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## Exploring the Interactive Effects of Social Learning Theory and Psychopathy on Serious Juvenile Delinquency

Brandy Barena Henderson  
*University of South Florida*, [barena@mail.usf.edu](mailto:barena@mail.usf.edu)

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Exploring the Interactive Effects of  
Social Learning Theory and Psychopathy on Serious Juvenile Delinquency

by

Brandy B. Henderson

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
Department of Criminology  
College of Behavioral and Community Sciences  
University of South Florida

Major Professor: Shayne E. Jones, Ph.D.  
Wesley G. Jennings, Ph.D.  
Christopher L. Hensley, Ph.D.  
Bryanna Fox, Ph.D.

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## **Abstract**

Social learning theory continues to be one of the most enduring theories of crime. Psychological criminology, on the other hand, tends to explain crime in terms of behavioral propensities. This research is specifically focused on the generality of social learning theory as it varies across a measure of criminal propensity- in this case, psychopathy. Prior studies have tested various theories with the use of measures of propensity, but the theory is rarely social learning, and the measure of propensity has never been psychopathy. The current study examines three components of social learning theory (definitions, differential association, and differential reinforcement) to determine whether or not its influence is dependent on an individual's level of psychopathy. Data used in this research is from the Pathways to Desistance Project, a serious juvenile delinquent sample. Standard ordinary least-squares and Tobit regressions (a method of analyses designed to correct for linear relationships between variables when there is censoring in the dependent variable) are modeled. Results indicate that definitions, differential association, differential reinforcement, and both measures of psychopathy exerted significant main effects on antisocial behavior. In addition, the social learning variables interacted differently across varying levels of psychopathy. Conclusions and policy implications for future social science research are discussed within.



## **Chapter One:**

### **Introduction**

#### **Psychopathy, Social Learning Theory, and Violence**

Relatively recently, some of the focus of the criminological discipline has shifted specifically to explaining serious offender behavior. Multitudes of theories of crime have been posited over the years, but very few of them have received such attention as Akers' social learning theory. According to Akers, Krohn, Lanza-Kaduce, and Rodosevich (1979), one of the reasons social learning theory can be considered a general theory of crime and deviance is because its underlying assumption seeks to explain why individuals do or do not participate in criminal and deviant acts and behaviors. According to social learning theory, an individual is more likely to participate in criminal and/or deviant behavior when they: "differentially associate with others who commit criminal behavior and espouse definitions favorable to it, are relatively more exposed in-person or symbolically to salient criminal/deviant models, define crime as desirable or justified in a situation discriminative for the behavior, and have received in the past and anticipate in the current or future situation relatively greater reward than punishment for the behavior" (Akers, 2009, p. 50).

Social learning theory is currently one of the most widely tested and cited criminological theories in the field, and studies on the topic have been conducted for various groups with numerous behaviors ranging from relatively minor deviant acts to felonious criminality (Akers &

Jensen, 2006; Akers & Sellers, 2009; Pratt & Cullen, 2000). In fact, by the beginning of the 21<sup>st</sup> century, there had, been more than 100 empirical tests on social learning theory (Sellers et al.,

2000). In a newer summary of the existing research, Akers and Jennings (2009) thoroughly documented the fact that all of the core components of social learning theory have explained a great variety of delinquency. This is true of the individual measures in addition to the theory as a whole. In fact, definitions, differential association, differential reinforcement, and imitation- the four social learning variables- were often found to have stronger influences in the analyses than the other general theories.

However, one area in which social learning theory has yet to be substantially tested is in the area of serious juvenile delinquency. Adding to this is the fact that delinquent association tends to be the most significant core component in most any criminological model. Together, these facts have called into question social learning theory's generality. Despite this, not incorporating at least one component of social learning theory could cause the model to be misspecified, and it is therefore included as a key aspect of this study.

The field of psychology has also heavily contributed to the criminological discipline. Over the last several decades, some of this multidisciplinary focus has been on the study of psychopathic personality, or psychopathy (Cleckley, 1941, 1955; Hare, 1970). Psychopathy is a personality disorder characterized by a lack of remorse, manipulateness, egocentricity, superficial charm, impulsivity, unreliability, and shallow affect (Hare, 2003). The correlation of psychopathy and adult violence has been thoroughly noted over the course of the last three decades (Hare, 1991; Edens, Campbell, & Weir, 2007; Edens, Skeem, Cruise, & Cauffman, 2001; Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005; Salekin, Rogers, & Sewell, 1996). However, there is still some contention amongst those who study psychopathy as to whether or

not it can, or should, be applied to juveniles, and furthermore as to its possible predictive clinical utility regarding serious juvenile delinquency (see Edens et al., 2001 for a complete assessment). Of the many studies that have reviewed the correlation between psychopathy and juvenile delinquency, almost all of them demonstrated some predictive utility, or indicated a moderate association between the two. Edens et al. (2001) also noted that the weight of this relationship did not deviate from that measured in similar studies with adults. Additionally, other research has demonstrated that juvenile psychopathy measures provide presumptive practicality superior to that given by other behavioral attributes such as: previous offending, aggression, conduct problems, impulsivity, IQ, and attention problems (Lynam, 1997). Furthermore, Lynam, Caspi, Moffitt, Loeber, and Stouthamer-Loeber (2007) discovered evidence to support the argument that juvenile psychopathy is a maturational harbinger of adult psychopathy, making it important to study, as psychopathy appears to be quite stable in adulthood.

### **The Proposed Study**

This study addresses a very unique research question: Is there a relationship between social learning theory, psychopathy, and serious juvenile antisocial behavior? More specifically, do social learning and/or psychopathy independently influence offending while controlling for the mutual influences? While Akers (2009) argues that social learning theory is a general theory of crime, other scholars believe some additional constructs, such as self-control, are also essential to a model in order to avoid misspecification effects (for an exhaustive list, see Pratt & Cullen, 2000). Another debate in the field is in regards to the fact that others have discovered that the impact of social learning theory may vary as a function of criminal propensity. Although different measures of propensity have been used to test this, none have employed psychopathy as

a measure of propensity. It will be argued herein that using psychopathy as a measure of criminal propensity yields several advantages.

According to Farnworth (1989), a “single reformulated theoretical model with greater comprehensiveness and explanatory value than any one of its component theories” should happen when integration occurs. The current dissertation addresses the question of whether comprehensiveness and explanatory value is actually increased as a result of including both social learning theory and psychopathy in the analyses. It explores these issues using the Pathways to Desistance Project data, which is specifically focused on serious adolescent offenders. In doing so, this study makes at least three contributions to the literature. First and foremost, this study is, to the author’s knowledge, the first of its kind to examine the generality of social learning theory in regards to whether it varies as a function of criminal propensity (as tested using psychopathy). It is also true that psychopathy is usually not examined in conjunction with other constructs, especially those common in the field of criminology. This dissertation will therefore provide an excellent fit for these gaps in the literature. Secondly, the Pathways to Desistance data contain serious juvenile offender samples that will be used in this study. This is a novelty when observed in conjunction with social learning theory, and will also provide the reader with a unique look at the context of psychopathy in a serious adolescent offender sample. Finally, this study estimates models using both OLS and tobit regressions. Also known as a censored regression model, the tobit model was created to correct for linear relationships between variables if there is censoring in the dependent variable. This may be the most appropriate method of statistical analysis for this study because the OLS analysis is especially problematic for research questions about interactive or curvilinear terms, and the tobit regression model can help correct these issues (Osgood, Finken, & McMorris, 2002).

## **Overview of Chapters**

This dissertation is organized into seven distinct chapters. Chapter two will introduce and discuss social learning theory, from its inception to its standing as a general theory of crime today. Concepts such as the influence of individual personality on social learning theory, the generalizability of social learning theory to individual characteristics, and whether or not social learning theory is affected by criminal propensity will also be explored. Additionally, the literature exploring the specific relationship between social learning theory and serious offender samples will be reviewed in further detail, and the few studies linking social learning theory and juvenile violence will be highlighted.

Chapter three will define, describe, and summarize the research on psychopathy. This chapter will provide a contextual background for the study of psychopathy and present the various methods of empirically assessing this construct, as well as discussing the factor structure competition and which, if any, is the most appropriate measure to utilize. In addition, this chapter will provide the reader with evidence regarding the link between psychopathy and aggression and violence. As with social learning theory, there will be a focus on those studies linking juvenile violence/aggression and psychopathy.

Chapter four will examine the interactive effects between social learning theory, psychopathy, and juvenile delinquency. The question of the generality of social learning theory, the research on criminal propensity, and their connections to the aforementioned concepts will also be explored. The various social selection and social causation hypotheses will be explored, with emphasis on the social amplification argument, which refers to the fact that antisocial peers are able to increasingly influence (with heavier effects), those who demonstrate a greater amount of criminal inclination, thus casting doubt upon the suitability of social learning theory to all

offenders (Yarbrough, Jones, Sullivan, Sellers, & Cochran, 2012). Further research about the impact of various interactive effects in serious adolescent samples will also be provided here, and hypotheses for the current study will be provided.

Chapter five will provide background information on the Pathways to Desistance data, which will be utilized in the analyses for this study. This chapter will present the methods, where a detailed description of the data collection and sample procedures will be provided.

Measurement and the conceptualization of the variables employed in this study will also be provided, as well as an analytic plan for the data, including a more thorough description of the tobit specification.

Chapter six will present the results. There will a specific focus on interaction effects. Both OLS and tobit regressions will be computed and interpreted, specifically to explore the possible interaction effects among the various measures of psychopathy, social learning theory, and serious juvenile delinquency. Finally, chapter seven will discuss results from the study, its relevance to previous findings, and theoretical and policy implications. Limitations of the study will then be discussed and suggestions for future research will be provided before final conclusions are drawn.

## **Chapter Two:**

### **Social Learning Theory**

#### **A Brief Overview**

Social learning theory was originally formulated by Burgess and Akers in 1966 as differential association-reinforcement theory. Their intent in its development was to integrate Sutherland's (1947) pre-existing differential association theory with a few fundamentals of behavioral psychology. Sutherland argued that crime is learned and that it occurs through a process of differential association. That is, a person may learn two categories of definitions for a certain action. Favorable definitions add to the possibility that a person will engage in a specific action, while unfavorable definitions lessen the potential that a person will engage in that same practice. However, Sutherland's (1947) theory did not specify the learning processes involved, unlike Burgess and Akers' (1966) differential association-reinforcement theory.

In fact, one of the most important psychological principles Burgess and Akers (1966) chose to focus on was B. F. Skinner's (1953) concept of operant reinforcement. Through years of experiments with lab rats, Skinner found that the animals could be trained with a mechanical device that operated with a button that gave the rat food when pushed. To begin with, pushing the button (the operant) and getting food (the reinforcement) was a complete accident. However, it did not take long for the animals to learn to push the button more consistently. These concepts, combined with Bandura's (1969) seminal work on modeling behavior, had great influence on

Burgess and Akers (1966), who had soon presented their own list (modified from Sutherland) of principles describing the method through which learning occurs:

1. “Criminal behavior is learned according to the principles of operant conditioning (reformulation of Sutherland’s principles 1 and 8).
2. Criminal behavior is learned both in nonsocial situations that are reinforcing or discriminative and through that social interaction in which the behavior of other persons is reinforcing or discriminative for criminal behavior (reformulation of Sutherland’s principle 2).
3. The principal part of the learning of criminal behavior occurs in those groups which comprise the individual’s major source of reinforcements (reformulation of Sutherland’s principle 3).
4. The learning of criminal behavior, including specific techniques, attitudes, and avoidance procedures, is a function of the effective and available reinforcers, and the existing reinforcement contingencies (reformulation of Sutherland’s principle 4).
5. The specific class of behaviors which are learned and their frequency of occurrence are a function of the reinforcers which are effective and available, and the rules or norms by which these reinforcers are applied (reformulation of Sutherland’s principle 5).
6. Criminal behavior is a function of norms which are discriminative for criminal behavior, the learning of which takes place when such behavior is more highly reinforced than noncriminal behavior (reformulation of Sutherland’s principle 6).



7. The strength of criminal behavior is a direct function of the amount, frequency, and probability of its reinforcement (reformulation of Sutherland's principle 7)" (Akers & Jennings, 2009, p. 324).

These refinements were generally accepted as improvements, emphasizing the equivalence of benefits and costs as they function throughout human engagement, in addition to recognizing the significance of other factors. However, there were some critiques of the theory, leading to additional clarification and adjustments. He eventually navigated beyond the primary contents of the amended precepts and started to concentrate on the components of that would eventually emerge as social learning theory: differential association, differential reinforcement, imitation, and definitions.

In any civilization, individuals differ in the extent of their patterns of involvement with others. This is referred to as differential association. This is the facet of social learning theory that generates the most support. As noted by a plethora of prior research, other than preexisting deviance, the greatest solitary indicator of the beginning, continuity, or termination of offending is differential association with delinquent or criminal associates (Huizinga, Esbensen, & Weiher, 1991; Loeber, 1991; Loeber & Dishion, 1987; Loeber & Stouthamer-Loeber, 1986; Warr, 2002). Differential reinforcement, on the other hand, describes the balance of predicted or substantive penalties and benefits that are ramifications of certain behaviors. If an action is more frequently reinforced and rarely punished in comparison to an alternative action, it is likely that an individual will continue to commit the behavior. This is relevant for the explanation of criminality because is applicable to each respective incident where there are circumstances favorable to either the violation or abidance to the law.

Behavior modeled on the observations of others is called imitation, and it is considered to be the most simplistic of the various components social learning theory. Imitation can happen via direct or indirect (e.g., the media) observation. The probability that specific conduct will be duplicated is dependent upon the attributes of the prototypes, the behavior witnessed, and the vicarious support received. According to Akers (2009), the most pertinent models for behavior are persons with whom one is in direct contact, or by association with essential cohorts. Nevertheless, it is important to mention that they may progressively materialize in the media available in today's society.

The final dimension of social learning theory is definitions. This refers to an individual's private perspectives about a certain behavior, and should not be mistaken for peer definitions, although these can have a minute amount of impact. According to Akers (2011), they are "orientations, rationalizations, definitions of the situation, and other attitudes that label the commission of an act as right or wrong, good or bad, desirable or undesirable, justified or unjustified" (p.78). Social learning theory posits that there may be both general and specific definitions. General definitions involve spiritual, moral, and additional conventional principles and beliefs that encourage conformity and discourage the commission of deviance. Alternatively, specific definitions involve an individual's viewpoint on unique deeds. For instance, a person can simultaneously accept that one act of deviance is copacetic whereas another is not (e.g., rape versus drug use). The stronger the intensity of the demeanor someone has regarding the condemnation of particular actions, the less likely he or she is to perform them.

Definitions advantageous to deviant acts include unsubstantial normative ideologies and more substantial justifications of deviance. Accordingly, the opposite is also true. Yet, it is important to emphasize that social learning theory suggests that the definitions are learned

through reinforcement strategies functioning in the acculturation formation. Therefore, definitions operate to a smaller extent as unequivocal motivators than as promoting or preventing “discriminative stimuli,” or indicators that specific acts are acceptable and apt to be endorsed or unacceptable and apt to be discouraged. It is this expected facilitation that propels the behavior, independent of whatever inclination to commit or forego an act originates from its compliance with or defilement of an individual’s ideologies (Akers, 2009).

More explicitly stated, social learning theory proposes that “those associations which occur earlier (priority), last longer and occupy more time (duration), occur more often (frequency), and involve others with whom one has the more important relationships (intensity) will have the greater effect on criminal or law-abiding behavior. Logically, the more frequent, intense, and long-lasting one’s differential association with primary or secondary groups exposing him or her to reinforcement for criminal behavior, salient criminal models, and definitions favorable to criminal behavior, the more likely criminal behavior becomes” (Akers, 1998, p. 64).

### **Social Learning Theory as a General Theory of Crime**

Akers’ original assessment of social learning theory was administered in Boys Town (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979). The researchers used self-report surveys that asked questions about the utilization of marijuana and alcohol from 3,065 adolescents from the Midwest to examine basic foundations of social learning theory. This questionnaire was additionally the initial one to contain queries permitting Akers et al. (1979) to completely examine each dimension of social learning theory. Their analyses demonstrated solid approval for social learning theory as an answer for juvenile drinking and substance use. Other than the

imitation variable, each of the dimensions of the theory autonomously elucidated a significant portion of the differences in alcohol and drug usage. The social learning measures also affected the likelihood that the juvenile who initiated substance use would advance to increasingly severe participation in drug and alcohol use. Their comprehensive results suggested that social learning theory is exceedingly appropriate for the prediction of specific types of deviance.

Since that first study, for the past 50 years or so, social learning theory has provided an increasingly significant contribution to the criminological literature. Importantly, “social learning theory is a general theory in that it offers an explanation for why individuals first participate in crime and deviance, why they continue to offend, why they escalate/deescalate, why they specialize/generalize, and why they choose to desist from criminal/deviant involvement. Social learning theory also explains why individuals do not become involved in crime/deviance, instead opting to participate only in conforming behaviors” (Akers & Jennings, 2009, p. 325). Importantly, as enumerated upon below, social learning theory purportedly applies to all types of offenders. In fact, it has been one of the most empirically tested of any of the theories, and for the most part has enjoyed overwhelming support.

According to Akers and Sellers (2013), social learning researchers have demonstrated associations in the theoretically anticipated direction among social learning measures and a variety of deviance. In fact, moderate to strong relationships have been found between the social learning variables and juvenile alcohol and drug use (Akers et al., 1979; Akers & Cochran, 1985; Krohn, Lanza-Kaduce & Akers 1984), adolescent cigarette smoking (Akers & Lee 1996; Krohn, Skinner, Massey & Akers, 1985; Spear & Akers, 1988), drinking behavior among the elderly (Akers & La Greca, 1991; Akers, La Greca, Cochran & Sellers, 1989), and rape and sexual coercion amongst adolescents (Boeringer, Shehan, & Akers, 1991).

Overall, Akers and Jennings (2009) determined that all of the components of social learning theory have been successful at explaining a variation of acts including trivial deviant acts, drug usage, and severe delinquency. They noted that these explanations work for the singular measures in addition to working as a whole, with the social learning variables frequently exhibiting increased effects beyond those of additional general theories of crime. Related to this finding, Pratt et al. (2010) conducted a meta-analysis on 133 articles evaluating social learning measures. They organized their meta-analysis while focusing on the main elements of social learning theory, permitting them to compute the certain and relative importance of the theoretical dimensions of social learning theory on criminality. They were particularly interested in what parts were most sustained by the literature. In sum, they found support for the theory, with the main effect sizes of social learning theory being as large or larger as those found by several other criminological theories. In particular, they found that correlations of deviant behavior to measurements of differential association and definitions were very strong, although the relationships for differential reinforcement and imitation were more limited. In conclusion, what is obvious from a summary of the research is that social learning theory has legitimately secured its position as a renowned general theory of crime. The abundant exertions of Akers and his coauthors, along with the experimental achievements of additional social learning theorists, have repeatedly documented approval of social learning theory.

## **Chapter Three:**

### **Psychopathy**

Although social learning theory has been found to be mostly successful in the field of criminology, other contrasting perspectives have also garnered empirical support. For example, social learning theory is based on the idea that it is through differential associations that the learning and subsequent acceptance of deviant behavior occurs. Theories like this are often referred to as social causation theories. It has instead been suggested by various other theories that juveniles could establish their aberrant beliefs without previous introduction to them and then pursue individuals with similar beliefs. One example of this would be Gottfredson and Hirschi's (1990) suggestion that "birds of a feather flock together." More specifically, Gottfredson and Hirschi's general theory of crime suggests that an individual's propensity to commit delinquency is steady for the duration of the life course and that it is instead the prospects for criminality that vary (Siegel and McCormick, 2006). Theories like this are often labeled social selection theories. At a basic level, much of the difference between social causation and selection theories lies in the emphasis placed on whether the root causes of antisocial behavior are external to or within the individual. Social learning theory suggests that the basis for any individual's criminal behavior can usually be traced to his or her own environment. Social causation theories propose that constitutional factors influence the expression of such behavior. For example, some theorists have argued that individual differences are more important in promoting criminal behavior than environmental ones.

One of the most influential perspectives to hold to this viewpoint underscores the importance of psychopathy. Psychopathy is a psychological measure (although not a psychiatric diagnosis) and is typically viewed as a personality disorder. It is defined by a combination of interpersonal, affective, lifestyle, and behavioral attributes that are displayed through a range of antisocial behaviors (Cleckley, 1941; Cooke & Michie, 2001; Forth, Kosson, & Hare, 2003; Hare, 2003; Hare & Neumann, 2008; Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003). Cleckley (1976) was one of the first to thoroughly delineate the core features of psychopathy. In his book, *The Mask of Sanity* (1941), he described the psychopathic individual as one who was seemingly unencumbered by the emotional hang-ups and moral thought processes of the average individual. Based on his observational research, he suggested the following 16 criteria were characteristics of psychopathic individuals:

- “superficial charm and good intelligence
- absence of delusions and other signs of irrational thinking
- absence of nervousness or other psychoneurotic manifestations
- unreliability
- untruthfulness and insincerity
- lack of remorse or shame
- inadequately motivated antisocial behavior
- poor judgment and failure to learn by experience
- pathological egocentricity and incapacity for love
- general poverty in major affective reactions
- specific loss of insight
- unresponsiveness in general interpersonal relations

- fantastic and uninviting behavior with drink and sometimes without
- suicide rarely carried out
- sex life impersonal, trivial and poorly integrated
- failure to follow any life plan” (Cleckley, 1955, p. 337-338).

He noted that the psychopath might appear normal or even highly extroverted, intelligent, and fun to be around. However, beneath the surface, this individual would be deeply pathological, and simply utilizing a “mask” or façade to make others believe that he or she possesses normal human characteristics or emotions such as empathy, and/or a conscience, and thus able to be deceptive in social exchanges. Eventually, however, the aforementioned façade develops cracks, and the psychopath is unable to maintain long-term interpersonal relationships.

Over the last few decades, psychopathy has been linked to both conduct disorder and antisocial personality disorder. The *American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (2013), defines conduct disorder as one “in which a repetitive and persistent pattern of behavior occurs in which the basic rights of others or major age-appropriate societal norms or rules are violated” (p. 469). To be diagnosed with this disorder, “individuals must be under the age of 18, and at least three of the following 15 criteria must have been met in the last 12 months, with one occurring in the last six:

*Aggression to people and animals:* often bullies, threatens, or intimidates others; often initiates physical fights; has used a weapon that can cause serious physical harm to others; has been physically cruel to people; has been physically cruel to animals; has stolen while confronting a victim; has forced someone into sexual activity.

*Destruction of property:* has deliberately engaged in fire setting with the intention of causing serious damage; has deliberately destroyed others’ property (other than by fire setting).



*Deceitfulness or theft:* has broken into someone else's house, building, or car; often lies to obtain goods or favors or to avoid obligations; has stolen items of nontrivial value without confronting a victim.

*Serious violations of rules:* often stays out at night despite parental prohibitions, beginning before age 13 years; has run away from home overnight at least twice while living in the parental or parental surrogate home, or once without returning for a lengthy period; is often truant from school, beginning before age 13 years" (DSM-V, 2013, p. 470).

Conduct disorder, untreated, may potentially lead to antisocial personality disorder in adulthood. It is, in fact, one of the possible precursors in the official definition (DSM-V). To be officially diagnosed with Antisocial Personality Disorder, a person must exhibit a "pervasive pattern of disregard for and violation of the rights of others, occurring since age 15, as indicated by three or more of the following: failure to conform to social norms with respect to lawful behaviors as indicated by repeatedly performing acts that are grounds for arrest; deception, as indicated by repeatedly lying, use of aliases, or conning, others for personal profit or pleasure; impulsivity or failure to plan ahead; irritability and aggressiveness, as indicated by repeated physical fights or assaults; reckless disregard for safety of self or others; consistent irresponsibility, as indicated by repeated failure to sustain consistent work behavior or honor financial obligations; lack of remorse, as indicated by being indifferent to or rationalizing having hurt, mistreated, or stolen from another" (DSM-V, 2013, p. 659). In addition to these requirements, those being diagnosed with antisocial personality disorder must have met the criteria for conduct disorder prior to the age of 15 and also be at least 18 years of age. Finally, he or she must not exclusively display antisocial behavior while in a manic episode or during the course of schizophrenia.

Frick et al. (2005) and Lynam (2002), two leading psychopathy researchers, have referred to psychopathy as a “more virulent strain” of conduct disorder. Frick and Ellis (1999) more explicitly suggest that psychopathy is conduct disorder with added callous-unemotional traits. Hare (1998), one of the leading authorities on psychopathy, has also long suggested that they are different. In addition, more recent research (Patrick, 2007; Pechorro et al., 2013) has noted that the estimations of the occurrence of these disorders (psychopathy and APD) are also very different in both the general population (1% versus 3%, respectively) and in forensic settings (20% versus 80%, respectively).

Although some diagnosticians group psychopathy in with antisocial personality disorder, the APA does not differentiate between the two. Instead, based on Cleckley’s aforementioned work, Hare (1980) attempted to develop a means of reliably assessing the construct of psychopathy. He combined the information provided by Cleckley with case studies and clinical interviews with incarcerated psychopathic individuals and called the resulting diagnostic tool the Psychopathy Checklist (1980). Originally, this was a 22-item scale; in 1991, Hare released a revised version that dropped two of the items, resulting in the culmination of the now popular Psychopathy Checklist-Revised (PCL-R). The PCL-R was originally broken down into two dimensions: Factor 1, which captured the interpersonal and affective traits (selfishness, callousness, and lack of remorse), and Factor 2, which included the impulsive and antisocial behavior characteristics of the disorder. Recently, the PCL-R (see Bishopp & Hare, 2008) has been found to best fit a four-facet construct that separates each of the original factors into two distinct factors (Neumann, Hare, & Newman, 2007).

The interpersonal facet is characterized by a narcissistic or grandiose sense of self-worth, conning and manipulation, pathological lying, and glib or superficial charm (see Figure 1).

Regarding affect, the psychopath exhibits shallow emotion, remorselessness, callousness and a lack of empathy, and a general failure to accept responsibility. On the lifestyle facet, psychopaths, are parasitic, lack realistic life goals and tend to be impulsive, irresponsible, and demonstrate sensation-seeking behaviors. Regarding the antisocial behavior facet, psychopaths exhibit early behavioral problems, engage in juvenile delinquency, are criminally versatile, have poor behavioral control, and typically recidivate and therefore have their conditional releases rescinded.

The PCL-R, and other measures derived from it (e.g., the Psychopathy Checklist: Youth Version), have been used to accurately predict criminal recidivism, violence perpetration, and response to treatment outcomes in a diverse set of countries including the United States, Canada, Sweden, and England (Hare et al., 2000). In fact, the PCL-R is the most widely-known and utilized measure for psychopathic behavior. It is worth noting that the expressions of personality disorders may differ from culture to culture (Cooke & Michie, 1999; Lopez & Guarnaccia, 2000), although it is equally important to mention that much of the available cross-cultural research has been conducted on observations of just a handful of cultures. Furthermore, a number of these studies may have systematic qualifications (e.g., Cooke, Michie, Hart, & Clark, 2005). One recent exception is the work of Neumann, Schmidt, Carter, Embley, and Hare (2012), which investigated the pervasiveness and construction of psychopathy utilizing a worldwide sample of over 52,000 males and females. The authors assessed psychopathic traits using the Self-Report Psychopathy (SRP) scale and tested the four-factor model of psychopathy using SEM. Their results indicated that there was adequate evidence for the model. In addition, the authors found that there was no variance between the genders and decent support for the lack of variance for women in several regions of the world. Their findings also supported the idea that

<p><b>Factor 1: Interpersonal Facet</b></p> <ul style="list-style-type: none"> <li>• Glibness/Superficial Charm</li> <li>• Grandiose Sense of Self Worth</li> <li>• Pathological Lying</li> <li>• Cunning/Manipulativeness</li> </ul>
<p><b>Factor 1: Affective Facet</b></p> <ul style="list-style-type: none"> <li>• Lack of Remorse or Guilt</li> <li>• Emotionally Shallow</li> <li>• Callousness/Lack of Empathy</li> <li>• Failure to Accept Responsibility for Actions</li> </ul>
<p><b>Factor 2: Lifestyle Facet</b></p> <ul style="list-style-type: none"> <li>• Need for Stimulation/Prone to Boredom</li> <li>• Parasitic Lifestyle</li> <li>• Lack of Realistic Long-Term Goals</li> <li>• Impulsivity</li> <li>• Irresponsibility</li> </ul>
<p><b>Factor 2: Antisocial Facet</b></p> <ul style="list-style-type: none"> <li>• Poor Behavioral Controls</li> <li>• Early Behavioral Problems</li> <li>• Juvenile Delinquency</li> <li>• Revocation of Conditional Release</li> <li>• Criminal Versatility</li> </ul>
<p><b>Other Items</b></p> <ul style="list-style-type: none"> <li>• Many Short-Term Marital Relationships</li> <li>• Promiscuous Sexual Behavior</li> </ul>

**Figure 1. Factors and Facets of Psychopathy, as Described by the PCL-R.**

various factors regarding an individual's ties to their civilization could moderate the way psychopathic propensities are expressed. More specifically, Neumann et al. (2012) suggested culture could affect psychopathic self-reporting practices. For example, increased numbers of women in Africa, the Middle East, and Eastern and Southeastern Asia seemed to evince more advanced interpersonal characteristics of psychopathy. By contrast, the authors found that increased numbers of women in North America, Oceania, and Western Europe evinced more advanced lifestyle characteristics. Still, the authors suggest that there may be some collectivity in how culture can affect psychopathic expression

The construct of psychopathy has not only captured the attention of psychologists interested in understanding criminal behavior, but criminologists too. In recent decades, criminological researchers have become more cognizant of the importance of psychopathy and noted its importance to the field (DeLisi, 2009; Jones, Miller, & Lynam, 2011; Jones & Miller, 2012). In fact, some researchers have articulated the idea that "psychopathy is the most important construct relevant to the criminal justice system" (Harris, Skilling, & Rice, 2001, p. 247). For example, while it estimated that approximately one percent of the general population can be evaluated as psychopathic according to the PCL-R, the number of psychopathic individuals in prison populations is estimated to be closer to 20% (Patrick, 2007), and these individuals may be responsible almost 50% of all violent crime (Hare & Neumann, 2010).

DeLisi (2009) argues that, psychopathy is the preferable theory, even when including all the theories emanating from the social, behavioral, and criminological sciences. It has been proven to have statistical distinction in predicting delinquent outcomes with diverse groups, and has been found to be applicable across gender, ethnicity, and age. In fact, DeLisi (2009) has referred to psychopathy as a unifying construct, meaning that it is the ideal candidate to explain

and integrate a host of verified facts of criminal behavior. More specifically, he argues that psychopathy “mirrors the elemental nature and embodies the pejorative essence of antisocial behavior” (p. 2). By this, he simply means that psychopathy and antisocial behavior are internally consistent, and that they both engender the same disparaging outlook. He notes that the very core characteristics of psychopathy, especially the antisocial dimension, are quite similar to the organization of antisocial behavior as denoted in the general theory of crime. That is, “acts of force or fraud in the pursuit of self-interest” (Gottfredson & Hirschi, 1990, p. 15). He further advocates that the high level of evidence in favor of self-control theory has been found mostly due to the combination of individual-level personality constructs with the innermost components of antisocial behavior. Therefore, the formulation of low self-control is really just a proxy for psychopathy.

His second argument, that psychopathy “accommodates dimensional and categorical examinations of antisocial behavior” (p.3), seems self-explanatory in that psychopathy can easily be seen to accommodate both categorical and dimensional explanations of deviance. This is important, as criminologists have struggled to decide on the best approach to studying offenders. Prior studies have found that psychopathy empirically fits both categorical and dimensional conceptualizations, finding support for both a “psychopath taxon” (Harris, Rice, & Quinsey, 1994; Skilling, Quinsey, & Craig, 2001) and a more continuous distribution (Edens, Marcus, Lilienfeld, & Poythress, 2006). Utilizing a categorical approach allows for increased correlations among psychopathy and additional personality-related measures, but a dimensional approach allows for broader applicability (Marcus, Ruscio, Lilienfeld, & Hughes, 2008; Walters, Duncan, & Mitchell-Perez, 2007).

Psychopathy also “accommodates the general overlap of antisocial behaviors among diverse populations” (p. 7). In fact, according to DeLisi (2009), one of the greatest strengths of the construct is in its ability to validly predict a wide of behaviors. Other authors have found psychopathy to be a unifying causal construct, going so far as to call it the quintessential predictor of recidivism (Douglas, Vincent, & Edens, 2006), or even, as Harris et al., (2001) remarked, the most important construct relevant to the criminal justice system. Indeed, psychopathy has been found to be empirically distinct at predicting a various antisocial outcomes among diverse subsets of the population, including gender, ethnicity, and age (DeLisi, 2009).

He also notes that there is compelling support that psychopathy can “accommodate various emerging biosocial explanations of antisocial behavior. In fact,” he emphasizes, “several features of psychopathy are suggestive of a biosocial etiology” (DeLisi, 2009, p.9). For example, callous and unemotional traits implicate neuropsychological deficits, leading to an inability to learn or regulate certain behaviors. There have been linkages between psychopathy and brain activity (Yang, Glenn, & Raine, 2008) and abnormalities (Glenn & Raine, 2008; Weber, Habel, Amunts, & Schneider, 2008). Such research is very exciting as it is getting at the root of the nature versus nurture argument, which could obviously have great impacts on the research conducted on antisocial behavior in the various scientific disciplines. .

Finally, it should be very relevant to criminologists that “psychopathy facilitates the study of antisocial phenotypes over the life span” (DeLisi, 2009, p. 5). The most aggressive youth, especially those who are perniciously violent, are easily identified even as children (Loeber & Hay, 1997). As will be seen in the section on juvenile psychopathy below, measures of psychopathy have more recently been utilized in the identification of youth who display these antisocial behaviors and personality traits. Psychopathy has also been found to be a robust

predictor of criminal career severity and recidivism (Hemphill, Templeman, Wong, & Hare, 1998), as well as stable and relatively resistant to socialization pressures (Lynam, Loeber, & Stouthamer-Loeber, 2008), lending credence to its longitudinal relevance and therefore its linkages to life-course persistent offending (Raine, Moffitt, Caspi, Loeber, Stouthamer-Loeber, & Lynam, 2005) and criminal careers research (Farrington, 2005; Rutter, 2005).

### **Juvenile Psychopathy**

As noted above, psychopathy can help explain the expression of antisocial behavior throughout the life course. While most of the literature in regards to psychopathy has been on adults, for approximately the last 15 years, researchers have begun exploring this construct among youth. According to Lynam (1998), psychopathic youth can be classified by their unique blend of callous and unemotional (CU) traits, impulsivity, and conduct problems. This is unsurprising, as Edens et al. (2001) found in their assessment of prior research on juvenile psychopathy that it was related to both general and violent offending. In 2008, Vaughn, Howard, and DeLisi discovered that psychopathic juveniles had greater delinquency, increased general aggression, and displayed a triad of early-onset antisocial behaviors. Other research has shown that psychopathy offers prognostic utility over additional variables. This lends credibility to the longitudinal relevance of the construct (Hemphill, Templeman, Wong, & Hare, 1998), which has already been clearly linked to criminal careers and life-course research (Farrington, 2005; Rutter, 2005). Psychopathic youths have been found to have more violent prior criminal histories as well as to demonstrate levels of institutional violence above that of their non-psychopathic peers (Forth, Hart, & Hare, 1990). Combining this research, psychopathic offenders, even as youths, are at increased risk over non-psychopathic offenders to violently offend within their cities or



neighborhoods, to participate in aggressive actions, and to be handled by the system (Brandt, Kennedy, Patrick, & Curtin, 1997; Loper, Hoffschmidt, & Ash, 2001; Stafford & Cornell, 2003).

Meta-analytic findings offer strong support for the link between psychopathy among juveniles and antisocial behaviors. Two of the most well-known were conducted by Edens et al. (2007) and Asscher, van Vugt, Stams, Dekovic, Eichelsheim, and Yousfi (2011). The earlier study focused on whether operationalizations of the psychopathy construct among children and adolescents predicted various forms of aggression. Their research of prior studies found that there was “generally a moderate association between various measures of juvenile psychopathy and various forms of aggression” (Edens et al., 2001, p. 73). This led them to cautiously suggest that it was appropriate to use the construct of psychopathy for juveniles, but to also emphasize the need for more longitudinal research to assess the stability of psychopathy throughout adolescence into adulthood. However, in the decade or so since that publication, Lynam and colleagues, in two separate studies, found that psychopathy was relatively fixed from the ages of 7 – 17 and 13 – 24 (Lynam et al., 2007; 2009). Still, ten years after the meta-analysis conducted by Edens et al. (2001), Asscher et al. (2011) analyzed 53 studies (N= 60 independent samples) with over 10,000 individual participants and found similar results. That is, psychopathy was correlated with delinquent acts as well as both, general and violent forms of recidivism. Beyond what Edens et al. (2001) found, however, Asscher et al. (2011) noted the presence of outside variables, discovering that prior research missed the attributes that determined the weight of the correlations among delinquency, psychopathy, and violent recidivism. Perhaps most interesting, the authors found psychopathy to be just as relevant to the explanation of first-time offending among a juvenile sample from the public as it was for first-time offending for delinquent samples.

Due to the severity of its effect on society as a whole, researchers are beginning to look at psychopathic traits earlier in the life course. Although psychopathy was constructed for use with adults, it is steadfastly becoming more popular for use with juveniles (Vaughn & Howard, 2005). According to Lynam's (2002) preventative intervention perspective, the proper detection of "fledgling psychopaths" could supply a way of determining which individuals are more likely to benefit from treatment. Early identification of psychopathy is also thought to be important due to the idea that treatment during adulthood is extremely challenging, and therefore targeting juveniles could possibly lead to more effective prevention and/or intervention (Ogloff, Wong, & Greenwood, 1990; Rice, Harris, & Cormier, 1992; Skeem, Monahan, & Mulvey, 2002). Although much of this research is new and ongoing, there is a plethora of empirical research that speaks to the correlation of juvenile psychopathy and recidivism, an important subject to the field of criminology (see Edens, Campbell, & Weir, 2007 for a more complete overview).

Empirical studies have certainly shown that psychopathy is indeed present in juveniles (Frick & Ellis, 1999; Lynam et al., 2005), with psychopathic traits discernable as early as childhood (Lynam et al., 2009; Obradovic, Pardini, Long, & Loeber, 2007). For example, Flexon and Meldrum's (2013) study of a community sample of adolescents found that scores on a measure of callous-unemotional traits were significantly and substantively predictive of violent behavior even when controlling for traditional criminogenic variables, including low self-control and delinquent peers. Additional research has detailed the correlation between psychopathic traits and deviance in delinquent (Brandt et al., 1997) and non-delinquent juveniles (Frick, Kimonis, Dandreaux, & Farell, 2003; Marsee, Silverthorn, & Frick, 2005). Features of adolescent psychopaths are reliable across different populations, ethnicities, and genders (Pechorro et al., 2013; Vachon et al., 2012).

Another concern raised by scholars is whether this construct can be validly measured among youth. Although there are other measurements of juvenile psychopathy (see Edens & Vincent, 2008), the Psychopathy Checklist: Youth Version (PCL: YV) is perhaps the most well-known and used (Forth et al., 2003). According to Hare and Neumann (2009), the PCL: YV is a modification of the PCL-R used for juveniles age 13 and over. Similar to the PCL-R, it consists of four factors and 20 items (Jones, Cauffman, Miller, & Mulvey, 2006; Neumann, Kosson, Forth, & Hare, 2006). According to Forth et al. (2003), these 20 items are:

- “impression management
- grandiose sense of self-worth
- stimulation seeking
- pathological lying
- manipulation for personal gain
- lack of remorse
- shallow affect
- callous/lacking empathy
- parasitic orientation
- poor anger tolerance
- impersonal sexual behavior
- early behavioral problems
- lacks goals
- impulsivity
- irresponsibility
- failure to accept responsibility

- unstable interpersonal relationships
- serious criminal behavior
- serious violations of conditional release
- criminal versatility”

The PCL: YV closely resembles the PCL-R in design, but was changed somewhat to better explain juvenile maturation by putting heavier significance on family, peers, and school. Similar to the PCL-R, the PCL: YV seems to demonstrate similar psychometrics and associations (see Book et al., 2006; Salekin, Neumann, Leistico, DiCiccio, & Duros, 2004; Vitacco, Neumann, Caldwell, Leistico, & Van Rybroek, 2006). Also similar the PCL-R, the PCL: YV generalizes among various ethnicities and civilizations (e.g., Book et al., 2006; Dolan & Rennie, 2006; McCoy & Edens, 2006; Schrum & Salekin, 2006). Finally, the PCL: YV has been found to have acceptable amounts of internal consistency (average  $\alpha$  across settings = .83; average inter-item  $r = .22$ ) and inter-rater reliability for total scores (average intraclass  $r = .93$ ; Forth & Burke, 1998).

Another instrument used to measure juvenile psychopathy is the Youth Psychopathic Traits Inventory (YPI). The YPI is a self-report questionnaire composed of 50 questions and originally designed by Andershed, Kerr, Stattin, and Levander (2002) to evaluate potentially psychopathic youth over the age of 12 in the community on their core personality traits (Cauffman, Kimonis, Dmitrieva, & Monahan, 2009). It uses 10 subscales to describe a three factor structure of psychopathy: Affective (callousness, remorselessness, and unemotionality); Interpersonal (dishonest charm, grandiosity, lying and manipulation); and Lifestyle (, impulsivity, irresponsibility, and thrill-seeking). It has been shown to have good internal consistency ( $\alpha = .92$ ) and relate to indices of prior antisocial behavior (Skeem & Cauffman,

2003). Moreover, the YPI is related to a range of deviant behaviors, from age at original contact with the police to first behavioral issues (Andershed et al., 2002). Therefore, the YPI has also become a more commonly tested and accepted measurement for childhood and adolescent psychopathy.

In addition to the argument regarding how adolescent psychopathy should be measured, there is an underlying question as to whether it should be measured at all. Some researchers argue that examiners of such measures may not be properly trained or informed (DeMatteo & Edens, 2006; Edens et al., 2001, 2006; Edens & Petrila, 2006; Hare, 1998). Others believe that there could be considerable violations of civil rights by these assessment tools when they are utilized in legal decision-making processes (Forth, 2005; Zinger & Forth, 1998). Other criticisms have focused on the stigma of a psychopathic diagnosis (e.g. the subject is recalcitrant to change, not amenable to treatment), especially when this information is given to non-mental health workers (Edens, 2006; Edens, Guy, & Fernandez, 2003; Murrie, Cornell, & McCoy, 2005).

One major concern in the juvenile psychopathy literature is of the potential for increased punitiveness for those individuals labeled as psychopaths. More explicitly, some have suggested that an adolescent given the label of “psychopath” may endure greater punishments than those who are not labeled as psychopathic (Petrilla & Skeem, 2003). It is wise to be cautious when making this determination, however, as several authors have found that this is not a psychopathy-specific labeling effect. That is, there is a general labeling effect for mentally disordered defendants, and a psychopathy label has been found to have about the same effect, if not less of one, as a conduct disorder label (Murrie, Cornell, & McCoy, 2005). As a matter of fact, no main effects were discovered for the recommendations regarding treatment or placement whether the decision was made by a judge (Murrie, Boccaccini, McCoy, & Cornell, 2007) or clinician

(Rockett, Murrie, & Boccaccini, 2007). Indeed, newer research has found that it is not the psychopathic label, but the descriptions of the psychopathic traits, instead, that may be of more importance in the judicial decisions (Edens, Guy, & Fernandez, 2003). This has been found to be especially true if the individual is labeled as dangerous (Salekin, Rogers, & Ustad, 2001; Salekin, Yff, Neumann, Leistico, & Zalot, 2002), as well as if it interacts with other factors, such as a history of antisocial behavior (Rockett, Murrie, & Boccaccini, 2007). To be sure, a history of previous antisocial behavior has been found to be an indicator of utmost importance in the decision-making for juveniles, whether the person making the decision was a clinician, judge, or juvenile probation officer (Murrie et al., 2005, 2007; Rockett et al., 2007). In their scenarios, Jones and Cauffman (2008) found that, instead of a direct labeling effect, the label of psychopathy affects how dangerous an individual is perceived to be, which then, affects the restrictiveness. As mentioned above, empirical evidence exists that psychopathic youth are more likely than non-psychopathic youth to engage in future antisocial behavior. Thus, this casts doubt that the label is inappropriately being used by juvenile justice personnel.

Regardless of whether these concerns are valid and/or consistent with empirical findings, the fact remains that there is a significant correlation between psychopathy in youths and adults at behavioral, cognitive, emotional, interpersonal, and physiological levels (Barry et al., 2000; Blair, Budhani, Colledge, & Scott, 2005; Campbell, Porter, & Santor, 2004; Kiehl et al., 2001; Lynam et al., 2005). Ultimately, psychopathy has been found to be significantly predictive of delinquency. Salekin (2008), for example, found that this was true even when the data involved many correlates, from delinquent peers to race, gender, and age. According to DeLisi (2009), “because the construct of psychopathy can be utilized dimensionally and categorically, it can be used to assess its predictive validity across the universe of antisocial behaviors occurring in

childhood, adolescence, and adulthood” (p. 267). For these reasons, psychopathy is a relevant construct that deserves continued attention from criminologists.

## **Chapter Four:**

### **The Interaction of Social Learning Theory and Psychopathy**

As has been discussed in the previous chapters, both social learning theory and psychopathy can be used to elucidate criminal behavior. The goal of this dissertation is to determine how robust the generalizability of social learning theory is across varying levels of propensity, as measured by psychopathy. This is best done through theoretical integration. Liska, Krohn, & Messner (1989) discuss theoretical integration in their seminal work on the study of crime and deviance, where they argued that a good theory must integrate, or unify, its empirical findings. Hirschi (1979) was the first to suggest that strategies of integration regarding crime and deviance could be classified into one of three types: up-and-down integration, which refers to identifying a level of abstraction or generality that encompasses much of the conceptualization of the constituent theories; side-by-side (horizontal) integration, which refers to the partitioning of the subject matter of crime and deviance into cases that are explained by different theories; and end-to-end (sequential) integration, which refers to specifying the temporal order between causal variables so that the independent variables of some theories constitute the dependent variables of others. The method of theoretical integration used in this dissertation is the second, where, as Liska, Krohn, & Messner (1989) noted, theories may overlap but diverge at some point to account for different behaviors or types of deviants (e.g., social learning theory may matter for certain types of offenders).

As previously mentioned, the overall goal of this dissertation is to determine how robust the generalizability of social learning theory is across varying levels of propensity, as measured



by psychopathy. Over the last several years, propensity has become more accepted as an explanation for criminal offending. As noted by Wright, Caspi, Moffitt, and Silva (2001), some theoretical perspectives have typically emphasized processes of what is known as social causation. This references the idea that social relationships promote or prevent criminal behavior, and has been supported by crime correlates such as school, work, family ties, peer delinquency, and prior delinquency. More recently, however, some sociologists and criminologists have begun to incorporate preexisting measures like low self-control (Gottfredson & Hirschi, 1990) or childhood antisocial behavior (Laub & Sampson, 1993; Sampson & Laub, 1990) into their theories of crime. This allows for the concept that preexisting individual attributes may influence the development of social relationships and criminal behaviors.

What is relevant here is that each of these processes attempts to include the development from delinquent propensity to actual criminality. Wright, Caspi, Moffitt, and Silva (1999) described the first three hypotheses of social selection and social causation as: enduring criminal propensity, where propensity is stable from childhood into adolescence; unique social causation, where the friendships made as adults prevent criminality; and cumulative social disadvantage, where propensity instigates criminality by keeping pro-social ties from being formed (p. 485). Research has found evidence in support of all three, especially when elements of each are combined (Evans, Cullen, Burton, Dunaway, & Benson, 1997; Laub & Sampson, 1993; Moffitt, Caspi, Dickson, Silva, & Stanton, 1996; Wright et al., 1999).

Wright et al. (2001) more recently developed a fourth hypothesis, called life-course interdependence. According to this line of thought, criminal propensity causes the effects of social ties on crime to vary. The authors proposed two different aspects to test this hypothesis. The first, known as a “social protection effect, refers to the belief that pro-social ties that deter

crime, such as education, should deter it most strongly among individuals already prone to crime, or with the greatest propensity to offend. This is for the simple reason that these individuals have more antisocial behavior in need of deterrence.” The second, a “social amplification effect, means that those antisocial ties that promote crime, such as delinquent peers, should promote it most strongly among the same, criminally-prone individuals” (Wright et al., 2001, p.322). According to Caspi and Moffitt (1995), those with elevated propensities are more easily swayed into antisocial actions in accordance with criminogenic factors (e.g., peers).

Wright et al. (2001) tested their hypotheses using data from the Dunedin Multidisciplinary Health and Development Study, which contained measures of self-control, social ties, and self-reported property, violent, and drug crime for approximately 1,000 boys and girls. They found that the indirect effect of low self-control on crime (through social ties) exceeded its direct effect. They emphasized the fact that this happens predominantly through the effects of criminal propensity on socializations, most obviously through delinquent peers. They also found that pro-social ties did actually deter crime, whereas antisocial ties did in fact promote crime.

Importantly, both forms of ties reached higher levels of relevance for those with lower levels of self-control. The social ties the authors examined included education, employment, family ties, partnerships, and delinquent peers. Notably, at the lowest levels of self-control, all of the social ties had significant effects on crime. Even at the low and middle self-control levels, each social tie had significant effects. Conversely, at the highest self-control levels, none of the social ties variables significantly predicted crime, with the solitary exception of delinquent peers, which reached significance for all self-control levels. These results did not significantly vary whether the authors used traditional ordinary least squares or tobit regressions.

Recently, these and other various aspects of propensity have been more heavily researched. However, there are still very few studies that have focused on the interaction of propensity and specific criminological theories, with Ousey and Wilcox (2007) remaining one of the few researchers that has done so in any depth. Some works discussed the potential that singular propensities may modify the strength of alternative explanations from theories such as social control (Nagin & Paternoster, 1994); differential association (Paternoster & Brame, 1997); and general strain (Agnew, Brezina, Wright, & Cullen, 2002). Ousey and Wilcox (2007), however, were the first to provide an overview of the various theoretical interactions, following this with an analysis of variables reflecting criminal opportunity, differential association, general strain, and social bonding theories. They were specifically interested in examining the diminishing results of antisocial propensity on the associations between delinquency and additional social items, including the aforementioned theoretical variables.

Data for Ousey and Wilcox's (2007) study came from a prospective study of substance use, criminal victimization, and criminal offending among a panel of middle- and high-school students from Kentucky called the Rural Substance Abuse and Violence Project (RSVP). Their findings suggested that individual propensity seems to aggravate the effects of delinquent associations, opportunity, social bonds and strain. They found this to be logically consistent with previous research conducted by Agnew (2005) and Wright et al. (2001, 2004). However, it is important to emphasize that when they utilized the more methodologically-appropriate tobit regression models (recommended for use by Osgood, Finken, & McMorris (2002) in situations where the dependent variable is distributed in a skewed and left-censored manner), only delinquent peers continued to provide a significant interaction effect. Since propensity is seen to interact with various theories when traditional ordinary least squares models are used, but only

with delinquent peers when the tobit model is used, this suggests that method of estimation matters and should be taken into consideration in future research.

Although Ousey and Wilcox (2007) analyzed the interaction of criminal propensity with several theories, they did not explicitly do so with social learning theory. In fact, research on criminal propensity as it interacts with social learning theory has been sorely lacking. As mentioned in chapter two, social learning theory is an incredibly heavily-researched criminological ideology. Having undergone a vast amount of empirical testing through the past few decades, social learning theory has received extensive support (Akers, 1998, 2011; Akers & Jennings, 2009). Akers (2009) has been adamant throughout the years that all the components of social learning theory- differential association, differential reinforcement, imitation, and pro-criminal definitions- explain various behaviors of deviance (e.g., from aggravated assault to petty theft) and are applicable to all individuals (see Pratt et al., 2010). This is the essence of what makes it a general theory. However, newer studies have begun to question the generality of social learning theory. As noted in both Ousey and Wilcox (2007) and Wright et al.'s (2001) studies, antisocial peers seem to force an increased effect on the deviance of the persons evincing greater amounts of criminal propensity. Unfortunately, the additional elements of social learning either did not correlate with criminal propensity. For instance, Ousey and Wilcox (2007) did not determine that there was a moderating effect of criminal propensity on pro-criminal definitions. This represents one of the few existing examinations of whether pro-criminal definitions interact with criminal propensity.

One notable exception to this dearth of empirical testing on social learning theory and propensity was conducted by Yarbrough, Jones, Sullivan, Sellers, and Cochran (2012). Their study, in fact, concentrated on the appropriateness of social learning theory for people with

different amounts of propensity. Specifically, they assessed whether three of the four core dimensions of social learning theory- differential association, differential reinforcement, and procriminal definitions- varied by level of self-control. As previously mentioned, social learning could not be a general theory if each element did not operate similarly across the various levels of self-control. The authors expected the various dimensions of social learning, in addition to self-control, to wield individual significance on the dependent variable of antisocial behavior. However, in accordance with the findings from the previous studies by Ousey and Wilcox (2007) and Wright et al. (2001), Yarbrough et al. (2012) also anticipated finding that differential peer association would interact differently with self-control than the other components, with the suggested outcome then being that social learning theory ought to be blended with other theories.

To test their hypotheses, they used a sample of 1,674 middle and high school students from Largo, Florida. They designed their study to focus on delinquency and offenses ranging from minor to serious. Yarbrough et al. (2012) used a basic model that included variables such as self-control, antisocial peers, pro-delinquency definitions, differential reinforcement, and demographic controls. They also included three other models that included interaction terms for low-self control and each element of social learning theory separately. Self-control and the social learning variables exerted significant, main effects. Of particular interest, however, were the interactions. These interactions were nonsignificant, meaning that the influence of the social learning constructs – definitions, peers, and reinforcement – did not vary as a function of self-control. Stated differently, the effect of the social learning components operated the same against different amounts of self-control. This was an especially interesting finding in regards to differential reinforcement, as Yarbrough et al. (2012) were the first to test any measure of it. Although the authors used tobit specifications as well as OLS models, their results did not

significantly differ by direction, effect size, relative magnitude, or significance. Therefore, only their OLS results were discussed. The overall message from their research was that social learning theory as a whole, along with the individual components, operated similarly across individuals of varying criminal propensity.

As is the case with social learning theory, very little research has been done that focuses on the interaction of psychopathy and other criminological constructs. In fact, the sole study of which this author is aware was conducted 16 years ago by Silver, Mulvey, and Monahan (1999). Even so, that research assessed to what extent the incorporation of neighborhood variables increased the validity of models predicting violence, and viewed psychopathy solely as an individual-level risk factor that could potentially vary in consistency across different neighborhood contexts. Through their multi-level analysis, they found that psychopathy, substance abuse disorder, and age yielded significant independent effects on violence. They also found that being diagnosed as a psychopath was still significantly related to subsequent violence when concentrated poverty was added to the equation predicting violence. However, and more pertinent to this dissertation, there was not any significant association between psychopathy and concentrated poverty. That is, the criminogenic features of neighborhood context operated similarly for those with lower and higher levels of psychopathy.

Importantly, this type of inquiry speaks not just to theoretical matters, but practical ones as well. One way in which this knowledge might be useful is in reference to treatment and policy implications for these offenders. Approximately 25 years ago, Bonta, Andrews, and Hoge (1990) developed what they referred to as the risks-needs-responsivity (RNR) model. This model has three general principles for effective offender rehabilitation: The risk principle, which attempts to match offender risk level to the amount of program intensity; the principle of need, which

targets the needs of the offender which are analogous to criminality; and the principle of responsibility, which matches the type of treatment to the learning style and ability of the offender. Since the RNR model was first developed, much research has been performed with respect to its effectiveness. The authors themselves have found that, with specific regard to the treatment of offenders, those interventions that stick most closely to the principles of the RNR model have far fewer cases of reoffending. They have also found that interventions that do not adhere to the RNR principles do not have fewer cases of reoffending and may even increase recidivism (Andrews & Bonta, 2010a, 2010b; Andrews, et al., 1990). What this model suggests, in the context of the current study, is that targeted areas of intervention might be distinct for different types of offenders.

In conjunction with the previous research where psychopathy has been found to be a significant predictor of future violent behavior in a wide range of high-risk populations (DeLisi, 2009; Forth, Hart, & Hare, 1990; Quinsey, Rice, & Harris, 1995), additional analyses measuring the interactive effect of psychopathy and other criminological constructs on criminal behavior are clearly needed. This is precisely what the current study attempts to accomplish.

### **The Current Study**

This dissertation has several components, all of which should be viewed as relatively unique contributions to the existing literature. As mentioned in prior chapters of this dissertation, research on the generality of social learning theory across different measures of propensity is practically nonexistent (for notable exceptions, see Ousey & Wilcox, 2007; Wright et al., 2001; Yarbrough et al., 2012). This is especially true when the measure of propensity is psychopathy. In fact, to the knowledge of this author, there are no other studies that measure this specific

interaction, despite evidence that psychopathy is a robust predictor of future violence (DeLisi, 2009). The only other study that has used psychopathy as a measure of propensity at all explored it solely as an interactive effect of different neighborhood contexts (Silver, Mulvey, & Monahan, 1999). Such a finding tells us little about whether psychopathy might interact with social learning theory constructs.

One very important aspect of the current research is in regards to the aforementioned generality of social learning theory. The state of empirical research on this issue is somewhat mixed, in that some elements might be more important for some types of offenders. In terms of empirical support, although the various elements of social learning theory have each been endorsed, the influence of delinquent peers on criminal behavior provides one of the most powerful statistical results for the entirety of criminology (Warr, 2002). However, the influence of deviant peers on criminal behavior has been found to vary based on each offender's unique amount of criminal propensity. For example, Ousey and Wilcox (2007) and Wright et al. (2001) both discovered the peer effect was of increased importance to the individuals with higher levels of criminal propensity. On the other hand, Ousey and Wilcox (2007) were unable to determine that criminal propensity moderated the effect of pro-criminal definitions on delinquency. Teasing out the overlap in self-control and social learning, Jennings, Higgins, Akers, Khey, and Dobrow (2013) found that when delinquent peer association was not included as a time-varying covariate during early childhood, self-control was relatively stable. However, once delinquent peer association was incorporated into the model in late childhood and early adolescence, self-control appeared malleable particularly for those individuals with the least amount of self-control. The authors therefore suggest that a more theoretically integrated approach, or what they call self-control synergistic theory (SSST), is more plausible. Conversely, Yarbrough et al. (2012) failed



to find that peers or definitions interacted with self-control. Additionally, they were the only ones to examine whether differential reinforcement was moderated by self-control. This interaction was also nonsignificant. Based on their results, Yarbrough et al. (2012) concluded that social learning theory was a general theory of delinquency.

The conflicting results of the prior research on this topic are the main reason why the current study will test three of the four elements of social learning theory: definitions, differential association, and differential reinforcement. The fourth component of social learning theory, imitation, will not be tested. This component is best-suited to explain the onset of delinquency, which will not be a focus of the current project.

Another goal of this study, as previously mentioned, is to measure the level of propensity among the sample using psychopathy. This is another unique aspect of this dissertation, because despite the evidence that psychopathy is robustly related to antisocial behavior (see DeLisi, 2009), it has never been used to assess the generality of social learning theory. The aspects of the data used in the current study are also distinct from other, similar research in that it is comprised of adolescents who have committed serious crimes. Most of the individuals in the data were convicted serious felony offenses, in contrast to the aforementioned studies most directly related to the current study. Ousey and Wilcox (2007) and Yarbrough et al. (2012) relied on school-based samples. Wright and colleagues (2001) used a birth cohort. Importantly, none of these samples can be characterized as high risk. As Mulvey et al. (2004) have noted in their research, making sure to use a serious offender sample is very important for several reasons, not the least of which is that policy implications are more relevant.

Finally, the last intriguing aspect of the current study is that estimations of the interaction effects will be assessed using both OLS and tobit regression. This is very important because

recent studies have raised the possibility that results of standard OLS regression models may be spurious due to the fact that they violate key assumptions such as homogeneity of variance. The most frequent reason this occurs with research on juveniles is that the typical OLS model is not configured to best accommodate the skewed, left-censored distributions of delinquent behavior. Osgood, Finken, and McMorris (2002) recommend the tobit model for dealing with continuous data that are censored or bounded at a limiting value. More specifically, they found in their comparisons of OLS and tobit models that applying OLS regression to dependent variables with distributional problems reduced the power of statistical inference and increased the probability of making a Type II error (e.g., mistakenly failing to reject the null hypothesis). They also emphasized that applying least squares statistics to unsuitable data may reveal complexity in the form of interactions among explanatory variables and curvilinear relationships with the dependent variable that is not substantively meaningful. Stated differently, using an OLS model can lead to spurious interactions when the distribution is skewed and left-censored. Considering that the data in the sample used in this dissertation follows the same general distribution of prior similar studies, it seems particularly important that a tobit model be considered, especially since the interaction between psychopathy and social learning constructs is the primary analytic focus. To be sure, preliminary estimates of model fit will be conducted to examine which method type of analysis is most appropriate.

*Research Hypotheses.* The amount of research that has concentrated on the interaction of criminological theory and propensity is quite small (Ousey & Wilcox, 2007; Wright et al., 2001), with those specifically testing the generality of social learning theory as it functions as a measure of propensity even more miniscule. In fact, to the knowledge of this author, there has been only

one (Yarbrough et al., 2012). There have been none that have tested that interaction utilizing a measure of psychopathy. Although the lack of prior research on this topic makes the current dissertation an important contribution to the field, it does not lend itself to a high degree of certainty regarding research hypotheses. What results these few studies have reported appear to be in conflict with one another, and somewhat inconclusive, according to which method(s) of analysis were used (e.g., OLS versus tobit regression). For these reasons, the only unqualified expectation for the following analyses is that all four elements of social learning theory, as well as psychopathy, will have significant main effects on antisocial behavior. This is hypothesis one. Given the lack of empirical consistency, the most appropriate hypothesis that can be made regarding interactive effects is that the null will fail to be rejected: none of the components of social learning theory will significantly interact with psychopathy. Stated differently, hypothesis two is that pro-criminal definitions, differential association, and differential reinforcement should all operate similarly across levels of psychopathy.

## **Chapter Five:**

### **Methods**

#### **Sample**

One category of offender that continues to retain the focus of both criminologists and the general public is that of high-risk, deep-end juveniles. It is these individuals who continue to drive public policy. Unfortunately, it is also this group of offenders that criminologists know the least about. The Pathways to Desistance Project was created for this purpose. It provides a two-site, large-scale exploration of discontinuation from delinquency with deep-end juvenile offenders. The Pathways to Desistance Project was created to detail the changes in maturation experienced by serious juvenile offenders, including functional, psychological, and social ones (Loughran, Piquero, Fagan, & Mulvey, 2009). According to Mulvey et al. (2004), the Pathways data utilizes a prospective design, which includes a wide focus and many sources of information (e.g., self-report, collateral report, and official record).

This dissertation examines the data from the participants enrolled in the Pathways to Desistance Project. The Pathways population sampled 1,354 juveniles who were between 14 and 17 years old when they committed their offenses, and were adjudicated in Philadelphia Co., Pennsylvania, or Maricopa Co., Arizona. These offenders were convicted of sufficiently serious charges and had committed enough prior acts of delinquency to be important for policy discussions, but had enough differences among them to enable the impacts of punishment, intervention, or maturation to be examined. All felony crimes (other than minor property offenses) were included in the data. Enrollment of the sample began in November 2000 and

continued through January 2003 (Schubert et al., 2004).

After informed consent was obtained, the juveniles completed a baseline interview. An adult collateral informant was also interviewed at baseline. Participants completed two types of interviews after their baseline interview: “time-point” interviews and “release” interviews. The time-point interview included a standard set of measures administered at 6-month intervals, beginning 6 months after the baseline interview and continuing for the 3-year follow-up period. One year after the baseline interview, and at annual intervals after that, additional collateral information was obtained from peers nominated by participants as individuals who knew the participant well (Loughran et al., 2009).

According to Schubert et al. (2004), the Pathways to Desistance interviews thoroughly described six broad domains, such as background demographics, indicators of individual functioning, psychosocial development and attitudes, family context, personal relationships, and community context (p. 240).

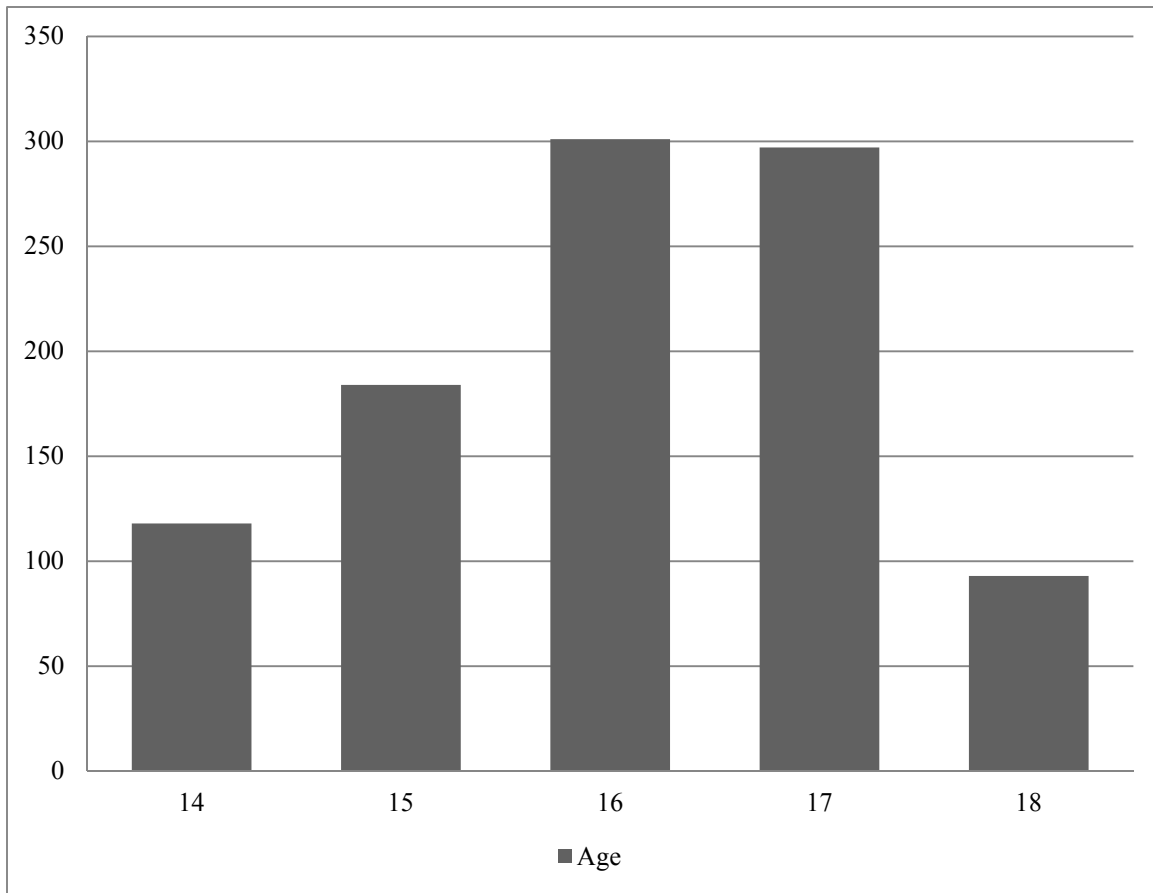
## **Measures**

Several distinct measures from the Pathways to Desistance Project were used in the following analyses. It is worthwhile to mention that although the majority of the categories were measured at more than one point in time, psychopathy was not. However, the aforementioned research questions do not require the use of longitudinal data. Additionally, this study’s focus is on examining the relationship between variables, and whether those relationships are moderated by another variable. In other words, there is no need for multiple time-points to be assessed since the data are not being used to predict anything. Therefore, for the sake of consistency, this dissertation will use only data taken at the baseline time-point, with the exception of the Youth

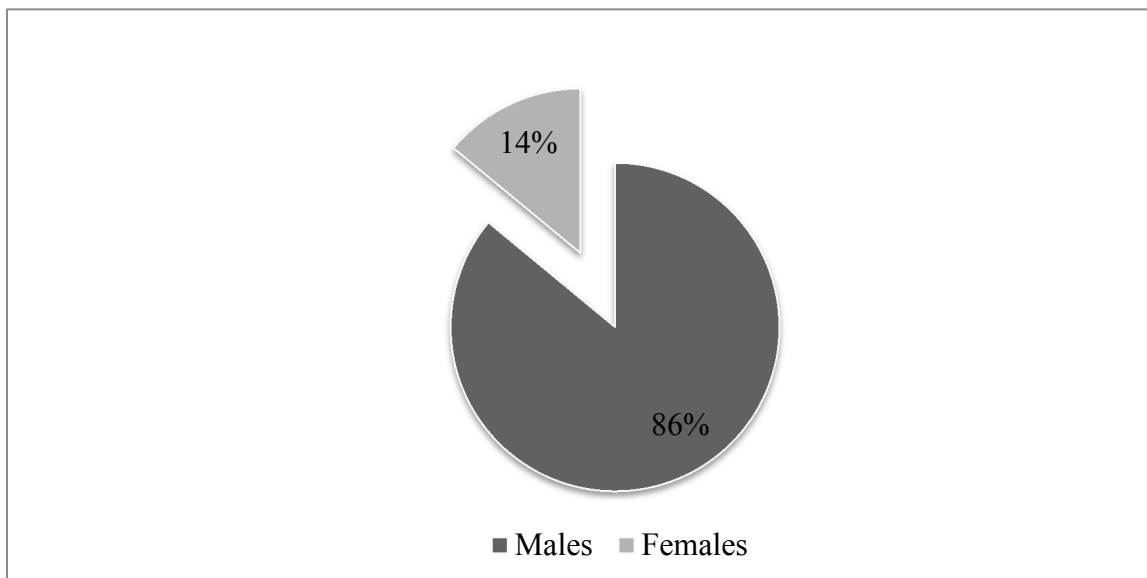
Psychopathic Traits Inventory (YPI), which was taken at the first follow-up.

*Demographics.* Only three descriptive characteristics of the sample were used for the purposes of the current study: gender, age, and ethnicity. Gender was coded as either male or female. Age was measured at the time of the interview. Ethnicity was self-reported, and there were six separate groups: White, Black, Asian, Native American, Hispanic, and Other. Due to the low frequencies reported in the Asian, Native American, and Other grouping, the Ethnicity-Recoded variable was used, which recoded ethnicity into four categories: White, Black, Hispanic, and Other. This variable was then recoded once more into dummy variables, with White as the reference category. Black, Hispanic, and Other were then entered into each model. Even though the final sample was 993, down from the original 1,354 due to missing data, the proportions of each age, gender, and ethnicity remained almost exactly the same. For example, males were approximately 86% of the sample whether it was from the original N of 1,354 or the final N of 993. Figures demonstrating the various demographic categories are below.

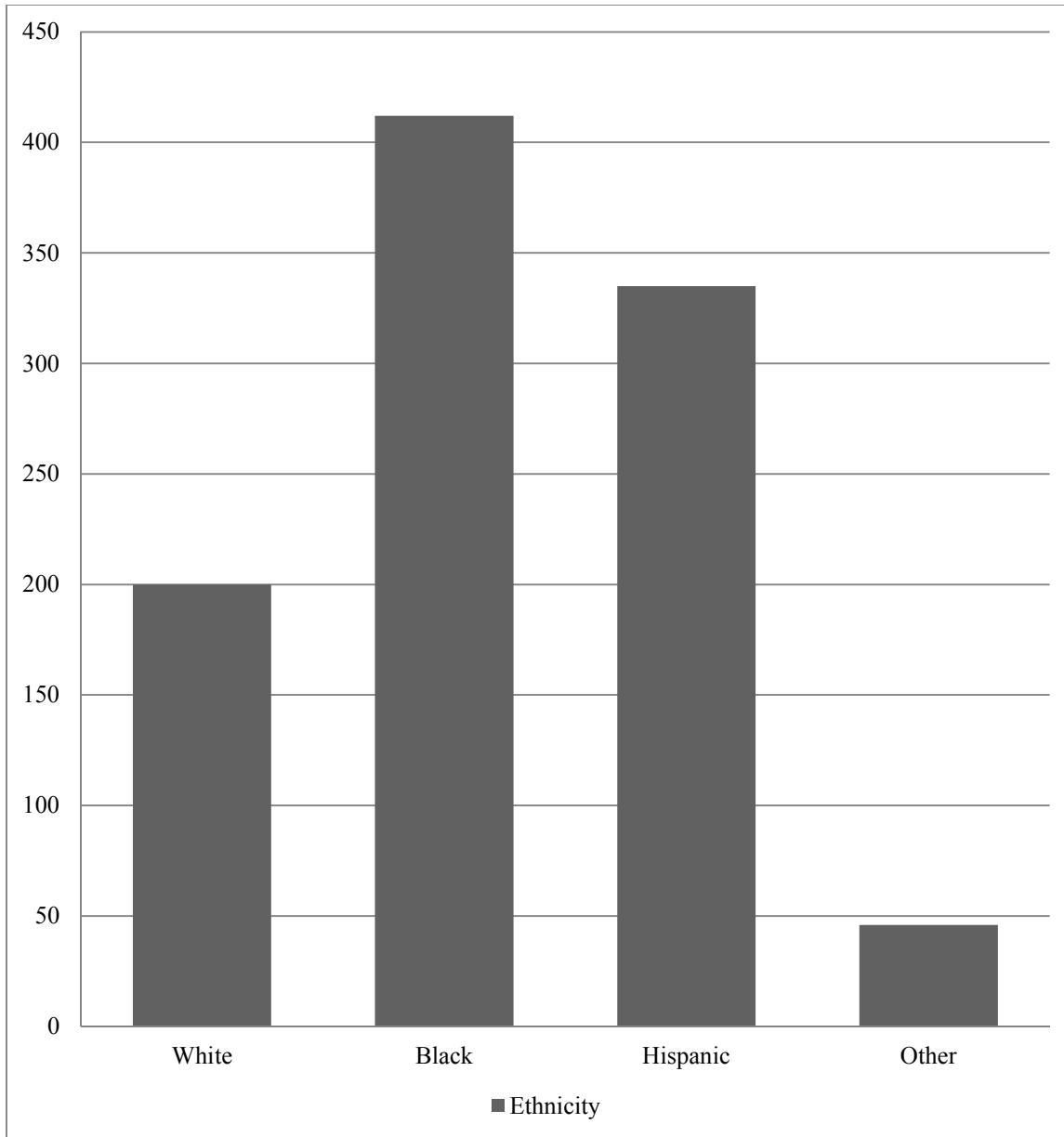
*Self-Reported Offenses.* The dependent variable for the current analyses is based on the Self-Reported Offending (SRO) scale originally created in 1991 by Huizinga, Esbensen, and Weiher and was adapted by Pathways to ascertain each individual's amount of antisocial and illegal activities. Their scale consists of 24 items that determine an individual's engagement in various types of delinquency. For each endorsed item, a set of follow-up questions were triggered that gathered additional information regarding the reported offense (e.g., "How old were you the first time you did this?"; "How many times have you done this in the past year?"). To reduce the amount of missing data, two items were dropped from the scale, leaving the final number of



**Figure 2. Age of Sample**



**Figure 3. Gender of Participants**



**Figure 4. Ethnicity of Sample**

items for the scale at 22. For the purposes of this dissertation, the specific variable used is called “total offending variety- ever,” and includes the total number of different types of acts committed by each juvenile. Those acts were from the following list: destroyed or damaged property; set fire; broke in to steal; shoplifted; bought/received/sold stolen property; used check/credit card; stole a car or motorcycle; sold marijuana; sold other drugs; carjacked; drove



drunk or high; was paid by someone for sex; forced someone to have sex; killed someone; shot someone where the bullet hit; shot at someone where no hit occurred; took by force with a weapon; took by force without a weapon; beat up someone serious injury; in a fight; beat someone as part of gang; and carried a gun. The Total Offending variable is therefore a proportional measure. According to the Pathways handbook, the numerator is the number of different types of acts endorsed, regardless of when it was committed and the denominator is the number of items for which the subject gives either a "yes" or "no" answer. That is, all items which the subject refused to answer, replied "don't know," or was not asked are removed from the denominator. Values closer to 0 indicate a smaller variety of offenses, and values closer to 1 indicate a greater variety of offenses in which the youth reported she or he had engaged in the past.

*Social Learning Theory.* As mentioned in the previous sections of this dissertation, it is extremely important, from a generality standpoint, to analyze as many of social learning theories core elements as possible. For that reason, pro-criminal definitions, differential association, and differential reinforcement measures were selected.

*Pro-criminal Definitions.* Mechanisms of moral disengagement, created in 1996 by Bandura, Barbarnelli, Caprara, and Pastorelli, were used in the Pathways data to measure each juvenile's perspective regarding the treatment of others. These mechanisms are a self-report survey includes 32 items on a Likert scale with responses ranging from "Disagree" to "Agree," with greater scores implying greater moral detachment. The actual variable used, moral disengagement, taps an overall measure of the 32 items, each of which Akers (2009) considers to

be indicative of the social learning core component of pro-criminal definitions. In fact, he argues that, as they are simply techniques of neutralization, operative variables representing moral disengagement can be subsumed entirely by the definitional facet of social learning theory. According to the codebook, the moral disengagement overall score was found to have good internal consistency at the baseline time-point ( $\alpha = .88$ ), and has been used in recent studies related to offending (Cardwell et al., 2015).

*Differential Association.* This dataset used a peer delinquency measure that is actually a subgroup of those utilized by the Rochester Youth Study (Thornberry et al., 1994). The peer delinquency measure simply determines the amount of delinquent activity among each juvenile's peers. Peer delinquency (e.g., "During the last six months how many of your friends have sold drugs?") is the specific variable to be used in the analyses in this dissertation, and it is comprised of the mean rating of the prevalence of friends who engage in 12 delinquent behaviors. The scale contains 19 items based on a Likert scale. A one-factor CFA model was fit to the Pathways baseline data and the fit of the model was acceptable: (CFI = .94).

*Differential Reinforcement.* Prior criminological research suggests offending (and the punishment associated with it) has both personal and social rewards and social and personal costs (Williams and Hawkins, 1986; Nagin, 1998). Akers and Sellers (2009) argue that an individual's decision to commit crime depends on these costs and rewards- past, current, and anticipated. Therefore, the Pathways data adapted the Indices of Personal and Social Costs and Rewards to assess each individual's anticipated chances of being detected for the commission of various illegal acts (Nagin & Paternoster, 1994). This index is comprised of items that ask about the

perceived impact of the consequences received as a result of participation in criminal activity. For the purposes of these analyses, one dimension is utilized as measures of differential reinforcement: Personal Rewards of Crime (e.g., "How much 'thrill' or 'rush' is it to break into a store or home?"). This is an example of indirect reinforcement, which Akers has emphasized the significance of (Akers, 2009, 2011; Akers et al., 1979). The following is the reliability coefficient for this dimension: personal rewards of crime:  $\alpha = .88$ .

*Psychopathy.* The Pathways to Desistance Project adapted the Psychopathy Checklist- Youth Version (PCL: YV) to assess psychopathy, and all questions from the PCL: YV were incorporated into the Pathways baseline interview battery. Using data from the Pathways sample, Jones et al. (2006) found evidence of factorial validity of this measure with this sample. The specific variable used for this analysis is the PCL Total Score, which includes all 20 items in the PCL: YV. The total score is reliable and was found to have good internal consistency ( $\alpha = .87$ ). In addition to the PCL: YV, the Youth Psychopathic Traits Inventory (YPI) was also assessed. Prior researchers have expressed some hesitance at the sole reliance on constructs of psychopathy that evaluate criteria using antisocial behavior, such as the PCL- YV. It is thought that much of their statistical utility may be due to the behavioral criterion instead of base psychopathic traits (Cauffman, Kimonis, Dmitrieva, & Monahan, 2009; Skeem & Cooke, 2010; Walters, Knight, Grann, & Dahle, 2008). Since the YPI does not contain criminal behavior items, it was utilized as an additional measure of psychopathy to avoid any potential tautological problems regarding the inclusion of prior antisocial behavior in the PCL: YV. The YPI Total Score, including all 50 items in the YPI, was assessed by the Pathways to Desistance Project at the six-month follow-up and, like the PCL: YV, showed good internal consistency ( $\alpha = .93$ ).

## **Analytic Plan**

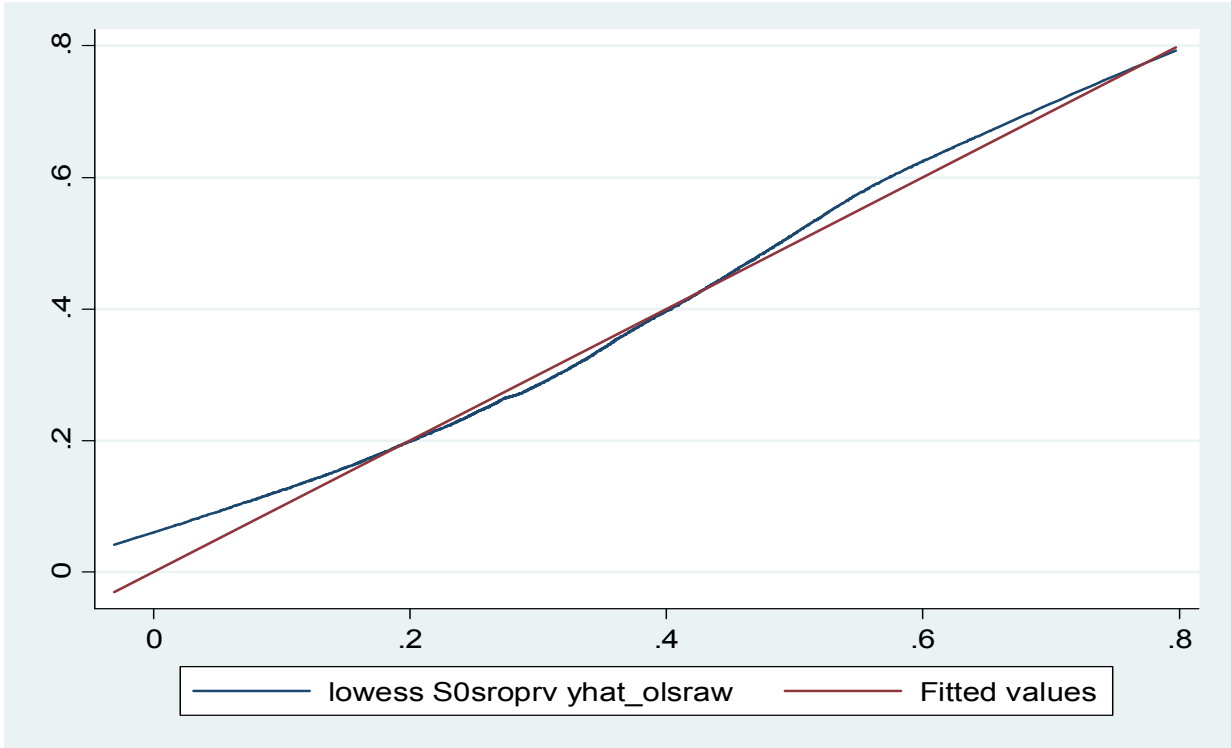
Descriptive statistics for each of the aforementioned variables, including self-reported offending, age, gender, ethnicity, psychopathy, mechanisms of moral disengagement, peer delinquent behavior, and personal rewards of crime are presented below. Next, it was determined which model best fit the data. Following that determination, multivariate models were examined.

Following the examples of Ousey and Wilcox (2007), Wright et al., (2001), and Yarborough et al. (2012), after the OLS regressions were computed, tobit regressions were then modeled for comparison. Again, Osgood, Finken, and McMorris (2002) recommend using a tobit model in circumstances where the OLS model is not appropriate to accommodate the dependent variable of delinquent behavior. This helps to ensure that any interactions found in the results are not spurious. They also emphasized that the tobit model may be a particularly good match to measures of self-reported offending, which is indeed the dependent variable of this analysis.

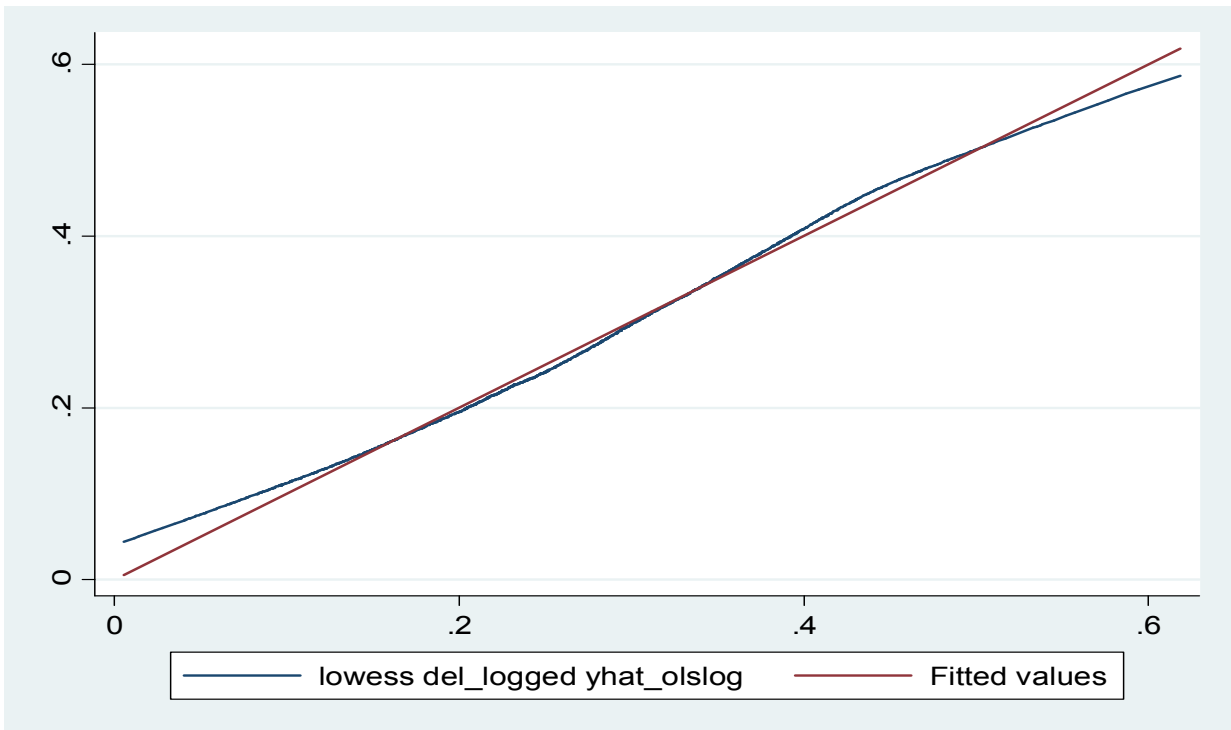
In order to determine the best model fit, several calculations were performed which compared the predicted and observed values of delinquency. Model appropriateness is judged by how well the two lines converge. As shown in Figure 5, none of the models appeared to be substantively better than the others. Based on these findings, both the OLS and tobit models (with delinquency untransformed) will be reported in the results section. This approach replicates previous studies assessing the accuracy of interaction effects (Osgood et al., 2002; Ousey & Wilcox, 2007), and also allows for an examination of the consequences of model choice.

**Table 1. Sample Means, Standard Deviations, Minimums, and Maximums for Variables of Interest (N = 903)**

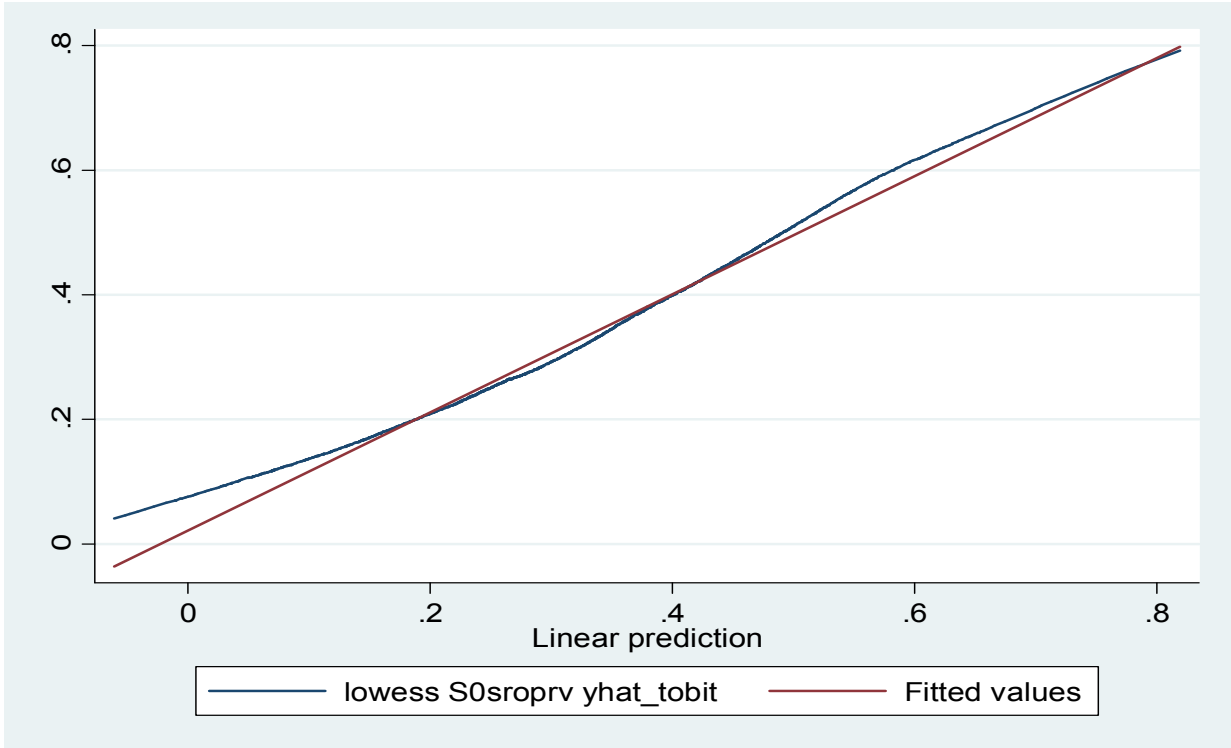
<b>Variables</b>	<b>M</b>	<b>SD</b>	<b>Minimum</b>	<b>Maximum</b>
Age	16.06	1.15	14.00	18.00
Gender	1.14	0.35	1.00	2.00
Ethnicity	2.23	0.82	1.00	4.00
Self-Reported Offending	0.32	0.21	0.00	0.95
Personal Rewards	2.39	2.44	0.00	10.00
Moral Disengagement	1.62	0.35	1.00	3.00
Antisocial Peers	2.32	0.93	1.00	5.00
PCL: YV	16.42	7.72	1.00	37.00
YPI	109.11	22.92	42.00	191.00



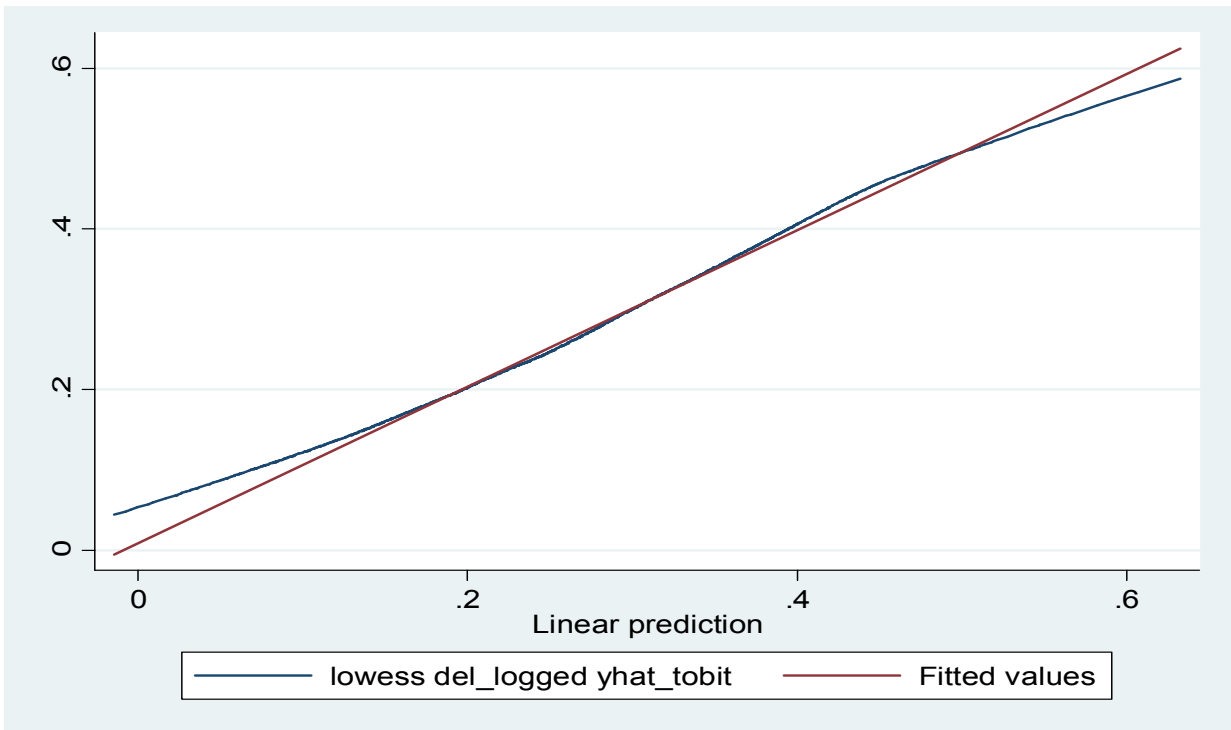
**Figure 5A. OLS (Untransformed DV)**



**Figure 5B. OLS (Transformed DV)**



**Figure 5C. Tobit (Untransformed DV)**



**Figure 5D. Tobit (Transformed DV)**

## Chapter Six:

### Results

#### Bivariate Relationships

The first set of analyses involved testing the bivariate relationships between the variables of theoretical interest. Results from these analyses can be seen in Table 2 below and suggest significant relationships between self-reported offending and all but one variable in the analysis, including: age ( $r = .19, p < .01$ ); black ( $r = -.12, p < .01$ ); Hispanic ( $r = .11, p < .01$ ); gender ( $r = -.17, p < .01$ ); personal rewards ( $r = .42, p < .01$ ); moral disengagement ( $r = .38, p < .01$ ); antisocial peers ( $r = .62, p < .01$ ); the psychopathy checklist- youth version ( $r = .56, p < .01$ ); and the YPI ( $r = .35, p < .01$ ). The only other variable, other, did not exhibit a significant relationship with self-reported offending. When evaluating the data prior to the drops for missing data ( $N = 1,354$ ), the only significant change at the bivariate level was the correlation between gender and ethnicity ( $r = -.08, p < .01$ ).

Also of note, both the PCL: YV and the YPI were significantly and positively correlated with each of the social learning variables: personal rewards ( $r = .33, p < .01$ )/( $r = .29, p < .01$ ), moral disengagement ( $r = .34, p < .01$ )/( $r = .36, p < .05$ ), and antisocial peers ( $r = .42, p < .01$ )/( $r = .28, p < .05$ ), respectively. In sum, each variable in the analysis was correlated at the bivariate level with the dependent variable self-reported offending.



**Table 2: Bivariate Correlations of the Variables of Interest**

Correlation Matrix	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Age	---										
2. Black	.03	---									
3. Hispanic	-.03	-.60**	---								
4. Other	.08**	-.19**	-.16**	---							
5. Gender	-.03	-.04	-.03	.22	---						
6. Personal Rewards	.00	-.23**	.14**	.04	-.04	---					
7. Moral Disengagement	.00	-.10**	.13**	.01	-.05	.37**	---				
8. Antisocial Peers	.12**	-.10**	.15**	.03	-.07*	.36**	.37**	---			
9. Self-Reported Offending	.19**	-.12**	.11**	.01	-.17**	.42**	.38**	.62**	---		
10. PCL: YV	.08*	-.03	.00	.01	-.06**	.33**	.34**	.42**	.56**	---	
11. YPI	.05	-.04	-.02	.01	-.08**	.29**	.36**	.28**	.35**	.37**	---

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

## **Multivariate Relationships**

At the multivariate level, the relationships between the variables of interest became more complex. Although there were many significant relationships at the bivariate level, at the multivariate level some of those became nonsignificant. These differences are discussed in greater detail below.

### OLS Models

*Baseline OLS Model (PCL: YV).* Two baseline OLS analyses were conducted, one with the PCL: YV as the measure of psychopathy, and one with the YPI. The first baseline OLS model regressed self-reported offending on the other variables, including: ethnicity (Black, Hispanic, and Other), gender, age, the PCL: YV, antisocial peers, moral disengagement, and personal rewards.

As can be seen from Table 3, only the various ethnicities were nonsignificant in this particular analysis. More specifically, those with higher self-reported offending were more likely to have more antisocial peers ( $b = .089$ ), to be more morally disengaged ( $b = .035$ ), and to perceive more personal rewards to committing crime ( $b = .012$ ). Regarding psychopathy, they were more likely to have higher scores on the PCL: YV ( $b = .008$ ). Finally, they were more likely to be older ( $b = .021$ ) and male ( $b = -.065$ ).

**Table 3. Baseline OLS Model (PCL: YV)**

Black	-0.020 (0.012)
Hispanic	-0.003 (0.013)
Other	-0.027 (0.023)
Gender	-0.065** (0.013)
Age	0.021** (0.004)
Moral Disengagement	0.035* (0.014)
Personal Rewards	0.012** (0.002)
Antisocial Peers	0.089** (0.006)
PCL: YV	0.008** (0.001)
Constant	-0.357** (0.069)
N	993
R <sup>2</sup>	0.55

Standard errors in parentheses  
\* p < .05 \*\* p < .01

*Interactive OLS Models (PCL: YV).* Of particular interest in the current analysis was the extent to which the social learning variables were moderated by psychopathy. To test this, several interactions were created. All variables were mean-centered prior to the creation of the interactions (Aiken & West, 1992), and the models were each checked for multicollinearity. Each interaction term was assessed independently, meaning that only one interaction term was estimated at a time. The first three interaction models can be seen in Table 4, below. For the first model, there was an interactive effect between the PCL: YV and peer delinquency ( $b = .002$ ).

Specifically, the effect of antisocial peers was amplified among those with elevated PCL: YV scores. In other words, antisocial peers were a stronger criminogenic influence for those with higher PCL: YV scores.

The second OLS interactive effects model included a variable that combined the PCL: YV and moral disengagement. The effect of moral disengagement was amplified among those with elevated PCL: YV scores ( $b = .004$ ). Therefore, moral disengagement was a stronger criminogenic influence among those with higher PCL: YV scores. Finally, the third OLS interactive effects model included a variable that combined the PCL: YV and personal rewards. The finding here was that the effect of personal rewards was amplified among those with elevated PCL: YV scores ( $b = .001$ ). Therefore, personal rewards were a stronger criminogenic influence among those with higher PCL: YV scores. In sum, all three of the PCL: YV interactions were significant, meaning that the effect of social learning on offending was moderated by psychopathy as measured by the PCL: YV. For all three interaction terms, antisocial peers, moral disengagement, and personal rewards were a stronger criminogenic influence among those with higher PCL: YV scores.

**Table 4. Interactive OLS Models (PCL: YV)**

	Model 1	Model 2	Model 3
Black	-0.020 (0.012)	-0.020 (0.012)	-0.022 (0.012)
Hispanic	-0.003 (0.013)	-0.003 (0.013)	-0.006 (0.013)
Other	-0.025 (0.023)	-0.024 (0.023)	-0.027 (0.023)
Gender	-0.064** (0.013)	-0.066** (0.013)	-0.066** (0.013)
Age	0.022** (0.004)	0.021** (0.004)	0.020** (0.004)
Moral Disengagement	0.032* (0.014)	-0.040 (0.033)	0.033 (0.014)*
Personal Rewards	0.012** (0.002)	0.012** (0.002)	-0.001 (0.005)
Antisocial Peers	0.048** (0.012)	0.089** (0.006)	0.089** (0.006)
PCL: YV	0.003 (0.002)	0.002 (0.003)	0.007** (0.001)
PCL: YV x ASP <sup>a</sup>	0.002** (0.001)		
PCL: YV x MD <sup>b</sup>		0.004* (0.002)	
PCL: YV x PR <sup>c</sup>			0.001** (0.000)
Constant	-0.284** (0.071)	-0.240** (0.082)	-0.325** (0.069)
N	993	993	993
R <sup>2</sup>	0.55	0.55	0.55

Standard errors in parentheses

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

<sup>a</sup> refers to an interaction term created between the PCL: YV and Antisocial Peers

<sup>b</sup> refers to an interaction term created between the PCL: YV and Moral Disengagement

<sup>c</sup> refers to an interaction term created between the PCL: YV and Personal Rewards

*Baseline OLS Model (YPI).* Much like the first baseline OLS model, the second regressed self-reported offending on other variables, including antisocial peers, moral disengagement, personal rewards, the YPI, ethnicities (Black, Hispanic, and Other), gender, and age. As can be seen from Table 5, the baseline OLS model for the YPI is very similar to the baseline OLS model for the PCL: YV. Once again, only the three ethnicities were nonsignificant in this particular analysis. More specifically, those with higher self-reported offending were more likely to have more antisocial peers ( $b = .106$ ), to be more morally disengaged ( $b = .050$ ), and to perceive more personal rewards to committing crime ( $b = .015$ ). Regarding psychopathy, they were more likely to have higher scores on the YPI ( $b = .001$ ). Finally, they were more likely to be older ( $b = .022$ ) and male ( $b = -.067$ ).

**Table 5. Baseline OLS Model (YPI)**

Black	-0.020 (0.013)
Hispanic	-0.010 (0.014)
Other	-0.032 (0.025)
Gender	-0.067** (0.014)
Age	0.022** (0.004)
Moral Disengagement	0.050** (0.016)
Personal Rewards	0.015** (0.002)
Antisocial Peers	0.106** (0.006)
YPI	0.001** (0.000)
Constant	-0.428** (0.075)
N	993
R <sup>2</sup>	0.48

Standard errors in parentheses  
\* p < .05 \*\* p < .01

*Interactive OLS Models (YPI).* Again, interactive variables were added in for the next three models separately, and these can be seen in Table 6. The YPI was multiplied with antisocial peers, moral disengagement, and perceived rewards. Unlike the findings that included the PCL: YV, only one of the interactions between the social learning variables and the YPI were significant. That is, the effects of moral disengagement and perceived rewards for crime were not moderated by the YPI. However, the effect of antisocial peers was amplified among those with elevated YPI scores ( $b = .000$ ). In other words, antisocial peers were a stronger criminogenic influence for those with higher YPI scores.

**Table 6. Interactive OLS Models (YPI)**

	Model 1	Model 2	Model 3
Black	-0.021 (0.013)	-0.020 (0.013)	-0.021 (0.013)
Hispanic	-0.012 (0.014)	-0.011 (0.014)	-0.011 (0.014)
Other	-0.034 (0.025)	-0.032 (0.025)	-0.033 (0.025)
Gender	-0.067** (0.014)	-0.067** (0.014)	-0.067** (0.014)
Age	0.022** (0.004)	0.022** (0.004)	0.022** (0.004)
Moral Disengagement	0.048** (0.016)	0.029 (0.063)	0.049** (0.016)
Personal Rewards	0.015** (0.002)	0.015** (0.002)	0.010 (0.010)
Antisocial Peers	0.060* (0.024)	0.106** (0.006)	0.106** (0.006)
YPI	0.000 (0.001)	0.001 (0.001)	0.001** (0.000)
YPI x ASP <sup>a</sup>	0.000* (0.000)		
YPI x MD <sup>b</sup>		0.000 (0.001)	
YPI x PR <sup>c</sup>			0.000 (0.000)
Constant	-0.321** (0.092)	-0.395** (0.123)	-0.414** (0.078)
N	993	993	993
R <sup>2</sup>	0.49	0.48	0.48

Standard errors in parentheses

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

<sup>a</sup> refers to an interaction term created between the YPI and Antisocial Peers

<sup>b</sup> refers to an interaction term created between the YPI and Moral Disengagement

<sup>c</sup> refers to an interaction term created between the YPI and Personal Rewards



## Tobit Models

As mentioned in the previous sections, tobit analyses might be more appropriate when regressing skewed data on models with interaction terms. Although skew was not excessive in the current analysis, and the predicted and observed values did not suggest OLS were not particularly poor fits (see Figures 5A-5D), tobit estimates were examined. To the extent that the interaction effects are reliable, they should be observed across both the OLS and tobit models.

*Baseline Tobit Model (PCL: YV).* Much like with the OLS analyses, two baseline tobit analyses were conducted, one with the PCL: YV as the measure of psychopathy, and one with the YPI. The first baseline tobit model regressed self-reported offending on the other variables, including: ethnicities (Black, Hispanic, Other), gender, age, antisocial peers, moral disengagement, personal rewards, and the PCL: YV. As can be seen from Table 7, only the various ethnicities were nonsignificant in this particular analysis. More specifically, those with higher self-reported offending were more likely to have more antisocial peers ( $b = .090$ ), to be more morally disengaged ( $b = .035$ ), and to perceive more personal rewards to committing crime ( $b = .012$ ). Regarding psychopathy, they were more likely to have higher scores on the PCL: YV ( $b = .008$ ). Finally, they were more likely to be older ( $b = .021$ ) and male ( $b = -.066$ ). There are no substantive differences between these results and those of the baseline OLS model (PCL: YV).

**Table 7. Baseline Tobit Model (PCL: YV)**

Black	-0.021 (0.012)
Hispanic	-0.003 (0.013)
Other	-0.029 (0.023)
Gender	-0.066** (0.013)
Age	0.021** (0.004)
Moral Disengagement	0.035* (0.015)
Personal Rewards	0.012** (0.002)
Antisocial Peers	0.090** (0.006)
PCL: YV	0.008** (0.001)
Constant	-0.358** (0.069)

N 993

Standard errors in parentheses

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

*Interactive Tobit Models (PCL: YV).* Once more, a series of interactions were assessed in the next three models. These can be seen in Table 8. For the first model, there was an interaction between the PCL: YV and antisocial peers ( $b = .002$ ). Specifically, the effect of antisocial peers was amplified among those with elevated PCL: YV scores. In other words, antisocial peers were a stronger criminogenic influence for those with higher PCL: YV scores. These results are virtually the same as the Model 1 results from Table 4 (the OLS results).

**Table 8. Interactive Tobit Models (PCL: YV)**

	Model 1	Model 2	Model 3
Black	-0.020 (0.012)	-0.020 (0.012)	-0.022 (0.012)
Hispanic	-0.004 (0.013)	-0.004 (0.013)	-0.006 (0.013)
Other	-0.026 (0.023)	-0.026 (0.023)	-0.029 (0.023)
Gender	-0.064** (0.013)	-0.066** (0.013)	-0.066** (0.013)
Age	0.022** (0.004)	0.021** (0.004)	0.021** (0.004)
Moral Disengagement	0.032* (0.014)	-0.040 (0.033)	0.033* (0.015)
Personal Rewards	0.012** (0.002)	0.012** (0.002)	-0.000 (0.005)
Antisocial Peers	0.049** (0.012)	0.089** (0.006)	0.090** (0.006)
PCL: YV	0.003 (0.002)	0.002 (0.003)	0.007** (0.001)
PCL: YV x ASP <sup>a</sup>	0.002** (0.001)		
PCL: YV x MD <sup>b</sup>		0.004* (0.002)	
PCL: YV x PR <sup>c</sup>			0.001** (0.000)
Constant	-0.286** (0.071)	-0.244** (0.082)	-0.328** (0.069)
N	993	993	993

Standard errors in parentheses

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

<sup>a</sup> refers to an interaction term created between the PCL: YV and Antisocial Peers

<sup>b</sup> refers to an interaction term created between the PCL: YV and Moral Disengagement

<sup>c</sup> refers to an interaction term created between the PCL: YV and Personal Rewards

The second tobit interactive effects model included a variable that combined the PCL: YV and moral disengagement. Again, the results here are almost exactly the same as the findings of Model 2 from Table 4 (the OLS results). Specifically, the effect of moral disengagement was amplified among those with elevated PCL: YV scores ( $b = .004$ ). Therefore, moral disengagement was a stronger criminogenic influence among those with higher PCL: YV scores.

Finally, the third tobit interactive effects model included a variable that combined the PCL: YV and personal rewards. Just like the OLS regression from Table 2 Model 3, the finding here was that the effect of personal rewards was amplified among those with elevated PCL: YV scores ( $b = .001$ ). Therefore, personal rewards were a stronger criminogenic influence among those with higher PCL: YV scores. In sum, all three of the PCL: YV interaction terms were significant, meaning that the effect of social learning on offending was moderated by psychopathy as measured by the PCL: YV. The results are substantively the same as what was observed using OLS regression. For all three interaction terms, antisocial peers, moral disengagement, and personal rewards were a stronger criminogenic influence among those with higher PCL: YV scores.

*Baseline Tobit Model (YPI).* The second baseline tobit model regressed self-reported offending on the other variables, including: ethnicities (Black, Hispanic, Other), gender, age, antisocial peers, moral disengagement, personal rewards, and the YPI. As can be seen from Table 9, only ethnicity was nonsignificant in this particular analysis. More specifically, those with higher self-reported offending were more likely to have more antisocial peers ( $b = .106$ ), to be more morally disengaged ( $b = .049$ ), and to perceive more personal rewards to committing crime ( $b = .015$ ). Regarding psychopathy, they were more likely to have higher scores on the YPI ( $b = .001$ ). Finally, they were more likely to be older ( $b = .022$ ) and male ( $b = -.067$ ). There

**Table 9. Baseline Tobit Model (YPI)**

Black	-0.020 (0.013)
Hispanic	-0.011 (0.014)
Other	-0.034 (0.025)
Gender	-0.067** (0.014)
Age	0.022** (0.004)
Moral Disengagement	0.049** (0.016)
Personal Rewards	0.015** (0.002)
Antisocial Peers	0.106** (0.006)
YPI	0.001** (0.000)
Constant	-0.432** (0.075)**

N 993

Standard errors in parentheses

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

are no clearly discernable differences between these results and those of the baseline OLS model (YPI).

*Interactive Tobit Models (YPI).* Once more, three separate interactive variables were added in for the last few models. These can be seen in Table 10. For the first model, the variable's interactive effect was between the YPI and antisocial peers. The second tobit interactive effects model included a variable that combined the YPI and moral disengagement. Finally, the third tobit interactive effects model included a variable that combined the YPI and personal rewards. Unlike the findings that included the PCL: YV, none of the interactions between the social learning variables and the YPI were significant. That is, the effects of antisocial peers, moral

disengagement, and perceived rewards for crime were not moderated by the YPI. This is somewhat different from the OLS models, where antisocial peers were moderated by psychopathy. Using the tobit models, this became nonsignificant, prompting the question of whether the original finding was spurious. To sum, not one of the three YPI interaction terms was significant, meaning that the effect of social learning on offending was not moderated by psychopathy, as measured by the YPI using tobit regression.

**Table 10. Interactive Tobit Models (YPI)**

	Model 1	Model 2	Model 3
Black	-0.021 (0.013)	-0.020 (0.013)	-0.020 (0.013)
Hispanic	-0.012 (0.014)	-0.011 (0.014)	-0.011 (0.014)
Other	-0.035 (0.025)	-0.034 (0.025)	-0.034 (0.025)
Gender	-0.067** (0.014)	-0.067** (0.014)	-0.067** (0.014)
Age	0.022** (0.004)	0.022** (0.004)	0.022** (0.004)
Moral Disengagement	0.048** (0.016)	0.031 (0.063)	0.049** (0.016)
Personal Rewards	0.016** (0.002)	0.015** (0.002)	0.011 (0.010)
Antisocial Peers	0.062** (0.024)	0.106** (0.006)	0.106** (0.006)
YPI	0.000 (0.001)	0.001 (0.001)	0.001** (0.000)
YPI x ASP <sup>a</sup>	0.000 (0.000)		
YPI x MD <sup>b</sup>		0.000 (0.001)	
YPI x PR <sup>c</sup>			0.000 (0.000)
Constant	-0.330** (0.092)	-0.403** (0.123)	-0.423** (0.078)
N	993	993	993

Standard errors in parentheses

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

<sup>a</sup> refers to an interaction term created between the YPI and Antisocial Peers

<sup>b</sup> refers to an interaction term created between the YPI and Moral Disengagement

<sup>c</sup> refers to an interaction term created between the YPI and Personal Rewards

## **Chapter 7:**

### **Discussion**

#### **Overview**

This final chapter provides a summary and discussion of the results section, integrating them with some of the concepts in the literature review and suggesting implications and future directions for research. First, a brief summary of the prior literature is given, and again there is a focus on the problem that this dissertation addresses. Second, the hypotheses of this study are reviewed and a discussion of the results from the previous chapter is presented. Special consideration is given as to what the results substantively mean, whether or not the hypotheses were supported, and how the findings integrate with previous research. This section also discusses the results that are not consistent with the hypotheses, and focuses on the theoretical implications that may be suggested. Finally, the discussion highlights the main strengths and weaknesses of this dissertation with respect to methodological design and variable measurement, as well as potential directions for future research and concluding remarks.

#### **Summary of The Study**

Over the course of the last several chapters, three main topics have been thoroughly discussed: social learning theory, psychopathy, and serious juvenile delinquency. Individually, social learning theory (Akers & Jennings, 2009) and psychopathy (DeLisi, 2009) have each been correlated with criminal and delinquent behavior. However, the main goal of this dissertation



was to specifically determine how robust the generalizability of social learning theory was across varying levels of propensity, as measured by psychopathy.

The generalizability of social learning theory itself has begun to be called into question recently, and as previously mentioned, research on the generality of social learning theory across different measures of propensity has been practically nonexistent. Of the very few that are out there, the three studies found to be most relevant to the current dissertation were those conducted by Ousey and Wilcox (2007), Wright et al. (2001), and Yarborough et al. (2012). What the diversity of these three studies have shown is that, on occasion, the influence of some aspects of social learning theory on criminal behavior has been found to vary depending on the criminal propensity for each individual. Ousey and Wilcox (2007) and Wright et al. (2001) both found that the peer effect had an increased impact for those with greater self-control. On the other hand, Ousey and Wilcox (2007) failed to determine that criminal propensity moderated the effect of pro-criminal definitions on delinquency. Conversely, Yarbrough et al. (2012) did not see any interactions among definitions, differential reinforcement, or peers with self-control.

These conflicting results in previous studies were the primary reason why the models created for this dissertation tested three of the four measures of social learning theory: definitions, differential association, and differential reinforcement. The fourth component, imitation, was not available, and therefore was not examined. To increase confidence in the results, the level of propensity among the sample was tested using two separate measures of psychopathy: the PCL: YV and the YPI. Baseline ordinary least squares (OLS) and tobit models were generated for the data, and then, after creating interaction terms for psychopathy and the various dimensions of social learning, additional OLS and tobit models were analyzed.

## **Research Hypotheses and Results**

*H1: Each component of social learning theory, as well as psychopathy, will exert significant main effects on antisocial behavior.*

As detailed below, hypothesis one was completely supported. Although the bivariate relationships between the variables of theoretical interest cannot be said to be anything other than correlates, they were of interest to the overall results. There were significant relationships exhibited between self-reported offending and every variable in the analysis, including: personal rewards, moral disengagement, antisocial peers, the PCL: YV, and the YPI. Even when multivariate analyses were run, only ethnicity was nonsignificant. Regarding the other control variables, those reporting higher self-reported offending were more likely to be older and male. To sum the results applicable to this hypothesis: every variable of theoretical interest exerted significant main effects on antisocial behavior.

### **Social Learning Theory**

As mentioned in the preceding chapters, social learning theory has generally enjoyed support throughout the criminological literature (Akers & Sellers, 2013; Pratt et al., 2010). In fact, antisocial peers, one of social learning theory's main components, is thought to have some of the strongest findings of any theoretical variables (Huizinga, Esbensen, & Weiher, 1991; Loeber, 1991; Loeber & Dishion, 1987; Loeber & Stouthamer-Loeber, 1986; Warr, 2002). Although the other three components have not been tested as thoroughly as antisocial peers, they have found support in the literature as well (Akers & Jennings, 2009; Pratt et al., 2010).

Due to the large quantity of prior research that has supported the various components of social learning theory, it was hypothesized that for this dissertation, each of the social learning

variables would exert significant main effects on antisocial behavior. This part of hypothesis one was completely supported by the results. Those with higher self-reported offending were more likely to have more antisocial peers, to be more morally disengaged, and to perceive more personal rewards to committing crime in all four baseline models.

Again, prior research on social learning theory has determined that all of the elements of social learning theory are capable of explaining various acts ranging from lesser delinquency to serious criminal behavior (Akers & Jennings, 2009; Pratt et al., 2010). Importantly, these explanations have been found to work collectively, as well as for the separate elements, with the social learning constructs frequently exerting stronger effects than those from additional criminological theories. Some researchers have been particularly interested in which elements of the theory are most empirically supported. For example, both Andrews & Bonta (1995) and Pratt et al. (2010) found definitions and differential association to be very strong, although the latter found that the relationships for differential reinforcement and modeling/imitation were more modest.

The results from this dissertation provide consistent support for the main effects of social learning theory variables. That is, the measures representing the components of definitions, differential association, and differential reinforcement were all supported. These findings also confirm the validity of social learning theory as a tool to measure more serious forms of juvenile offending, where the validity of social learning theory has previously been somewhat of a concern (Akers, 2011). With results like these, future criminological studies should continue to use social learning theory as part of their research, including those using serious juvenile offender samples. More specific directions for future research might involve measuring the

priority, duration, frequency, and intensity of social learning, since those four concepts tend to have a cumulative effect on criminal or law-abiding behavior (Akers, 2011).

## Psychopathy

As previously mentioned, psychopathy has been used to accurately predict criminal recidivism, violence perpetration, and response to treatment outcomes in a diverse set of countries (Hare et al., 2000). While it is true that in recent decades criminological researchers have become more cognizant of the importance of psychopathy and begun to note its importance to the field (DeLisi, 2009; Jones & Miller, 2012; Jones, Miller, & Lynam, 2011), it is still not a commonly used construct. As previously stated, from what research has been done, psychopathy has been proven to be able to consistently predict various delinquent outcomes among diverse populations (DeLisi, 2009).

Therefore, the second part of hypothesis one for this dissertation was that psychopathy would also exert significant main effects on antisocial behavior. This was also supported by the results. Those with higher self-reported offending were more likely to have higher scores on the PCL: YV and the YPI for all baseline models.

These findings, overall, contributed support to the concept of psychopathy as a valuable construct for criminologists to use in their assessments of antisocial behavior. Perhaps more importantly, this study adds to the number of other findings showing that psychopathy is actually present in juveniles (Frick & Ellis, 1999; Lynam et al., 2005), and there is an association between offending and psychopathy among juvenile samples (Brandt et al., 1997; Edens et al., 2001; Edens, Campbell, & Weir, 2007). Importantly, criminologists should continue to pay attention to psychopathy and its correlations with antisocial behavior. Due to the severity of its

effect on society as a whole, researchers are beginning to look at psychopathic traits earlier in the life course (Lynam et al., 2007), and this can certainly have an impact on policy implications for the entire field (DeLisi, 2009).

### Age, Ethnicity, and Gender

Although the control variables were not part of either research hypotheses for the current dissertation, they are relevant for this discussion. Age was positive and significant in each model, meaning that those who self-reported higher levels of offending were more likely to be older. This makes intuitive sense, as older individuals have had more time to commit additional offenses. Regarding gender, given that each of the models found that the more delinquent individuals were male, several different models were examined, including one where all females were dropped. There were no substantive differences in findings when the females were dropped so they were ultimately retained for the purposes of this dissertation. In addition, as previously mentioned, the number of females in the final sample ( $N = 993$ ) was proportional to the number of females in the original population, prior to the drops conducted for missing data ( $N = 1,354$ ). However, in the future, it might be worthwhile to parse out the gender differences in offending with psychopaths in this dataset, especially to see if there are any interaction effects beyond those found in these results. Despite the fact that the ethnicity variables did not reach significance beyond the bivariate level, they too are worth including in future research, which might instead focus on ethnicity and the broad range of various types of offending.

*H2: None of the components of social learning theory will significantly interact with psychopathy. Stated differently, pro-criminal definitions, differential association, and differential reinforcement should all operate similarly across levels of psychopathy.*

Although it was very encouraging that the results applicable to hypothesis one were completely supported, a key focus of this dissertation was to determine how robust the generalizability of social learning theory was across varying levels of propensity, as measured by psychopathy. Thus, hypothesis two was ultimately more important for this purpose.

### Interactions

As mentioned in the results section, to test the second hypothesis, several interaction terms were created. Interaction terms were created for each component of social learning theory (antisocial peers, moral disengagement, and perceived rewards), and both measures of psychopathy (the PCL: YV and the YPI). This yielded six different interaction terms. There were effects found for each of the PCL: YV interaction terms, and one of the YPI interaction terms (antisocial peers). More specifically, the effect of antisocial peers was amplified among those with elevated PCL: YV scores. That is, for both the OLS and tobit models, antisocial peers were a stronger criminogenic influence for those with higher PCL: YV scores. The same was true, in both the tobit and OLS models, of moral disengagement and personal rewards. In sum, all three of the PCL: YV interactions were significant, meaning that the effect of social learning on offending was moderated by psychopathy as measured by the PCL: YV, using both OLS and tobit regressions. For all three interaction terms, antisocial peers, moral disengagement, and personal rewards were a stronger criminogenic influence among those with higher PCL: YV

scores. These findings suggest that social learning theory is not generalizable across individuals with varying levels of propensity. This means that hypothesis number two must be rejected.

However, there was an interesting finding when the YPI interaction term was taken into account. Unlike the findings that included the PCL: YV, only one of the interactions between the social learning variables and the YPI were significant. That is, the effects of moral disengagement and perceived rewards for crime were not moderated by the YPI. However, the effect of antisocial peers was amplified among those with elevated YPI scores; that is, antisocial peers were a stronger criminogenic influence for those with higher YPI scores. This was only true, however, of the OLS models. When tobit regression was used, all three social learning variables failed to interact with the YPI.

Although this finding is unique, it makes sense that the YPI would interact with the antisocial peers component of social learning most strongly; this aspect of social learning theory has most consistently shown significance in any model that includes social learning variables. Ousey and Wilcox (2007) and Wright et al.'s (2001) studies, for example, found that of the variables in their models, only the influence of antisocial peers exerted a stronger effect on delinquency among those individuals evincing higher levels of criminal propensity. It is also possible that the significance of the YPIxASP interaction term may have been less than was posited by the OLS model. As the significance of that finding was already borderline non-significant (.047), and the tobit specification of the model did not find significance with this measure, the finding in the OLS model may be unreliable. It is with caution that this suggestion is made, however, as all of the other analyses found consistency in their results across both OLS and tobit models.

Overall, these findings suggest that there is varied support for the generalizability of social learning theory across levels of offender propensity. It was expected that, like Yarbrough et al. (2010) discovered, the various components of social learning theory would fail to interact with the measure of propensity (in their case, self-control; in this case, psychopathy). Instead, using the PCL: YV interactions, the overall message from the results is that social learning theory as a whole, along with the individual components, did not operate similarly across individuals of varying criminal propensity. The results of this study more closely mirror Ousey and Wilcox's (2007) and Wright et al.'s (2001) findings, who both found that the effect of peers was increasingly relevant for those with higher levels of criminal propensity. Beyond that, not only were peers most relevant for those with the highest levels of criminal propensity, so were the measures representing definitions and differential reinforcement, at least for the PCL: YV. Although the same results were not found for the YPI, this still casts slight doubt upon the generality of the social learning theory of crime.

Conversely, the PCL: YV interaction results provide support for Wright et al.'s (2001) hypothesis of life-course interdependence. Again, with this hypothesis, criminal propensity causes variance for the effects of social ties on crime. These findings provide particular support for the social amplification aspect of the model, meaning that the antisocial ties that promoted crime (in this case delinquent peers, moral disengagement, and personal rewards for engaging in crime), promoted it more for those individuals that were highly criminally-prone. This also lends credence to Caspi and Moffitt's (1995) concept that those with elevated propensities are more easily swayed into antisocial actions in accordance with criminogenic factors (e.g., peers). Some more recent support for this idea has been reported. For example, Muñoz et al. (2008) found that



adolescents high in psychopathy had relatively stable friendships and also identified important peer relationships.

With these thoughts in mind, future research in this area might consider utilizing different measures of propensity. Over the last several years, propensity has become more accepted as an explanation for criminal offending. As noted by Wright, Caspi, Moffitt, and Silva (2001), however, many major theoretical perspectives still emphasize processes of social causation (e.g., school, work, family ties, peer delinquency, and prior delinquency). Perhaps instead, criminologists should continue to incorporate preexisting characteristics like low self-control (Gottfredson & Hirschi, 1990) and childhood antisocial behavior (Laub & Sampson, 1993; Sampson & Laub, 1990) into their theories of crime. This allows for the concept that preexisting attributes could influence the development of social relationships and criminality, an area of study where much can still be learned.

### **Policy Implications**

As previously mentioned, the risks-needs-responsivity (RNR) model was developed to outline the proper steps for effective offender rehabilitation. The model has three general principles: “risk, which attempts to match the level of service provided to the offender’s risk of re-offending; need, which assesses and targets criminogenic needs; and responsivity, which tailors the intervention to the learning style, motivation, abilities, and strengths of the offender” (Andrews et al., 1990, p. 20).

The RNR model would certainly be of use here, as the risk level associated with psychopathic serious offenders is quite high, and therefore so should be the treatment. As was noted earlier, detection of “fledgling psychopaths” could supply researchers with a way to

determine which individuals are more likely to benefit from treatment (Lynam et al., 2002), and targeting juveniles for treatment could potentially lead to more effective prevention and/or intervention than that available to adults (Ogloff, Wong, & Greenwood, 1990; Rice, Harris, & Cormier, 1992; Skeem, Monahan, & Mulvey, 2002). Linking some earlier points, juvenile psychopathy and recidivism have been found to be correlated (Edens, Campbell, & Weir, 2007). Psychopathy has also been found to be a robust predictor of criminal career severity (Hemphill, Templeman, Wong, & Hare, 1998), and it is both relatively resistant to socialization pressures and a stable construct (Lynam, Loeber, & Stouthamer-Loeber, 2008).

However, there have also been studies showing that there are differences in offending by how psychopathic the individual may be. That is, those with higher scores on some measures of psychopathy have had higher levels of offending than those who scored lower (Gretton, Hare, & Catchpole, 2004; Spain, Douglas, Poythress, & Epstein, 2004) and different assessment measures predict different behaviors (Cauffman et al., 2009). Considering that there is a greater prevalence of psychopathy in correctional facilities (20%) than in the general population (1%) (Patrick, 2007), early intervention is incredibly important. As far as intervention strategies go, the results of this study would suggest that the targets should be the definitions, differential association, and differential reinforcement components, which are the measures that vary by criminal propensity.

### **Strengths and Limitations of the Dissertation**

As previously discussed, this study had several unique attributes, several of which can be regarded as strengths. First and foremost, it does provide an additional study to be added to the paucity of research specifically focused on the generality of social learning theory across different measures of propensity, as measured by psychopathy. Furthermore, this dissertation

utilized three measures of social learning theory, and two of psychopathy, meaning that the results should be considered more reliable than if sole measures of either had been used. Another particular strength of this study is that it used the Pathways to Desistance data: a large-scale examination of desistance from crime among serious adolescent offenders. This is somewhat unique in that most prior research on the interaction between social learning theory and criminal propensity has relied upon middle school or community samples. Finally, a third notable strength of this study is that, in addition to the OLS models, tobit models were used. Once more, this is very important because recent studies have raised the possibility that sometimes the interaction results of standard OLS regression models may be spurious due to the fact that they violate key assumptions such as homogeneity of variance. Osgood, Finken, and McMorris (2002) recommend the tobit model for dealing with continuous data that are censored or bounded at a limiting value, and that made it applicable to these analyses.

However, despite the strengths of this study, it must be acknowledged that some limitations do exist. In fact, one of the very things listed as a strength should also be considered a limitation: this is a sample of serious adolescent offenders. Therefore, these juveniles are not as likely to differ regarding their demographic aspects as other, more traditional samples. Unfortunately, this means that the results from this dissertation are not generalizable to juvenile offenders across the board. For example, there was originally a site variable included in these models denoting whether the individuals were from Maricopa County, Arizona, or Philadelphia County, Pennsylvania. It was thought that perhaps there might be strong correlations between ethnicity and location, with these having an increased effect on the significance of some of the findings, such as those reported by Brame et al. (2004) in their study of the criminal careers of the delinquents in each city. While it is true that some correlations were found (e.g. the site

variable was moderately related to both Blacks and Hispanics), it was not possible to test within the individual ethnicities due to confounding within the two sites. A similar problem was discovered by Piquero, Schubert, and Brame (2014), who found that the vast majority of Hispanics were from Maricopa County.

Another potential limitation is that the data rely on self-reports. However, previous research on self-report constructs have typically concluded there is a good deal of agreement between self-reports and official arrest (Hindelang, Hirschi, & Weis, 1981; Thornberry & Krohn, 2000) and juveniles tend to be more accurate in their self-reports of more severe offending (Kazemian & Farrington, 2005). More specific to the current research, Miller, Jones, and Lynam (2011) measured self-reports from psychopaths in comparison to the reports given by informants. They found that despite the suggestion that psychopathic individuals do not provide valid self-reports, the opposite was true. Psychopathic individuals were able to self-report truthfully on their psychopathy as long as their reports led to no direct consequences. Furthermore, as discussed by Mulvey and Schubert (2012), the Pathways data, in particular, has noted that juveniles who were arrested more frequently usually self-reported their delinquency at higher frequencies than individuals arrested more rarely (Brame, Fagan, Piquero, Schubert, & Steinberg, 2004). Furthermore, although there have been some ethnic variations in reporting (Hawkins, Laub, Lauritsen, & Cothorn, 2000), the Pathways study has demonstrated measurement equivalence across the various ethnic groups (Knight, Little, Losoya, & Mulvey, 2004).

Another issue that should be mentioned here is that the psychopathy measurements were presented within different waves of the Pathways data. More specifically, the PCL: YV was measured at baseline, whereas the YPI was taken six months later. However, the two waves of

data were integrated into one dataset. It is also generally accepted that psychopathic traits do not become less reliable over such a small span of time (six months). In fact, prior research has shown that psychopathic traits remain moderately stable for both short and long intervals (Lynam et al., 2009), even from adolescence into adulthood (Loney, Taylor, Butler, & Iacono, 2007), with or without other moderators (Lynam, Loeber, & Stouthamer-Loeber, 2008). In other words, if an individual had psychopathic traits at baseline, he or she almost certainly had the same psychopathic traits at wave one. Finally, the inclusion of the YPI was done to avoid any potential tautological problems regarding the “prior antisocial behavior” facet of the PCL: YV.

One other specific potential limitation for this study is in regards to why some differences among the results may have been found. This could potentially be due to which type of regression analysis was utilized. As previously mentioned, after the OLS regressions were computed, tobit regressions were then used for comparison. Again, Osgood, Finken, and McMorris (2002) recommend using the tobit model in circumstances where the OLS model is not appropriate to match the skewed, left-censored distributions of delinquent behavior, which helps to ensure that any interactions found in the results are not spurious. Predicted and observed values of delinquency were plotted to determine the best model fit. None of the models evinced a clearly superior fit. Therefore, both the OLS and tobit models were analyzed and reported in the results section. As mentioned in the interactions discussion above, it is possible that this may have contributed to the only finding where there was a difference in the OLS and tobit model findings (the YPIxASP interaction model), and perhaps only the results from the tobit models are accurate.

## **Conclusion**

Despite the potential limitations of this dissertation, the present study addressed various theoretical and empirical gaps in the criminological literature. This was done primarily by using a serious juvenile offender sample and testing social learning, psychopathy, and control variables to see how robust the generalizability of social learning theory was across varying levels of propensity, as measured by psychopathy. Chapter one provided an overview of the study, as well as an outline of the chapters. Chapters two, three, and four reviewed the relevant literature on social learning theory, psychopathy, and the interaction of the two as well as the research hypotheses for the current study. Chapter five provided a more in-depth description of the methods to be used. This included an introduction to the Pathways to Desistance data, a general outline of the specific variables to be used in the various analyses, and an analytic plan that included the utilization of both OLS and Tobit models of regression. Chapter six saw the testing of the two main hypotheses with multiple regression models, and chapter seven has discussed those findings, as well as their strengths and limitations, policy implications, and potential directions for future research.

It was hypothesized that all of the elements of social learning theory, as well as psychopathy, would exhibit significant main effects on antisocial behavior. This was completely supported by the data. In the baseline models, all three social learning variables, and both of the psychopathy measures, were significantly related to self-reported offending. This was true whether the model was specified using OLS or tobit regressions. It was also hypothesized that none of the components of social learning theory would significantly interact with psychopathy. This was not entirely supported by the data. In the interaction models, all three of the social learning variables interacted with the PCL: YV, although not with the YPI, and the latter was

contingent on the type of model specification. That is, pro-criminal definitions, differential association, and differential reinforcement did not operate similarly across the various levels of psychopathy. Although this could be read to mean that perhaps the generalizability of social learning theory should be further evaluated, it is important to mention once more that the analyses that included interaction terms found varied results from model to model, and appropriate weight must be given to this lack of reliability. Instead, it is conceivable that social learning theory stands as a general theory of crime, and that the measures conceived to test its validity are too unreliable for such a strong stance to be taken against it at this time.

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