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**Crime and Decision Making:  
New Directions for Crime Prevention**

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The goal of this chapter is to identify new directions for the prevention of crime and delinquency. While there are numerous avenues to choose from, we ultimately decided to focus on explicating the role of human agency with respect to social information processing and decision making. According to that notion, onset of, persistence in, and desistance from criminal offending is characterized by the experience of external events (or turning points), as well as inter-individual differences in the decision-making process due to variation in neurocognitive capacity as well as affective aspects of behavioral options.

There has been a drastic change in criminological research in the last 30 years. Inspired by the robust finding that crime rises sharply during adolescence, reaches a peak in mid to late adolescence, and gradually declines in adulthood, criminologists have shifted their focus from explaining why some people commit crime and others do not (between-individual differences) to changes in individuals' criminal offending over time (within-individual change). New theories have been developed to explain the paradox of continuity and change, as characterized by two important findings: "Adult antisocial behavior virtually requires childhood antisocial behavior" and, "most antisocial youths do not become antisocial adults" (Robins, 1978: 611). Among all the theories that aim to explain this paradox, age-graded social control theory has received the most attention and empirical testing (Laub and Sampson, 2003; Sampson and Laub, 1993). While continuity in offending is explained through the notion of "cumulative disadvantage", which describes how serious delinquency and its inevitable consequences (such as being labeled by parents, peer rejection, and criminal justice intervention) undermine bonds to conventional society, which, in turn, increase the likelihood of continued offending (Sampson and Laub, 1997, 2). Central to their explanation of desistance is that important events in adulthood, such as marriage and employment, introduce changes in offending behavior and may lead to desistance from crime. Sampson and Laub (1993) called these events "turning points", originally defined as the strengthening of informal social control. Sampson and Laub argue that what reduces offending is not marriage or employment per se, but the social ties or "embeddedness" associated with marriage and employment (i.e., marital attachment and job stability). These newly formed adult social ties reduce offending by strengthening social control and increasing the costs of committing crime.

In a later version, Sampson and Laub (2003) further expanded their theory by incorporating the concept of "human agency", and broadening their definition of turning points as "an alteration or deflection in a long-term pathway or trajectory that was initiated at an earlier point in time" (Sampson and Laub, 2005, 16).

The notion of “human agency” is commonly derived from the Rational Choice Theory (Cornish and Clarke, 1986; McCarthy, 2002), which—as applied to criminal behavior—hypothesizes that reasoning offenders ultimately choose behaviors to maximize their profits, albeit within bounded rationality. Despite its popularity, critics have argued that Rational Choice Theory views offending behavior too narrowly by exclusively focusing on individuals’ intentions (de Haan & Vos, 2003) instead of viewing it as a “system of triadic reciprocal causation” (Bandura, 1989) consisting of cognitive, affective and environmental events as interacting determinants of behavior. Specifically, Rational Choice Theory does not elaborate on the processes leading up to a decision and does not explain experiences during and after an offense has been committed and how these are related to future offending (de Haan & Vos, 2003; Jacobs & Wright, 1999).

Since offending behavior is generally viewed as learned behavior, it can be “unlearned” and consequently, perspective taking and decision making as a foundational aspect of human agency become some of the key targets for the prevention of crime and violence. The authors’ point of view disagrees with the claim that “human agency” can only be operationalized from a rational choice perspective (Paternoster & Bushway, 2004). Instead, we will introduce a more comprehensive decision-making model, namely the Social Information Processing Model (SIPM; Crick and Dodge, 1994; Dodge, 1986) and discuss it in the context of juvenile and adult offending behavior. This model focuses predominantly on the cognitive and affective determinants in the decision-making process. A small, but significant body of literature has started to emerge (e.g., Wright, Logie, & Decker, 1996) proposing that offenders differ from nonoffenders not only in their offense-specific skills, but also in how they process environmental stimuli and select behavioral options. Following a discussion of this model and its application to explain aggressive behavior in childhood and adolescence, we will review recent criminological thinking with respect to information processing and decision making, specifically: 1) Thoughtfully Reflective Decision Making, by Paternoster & Pogarsky, 2009; 2) Cognitive transformation, emotion and crime over the life course, by Giordano and colleagues 2002, 2007; and 3) Turning points in late adolescence, by Liu, 2013. These three criminological thoughts extend SIPM theory to explain desistance from criminal behavior in adulthood. Finally, we will discuss exemplars of preventive interventions that have focused on decision making among children as well as adolescents and young adults (i.e., cognitive-behavioral programs) and conclude with new directions for the future of crime prevention.

## Social Information Processing Model

According to this model, the conceptual underpinning of the decision-making process highlights the strong interaction of biological, psychological, and socio-structural factors that inform how decisions are made and carried out. The process itself consists of encoding and evaluating verbal, behavioral, and emotional environmental cues and selecting from individually stored behaviors to determine which behavior is the most efficacious to achieve the desired and goal-consistent outcomes (Crick & Dodge, 1994; Lemerise & Arsenio, 2000).

Social cues are at the core of the decision-making process. Social Information Processing Theory (SIPT; Crick & Dodge, 1994; Dodge & Crick, 1990; Lemerise & Arsenio, 2000) helps explain how social cues prompt behavioral decisions. Social cues may be verbal or behavioral themselves, but cues may also originate from the environment in terms of affordances (Gibson, 1977). These cues may trigger an array of potential behaviors that form a repertoire from which individuals select those felt to be most appropriate.

While earlier SIPT models assumed the process developed sequentially, current theory holds that the different stages of information processing may occur in parallel fashion with the opportunity for several feedback loops. Given that individuals in complex societies are exposed to a multitude of social cues prompting a behavioral response on a daily basis, most do not execute the complete information processing cycle but rather apply cognitive models of relationships, drawing on cues experienced in the past and memories of the outcomes of particular expressed behavioral responses. Familiar situations often prompt quasi-automatic or habitual behavioral responses. While this approach is efficient, it can result in judgment and reasoning errors depending on the generality and quality of the individual's social knowledge and behavioral repertoire. Finally, in addition to behaviors based on social knowledge as well as active processing, individuals may apply preemptive or script-based processing, which is rapid, automatic, and non-rational in situations that are highly emotionally arousing, such as situations religious or spiritual in nature, interpersonal relationships, matters of great importance or value. Evidence exists to suggest that individuals with low self-regulatory ability apply a preemptive processing style more frequently (Crick & Dodge, 1994).

Standard models of decision making have typically focused on the effortful, intense-processing, and affectively neutral decision-making process (Chang & Sanfey, 2008), despite the accumulating evidence of the existence of a dual-process model (Poldrack & Packard, 2003). Building on the SIPT model (Crick & Dodge, 1994), Lemerise and Arsenio (2000) extended SIPT to integrate affect and cognition. They

argue that individuals differ not only in their level of biological competencies and database of past experience but also in their emotional style and regulatory abilities, both of which influence the processing of social/emotional information and decision making in stressful situations. Damasio (1994) has argued that affect may increase the efficiency of the information processing and decision-making process by attaching somatic markers to specific behaviors or cognitions. In other words, if a person is confronted with a similar situation, these somatic markers will narrow or reduce the array of possible alternatives and thus will lead to increases in efficiency. In the next section, we will summarize findings of social information processing applied to early aggressive behavior, one of the best replicated predictors of later violence and delinquency.

## The Application of SIPM in Explaining Aggressive Behavior in Youth

Several studies have demonstrated that biases in one or more of the social information processing steps increase the likelihood of socio-cultural unacceptable behavior. A meta-analysis conducted by Yoon et al. (1999) found that social cognitive deficits play an important role in increasing aggressive behavior in youths of all ages, from kindergarten to high school.

With respect to encoding stimuli, aggressive individuals are more likely to focus on aggression-oriented cues and past aggression-related events are more salient in their memory (Gouze, 1987; Dodge & Frame, 1982). In addition, aggressive children are more likely to make hostile attributions even in non-hostile environments (Lansford et al., 2006), which may contribute to forming hostile scripts (Crick & Dodge, 1994). Furthermore, aggressive children are more likely to select intrapersonal goals, such as those that are self-serving or promote personal gains (Losel et al., 2007). After the goal-setting stage, aggressive children tend to generate fewer behavioral response options and more hostile and aggressive alternatives (Bliesner & Losel, 2001; Lansford et al., 2006). They also evaluate aggressive responses more favorably and consequently are more likely to enact them. In summary, deficiency in the social information processing has been shown across situations and developmental periods to account for child and adolescent aggression (Fontaine, Burks, & Dodge, 2002).

While aggression is a relevant precursor for later conduct and antisocial problems, including delinquency, the research described above has not been extended to adulthood nor has it explicitly focused on delinquency and criminal behavior. To this end, we will now review three recent examples from the criminological literature, which focus on the cognitive (Giordano et al., 2002; Paternoster & Pogarski, 2009), affective (Giordano, Schroeder, & Cernkovich, 2007) and environmental (Liu, 2013) aspects of the decision-making process with respect to offending in adulthood.

### **Cognitive Transformation and Thoughtfully Reflective Decision Making (Giordano et al., 2002; Paternoster & Pogarsky, 2009)**

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Giordano et al.'s theory of cognitive transformation (2002) was originally developed in response to Sampson and Laub's age-graded information social control theory. They raise the important question of whether desistance from crime due to marriage, employment or military service (Sampson and Laub, 1993; Laub and Sampson, 2003) can occur without cognitive restructuring by the desister. While they do



not negate the influence of these three events, they argue that continued offending despite marriage or employment and desistance without marriage or employment are not well-explained by their theory.

Building upon a symbolic interactionist tradition,<sup>1</sup> the essence of cognitive transformation theory is that both cognitive change within the individual and the exposure to prosocial ties (or turning-point events from a life course perspective) are necessary influences that lead to desistance from crime; i.e. offenders must be exposed to a prosocial opportunity and they must be willing to use such opportunities to change their behavior.

Specifically, Giordano et al. envisioned four stages of cognitive transformation: 1) a “basic openness to change”; 2) “exposure to a particular hook or set of hooks for change”; 3) the ability “to envision and begin to fashion an appealing and conventional ‘replacement self’”; and 4) “a transformation in the way the actor views the deviant behavior or lifestyle itself” (Giordano, et al., 2002 ,1000-1002). The notion in Giordano’s theory that offenders take an active role in seeking opportunities for change is consistent with Sampson and Laub’s concept of human agency (while Sampson and Laub place a much stronger emphasis on opportunities or turning points). However, Giordano, et al., place “human agency” in a central position by emphasizing the reciprocal relationship between the offender and the prosocial relationship, that is, both an openness for change and positive opportunities (or “hooks”) for change are necessary in desistance from crime, and desistance cannot occur in the absence of either.

Compared to the cognitive transformation theory, Paternoster & Pogarsky (2009) place an even greater emphasis on individual differences in information processing. They make the argument that a rational choice perspective applied to human agency leads to the notion of the capacity of thoughtfully reflective decision making (TDRM). They further emphasize that TDRM capacity varies across individuals due to differences in biological capacity (i.e., intelligence, executive functioning) as well as in social and human capital. They operationalize TDRM as a sequence of four steps: 1) “Collecting information pertaining to a problem that requires a decision”; 2) “Thinking of alternative solutions to the problem”; 3) “Systematically deliberating over how to determine which alternative might be best”; and 4) “Retrospectively analyzing how good a problem solver one was in the situation”.

Using the Add Health data, they found that in the short term, individuals with higher levels of TDRM capacity were less likely to be involved in delinquency and substance use, and more likely to graduate

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<sup>1</sup> Symbolic Interactionism is a sociological paradigms which emphasizes how individuals create and interpret experiences in their life through language and symbols (Mead, 1934)

from high school. In the long run, these individuals are also less likely to engage in criminal offending and use substances, and more likely to participate in community and civic group activities.

The TDRM concept is closely aligned with the SIPT in that it addresses relevant aspects of the decision-making process, including encoding and storing of environmental stimuli, identifying and selecting appropriate behavioral responses as well as (re)evaluating the effectiveness of these responses. In addition, the authors speculate that variation in TDRM capacity is related to dispositional traits, such as impulsivity, as well as the biological maturation of neurocognitive brain capacities.

### **Emotion and crime over the life course (Giordano, Schroeder, & Cernkovich, 2007)**

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In a more recent version of their theory, Giordano and colleagues (Giordano, Schroeder, & Cernkovich, 2007) incorporated the role of emotions in addition to the social influences and cognitions in the desistance process. Giordano, et al. (2007) argue that emotions, particularly love, can facilitate emotional transformation, as an important aspect of the desistance process. Specifically they formulated three changes related to emotional transformation: 1) the “diminution of negative emotions originally connected to criminal behavior”; 2) “a gradually diminution of positive emptions connected to crime”; and 3) “an increased ability to regulate or manage the emotions in socially acceptable ways.” (Giordano, et al., 2007, P1610).

### **The influence of “Individually experienced” external events (Liu, 2013)**

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The above two theories apply the cognitive and affective determinants of the decision-making process to offending behavior by emphasizing cognitive transformation, emotional transformation and reflective decision making. On one end of the spectrum, Sampson and Laub applied universally defined turning points (e.g., marriage and employment), to virtually every individual, and argue that the experience of these events eventually leads to desistance from crime, while human agency plays a limited role in this process. On the other hand, Giordano’s and Paternoster’s theories imply that the definition of turning points as well as the experience of turning points that lead to behavioral changes is entirely filtered through the individual’s cognitive and affective system. More recent criminological thinking brings back the environmental context that is beyond individual control by re-emphasizing the important role that external events play in the desistance process. An example of such thinking is Liu’s (2013) theorization of turning points. Liu raises the important question of whether external events, or “turning points” as in Sampson and Laub’s theory, that may facilitate individual changes in behavior can even be defined. Three essential propositions were emphasized.

First, in defining “turning points”, Liu proposed that turning points are “‘universally identified’ and individually experienced” (Liu, 2013, P11). The term “universally identified” was first mentioned in Pickles and Rutter (1991). It was emphasized that turning points must be identified as external of the individual, and this criterion excludes those rare and dramatic internal and external events that a specific individual experiences, such as religious conversion, earthquakes, or being taken hostage (Pickles and Rutter, 1991). This is consistent with Laub and Sampson’s (1993) emphasis on conceptually separating the objective and subjective elements of a turning point. Liu argues that these “universally identified” turning points are “individually experienced”, that is, individuals vary in their response to turning points. The key of this proposition is that although turning points create opportunities for change, the realization of change is up to the individual (Laub and Sampson, 1993; Sampson and Laub, 1993). In other words, a universal turning point event may not always constitute a turning point for everyone who experiences it (Clausen, 1995; Wheaton and Gotlib, 1997). For example, King, et al. (2007) found that those who are least likely to get married are most likely to benefit from marriage as a turning point, and Elder (1986) found that military service benefits only disadvantaged youth and not those from more advantaged backgrounds.

Second, turning points may occur earlier than adulthood. Most criminological literature in desistance from crime has been focusing on adults. Despite the clear evidence that desistance from crime starts earlier before the traditional adult turning point (Thornberry, 2005), we know little about possible turning points and their consequences in other stages of the life course. Liu argues that turning points may occur at different stages of life, and that the period transitioning into early adulthood, as a period during which many decisions with long-lasting influences are made, holds the greatest promise. Thus, she placed great emphasis on turning points in late adolescence and early adulthood, as early turning points may open new doors for turning-point events that typically occur later in life and may also alter individuals’ responses to future opportunities. As an example, she theorized and empirically tested high school graduation as a turning point in late adolescence for reducing criminal offending (for more details see Liu, 2013).

Third, turning points do not occur by random chance—earlier turning points are related to later turning points in an interlocking fashion. Sampson and Laub (1993) did not provide a convincing explanation as to why turning points occur, that is, why some offenders find a good partner or a good job but others do not. Liu’s theory provides a plausible explanation by emphasizing the linkage between earlier and later turning points. She argues that earlier turning points, such as high school graduation, may open up opportunities to experience turning points later in life. In summary, the effect of turning points early in life is cumulative in the sense that they may open up the possibility of one experiencing turning points at later developmental stages and equipping individuals to take advantage of later opportunities.

## Criminal Decision Making and Preventive Interventions

Based on the notion that individuals can learn to make better decisions, two bodies of research have focused on decision making as a target to prevent delinquency and crime.

Empirical literature on the associations between decision making and aggressive behavior as well as processing deficits in aggressive children has motivated a series of mostly school-based social information process prevention programs, including anger control, social problem solving, or perspective taking. A recent meta-analysis conducted by Wilson & Lipsey (2006) has reviewed these programs. They identified 47 unique research studies of which 90 percent were conducted in the United States. The majority used random assignment (85 percent) and teachers as informants (72 percent). The target population consisted predominantly of male students between the ages of 9 and 16 years. About 40 percent were from a predominantly low socioeconomic background and almost all of them had a confirmed risk for antisocial behavior. Social Information Processing Programs yielded a mean standardized effect of 0.26, which translates into an eight percent reduction of school children at risk for aggressive behavior. Interestingly, different types of treatment modalities (e.g., anger management, social problem solving or perspective taking) did not impact the overall effect. Importantly, it has been found that the success of interventions to change distorted social information processing patterns is related to the timing of such interventions (i.e., before the distorted patterns are being fully ingrained) (August, Egan, Realmuto, & Hektner, 2003; Ziv & Sorongon, 2011).

In recognition that criminal offenders also tend to be characterized by distorted cognitions, including misperception of benign situations as threats, focusing on instant gratification and confusing wants with needs has motivated the use of cognitive behavioral programs, that is, cognitive skills training, anger management as well as supplementary components, such as assuming responsibility or developing victim empathy. Lipsey, Landenberger & Wilson (2007) have reviewed the effectiveness of cognitive behavioral therapy (CBT) programs for criminal offenders and identified 58 unique studies of which 72 percent were conducted in the U.S. The majority used a randomized (33 percent) or matched control design (40 percent) and focused on adult (71 percent) mostly male population. The most commonly implemented treatment elements included cognitive skills (78 percent), interpersonal problem solving (78 percent), social skills (74 percent) and cognitive restructuring (64 percent). Their meta-analysis yielded a mean odds ratio of 1.53, indicating that likelihood of no recidivism was more than one and one half times as great as those in the control condition. Several treatment elements were significant related to program impact. The strongest relationship was found for individual attention (instead of group session) as well as

anger control and cognitive restructuring. While the program was equally effective for juveniles and adults, the authors found that CBT worked better for offender at a higher risk for recidivism.

## Conclusion

The goal of this chapter was to identify new directions for the prevention of crime and delinquency. While we were challenged by the numerous options to choose from, we ultimately decided to focus on explicating the role of human agency with respect to social information processing and decision making. According to that notion, the onset of, persistence in, and desistance from criminal offending is characterized by the experience of external events (or turning points), as well as inter-individual differences with respect to neurocognitive capacity as well as affective aspects of the decision-making process. In addition, there is evidence to suggest that human agency also varies within individuals across the life course due to aspects of brain maturation and associated reductions in impulsive behavior and risk taking (Loeber & Farrington, 2012). In concert with the increasing implementation of cognitive interventions, several implications for the prevention of crime and delinquency can be recognized:

1. Current screening instruments for identifying youth at risk for serious forms of delinquency do not collect any biological or neurocognitive markers, which challenges the identification of specific aspects of the decision-making processes as a basis for offending behavior as well as addressing the developmental needs of vulnerable youth.
2. The majority of current randomized control trials are not informed by gene x environment variations in the study population and consequently their effects of identifying the differential effects mediators and moderators of intervention programs are not realized.
3. Police and youth justice procedures and interventions assume equal cognitive and communicative competence and understanding of procedures despite the overrepresentation of incarcerated individuals with neurodevelopmental disorders.
4. Individuals vary in their responses to beneficial turning points to desistance from crime. Prevention efforts focusing on providing opportunities for positive behavior changes should take this into account and facilitate cognitive and affective transformation.

## References

- August, G.J., Egan, E.A., Realmuto, G.M., & Hektner J.M. (2003) Parceling component effects of a multifaceted prevention program for disruptive elementary school children. *Journal of Abnormal Child Psychology*, 31(5), 515-527.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44, 1175-1184.
- Chang, L.J. & Sanfey, A.G. (2008). Emotion, decision-making, and the brain. In D. Houser & K. McCabe (Eds.), *Neuroeconomics* (in book series: *Advances in Health Economics and Health Services Research*) . Emerald-Insight. London.
- Clausen, John A. "Gender, context, and turning points in adults' lives" IN *Examining Lives in Context: Perspectives on the Ecology of Human Development*, ed.Moen, Phyllis, Glen H. Jr Elder, and Kurt Luscher, 365-389. Washington DC: American Psychological Association, 1995.
- Cornish, D.B. & Clarke, R.V. (1986). *The reasoning criminal: rational choice perspectives on offending*. New York: Springer.
- Crick, N.R. & Dodge, K.A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, 115, 74-101.
- Damasio AR (1994) *Descartes' error: Emotion, reason, and the human brain*. New York: Grosset/Putnam.
- De Haan, W. & Vos, J. (2003). *Crying Shame: The Over-Rationalized Conception of Man in the Rational Choice Perspective*. *Theoretical Criminology*, 1, 29-54.
- Dodge, K.A. (1986). A social information processing model of social competence in children. IN: M. Perlmutter (Ed.). *Minnesota symposium on child psychology* (pp. 77-125). Hillsdale, NJ: Lawrence Erlbaum.
- Dodge, K. A., & Frame, C. L. (1982). Social cognitive biases and deficits in aggressive boys. *Child Development*, 53, 620-635.
- Elder, Glen. (1986). *Military Times and Turning Points in Men's Lives*. *Developmental Psychology*, 22,233-245.

- Fontaine R.G., Burks V.S., Dodge K.A. (2002). Response decision processes and externalizing behavior problems in adolescents. *Development and Psychopathology*, 14,107–122.
- Gibson, J. J. (1977). The theory of affordances. IN R. Shaw & J. Bransford (Ed.), *Perceiving, acting, and knowing: Toward an ecological psychology*,67-82. Hillsdale, NJ: Erlbaum.
- Giordano, P.C., Schroeder R.D., Cernkovich S.A. (2009). Emotions and crime over the life course: A neo-Meadian perspective on criminal continuity and change. *American Journal of Sociology*, 6, 1603–1661.
- Gouze, K.R. (1987). Attention and social problem solving as correlates of aggression in preschool males. *Journal of Abnormal Child Psychology*. 15,181–197.
- Jacobs, B. A. and Wright, R. (1999). Stick-up, street culture, and offender Motivation, *Criminology* 37, 149-173.
- King, Ryan D., Michael Massoglia, and Ross Macmillan. (2007). "The Context of Marriage and Crime: Gender, the Propensity to Marry, and Offending in Early Adulthood." *Criminology* 45: 33-65.
- Lansford, J. E., Malone, P. S., Stevens, K. I., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2006). Developmental trajectories of externalizing and internalizing behaviors: Factors underlying resilience in physically abused children. *Development and Psychopathology*, 18, 35-55.
- Laub, J., and Sampson, R. (2003). *Shared beginnings, divergent lives: Delinquents boys to age 70*. Cambridge, MA: Harvard University Press.
- Lemerise, E. A., & Arsenio, W. F. (2000). An integrated model of emotion processes and cognition in social information processing. *Child Development*, 71(1), 107-118.
- Lipsey, M.W., Landenberger, N.A., & Wilson, S. J. (2007). Effects of cognitive-behavioral programs for criminal offenders. *Campbell Systematic Reviews*.
- Liu, W. (2013). *The Adult Offending and School Dropout Nexus: A Life Course Analysis (Criminal Justice: Recent Scholarship)*. Lfb Scholarly Pub Llc.
- Loeber, R. & Farrington, D. P. (Eds.) (2008). *From juvenile delinquency to adult crime: Criminal careers, justice policy and prevention*. New York: Oxford University Press.



- Lösel F., Bliesener T., & Bender D. (2007). Social information processing, experiences of aggression in social contexts, and aggressive behavior in adolescents. *Criminal Justice and Behavior* 34, 330–347
- McCarthy, B. (2002). New economics of sociological criminology. *Annual Review of Sociology*, 28, 417-442.
- Mead, G. H. (1934). *Mind, self, and society*. Chicago, IL: University Chicago Press.
- Poldrack, R.A & Packard, M.G. (2003). Competition among multiple memory systems: converging evidence from animal and human brain studies. *Neuropsychologia*. 41:245-51.
- Paternoster, R. Pogarsky, G. (2009). Rational choice, agency and thoughtfully reflective decision making: The short and long-term consequences of making good choices. *Journal of Quantitative Criminology*, 25, 103-127.
- Pickles. Andrew, and Michael Rutter. 1991. "Statistical and Conceptual Models of 'Turning Points' in Developmental Processes." IN: *Problems and Methods in Longitudinal Research: Stability and Change*, Ed. David Magnusson. Lars Bergman, Georg Rudinger, and Bertil Torestad. 133-65. New York: Cambridge University Press.
- Robins, L.N. (1978). Sturdy childhood predictors of adult antisocial behavior: Replications from longitudinal studies. *Psychological Medicine* 8:611-622.
- Sampson, R., and Laub, J. (1993). *Crime in the making: Pathways and turning points Research Summary: Desistance and Developmental Life Course Theories through life*. Cambridge, MA: Harvard University Press.
- Thornberry, Terence P. (2005). Explaining multiple patterns of offending across the life course and across generations. *The Annals of the American Academy of Political and Social Science* 602,156-195.
- Wheaton, B., & Gotlib, I. H. (1997). Trajectories and turning points over the life course: Concepts of themes. IN *Stress and adversity over the life course: Trajectories and turning points*. Ed. I. H. Gotlib & B. Wheaton, 1-25. Cambridge, UK: Cambridge University Press.
- Wilson, S.J. & Lipsey, M. (2006). The effects of school-based social information processing interventions on aggressive behavior, part II: Selected/Indicated Pull-out Programs. *Campbell Systematic Reviews*.

Wright, R., Logie, R.H., & Decker, S.H. (1996). Criminal expertise and offender decision making: An experimental study of the target selection process in residential burglary. *Journal of Research in Crime and Delinquency*, 29,148-261.

Yoon, J., Hughes, J., Gaur, A., & Thomson, B. (1999). Social cognition in aggressive children: A meta-analytic review. *Cognitive and Behavioral Practice*, 6, 320-331.

Ziv, Y. & Sorongon, A. (2011). Social information processing in preschool children: Relations to sociodemographic risk and problem behavior. *Journal of Experimental Child Psychology*, 109(4), 412–429.