency mechanisms, alternative preemptive paths, and complex neural networks. Furthermore, serial designs are limited in their ability to represent neurocognitive processes (Crick & Dodge, 1994; Huesmann, 1998). A major shortcoming has to do with the one-to-one correspondence between cognitive subprocesses and neuronal transmissions that are explicitly delineated in many information processing theories. Although facets of parallel processing (i.e., the idea that there are multiple nodes or units that are simultaneously active within a human’s larger cognitive framework) have been incorporated into recent concepts of social-information processing (see Crick & Dodge, 1994; Huesmann, 1998), accurate representations of central nervous-system activities remain indefinite (Smolensky, 1988).

In line with the Crick and Dodge (1994) reformulation of SIP, the likelihood of parallel processing has been explicitly recognized in current models of on-line social decision making. RED and IAD frameworks illustrate the many possible alternative combinations of processing, including reverse-tracking and linkages between decision processes and information storage that may be typical of everyday processing. This position coincides with recent connectionist work in cognitive psychology (Cohen, Servan-Schreiber, & McClelland, 1992; Feldman & Ballard, 1982; Hinton & Anderson, 1981; Rialle & Stip, 1994; Rumelhart, McClelland, & the PDP Research Group, 1986; Smith, 1996) stressing the complexities of underlying neural patterns of human processing that are often neglected in contemporary decision processing models (Crick & Dodge, 1994; Huesmann, 1998).

2.2.2. Alternative processing patterns

Recent elaborations of social cognitive theories (e.g., social learning theory; Bandura, 1986) have posited that beliefs, judgments, and other processing mechanisms may mediate relations between social-information input and social behavior. How may on-line, social decision-making processes be involved in mediating and moderating effects on relations among social experiences, perceptual processing factors, and behavioral outputs? The serial nature of early social-information processing models (e.g., Dodge, 1986; Huesmann, 1988) depicted the decision-making step as a stage of processing that potentially mediates all relations between antecedent cognitive steps and subsequent behavioral outcomes. Recent reformulations (e.g., Fontaine & Dodge, 2006) of processing models suggest far more numerous and complex paths of processing are possible.

Although there are potentially infinite combinations of social cognitive processes that may transpire as a person prepares to act, it is likely that decision making is active (in nonimpulsive behaving) at a level that is more proximal to behavioral enactment than other domains of processing (such as perception or goal generation). Dodge and his colleagues (e.g., Dodge & Schwartz, 1997; Fontaine, Burks, & Dodge, 1998, 2002) have hypothesized that mental operations that are active during preenactment decision making may mediate and/or moderate other processing mechanisms on subsequent processing and behavior. For example, Fontaine et al. (1998) found support for the hypothesis that sociomoral judgments about aggression (a behavioral valuation) mediate the relation between hostile attributional style and antisocial behavior in adolescents. This finding supports the idea that an individual’s hostile intent attributions lead to valuations of aggressive retaliation as a morally justified response, which, in turn, lead to performances of aggressive behavior.

It is also conceivable that decision processes moderate relations between other types of social cognitive processing (e.g., attribution) and behavior. Regarding moderating effects, a comparison to RED processing may again be made: the child who attributes hostility to a peer may be angered and motivated to retaliate in an aggressive manner. If, however, the child maintains a strong sociomoral judgment style and belief that violence is fundamentally wrong, his or her valuation of an aggressive script may serve to inhibit this behavior from being enacted. In this sense, the child’s sociomoral judgment that violence is wrong may act as a moderating or protective factor. In the case of instrumental decision making, youths with antisocial goals may be significantly more likely to follow through with corresponding
antisocial behaviors if they are comfortable with behaving in socially deviant ways or tend to underestimate the risk involved. One question has to do with how decision processes may affect earlier steps of social-information processing during subsequent interactions. For example, if a child makes an error in expecting a certain outcome to result from a given behavior, is he or she more likely to access and encode more social information when a similar situation arises in the future? This may be studied experimentally in that the outcome of a situation may be manipulated to either match or differ from the outcome that is expected based on participant report.

3. Learning and development

Coe and Dodge (1998) pointed out that research on the development of moral cognitive processes and antisocial behavior is limited largely because it has seldom been assessed using longitudinal data. Rather, the majority of research on moral judgment and deviant conduct has focused on cross-sectional samples and comparing delinquent versus nondelinquent subgroups. One of the main impetuses of recent theory in decision making and behavior in youth is to provide testable hypotheses by which mechanisms of antisocial trajectories may be discerned. It is likely that both developmental skills (e.g., Piaget’s (1965) work on perspective taking) and deficits in functioning (e.g., Kohlberg’s (1963, 1964, 1984) work on lags in stage-specific moral development) contribute to individual variability in children across time. Both contemporary theory and longitudinal research in youth social decision making suggest that distinct increments in children’s and adolescents’ abilities to evaluate social and moral qualities of alternative social behaviors have important implications to the development of antisocial behavior throughout child and adolescent years (Fontaine, Yang, Dodge, Bates, & Pettit, in press; Fontaine et al., submitted for publication). However, without extensive longitudinal study of the mechanisms proposed by RED and IAD, a comprehensive scientific theory of moral reasoning and developmental psychopathology and deviance will not be realized.

An integral factor of information processing models that is critical to decision making is learning. In fact, theories of social-information processing have been designated as “learning models” with respect to the development of aggressive behavior (Huesmann, 1988). The entire array of processes that are outlined in contemporary models of on-line social decision making is not believed to be even potentially active during early childhood. It may be that children do not (and are not able to) utilize many of the hypothesized mental operations until they are more cognitively developed and well into adolescence (Fontaine et al., submitted for publication). However, across time and recurrent transactions with one’s environment, the child develops by learning decision-making skills that allow him or her to better maneuver through social life. Children who are inclined to act on antisocial interests, in specific, are hypothesized to develop the social cognitive resources by which they can eventually make calculated behavioral decisions as to how to go about fulfilling socially competent and deviant goals.

3.1. Learning

Child aggression has been defined as the learned behavior of attacking persons or objects in one’s environment (Bandura & Walters, 1959). Although genetic and other biological factors play a significant role in individual aggressiveness, the development of individual differences in human aggression is substantially due to learning (see Huesmann & Moise, 1998, for a discussion). Recently, Huesmann (1998; Huesmann & Moise, 1998) has recognized two types of learning that contribute to the development of aggression: observational learning, in which behaviors are learned by watching others’ actions, and enactive learning, in which the individual’s learning is based on his or her own previously performed behaviors. I propose that a third type of learning—reflective learning—may play an important role in the development of aggressive behavioral patterns in youth. As opposed to observational and enactive learning, reflective learning is not based on actual behaviors but rather a process of identifying personal values and beliefs (critical to the child’s development of the sociomoral judgment and reasoning). For example, upon considering alternative ways to behave in a social situation, an individual may rule out various behaviors as unacceptable and judge others as especially appropriate. The individual considers an aggressive response and decides to rule it out because he or she has learned that, in situations that do not necessitate assaultive behavior, acts of violence are morally wrong. The learned notion that violence is wrong may have arisen due to watching people fight and injure each other on television or at school (observational learning), because his or her own aggressive actions led to feelings of guilt or sadness in the past (enactive learning), or because the child developed a strong value of peace and decided in accordance with this value that aggression is an unacceptable way to behave (reflective learning). It is likely that on-line processes and
secondary mental structures are based on a combination of these types of learning that varies depending on social (e.g., situational context), psychological (e.g., cognitive development), biological (e.g., brain chemistry), and other factors.

These styles of learning may lead to very different outcomes in the case of the antisocial youth. The child who has been exposed to domestic violence or has grown up in a community with a high prevalence rate of crime and violence, may observationally learn that proactively behaving in antisocial ways to pursue one’s goals is both sociomorally acceptable and instrumentally successful. The child may develop a bullying approach at school and in his or her neighborhood because it is enactively learned that social dominance (being feared by classmates) and instrumental goals (acquisition of other children’s money) may be realized by acting in this fashion. Lastly, this style of behavior may be reflectively learned in that the child may contemplate antisocial behaviors in the context of how he or she self-identifies and may both feel good and view the behaviors as sociomorally congruent with his or her self-derived identity. This hypothesis is supported, in part, by research on social cognition and aggressive behavior in children that has shown aggressive children tend to feel better about acting aggressively and expect aggressive actions to lead to good feelings and a sense of accomplishment or self-worth (Slaby & Guerra, 1988).

With respect to the development and learning of antisocial and criminal behaviors, Farrington (1990) provided an important discussion of how a person’s beliefs change as a function of the realized outcomes of their behaviors (enactive learning). The same effect has been demonstrated with respect to the perceived cause–effect relations of others’ behaviors and consequences (observational learning) (e.g., Huesmann, 1997; Schunk & Hanson, 1985). It is likely that individual differences in outcomes that have been realized, as well as how alternative outcomes are differentially experienced, contribute in crucial ways to the divergence of developmental behavioral trajectories. This phenomenon may be considered a function of moral luck (Nagel, 1979; Williams, 1982); that is, the degree to which random, uncontrolled factors make future antisocial behavior more or less likely to be enacted by an individual, one’s developmental trajectory may be causally guided, at least in part, by the moral luck that he or she has had during his or her life course.

3.2. Development

To date, research on the effects of development on social cognitive theory and aggressogenic decision making has been limited. Most often, models of information processing and decision making have been designed to predict and explain individual and group differences in social cognition and behavior; they have not emerged from a developmental psychology perspective (Crick & Dodge, 1994). Nevertheless, understanding the formation of alternative developmental trajectories of sociogenic decision processes and deviant behavior is of utmost importance (Fontaine et al., submitted for publication).

It has been well-established throughout developmental science that, as development occurs (particularly infant and child development), intrapersonal factors that may be organized by several separate but related human systems become more complex. The orthogenetic principle (Werner, 1984) states that, as development occurs, an individual’s constitution of biological, social, emotional, cognitive, representational, and linguistic systems becomes increasingly less diffuse and undifferentiated and approaches an advanced organization of systems that is more articulate and complex. Examination of decision making during earlier stages of childhood than is presently the practice of social science would allow us the potential to detect sociogenic cognitions prior to children’s developing an organization of intrapersonal systems of factors that may demand greater individual specificity in methodological design.

As a child’s intrapersonal systems are becoming more complex and he or she continues to develop cognitively, specific decision-making operations that have the potential to lead to deviant behaviors become more salient (as well as more varied and complex). In other words, as maladaptive cognitions take form and mature, they become manifest in the child’s self-awareness. Because there is a simultaneous development of cognition and conscious awareness of one’s mental operations, the child becomes more capable of reporting his or her cognitions (that are either on-line or stored in memory as latent mental structures). In this sense, cognitive processes that are involved in deviant decision making in children become more scientifically measurable. In the Child Development Project (Dodge, Bates, & Pettit, 1990; Dodge et al., 2003; Pettit, Bates, & Dodge, 1997), for example, we have been able to detect developmental change in children’s on-line social judgment based on longitudinal data collected on a yearly basis from kindergarten through Grade 3 (Fontaine et al., submitted for publication).

A major scientific interest in predictive models is their utility in identifying social and psychological problems as they begin to materialize. For developmental psychopathologists, in particular, the interest is in detecting maladaptive
life trajectories in individuals as early warning signs emerge. A central motivation behind the RED and IAD frameworks is that it may assist social scientists in achieving this goal by accounting for early cognitive factors and factor patterns that no current models of child and adolescent antisocial conduct are equipped to explain. Of course, methodologies that are specifically designed to assess on-line social cognitive processing in younger children are critical to this pursuit.

Value in youth decision-processing models may lie, in part, in the degree to which they clearly outline developmental differences in functioning and ability. For example, although children may not always be able to discern the acceptability of scenarios that have socially and morally questionable aspects to them, if they are sufficiently cognitively developed to understand concepts of right and wrong, an empirical protocol that is based on rudimentary versions of the RED and IAD frameworks may be useful. This may mean that they fear getting in trouble for if they were to engage in a proposed behavior, or that enactment of such conduct may bring some harm to them or others. The degree to which a social behavior is acceptable (defined in various ways by different children) can be grasped even by young children (e.g., Smetana, Campione-Barr, & Yell, 2003). The moment the child is able to identify the issue of the sociomoral acceptability of a potential behavior, decision processes, even at an elementary level, may play a role in behavioral enactment. Even if the child is wrong about the behavior as being deviant (i.e., the behavior is completely acceptable by any standard) but still decides to enact the behavior that is perceived to be somehow unacceptable or inappropriate, the child demonstrates the willingness and ability to activate deviant decision operations and behave in an antisocial manner. Early childhood is a critical developmental period to identify with respect to the formation of evaluative judgments and behavioral decisions. From this point in learning and development, the researcher may begin to assess how children form social decision-making styles that may causally impact the enactment of antisocial behaviors. In this way, research scientists may study lower level decisions and decision patterns that are related to socially deviant or unacceptable conduct. It is important to recognize that the term social deviance includes both less severe, predelinquent acts (e.g., cheating in friendly games, cutting or “butting” in line, and taking more than one’s fair share of something) as well as more severe, delinquent and criminal behaviors (e.g., violent aggression, vandalism, and theft). The focus on this broad range of behaviors reflects the contemporary view in the social sciences that serious antisocial conduct often develops out of a wide array of milder, less serious behaviors that usually arise during earlier developmental periods (Conger & Simons, 1997; Dodge & Pettit, 2003; Gottfredson & Hirschi, 1990; Moffitt, 1997; Sampson & Laub, 1993).

4. Impulsivity and behavioral disinhibition

There are several assumptions about the nature of decision-making models of behavior that are both misconceived and misleading (for further discussion, see Akers, 1990; Harding, 1993; Pallone & Hennessy, 1993; Wilson & Herrnstein, 1985). Among such misconceptions are beliefs that decision-making models of behavior (a) only consider cognitive processes that occur in one’s conscious awareness (and thus neglect the role of nonconscious processing), (b) imply that behavior is necessarily rational, as opposed to illogical or entirely reasonless, (c) imply that behavior is necessarily deliberate and purposeful as opposed to unintentional or accidental, and (d) do not account for impulsive and automatic behaviors and are therefore incomplete. These misguided views are, although conceptually discernible, closely related and may be summarized by the global misconception that decision-making models necessitate that behavior is always “mindful”—that is, that decision making is a process by which nonimpulsive, evaluative processes that are entirely in one’s conscious awareness lead to a reasoned, sound behavioral choice.

In fact, there has been increasing attention paid to the role of impulsivity in social cognitive and decision-making approaches to antisocial behavior (e.g., Crick & Dodge, 1994). Science has supported the hypotheses that neurological or neuropsychological dysfunction underlies behavior and that certain forms of antisocial behavior (e.g., impulsive violence) are attributable to neurogenic sources in many cases (Pallone & Hennessy, 1993). Here it is considered that there are at least six kinds of impulsivity that may affect, or be affected by, social decision making and conduct problem behaviors. First, “stable impulsivity” stems from biological differences in individuals’ neural networks and patterns of neurochemical activity. Quay (1988a,b, 1996, 1997), in extending Gray’s (1982, 1985, 1987) neuropsychological model of anxiety, has provided evidence that this type of impulsivity stems from decreased functioning of the behavioral inhibition system in the brain. Although this kind of impulsivity is “stable” in the sense that it is a biologically-based, enduring characteristic, behavioral manifestations of stable impulsivity may be influenced by contextual factors and thus may be masked in various social settings. For example, children with ADHD have been
found to perform more favorably (i.e., behave less impulsively) on continuous performance and related tasks when an inactive adult is present in the same room (Draeger, Prior, & Sanson, 1986; Gomez & Sanson, 1994), when they are alert and rested (Porrino et al., 1983; Zagar & Bowers, 1983), when immediate consequences are associated with the prescribed task (Barkley, Copeland, & Sivage, 1980; Douglas & Parry, 1983, 1994), and when the degree of stimulation is optimized (Zentall, 1985; see Barkley, 1997, for a review). Psychopaths may be viewed as another example of stable impulsivity in that the psychopath’s decisions to enact antisocial behaviors may involve the bypassing of one or more decision-making domains (e.g., sociomoral congruence). The respective thresholds of acceptability are set to zero (because the evaluative content of such domains mean nothing to psychopathic actor), an idea that is entirely consistent with Newman’s (1998) information processing perspective on cognitive deficits and psychopathic behavior, as well as Blair’s (1995, 2005; Blair, Jones, Clark, & Smith, 1995) research that suggests that psychopaths lack moral cognitive mechanisms by which they may learn the wrongfulness of their transgressions.

Second, “developmental impulsivity” characterizes the thoughtless behaviors of young children whose brains have not yet matured neurologically to control (i.e., raise the acceptability thresholds for) reflexive responses. The processes of development of inhibitory control involve both neuronal maturity and socialization by the environment. Cairns and Cairns’ (1991) depiction of toddlers as the most frequently aggressive developmental group suggests that the formation of thresholds of acceptability is a normally acquired skill. Children’s delay of gratification, for example, provides an illustration of the implications of developmental impulsivity for on-line social decision making.

Third, “scripted impulsivity” is an individual’s tendency to access and enact a cognitive script that has been both mentally and behaviorally rehearsed across repeated experiences. Not all aspects of socialization and development operate to inhibit aggression. Some aspects promote impulsive responding. Huesmann (1982, 1986, 1988, 1998; Huesmann & Eron, 1984, 1989) has hypothesized that social behavior is largely controlled by programs of behaviors that are learned early in childhood. After a behavior has been formed, a scripted representation of the behavior is stored in memory. As a script continues to be mentally and behaviorally rehearsed, it may be automatically accessed from memory and impulsively performed. Environmental situations condition accessing of scripts. Cognitive scripts that are automatically accessed and carried out potentially preempt advanced cognitions (such as sociomoral judgments and outcome expectancies) and emotions from taking part in influencing behavioral responses. Bandura, Barbaraneli, Caprara, and Pastorelli (1996) described this process as moral disengagement. For example, an abused child who has learned that aggression protects him- or herself from harm may develop a script for violent retaliation that is automatically accessed and carried out when the child is faced with any stimulus that is perceived as potentially threatening. Likewise, the recidivistic thief may automatically employ an instrumental stealing script when presented with a certain type of opportunity, such as when a store clerk is not paying attention. The scripted behavior may be performed even in situations that, in retrospect, the individual realizes that the enacted behavior was not merited. That is, perhaps the child who retaliates later realizes that he or she was not truly provoked; and the thieving child later realizes that the item he or she stole was not one that was particularly wanted or needed. In this sense, script-impulsive behaviors are performed relatively mindlessly. Of course, the initial accessing of a script and the decision to enact it may follow from on-line decision processes. The key contribution of script theory is that once the script is initiated, then evaluative decision making is functionally “turned off” or bypassed as the script is automatically enacted.

Fourth, “value-based impulsivity” involves one’s disregarding behavioral options because they are incongruent with the values that he or she strongly holds. According to recent models of on-line social decision making, such as RED and IAD, a behavioral schema that is in strict conflict with a strongly held value may be immediately discarded as internally incongruent. For example, this may take place during the goal assessment or sociomoral congruence domains of IAD (see Fontaine, 2007b). During sociomoral congruence, the process by which it the degree to which a behavior “matches” one’s self-ascribed social and moral identity is assessed, the behavioral schema may bevaluatively weighted at such an extreme level (either high or low) that functionally all other components have no influence on the decision. Value-based impulsivity means that the behavior is valued so highly that it is impulsively selected, or it is viewed with such disfavor that it is impulsively vetoed. Commonly, values that are unyielding to situational factors often regard an individual’s moral beliefs, religious convictions, or cultural assumptions. For example, an individual who is contemplating the act of stealing but holds the value that violence is morally unacceptable will not consider an aggressive behavioral alternative, regardless of the situation. In this sense, the violent behavioral option is impulsively discarded.

A fifth kind of impulsivity, called “processing-based impulsivity,” emerges from the social demands to meet real-time constraints. Based on various aspects of a social situation, an individual perceives limitations on the amount of time he or she may have to process social information, access and consider alternative behaviors, and select one for
enactment. For example, in a situation in which an opportunity to perform an antisocial act is time-limited (perhaps because the act will only go unnoticed by others if carried out quickly), the actor may perceive the need to act quickly as urgent. As time (in microseconds) passes and behavioral alternatives fail to meet acceptability thresholds, one’s standards are lowered. When time demands are high, this process quickly leads to lowering thresholds of acceptability so that the next behavioral option that is accessed is approved. Time begins to expire so rapidly that any behavior becomes better than no behavior at all. The individual experiences this situation as pressure. In this way, real-time factors affect decision-making thresholds and lead to impulsive behaviors that would otherwise be devaluated and inhibited from enactment.

Lastly, “transitory impulsivity” is characterized by temporary psychological and physical conditions that prevent full processing of information. Transitory impulsivity is associated with bodily states that have resulted from depleted physical and mental resources (e.g., fatigue), changes in mood (e.g., depression), and drug and alcohol consumption. The various mechanisms underlying these conditions operate to inhibit IAD processes from being activated and utilized to their full capacities. When IAD processes are inhibited, behavioral schemas that are readily accessible (including dangerous behavioral schemas such as raping and killing that would otherwise be controlled) may be quickly accepted and performed. In other words, transitory-impulsive behaviors result as a function of accessing schemas that require little cognitive effort to locate in memory and mindlessly accepting them for behavioral enactment (and, in this sense, are similar to behaviors stemming from scripted impulsivity). In an appearance before the New Jersey License Control Board, boxer Mike Tyson described his own transitory impulsivity in biting Evander Holyfield as follows: “I was in a rage. I just snapped. Nothing mattered anymore at that particular moment” (Associated Press, 1998). By stating that “nothing mattered,” Tyson was articulating that all behavioral evaluation had become irrelevant.

Multiple processes identified by the RED and IAD models may be implicated in this kind of impulsivity. First, thresholds of goal and behavioral schema acceptability may be lowered. Second, negative value assessments of response outcomes may be muted. Impulsive behavior that occurs due to one’s consumption of a mind-altering substance may be explained, in part, by Gray’s (1975, 1987) theory of neuropsychological functioning. The depressing effect of alcohol that is observed to dull neuronal activity and behavioral arousal may reflect suppression of the behavioral inhibition system in the brain, operationalized in RED and IAD as a reduction in the magnitude of negative valuations of antisocial behavioral outcomes. Research that tests this hypothesis may be informed by Quay’s (1988a, 1997) work on impulsivity and decreased behavioral regulation in children who display chronic conduct and attentional problems.

A final note should be made with respect to a construct that child and developmental psychologists have studied extensively and has been addressed at earlier stages of this paper—delay of gratification. The child who resists the urge to act on attractive impulses is said to be able to delay gratification. The impulsive child, on the other hand, is described as having poor delay-of-gratification skills. In sociological and criminological literatures, deficits in delay of gratification have been empirically associated with criminal offending (Farrington et al., 1990). With respect to IAD, the deviant child who is unable (or relatively less able) to delay gratification may differ from other youths who act on antisocial goals in that the former may utilize fewer conceptual decision processes and quickly and impulsively act on antisocial goals in order to achieve his needs or wants in a timely fashion. The child who acts on antisocial impulses and has poor delay of gratification may act, in part, due to multiple types of impulsivity described above (including scripted and transitory impulsivity), though it is likely that this type of social skill deficit is commonly accounted for by developmental impulsivity. The rationale for this conclusion is based in the significant negative correlation between age and delay of gratification in which many children with poor delay of gratification are able to develop this skill as they grow older (e.g., McCabe, Cunnington, & Brooks-Gunn, 2004).

5. Emotion

Emotions that are experienced prior to and during on-line decision operations potentially have a profound effect, either directly or indirectly, on individual behavioral judgments and patterns of decision making and behavior. For example, the male student who is confronted by a teacher in front of the class for not finishing his homework may feel embarrassed and ashamed. These feelings may develop into a state of anger that may influence his decision to enact a bullying behavior against another student at a later time in the day (an example of displaced anger and aggression). The anger may not only make it more likely that he act in a violent manner, but may make him desire a sense of social control that he may otherwise have not needed but for the earlier experience with his teacher. In this way, the child’s instrumental aggression is partly anger-induced. Note that this need not mean that the bullying offense against the
acting child’s peer is one based in impulsivity. Although emotion likely plays a strong and common role in impulsive social behavior, it may act in a way that, though not impulsive per se, serves to guide how prebehavioral judgments and evaluations are made. To draw upon an example with RED processes, this same boy’s emotional reaction to the teacher’s cue may make it more likely that he impulsively retaliates with a verbal act of disrespect. Or, as a second alternative, the child may experience the situation as rejection, internalize his thoughts and feelings, cry and withdraw. His crying is also emotion-laden (if not emotion-mediated), transitory impulsivity without full RED processing. In these alternative examples, different emotions play varied roles of influence in the child’s on-line decision making and are likely to affect the ultimate behavior chosen and enacted. In all cases, strong emotion served to preempt fuller decision processing.

Emotional states cannot only preempt processing in favor of impulsive behaviors, they can also alter how behaviors and expected outcomes are assessed. Isen, Shalker, Clark, and Karp (1978) have summarized evidence that positive emotion states generally have the effect of enhancing one’s estimations of behavioral efficacy and expectancies of favorable outcomes. Of course, these kinds of decision processes can also induce positive emotional states, as noted earlier with respect to aggressive children who expect antisocial behaviors to lead to good feelings about themselves.

The notion that emotions and cognitions have reciprocal effects is, in some form, as old as the study of psychology itself. However, given the impressive number of empirical tests that have examined aspects of social cognitive models, research on emotion and decision making (and other models of social cognitive processes) has remained relatively limited (Crick & Dodge, 1994; Gottman, 1986; Smith & Lazarus, 1990; Winfrey & Goldfried, 1986). Furthermore, most studies have looked at positive versus negative affective states and have therein been forced to treat experiences of discrete emotions such as anger and sadness, as well as mixed feeling states of fear, sadness, guilt, etc., as equivalent events. Generally, any extreme emotion lowers thresholds of acceptability and distorts valuation of responses and outcomes. The valence of emotion alters evaluation of consequences. Positive moods have been found to lead to more optimistic and hopeful social outlooks, whereas states of negative affect have been linked to thinking styles that are more pessimistic and cynical.

Keltner, Ellsworth, and Edwards (1993) employed a discrete emotions approach in their examination of the effects of sadness and anger on social judgments. They found significant differences in the way that sad and angry participants judged the likelihood of future negative events, whereas the two groups did not differ in their judgments of the probability of future positive events. The authors concluded that social judgments are likely influenced by emotions in far more complex ways than are evident from research on mood states and cognition. It appears that specific emotions as well as mixed feeling or mood states may meaningfully influence IAD processes.

The anticipation of various intrapersonal, emotional outcomes following aggressive behaviors has also been studied. Perry, Perry, and Rasmussen (1986) found that, compared with their nonaggressive peers, aggressive children are more likely to report that they are proud of their aggressive behaviors. Similarly, Slaby and Guerra (1988) provided some evidence that aggressive adolescents are more likely to expect their aggressive behavior to lead to increased self-esteem.

It is also the case that cognitions affect emotion. Schwarz (1990) clarified the reciprocal relation between cognition and emotion by pointing out that the effects of a specific emotion on cognitive processes may be best understood by analyzing the cognitive meaning structure that underlies that emotion. The principal underlying premise of appraisal theory (Lazarus, Averill, & Opton, 1970; Lazarus & Smith, 1988; Smith & Lazarus, 1990, 1993) is that emotion is not caused by environmental stimuli but rather the cognitive process of appraisal—that is, an individual’s appraised (or perceived) relation between him- or herself and the environment. Recent modeling of on-line social decision making was designed to account for proximal, real-time cognitive processes leading to child and adolescent behavioral outcomes (e.g., antisocial versus prosocial behavior) and in this sense parallels the work of appraisal theorists and researchers.

Given reciprocal cognition–emotion relations, another hypothesis states that the proximal effect of anger on aggressive outcomes is mediated by additional social cognitive processes. Fontaine et al. (1998) found support for the hypothesis that the relation between hostile attributions and antisocial behavior in adolescents is mediated by sociomoral judgments that endorse aggression (i.e., response valuations that aggression is a “good” and sociomorally acceptable response to being provoked by another). This research suggests a more comprehensive characterization of adolescent processing of a perceived negative social outcome: a social interaction takes place involving a negative stimulus that is perceived by the responding individual to have been caused and intended by the other person (hostile attribution). This infuriates the responding individual (anger), leading to his or her reactive judgment that retaliatory action is justified and deserved under the circumstances (sociomoral endorsement of aggression), which, in turn, leads to a violent response (aggressive retribution). This analysis suggests that one important way that early decision
processes (e.g., assessment of goal interest) may affect later operations (e.g., discounting possible risks) is via an indirect path, in which emotion (excitement or arousal) is the intervening mechanism.

It is suggested that this process may explain some of the heightened violent behavior of adolescents who have experienced early life maltreatment, relative to those who have not experienced maltreatment (Dodge et al., 1995). Adolescents who have suffered from chronic physical abuse may be characterized by a cognition–emotion–behavior pattern of aggressogenic processing and violent behavior. When a goal is identified and valued, a heightened level of emotional arousal may result. This emotionally provocative state leads to the accessing of a script of aggressive predation, not as one of several possible behaviors but as the only approach that is valued. In on-line decision-making terms, a schema for aggressive predation is identified, quickly accepted (discounting the level of risk, as well as various possible risks) and enacted without further processing. In this way, emotion has mediated an impulsive process by which early cognitions lead to later ones that are active immediately prior to behavioral enactment.

6. Additional context-specific factors

In addition to emotion, there are numerous other factors that may affect on-line social decision making. The scope of the present paper allows for a brief discussion that highlights the potential roles that factors classified as intrapersonal and extrapersonal may play in the development of antisocial decision processing. For further discussion of situational and intrapersonal influences on making social and behavioral choices, including structural constraints and lack of information, see Akers (1990) and Farrington et al. (1990).

6.1. Internal context factors

Intrapersonal context influences include physiological factors such as fatigue and alcohol intoxication and cognitive factors such as attitude, mood state, and storing salient, recent experiences in working memory. These factors are known to alter aggressive behavior (see Loewenstein, 1996) and it is proposed that this process is mediated by on-line decision processing. Physiological factors that may influence decision processing include self-induced pharmacological (e.g., alcohol and drug intoxication) and uncontrolled visceral (e.g., fatigue, hunger, craving a drug to which one is addicted, pain, and sexual desire) influences. Just as emotions such as fear, anger, and sadness may lead one to act in an antisocial manner or engage in social withdrawal, sexual desire may affect a person’s decision to rape, physiologically craving a drug may influence one’s willingness to rob another person, and fatigue may alter one’s irritability during social interaction.

Pharmacological factors are hypothesized to play a substantial role in decision making. For example, depressant drugs (e.g., alcohol and marijuana) may diminish behavioral valuations and render outcome expectancies less accurate. Stimulant drugs (e.g., cocaine and caffeine) may increase positive behavioral-efficacy judgments and positive outcome expectancies. They may also lower script thresholds. Hallucinogenic drugs may cause the individual to consider script alternatives that are completely irrelevant to the given situation and behave according to desires that cannot be fulfilled due to the nature of the social exchange. Little research in cognitive psychology has attended to the role of physiological and pharmacological factors in decision making (Loewenstein, 1996; Rachlin, 1996), making this an important topic for empirical inquiry.

In addition to pharmacological and uncontrolled visceral factors, context-dependent cognitive factors may also operate. For instance, events that have happened recently may alter processing through increased availability of relevant outcomes representations. Recent events are more likely to be held in working memory and quickly accessed during later prebehavioral contemplation. One who has recently been involved in a fight may be more interested in considering alternative nonviolent behaviors when thinking about how he or she can achieve instrumental goals if he or she had been injured in that fight. Alternatively, if the person easily won the fight, his or her schema of aggression may be enhanced in a way that makes it more likely to readily or even impulsively accept and enact a violent behavioral approach in order to realize an antisocial goal.

6.2. External context factors

External context influences include interpersonal (e.g., relationship between a target person[s] and actor), extrapersonal (e.g., number of individuals who may watch the considered behavior if enacted), and nonpersonal (e.g., time demands) factors that may alter decision processing. Although external context factors do not originate entirely with
the acting individual (as opposed to visceral context factors, for example), the impact they have on one’s social decision making depends largely on his or her perception or experience of them (and, in this sense, they are very much internal and cognitive, as opposed to external and social). Interpersonal context factors stem from the perceived relationship between the possible victim (i.e., person against whom the antisocial act is committed) and the instrumental actor. If this relationship is viewed as friendly and familiar, the actor may be less likely to accept and enact an antisocial script because it is devalued for sociomoral reasons. However, the acting individual may be more likely to behave in an antisocial fashion if his or her relationship with the target individual(s) is vague, unfamiliar, indirect, or nonexistent.

Extrapersonal context factors involve the acting individual’s perceptions of others who are observing the given situation (although these perceptions often extend to others who may hear about the given situation in the future). For example, the perception that onlooking individuals have authority status and perhaps punitive capabilities may have an effect on a person’s on-line decision making. The child who might otherwise aggress may consider the added factor that his or her teacher may be watching. Not only would the teacher disapprove of the child’s violent behavior (which, by itself, would be important as an interpersonal context factor if the child is interested in the teacher’s approval) but the child may be punished for having acted in that manner. Nonpersonal context factors, such as perceived time pressure, can also affect on-line decision making. The acting individual who believes that time demands necessitate a quick decision (e.g., when it is believed that an opportunity may exist only briefly) may be more likely to impulsively access and enact the antisocial behavior that is first available following the judgment that time may otherwise run out.

6.3. Context and “reactive” instrumental decision making

A note about responsive instrumental decisions should also be made. There are at least two situations in which instrumental decision making (as represented by IAD) and behavior may be particularly likely to be conducted in a way that shares features with responsive processing (as represented by RED) and behavior. First, there is the scenario in which the person’s instrumental goal is of an interpersonal nature but it requires the presentation of a specific type of social cue or stimulus. For example, an instrumental antisocial behavior may be to humiliate another person in public in order to gain social dominance over the person. The decision maker may evaluate various ways by which humiliation may be achieved and decide that private information about the other person could be exposed, but it would only be viewed as relevant if the intended victim brings the topic related to the private information to bear. The instrumental decision maker may, in his or her interactions with the target individual continue to evaluate cues and stimuli that may serve as appropriate opportunities that allow for the private information to be shared. In this scenario, the decision maker is responding to the cue (in this case, a desired and perhaps anticipated cue) and may be bound by contextual factors that are similar to those that influence response decision making (e.g., when there is only a brief amount of time in which to conduct behavioral decision making and enactment).

The second instance has to do with sudden opportunity. If an opportunity suddenly or unexpectedly presents itself, the instrumental actor may quickly identify the opportunity and realize that, due to time constraints, he or she must make a decision as to whether and how to act in response to the perceived opportunity and follow through with antisocial behavior quickly, if at all. For example, two children in the back of a class are seated so that the male student can see the inside of the female student’s desk. The girl gets up from her desk in order to sharpen her pencil. At this time, the boy can see that the girl’s lunch money is sitting near the opening of the inside of her desk. The boy realizes that, if he hurries, he can take the girl’s lunch money without being seen by anyone. In this case, the child must quickly make the decision as to whether and how he is going to steal the money. Aspects of this decision-making situation are similar to response decision making in that the boy is in a time-pressured situation and does not have the luxury of engaging in a longer and more thorough decision-making process that is typical to a variety of other instrumental antisocial situations.

Not only do these examples of instrumental decision making likely mirror reactive decision-making situations in terms of perceptions of time limitations and demands, but they may illustrate instances by which other contextual factors are influential. For example, the sudden recognition of a good but time-limited opportunity to achieve an antisocial goal may trigger emotional and psychophysiological arousal in ways that accelerate and abbreviate decision processing. As discussed above, emotion and impulsivity play important roles in behavioral decision making. Regarding the dichotomy of instrumental versus reactive aggression, impulsive, emotional arousal is normally associated with reactive aggression. However, in these examples, instrumental behaviors that are considered when antisocial opportunities are identified may be enacted impulsively due to heightened arousal or the perception of a narrow window. In this way, various values or decision processes may be discounted due to the perceived pressure to
behaviorally decide and act quickly before the opportunity has passed and is no more. In these cases, though, the instrumental actor is responding to an opportunity as opposed to a person or social cue.

7. Conclusions

Social-information processing (SIP) theory has been established as the most promising of developmental perspectives of social cognition and aggressive behavior in youth. Whereas SIP has provided a basic framework for response decision making, detailed models of higher-ordered, microprocess operations that are potentially active in youths’ on-line social decision making have not been advanced until quite recently (Fontaine, 2006b, 2007b; Fontaine & Dodge, 2006). Still, social decision-making models have yet to adequately address several key issues that have considerable potential importance with respect to how children and adolescents process evaluative behavioral decisions in real time. Several of these issues have been identified with respect to SIP, such as emotion (Lemerise & Arsenio, 2000), development (Orobio de Castro, 2004), and nonconscious processes (Mize & Pettit, in press). Others, such as various types of impulsivity, pharmacological influences, and external factors such as audience effects, seem equally worthy of attention. The present article serves both to provide an array of important but neglected issues that are potentially critical to the advancement of research on social cognitive processing and antisocial behavior in youth, and discuss in some detail their relevance to current models of on-line social decision making, including decision making that occurs in response to social stimuli, as well as self-initiated, instrumental decision processing. In the process of doing so, several hypotheses are asserted and suggestions as to empirical examination are made.

References


