SELF-CONTROL AND JUVENILE DELINQUENCY: A PRELIMINARY

ASSESSMENT OF HIRSCHI'S RECONCEPTUALIZATION

OF SELF-CONTROL

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SELF-CONTROL AND JUVENILE DELINQUENCY: A PRELIMINARY ASSESSMENT OF HIRSCHI'S RECONCEPTUALIZATION OF SELF-CONTROL

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David L. Scott, son of Judy and Joe Lindley, was born August 26, 1981 in Story City, Iowa. He graduated from West Morgan High School in 1999. He graduated cum laude from Athens State University with a Bachelor of Arts degree in Sociology in 2005. Upon graduation from Athens State University, he entered Graduate School at Auburn University in the Fall of 2005.

THESIS ABSTRACT

SELF-CONTROL AND JUVENILE DELINQUENCY: A PRELIMINARY ASSESSMENT OF HIRSCHI'S RECONCEPTUALIZATION OF SELF-CONTROL

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Since its inception in the 1990s, Gottfredson and Hirschi's (1990) general theory of crime has attracted an impressive amount of attention from criminologists. In this landmark work, Gottfredson and Hirschi contend that individuals with low self-control are more likely to engage in deviant and criminal behaviors.

One area of particular interest concerning the general theory is the measurement and operationalization of self-control. Recently Hirschi redefined self-control to be conceived as "the tendency to consider the full range of potential costs of a particular act." To date, very few empirical investigations have examined this redefinition of and measurement strategy for self-control.

This piece of research provides a preliminary investigation of Hirschi's (2004) reconceptualization of self-control as well as a comparative examination between the traditional measure of self-control and this redefined measure of self-control. The analyses suggest that both measures of self-control are significant predictors of property offending, violent offending, and substance use. Furthermore, the analyses of the data reveal that the traditional measure of self-control is a better predictor of property offending than the redefined measure, but the redefined measure of self-control is a better predictor for violent offending and substance use. Although both self-control measures are strong predictors of the aforementioned behaviors, illegitimate opportunity seems to be a stronger and more valuable predictor of juvenile delinquency.

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CHAPTER ONE: INTRODUCTION

Gottfredson and Hirschi's (1990) general theory sets forth the proposition that all criminal, deviant, and conforming behaviors can be explained by the same variable—self-control. The implications for such a general theory are vast in practical application, and if criminal and deviant behaviors are attributable to one common underlying factor, then society could potentially be much more efficient in controlling crime and formulating public policy.

Juvenile delinquency is a problem in the United States; two specific areas of special concern are teenage substance use and crime among youth. Explaining these phenomena proves to be a complex task for criminologists and sociologists alike. Given how prevalent these delinquent behaviors are across the nation, understanding the etiology of deviance is crucial to fully understanding this problem.

Adolescent drug use is a major phenomenon often seen regularly throughout American society, and the use of drugs and alcohol by teenagers poses a perplexing and challenging problem for society today (Beschner in Beschner and Friedman 1986, 1). Johnston, O'Malley, Bachman and Schulenberg (2005) note, "Substance use by American young people has proven to be a rapidly-changing phenomenon, requiring frequent assessments and reassessments."

Each year, the Monitoring the Future Study (MTF) asks a nationally representative sample of secondary school students to describe their drug use patterns. According to this study, the problem of adolescent substance use remains widespread among young people across the United States (Johnston et al. 2005; Snyder and Sickmund 2006).

In 2003, 51 percent of all seniors said they at least tried an illicit drug during their lifetime. The figures for eighth and tenth graders were 23 percent and 41 percent respectively. Marijuana is by far the most commonly used illicit drug with almost half of high school seniors having used the substance at least once, while 35 percent having used it within the past year and 21 percent using it in the month before taking part in the MTF survey. Of the 46 percent of high school seniors reporting the use of marijuana, only about half of those students reported not using any other illicit drug. Approximately half of the eighth, tenth, and twelfth graders who had ever used an illicit drug, used something in addition to, or other than, marijuana (Johnston et al. 2005; Snyder and Sickmund 2006).

Like marijuana, amphetamines are also widely used and are the second most prevalent category of illicit drugs used. In 2003, 14 percent of high school seniors reported using these substances at least once. More specifically, 6 percent of those seniors surveyed reported the use of methamphetamine at least once and 4 percent had used crystal methamphetamine or ice.

Heroin is the least commonly used illicit drug reported with less than 2 percent of seniors reporting its use at least once, but 13 percent of seniors did report using a narcotic such as Vicodin, Percocet, or Oxycontin (Johnston et al. 2005).

Cocaine use was reported by 8 percent of seniors at least once in their life according to results of the 2003 Monitoring the Future survey. During the previous year, five percent of all seniors reported the use of cocaine and about two percent used it in the preceding 30 days. Crack cocaine use was reported by about 1 in 28 seniors. About 1 in 45 used crack in the previous year and about 1 in 110 in the previous month (Johnston et al. 2005).

Alcohol use and tobacco use are widespread at all grade levels. In 2003, for example, more than 3 in 4 high school seniors said they tried alcohol at least once with nearly half using it in the previous month. Among eighth graders, two-thirds tried alcohol and almost one-fifth used alcohol in the month prior to the survey. Twenty-eight percent of seniors, 22 percent of tenth graders and twelve percent of eighth graders reported heavy drinking (defined as five or more drinks in a row). Tobacco use is less prevalent than alcohol use among America's youth. Sixteen percent of seniors, nine percent of tenth graders and five percent of eighth graders reported currently smoking cigarettes on a daily basis. However, tobacco use is down compared with use levels in the early to mid-1990s (Johnston et al. 2005).

In addition to widespread substance use, the adolescent population engages in relatively high rates of criminal behaviors. During the past few years, crime rates decreased rather dramatically—33 percent since 1996, but despite such an encouraging trend there were still approximately 2.1 million juvenile arrests for various crimes within the United States in 2005, representing a rate of 6,350 arrests for every 100,000 juveniles between the ages of 10 and 17. For the same year, juveniles were involved in 1 in 11 arrests for murder, 1 in 10 arrests for a drug abuse violation, 1 in 4 arrests for a weapons

violation, robbery, motor vehicle theft, larceny-theft, and burglary. Likewise, 25 percent of all persons arrested for robbery in 2005 were under the age of 18. Percentages for forcible rape, aggravated assault, and murder were 15 percent, 14 percent and 9 percent respectively (OJJDP Statistical Briefing Book 2005; Snyder 2005). Although the nation experienced such a substantial decline in the violent crime rate for juveniles, violence continues to be the leading cause of death for African American adolescents and the second leading cause of death for adolescents overall (Hawkins, Laub, Lauritsen, and Cothern 2000).

Following annual declines between 1994 and 2004, the juvenile Violent Crime Index arrest rate increased 5 percent between 2004 and 2005. For 2005, there were 283 arrests for violent crime index offenses for every 100,000 youth between 10 and 17 years of age. A similar trend exists for the Property Crime Index arrest rate. After years of relative stability, the juvenile Property Crime Index arrest rate began a decline in the mid-1990s, which continued through 2005. For every 100,000 juveniles between 10 and 17, there were 1,246 arrests for Property Crime Index offenses for the same age group in 2005. The juvenile arrest rate for drug abuse violations increased 145 percent between 1990 and 1997. However, between 1997 and 2005, the arrest rate for drug abuse violations declined 24 percent; however, the 2005 rate was still almost double the 1990 rate. Further, there has been an increase in arrests for assault, vandalism, and weapons use between 2002 and 2003 (OJJDP Statistical Briefing Book 2005; Snyder 2005).

A General Theory of Crime, first introduced by Gottfredson and Hirschi in 1990, represents one recent attempt to explain juvenile delinquency and crime. This book, *A General Theory of Crime*, understands delinquency from the framework of control theory

and more specifically, Self-Control Theory. Like other control theories, such as Hirschi's social bond theory (1969), Self-Control Theory begins with the fundamental premise that its dependent variable—that which needs to be explained--should not be crime, but rather conformity. For control theories, acts of crime and crime-analogous behaviors are often the quickest means by which to achieve immediate gratification. Hence, what needs to be explained is why more people do not engage in these behaviors.

According to Gottfredson and Hirschi (1990), the major source of crime (and conformity) is an individual-level latent trait they call self-control. They argue that those lacking self-control tend to be "impulsive, insensitive, physical (as opposed to mental), risk-taking, shortsighted, and nonverbal" (Gottfredson and Hirschi 1990, 90). They further argue that criminal and deviant behaviors tend to provide only short-term benefits, require little planning or skill, often result in pain or discomfort to the victim, and provide thrill and excitement to the offenders.

Gottfredson and Hirschi (1994, p 3) originally defined self-control as "the tendency to avoid acts whose long-term costs exceed their momentary advantages." Recently however, Hirschi (2004, p. 543) redefined self-control so that it is conceived as "the tendency to consider the full range of potential costs of a particular act." Self-control is "the set of inhibitions one carries with one wherever one happens to go" (2004, p. 543). Based on his new definition, Hirschi (2004) devised a new measurement strategy for self-control. However, such a revision seems to have gone unnoticed by researchers.

Using previous research as a guide, my research makes several contributions to the existing literature regarding the empirical assessment of the general theory of crime.

First, I present a preliminary investigation of Hirschi's (2004) revision of the theory concerning the measurement and operationalization of self-control and how this new measure of self-control relates to juvenile delinquency. Second, I provide a comparative examination between the traditional measure of self-control and Hirschi's redefined measure of self-control.

The next chapter discusses the theoretical framework of the thesis, and explores the previous literature related to the empirical assessment of Gottfredson and Hirschi's (1990) *A General Theory of Crime*. Chapter 3 explains the methods used to test the hypotheses, while Chapter 4 explores the demographic make-up of the sample as well as the distributions of the independent and dependent variables. Chapter 5 discusses the implications of the findings.

CHAPTER TWO: THEORY AND LITERATURE REVIEW

A General Theory of Crime

Although the field of criminology is replete with numerous theories attempting to explain crime and deviance, it has long been troubled by the lack of a general theory to explain a wide range of delinquent, criminal, and deviant behaviors for both males and females across the life course. Since its inception in the 1990s, criminologists have given Gottfredson and Hirschi's (1990) *A General Theory of Crime* an impressive amount of attention (Pratt and Cullen 2000).

In their landmark work, *A General Theory of Crime*, Gottfredson and Hirschi (1990) modified and redefined some of the principles articulated in Hirschi's social bond theory (1969). Their general theory claims to explain all types of crime and delinquency and focuses on *criminality* rather than crime. They argue crimes are simply acts, whereas criminality is an individual predisposition to commit crimes. In their refinement of Hirschi's original work (1969), Gottfredson and Hirschi (1990) argue that conformity is due to a single underlying characteristic, what they call self-control; therefore, crime and deviance are the result of low self-control.

According to their theory, individuals are deterred from acts of crime and deviance by an internal constraint or self-control. Self-control is "the differential tendency of people to avoid criminal acts whatever the circumstances in which they find

themselves" (Gottfredson and Hirschi 1990, 87). Individuals who possess a low level of self-control and have the opportunity to commit norm-violating and risky behaviors are more likely to become involved in criminal, deviant, and accidental behaviors. Further, Gottfredson and Hirschi assert that individuals are versatile in their offending rather than specializing in one form of offending behavior, and the frequency of engaging in deviant behaviors peaks between 17 and 25 years of age and decreases shortly thereafter. They suggest that this relationship holds true independent of group membership, social standing, or sex, and the differences in levels of self-control are the result of antecedent differences in levels of childhood socialization.

In describing their concept of self-control, Gottfredson and Hirschi (1990) suggest self-control is stable beginning around age eight and is a learned trait rather than an innate characteristic. They argue self-control ranges on a continuum from low to high and consists of six essential interrelated elements—impulsivity, preference for simple tasks, risk-seeking potential, preference for physical (as opposed to mental) activities, self-centeredness, and the possession of a volatile temper. First, individuals with low self-control are impulsive. They tend to act on the spur of the moment by satisfying immediate desires and engaging in short-term pursuits. Second, low self-control involves the tendency to "lack diligence, tenacity, or persistence in a course of action" (Gottfredson and Hirschi 1990, 89). As a result, those lacking self-control prefer tasks that are easy and simple. Third, people with low self-control tend to be "adventuresome, active, and physical" (Gottfredson and Hirschi 1990, 89) as opposed to "cautious, cognitive, and verbal" (Gottfredson and Hirschi 1990, 89). People with low self-control engage in activities that are exciting, adventurous, and thrilling. Fourth, individuals

lacking self-control prefer physical activity to thought or conversation. Fifth, individuals with low levels of self-control engage in behaviors that "result in pain or discomfort for the victim" (Gottfredson and Hirschi 1990, 89). People lacking self-control tend to be selfish, insensitive, indifferent, and self-centered. Finally, low self-control is associated with a low tolerance for frustration and an inclination to handle conflict through confrontation and physical behavior. Gottfredson and Hirschi (1990) assert that these six dimensions come together to form a single unidimensional latent trait. They write, "There is considerable tendency for these traits to come together in the same people, and since the traits tend to persist through life, it seems reasonable to consider them as comprising a stable construct useful in the explanation of crime" (Gottfredson and Hirschi 1990, 90-91).

The General Theory suggests that the level of socialization or quality of socialization an individual experiences in childhood influences whether he/she will engage in criminal or deviant behaviors. Gottfredson and Hirschi (1990) contend that self-control is learned and that the family is primarily responsible for instilling, or failing to instill, self-control in its members. In the absence of pro-social teachings from parents, children are unlikely to develop self-control and as a result, they will become involved in a wide range of criminal or deviant acts. As part of effective socialization, Gottfredson and Hirschi identify four necessary components: 1) the attachment of the parent to the child, 2) parental supervision, 3) recognition of deviant behavior, and 4) punishment of deviant acts. Parents who are attached to their children, supervise their children, recognize deviant behaviors, and punish those behaviors accordingly will socialize their children into high levels of self-control.

According to this general theory of crime, manifestations of low self-control may change over time, but the trait does not diminish with increased age or maturity. Once established in childhood around age eight, an individual's level of self-control remains stable throughout life and Gottfredson and Hirschi (1990) argue there is support for their idea that crime, but not criminality, diminishes with age. Moreover, self-control affects an individual's performance in institutions that he/she may encounter later in life, such as school, work, or marriage. Those lacking self-control are more likely to commit crime and more likely to be unsuccessful in school, in the work force, and in marriage.

The general theory argues that crime occurs through the interaction of low self-control and illegitimate opportunity. Self-control, therefore, does not directly determine whether someone will engage in criminal behaviors because opportunity mediates the relationship between self-control and crime. For example, if an individual lacking self-control finds a car unlocked with the keys in the ignition, he/she is more likely to steal that car than an individual with self-control presented with the same opportunity. Those lacking self-control have a greater tendency to ignore the long-term consequences of their actions as well as to be reckless and impulsive, which ultimately leads to a greater likelihood of engaging in crime whenever and wherever the opportunity presents itself. On the other hand, individuals with high levels of self-control are better suited to weigh the consequences of their actions and restrain from their impulses when presented with criminal opportunity.

Gottfredson and Hirschi (1990) assert that individuals are versatile in their offending rather than specializing in one form of offending behavior. They state, "Our image of the 'offender' suggests that crime is not an automatic or necessary consequence

of low self-control. It suggests that many noncriminal acts analogous to crime (such as accidents, smoking, and alcohol use) are also manifestations of low self-control. Our image therefore implies that no specific act, type of crime, or form of deviance is uniquely required by the absence of self-control" (Gottfredson and Hirschi 1990, 91). No individual specializes in only one specific criminal or deviant behavior; rather, he or she engages in a variety of criminal or deviant acts. "Thus, for example, the 'rapist will tend to use drugs, to commit robberies and burglaries…and to have a record for violent offenses other than rape'" (Gottfredson and Hirschi 1990, 92). Furthermore, individuals lacking high levels of self-control will not only engage in criminal or deviant behaviors but are also more likely to engage in non-criminal behaviors analogous to crime (e. g., risk-taking behaviors).

Gottfredson and Hirschi (1990) address the issue of gender differences in crime and criminality. According to official crime statistics, males are more involved in crime at all points than are females. This, however, does not suggest that males are more criminal or more likely to possess lower levels of self-control than females. They suggest that parents go to greater lengths to supervise their daughters than they do their sons and differences in crime statistics for males and females are due to the opportunities available to them. Males have more opportunities to commit crimes than females.

Measurement of Self-Control

Scholars have debated the measurement problems of self-control since the publication of *A General Theory of Crime* in the 1990s. To study this latent trait of self-control described by Gottfredson and Hirschi (1990), researchers have used a wide variety of indicators, often combined in various ways. However, Hirschi and Gottfredson

(1993) contend that the best measures of self-control are behavioral measures because they are more indicative of an individual's true level of self-control. They write, "Behavioral measures, in our view…counter the tendency to translate the control concept at the core of our theory into a personality concept or 'an enduring criminal predisposition'" (Hirschi and Gotfredson 1993, 49)

In an early test of the theory, Grasmick, Tittle, Bursik, and Arneklev (1993) devised a scale measuring the six essential components of a person's self-control as outlined by Gottfredson and Hirschi (1990). To measure these components of self-control, Grasmick et al. (1993) devised a scale containing 24 items--four questions for each of the six components forming self-control. Questions pertaining to each of the components were grouped together and the response set included "strongly agree," "agree somewhat," "disagree somewhat," and "strongly disagree," where a high score is indicative of low self-control. The results obtained by Grasmick et al.'s (1993) study show the devised self-control scale to have a high level of reliability, with an alpha of .805. Furthermore, the elements of self-control identified by these researchers appeared to form a general unidimensional trait.

Grasmick et al. (1993) tested their scale against self-reported involvement in acts of force and fraud, Gottfredson and Hirschi's (1990) definition of a crime. They reported that low self-control predicts involvement in criminal behaviors. Although Grasmick et al.'s (1993) measure of force (mean .64) and fraud (mean 1.44) were very weak, they concluded that self-control does appear to be a valid predictor of these acts. They added that when looking at the cases where an individual had low self-control and the opportunity to commit crimes of force and fraud, the ability to predict behaviors

improved. Grasmick et al. (1993) contend that from their research, criminal opportunity may be more important than low self-control or even the interaction between self-control and criminal opportunity. "As a predictor of crime, crime opportunity in our data appears to be almost as strong as (in the case of fraud) or stronger than (in the case of force) the term representing the interaction of low self-control and crime opportunity" (Grasmick et al. 1993, 24).

In support of Gottfredson and Hirschi's view of self-control, both attitudinal and behavioral measures of self-control are significantly related to criminal behaviors and behaviors analogous to crime. Turner and Piquero (2002) and Tittle, Ward, and Grasmick (2003) note that behavioral measures of self-control explain a substantially greater percentage of the variance in crime and delinquency in the empirical literature assessing the general theory. These behavioral measures of self-control are criticized for being tautological in nature since the behaviors that they measure are in fact criminal, delinquent, or crime-analogous themselves (Akers 1991). Despite Gottfredson and Hirschi's recommendation, few scholars have employed these behavioral measures. Tittle et al. (2003, 338-339) conclude, "Therefore, it remains an open question whether self-control theory would enjoy stronger support…had all researchers followed the prescriptions of Gottfredson and Hirschi to use behavioral measures of self-control." However, the most commonly used measure of self-control is the attitudinal scale developed by Grasmick et al. (1993) (Tittle, et al. 2003).

Hirschi (2004) has recently taken on the self-control measurement issue, and devised a new measurement strategy for self-control. Gottfredson and Hirschi (1990) originally defined self-control as the "tendency to avoid acts whose long-term costs

exceed their momentary advantages" (Gottfredson and Hirschi 1994, 3). However, Hirschi (2004, 543) redefined self-control to be conceived as "*the tendency to consider the full range of potential costs of a particular act.*" Stated differently, "self-control is the set of inhibitions one carries with one wherever one happens to go" (Hirschi 2004, 543). By redefining self-control, "this moves the focus from the long-term implications of the act to its *broader* and often contemporaneous implications" (Hirschi 2004, 543). For Hirschi, then, self-control must contain elements of both cognizance and rational choice.

Hirschi (2004) constructed a redefined self-control scale by counting the self-control responses for nine items by adding a one for each self-control response in the parentheses: (1) Do you like or dislike school? (Like it.); (2) How important is getting good grades to you personally? (Very important.); (3) Do you finish your homework? (Always); (4) Do you care what teachers think of you? (I care a lot.); (5) It is none of the school's business if a student wants to smoke outside of the classroom. (Strongly disagree); (6) Does your mother know where you are when you are away from home? (Usually); (7) Does your mother know who you are with when you are away from home? (Usually); (8) Do you share your thoughts and feelings with your mother? (Often); (9) Would you like to be the kind of person your mother is? (In every way; In most ways).

Using data from the Richmond Youth Project, Hirschi (2004) correlated his redefined self-control scale with a six-item delinquency scale. He found that of the 136 students reporting no inhibiting factors, 73 percent reported committing at least two different delinquent acts. Of the 249 students reporting one inhibiting factor, 62 percent reported committing at least two delinquent acts. In addition, among the 45 students

reporting all nine inhibiting factors, only one student reported committing two or more delinquent acts. Hirschi (2004) replicated his analysis using data from a high school delinquency study in Fayetteville, Arkansas. Like the previous analysis, Hirschi found that as the number of inhibiting factors increased, the number of delinquent acts committed decreased.

Parental Influences on Self-Control

A core proposition of *A General Theory of Crime* is that ineffective parenting fosters low self-control in children. According to Gottfredson and Hirschi (1990), parents must do three things to instill a high level of self-control in their offspring: 1) monitor the behavior of the child, 2) recognize wayward behavior, and 3) punish such behavior when it occurs. Likewise, attachment to the child is the principle factor motivating parents to satisfy these three conditions. Gottfredson and Hirschi (1990) maintain that effective parenting is the major cause of self-control and assert that the three conditions noted above are necessary to socialize and instill high levels of self-control in their children.

Gibbs, Giever, and Martin (1998) used a sample of college students to test how parental management (parental supervision and parental monitoring) influences self-control, which ultimately influences one's criminal behavior. The findings of the study revealed that self-control has a statistically significant impact on deviance, and parental management has a strong effect on self-control. However, when controlling for the influence of parental management, self-control became negligible and not statistically significant. The researchers concluded that the effects of parental management on behavior are indirect through self-control.

Hay (2001), using data from a sample of urban high school students also examined the effects of parenting on self-control and delinquency. Hay (2001) revealed two important findings from his analysis. First, his combined measure of parental monitoring and discipline was negatively and significantly related to low self-control. Fair discipline was the most consequential variable for low self-control. Second, despite low self-control's effect on delinquency, low self-control only partially mediated the effects of parental monitoring and discipline on delinquency. Hay (2001) concluded that parental monitoring and discipline significantly affects self-control directly, and low self-control significantly affects delinquency and partially mediates the effects of parental monitoring and discipline.

Unnever, Cullen, and Pratt (2003) contributed to the empirical assessment of Gottfredson and Hirschi's theory in three ways. First, the researchers tested Grasmick et al.'s (1993) measure of self-control to determine how it relates to delinquency. Second, Unnever et al. (2003) examined the relationship between parental management, self-control, and delinquency, and the researchers explored the relationship between ADHD, self-control, and delinquency. Unnever et al.'s (2003) analysis offered further support for Gottfredson and Hirschi's general theory of crime. In this study, low self-control was a strong predictor of both self-reported delinquency and self-reported arrests. Parental monitoring not only increased self-control, but it also had direct effects on both measures of delinquency they employed. Likewise, the effects of ADHD on delinquency were mostly through one's level of self-control.

Perrone, Sullivan, Pratt, and Margaryan (2004) further examined the relationships between parental efficacy, self-control, and delinquent behavior using data from a

nationally representative sample of adolescents (N = 13,536). Perrone et al. (2004) specifically examined two primary research questions: whether parental efficacy is a significant precursor to self-control and whether self-control mediates the relationship between parental efficacy and delinquency. To measure self-control, the researchers used five items that tap into five of the six self-control components outlined by Gottfredson and Hirschi. They combine attitudinal and behavioral measures because of the tautological nature of behavioral measures of self-control. Their analysis produced four major conclusions. First and consistent with Gottfredson and Hirschi, parental efficacy is a major precondition for self-control in children. Second, measures of race, family structure, age, and sex are significantly associated with self-control. Third, the results "indicate that the dynamics of race and self-control may be more complex than indicated by previous research" (Perrone et al. 2004, 307). Finally, the ability of self-control to mediate the relationship between parental efficacy and delinquency was limited. When the researchers controlled for self-control in the study, their measure of parental efficacy continued to maintain a strong and stable relationship with delinquency. Perrone et al. (2004, 307) concluded that based on the results of the study, "it appears that parental efficacy affects delinquency in ways that are not easily explained by Gottfredson and Hirschi's (1990) theory."

In the most recent study, Burt, Simons, and Simons (2006), using longitudinal data from an African American sample, found evidence that counters Gottfredson and Hirschi's proposition. These researchers found that self-control only partially mediates the negative effect of parental efficacy on delinquency. They conclude that parental behavior influences one's risk for delinquency in more ways than through self-control.

Crime and Self-Control

In a secondary analysis of data from a roadside traffic survey of adult drivers, Keane, Maxim, and Teevan (1993) examined the relationship between self-control and driving under the influence of alcohol (drunk driving) while using several indicators, such as use of seat belts, to infer self-control. The researchers viewed those who perceived a greater chance of detection but still drove with measurable blood alcohol content as having lower self-control. While holding several variables constant (age, number of occupants in the car, and time of night), Keane et al. (1993) reported that blood alcohol content was significantly higher among drivers with low self-control. The results of the research support the existence of a relationship for both men and women between low self-control and driving under the influence of alcohol.

Longshore, Turner, and Stein (1996) used the Grasmick et al. (1993) self-control scale in a heterogeneous sample of drug-using criminal offenders. These researchers found self-control to be only modestly associated with the number of recent crimes by this sample. Further, Longshore et al. (1996, 222) found that "risk seeking and impulsiveness/self-centeredness were as valuable as the overall self-control scale in predicting crimes of fraud, while risk seeking and temper were as valuable in predicting crimes of force." Similarly, Longshore (1998) using another sample of convicted drug offenders found that self-control is positively related to both property ($r = .19$) and personal ($r = .18$) crimes. Such a finding is indicative of the fact that crime is more frequent when self-control is lower. Additionally, Longshore (1998) reported that crime is more frequent when opportunity to engage in crime is higher.

Longshore and Turner (1998) tested self-control as a correlate of crime among a sample of 522 serious criminal offenders. They examined the proportion of variance in crime explained by self-control alone and in interaction with criminal opportunity. To measure self-control, Longshore and Turner (1998) employed the Grasmick et al. (1993) self-control scale. As proxies for criminal opportunity, they used two variables: gender and number of friends involved in crime. Their measure of crime was the number of criminal acts of force and fraud reported by the offenders in a six-month recall period. The researchers found force and fraud crimes were higher among offenders with lower self-control. When the researchers added criminal opportunity to their analysis, they found involvement in force and fraud crimes was more extensive when among offenders low in self-control and more opportunity to commit these crimes. Self-control and opportunity accounted for nine percent of the variance in crimes of force and ten percent of the variance in crimes of fraud. The interaction terms produced were both positive for force and fraud crimes and the variance explained by adding these interaction terms was significantly greater than variance explained without them. Likewise, Longshore and Turner (1998) found that self-control significantly predicted crimes of force and fraud for men but not women.

Using a sample of young adults from a medium-sized, mid-western university, Piquero and Bouffard (2007) investigated Hirschi's redefined self-control. The results of this preliminary study suggest that Hirschi's redefined self-control concept is negatively associated with drunk driving and sexual coercion. Moreover, the redefined measure of self-control eliminated the direct effect of the commonly used Grasmick et al.'s (1993) measure of self-control.

Imprudent/Crime Analogous Behaviors and Self-Control

Gottfredson and Hirschi (1990) posit that many noncriminal acts qualify as acts analogous to crime. These analogous behaviors, they argue, have the same features as crime—"short lived, immediately gratifying, easy, simple and exciting" (1990, 14). According to Gottfredson and Hirschi (1990), behaviors analogous to crime are appropriate for testing their general theory.

Using the Grasmick et al.'s (1993) self-control scale, Arneklev, Grasmick, Tittle, and Bursik (1993) focused on what they call imprudent behaviors. Imprudent behaviors included in their research are use of tobacco products, use of alcoholic beverages and gambling. Their low self-control measure modestly and significantly predicted overall imprudence. However, their measure only explained 3.3% of the variance in imprudence. Further, Arneklev et al. (1993) uncovered some weakness in Self-Control Theory in explaining non-criminal behaviors. Specifically, these researchers found that low self-control is a better predictor for drinking and gambling but not smoking.

Cochran, Wood, Sellers, Wilkerson, and Chamlin (1998) used academic dishonesty as a type of fraudulent behavior to assess the validity of the general theory of crime. These researchers employed a convenience sample of undergraduate students at a southwestern university. With the data, Cochran et al. (1998) examined a number of theoretical propositions of the theory, namely the dimensionality of self-control, the influence of parenting on the development of self-control, the association between levels of self-control and involvement in fraudulent behavior and the interactive effects of low self-control and opportunity. Consistent with Gottfredson and Hirschi (1990), Grasmick et al. (1993), Arneklev et al. (1993) and Longshore et al. (1996), these researchers find

that self-control is a indeed a unidimensional construct. Concerning parenting, Cochran et al. (1998) found that parental supervision was not related with self-control; however, parental attachment is positively and significantly associated with self-control and explains 14.2 percent of the variance in the model. Likewise, they reported that self-control statistically and inversely related to academic dishonesty. Moreover, these researchers found the effect of self-control is the strongest in the model, but it only accounted for 12 percent of the variance in academic dishonesty. Cochran et al. (1998) also revealed that students lacking self-control were more likely to engage in acts of academic dishonesty when the opportunity presented itself.

Using data from the first six waves of the Cambridge Study in Delinquent Development, Polakowski (1994) attempted to link self-control to impulsiveness, hyperactivity, attention deficits, and minor conduct problems. He found support for several propositions derived for Gottfredson and Hirschi's thesis. Specifically, Polakowski (1994) found that self-control subsumes several personality disorders. Furthermore, self-control was a significant predictor of criminal convictions. In addition, Polakowski (1994) found that the direct relationship between self-control and delinquent/criminal behaviors remains over time. As well, he revealed that one's level of self-control was stable over time, especially between ages 8 and 14.

Gibbs and Geiver (1995) examined the independent influence of self-control on alcohol consumption and class cutting (crime equivalent behaviors) with a cluster sample of 237 college students. While controlling for other relevant independent variables (gender, age, race, and membership in a fraternity/sorority), Gibbs and Geiver (1995)

found that self-control is the independent variable that is most strongly associated with both of the dependent variables at the zero-order level.

Evans, Cullen, Burton, Dunaway, and Benson (1997) assessed the effects of low self-control on crime and analogous behaviors, and low self-control's effects on social consequences by using two measures of self-control, an attitudinal measure and an analogous behavior scale. Consistent with the general theory of crime, both of their measures of self-control have effects on crime. Moreover, Evans et al.'s (1997) analysis revealed a negative relationship between low self-control and social consequences—life outcomes and quality of life. "We find that low self-control is related to diminished quality of interpersonal relationships with family and friends, reduced involvement in church, low levels of educational and occupational attainment, and possibly poor marriage prospects" (493).

In a more recent study, Jones and Quisenberry (2004) tested the extent to which the general theory of crime can explain both antisocial behaviors and socially accepted risky behaviors. The researchers found that individuals lower in self-control were more likely to engage in antisocial behaviors, such as risky sex and pathological gambling. Likewise, they also found that self-control was significantly related to socially accepted risky behaviors, such as bungee jumping and skydiving. Jones and Quisenberry (2004, 418) noted that such a finding is quite important because "it suggests self-control is not only related to risky behaviors that are antisocial, but those that are socially accepted as well."

Gibson, Schrek, and Miller (2004) extended self-control theory as a theoretical framework to explain binge drinking and other alcohol-related behaviors, while

controlling for other known risk factors related to these problems. The researchers revealed that self-control was, indeed, an important predictor of binge drinking and alcohol-related behaviors. However, they do note that "binge drinking was a more important predictor of alcohol-related problems for students possessing low self-control compared to their high self-control counterparts, with those possessing *extremely* low self-control being more susceptible to the negative behavioral effects of binge drinking" (417). Gibson et al. (2004) conclude that although evidence for self-control theory emerged, other variables such as those related to learning theory, were also important predictors of binge drinking and other alcohol-related behaviors.

Buzzell, Foss, and Middleton (2006) examined the relationship between low self-control and downloading pornographic images from the internet and visiting sexually explicit websites. The researchers found that low self-control has a significant effect on pornography use. However, the association between low self-control and pornography use was only weak to moderate. Gender, low self-control, and opportunity explained between 28 and 37 percent in the variance in downloading pornography and between 34 and 38 percent of the variance in visiting pornographic websites. Moreover, most of this explained variance is attributable to gender, namely being male.

Love (2006) empirically tested the correlation of illicit sexual behaviors with crime as they relate to measures of self-control using a convenience sample of college students and the Grasmick et al. (1993) self-control scale. Correlations between crime and illicit sexual behaviors were positive although the coefficients were rather small providing support for the offender versatility proposition. Specifically, Love found that low self-control was predictive of illicit sexual behaviors.

Gender, Race, Ethnicity, and Self-Control

Gottfredson and Hirschi (1990) acknowledge cross-cultural variations in crime rates, but they dispute the notion that such variation reflects differences in culturally defined conceptions of law, differences in the fundamental processes that produce crime, or differences in structural variables, such as poverty. They state, "Cultural variability is *not* important in the causation of crime, that we should look for constancy rather than variability in the definition and causes of crime, and that a single theory of crime can encompass the reality of cross-cultural differences in crime rates" (Gottfredson and Hirschi 1990, 174-175).

Similarly, Gottfredson and Hirschi address the issue of gender differences in crime and criminality. According to official crime statistics, males are more involved in crime at all points than are females. This, however, does not suggest that males are more criminal or more likely to possess lower levels of self-control than females. They suggest that parents go to greater lengths to supervise their daughters than they do their sons, and as a result, males have more opportunities to commit crimes.

Burton, Cullen, Evans, Alarid, and Dunaway (1998), using a sample of 555 adults from the general population, assessed whether the general theory of crime can account for the gender gap in crime and whether self-control accounts for criminal behavior in both males and females when rival theories are included in the analysis. Burton et al. (1998) reported that the relationship of gender to crime becomes non-significant with the introduction self-control into the analysis. However, when analyzing males and females separately, self-control predicts criminal involvement.

In a similar study, LaGrange and Silverman (1999) using data from the University of Alberta Juvenile and Adolescent Behavior Study examined whether Gottfredson and Hirschi's theory explains the difference in offending frequencies between males and females. They found that before adding self-control into their model, sex significantly predicts general delinquency, but after adding self-control into their analysis, self-control significantly predicts general delinquency. For both males and females, self-control is the strongest predictor for general delinquency. When opportunity was added to the analysis, the predictive power of self-control increased and the effect of sex on general delinquency was reduced quite substantially but was not eliminated. LaGrange and Silverman (1999, 62) conclude that although their model explains a substantial portion of the variance for these behaviors, "the continuing effects of gender suggest that there is something about being male or female that persists in predicting real and substantial differences in behavior."

Vazsonyi and Crosswhite (2004) examined whether self-control predicts deviance in a sample of African American adolescents (N = 661). Contrary to Gottfredson and Hirschi, Vazsonyi and Crosswhite (2004) found self-control to be a multidimensional construct, but low self-control is a consistent predictor of deviance for both males and females. Moreover, low self-control is predictive of various deviant behaviors, including vandalism, alcohol use, drug use, school misconduct, and general deviance, in both males and females. However, low self-control was not predictive of theft or assault for African American females, but was predictive for those behaviors for African American males. These researchers concluded that their research provides evidence that the general theory

of crime is generalizable to males and females as well as various racial groups in the United States.

In a more extensive study, Vazsonyi, Pickering, Junger, and Hessing (2001) using data from a sample of adolescents ranging in ages from 15 to 19, from four different countries (Switzerland, Hungary, the Netherlands, and the United States) examined the relationship between self-control and deviant behaviors (vandalism, alcohol consumption, drug use, school misconduct, general deviance, theft, and assault). In addition, the researchers examined whether self-control predicts these norm-violating behaviors similarly by sex, age group, and country. When controlling for age and sex, self-control predicts between 17 and 28 percent of total deviance, and when controlling for sex and country, self-control explains between 18 and 24 percent of total deviance. Moreover, Vazsonyi et al. (2001) found that different elements of self-control account for different amounts of variance in various deviant behaviors. In general, the total self-control scale accounted for more variability in less serious forms of norm-violating conduct than more serious ones. Vazsonyi et al. (2001) concluded that this study is indicative that self-control has a consistent predictive ability at various age groups, for males and females, and cross nationally.

In another study extending the generalizability of the general theory of crime, Vazsonyi, Wittekind, Belliston, and Van Loh (2004) used a Japanese sample of late adolescents (n = 335) . Their participants completed the Grasmick et al. (1993) low self-control scale and the Normative Deviance Scale (NDS). The findings indicate that the Grasmick et al. (1993) scale was a valid and reliable measure for both male and female

Japanese adolescents and low self-control is a valid predictor of crime and deviance cross-culturally.

Social Consequences and Self-Control

In *A General Theory of Crime* (1990), Gottfredson and Hirschi argue that low-self control produces failure in activities, relationships, and other social institutions. They suggest that those individuals low in self-control will have a greater problem making and keeping friends and are more likely to build relationships with others who lack self-control and are deviant, experience greater job instability, and prefer to "gravitate to the street" (Gottfredson and Hirschi 1990, 157).

Using a sample of homeless street youth, Baron examined the role that self-control plays in the production of crime and drug use as well as its link to negative social consequences. Baron (2003) revealed that low self-control predicts a range of criminal behaviors as well as drug use. In fact, low self-control was a strong predictor of property crime, violent crime, drug use, and overall crime. However, low self-control appeared to be a better predictor of violent crimes than other types of offending. The results also revealed that low self-control has a number of negative social consequences which have independent effects on criminal behavior. Contrary to Gottfredson and Hirschi, Baron (2003) suggested that homelessness continues to have an impact on crime even when self-control is included in the models. "In sum, the findings offer some support for the general theory in that low self-control appears to be a strong predictor of a range of criminal behaviors. Furthermore, it appears that it has a range of negative consequences, including taking up with deviant peers, incorporating deviant values, unemployment, and homelessness. However, contradicting the general theory, the results indicate that not all

negative consequences are the result of low self-control and the relationship between various negative consequences and crime is not spurious. These social factors continue to have independent effects net of low self-control lending support to other theoretical perspectives" (Baron 2003, 419).

In a similar study, Chapple (2005) used data from the Children of the National Longitudinal Survey of Youth to assess the process through which self-control influences peer relations and delinquency. Chapple found that self-control accounted for 11 percent of the variance in peer rejection. Similarly, self-control was a significant predictor of association with deviant peers. The researcher suggested those lacking self-control select delinquent peer groups with which to associate. Association with delinquent peers partially mediated the effect of self-control on delinquency, but self-control remained a significant indicator of delinquency net of deviant peers. However, Chapple's (2005) measure of peer rejection completely mediated the effect of self-control on delinquency. The researcher concluded that low self-control causes peer rejection, association with deviant peers, and delinquency.

Li (2004) examined the effects of self-control and social bonds on delinquent behavior in a nationally representative sample of mid-adolescents. Low self-control had a strong, positive effect on crime, while the social bond elements (except commitment) had a significantly negative effect on crime. Further, the researcher revealed there is a certain level of interaction between self-control and social bonds.

Piquero, MacDonald, Dobrin, Daigle, and Cullen (2005) examined the extent to which self-control predicts both violent offending and homicide victimization using a sample of male youth paroled by the California Youth Authority during the 1980s. Using

rare-event logistic models, Piquero et al. (2005) found that low self-control predicted both violent offending and homicide victimization, but was not the only variable related to violent offending and homicide victimization.

Research Questions

Researchers have demonstrated strong interest in Gottfredson and Hirschi's general theory, and since its publication, *A General Theory of Crime* has attracted an impressive amount of attention from researchers (Pratt and Cullen 2000).

To date, the empirical literature concerning the effects of low self-control on criminal and deviant behaviors is considerably extensive, and much of this empirical research focuses on isolated elements of the theory. The typical focus of much of the previous research has centered around testing a single hypothesis derived from Gottfredson and Hirschi's (1990) theory—the relationship between self-control and various types of criminal, delinquent, crime-analogous behaviors, as well as substance use. While using various methodological techniques, these studies have found low self-control to be predictive of criminal behaviors, delinquent acts, crime-analogous behaviors, and criminal victimization among a variety of sampling frames.

Likewise, Gottfredson and Hirschi (1990) suggest that crime occurs when an individual with low self-control has an opportunity to commit a crime. Therefore, self-control does not directly determine criminal behavior, but opportunity mediates the relationship between self-control and crime. A review of the literature finds general support for the explanatory power of both self-control, opportunity, and the interaction between the two (self-control x criminal opportunity) in explaining crime, delinquency, and crime-analogous behaviors.

The present study examines the general theory of crime as an explanation for juvenile delinquency, namely property offending, violent offending and substance use. Using the previous research as a guide, this thesis will examine two theoretical propositions of Gottfredson and Hirschi's (1990) general theory: 1) the link between levels of self-control and property offending, violent offending, and substance use, and 2) the interactive effects of low self-control and opportunity on the frequency of offending. Additionally, the present research contrasts two measures of self-control: the traditional measure and Hirschi's redefined measure. In doing so, the current focus is to determine which measure of self-control is the best predictor of juvenile delinquency.

The current piece of research contributes to the existing literature regarding the empirical assessment of the general theory of crime in two ways. First, this thesis presents a preliminary empirical investigation of Hirschi's (2004) revision of the theory concerning the measurement and operationalization of self-control. Second, it provides a comparative examination of the traditional measure of self-control and Hirschi's (2004) redefined measure of self-control.

Hypotheses

Hypothesis 1: Self-control is negatively related to juvenile delinquency.

Hypothesis 2: The interaction between self-control and opportunity will have a significantly positive effect on juvenile delinquency.

Hypothesis 3: Hirschi's (2004) "redefined" conceptualization of self-control will prove to be better at explaining juvenile delinquency than the traditional measure of self-control.

Hypothesis 3a: Hirschi's "redefined" conceptualization of self-control will produce more favorable outcomes than the traditional measure of self-control.

Hypothesis 3b: In a combined model, Hirschi's self-control scale will eliminate the direct effects of the traditional measure of self-control.

The following chapter explains the methods used to test these hypotheses. Chapter 4 explores the demographic make-up of the sample as well as the distribution of the independent and dependent variables, while Chapter 5 discusses the implications of these distributions.

CHAPTER THREE: DATA AND METHODS

General Information

The Gang Resistance and Training Program (G. R. E. A. T.) was established in 1991 through a combined effort of the U. S. Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) and the Phoenix Police Department (PPD). During early 1992, the Federal Law Enforcement Training Center (FLETC) joined forces with ATF and PPD to expand the program nationwide. In 2004, Congress directed that overall program administration be transferred to the Office of Justice Programs, Bureau of Justice Assistance (BJA), and in October of that year, a grant was awarded by BJA to the Institute for Intergovernmental Research (IIR) to provide national training coordination services and related tasks.

G. R. E. A. T. is a school-based, law enforcement officer instructed classroom curriculum with the primary objective being delinquency prevention. The program intends to act as an immunization against delinquency, youth violence, and gang membership, and the lessons of the program focus on providing life skills to students to help them avoid using delinquent behavior and violence to solve problems that they may face. The program consists of four components: a middle school curriculum, an elementary school curriculum, a summer program and families training.

Since the inception of the G. R. E. A. T. program in 1991, over 8,000 law enforcement officers have been certified as instructors and more than 4 million students have graduated from the G. R. E. A. T. program.

The principal investigator, Finn-Aage Esbenson of the University of Nebraska at Omaha, used records provided by the Bureau of Alcohol, Tobacco, and Firearms to identify prospective sites in which two or more officers received training to teach the G. R. E. A. T. curriculum prior to 1994. After making some exploratory inquiries to more than 30 different law enforcement agencies, 11 of the sites met the qualifications for inclusion and agreed to take part in the evaluation. The 11 cross-sectional sites were Las Cruces, NM; Omaha, NE; Phoenix, AZ; Philadelphia, PA; Kansas City, MO; Milwaukee, WI; Orlando, FL; Will County, IL; Providence, RI; Pocatello, ID; and Torrance, CA. At the individual sites, schools offering the G. R. E. A. T. program during the previous two years were selected for the study and questionnaires were administered in groups to all eighth graders in attendance on the day questionnaires were administered. These students, however, did not provide a random, representative subsection of adolescents, but the principal investigator believes the results should be representative of students attending public schools in several respects.

Although the primary goal of the data collection was to evaluate the Gang Resistance Education and Training (G. R. E. A. T.) program, the principal investigator also measured variables that are relevant to the study of crime and delinquency among adolescents. Among these measures are items that can be operationalized as key concepts in self-control theory.

The present research uses the G. R. E. A. T. dataset because it focuses on the age group that is of concern in the present study, and it includes variables necessary to construct a traditional self-control scale, Hirschi's redefined self-control scale, and measures of crime and substance use. The Inter-University Consortium for Political and Social Research (ICPSR) provided the data for this thesis.

The Sample

The total sample size is 5,935 individuals. Males accounted for 48 percent of the sample. The sample is 40 percent white and 60 percent non-white. Response rates were 100 percent for gender and race/ethnicity, but for the other variables response rates ranged from a low of 93 percent for opportunity to a high response rate of 99 percent for violent offending and substance use. As a remedy for missing values, the mean of the sample for each variable replaced these missing values.

MEASURES

Dependent Variables

This study investigates three constructs as dependent variables. They are composed of various scales that tap into the behaviors under investigation. The first group of measures is self-reported property offenses. The second group of measures is self-reported violent offenses. The third scale elicits self-reported substance use, including alcohol and tobacco.

Property Offenses. The group of items comprising the property offense scale in this study examines the respondents' rates of self-reported property offenses. The respondents noted the number of times they participated in a variety of behaviors during the past three months. The list of behaviors include: (1) Purposely damaged or destroyed

property that did not belong to you, (2) Illegally spray painted a wall or a building, (3) Stole or tried to steal something worth less than $50, (4) Stolen or tried to steal something worth more than $50, (5) Gone into or tried to go into a building to steal something, and (6) Stolen or tried to steal a motor vehicle. The respondents' self-reported participation in these six behaviors is averaged to create this property offense scale. Because of several outlying observations, it is necessary to use the natural logarithm of the property offending scale. The scale was tested for reliability and found to have strong internal consistency with a Cronbach alpha of .800.

Violent Offenses. The items comprising the violent offense scale examine the respondents' rates of self-reported violent offenses. The respondents noted the number of times, within the last three months, they participated in the following behaviors: (1) Carried a hidden weapon for protection, (2) Hit someone with the idea of hurting them, (3) Attacked someone with a weapon, (4) Used a weapon or force to get money or things from people, (5) Been involved in gang fights, (6) Shot at someone because you were told to by someone else. By arithmetically averaging participation in these six offenses, a total violent offense scale was created. The natural logarithm of the scale is used in the analyses due to skewness in the data. The scale was tested for reliability and found to have strong internal consistency with a Cronbach alpha of .702.

Substance Use. The items comprising the substance use scale examine the respondents' rates of self-reported substance use. The respondents noted the number of times, within the past three months, they used: (1) tobacco products, (2) alcohol, (3) marijuana, (4) conadol (5) paint, glue, or other things you inhale to get high, (6) other illegal drugs. By taking the mean of the responses to these five questions, a total

substance use scale was created. The log transformation of the data was used because of several outlying observations. The scale was tested for reliability and found to have strong internal consistency (Cronbach alpha = .716).

Independent Variables

Self-control is the primary independent variable in this study. Gottfredson and Hirschi (1990) assert that low self-control in conjunction with opportunity increases crime and its analogous behaviors. They argue that individuals lacking self-control tend to be "impulsive, insensitive, physical (as opposed to mental), risk-taking, shortsighted, and nonverbal" (1990, 90).

Traditional Self-Control Measure. The most widely used measure of self-control is the Grasmick et al. (1993) self-control scale. Not all of the 24 items were available from the G. R. E. A. T. dataset, but several items from the Grasmick et al. (1993) scale were available and these items tap into several components of self-control as outlined by Gottfredson and Hirschi (1990).

The traditional measure of self-control is an 8-item factor weighted index. The eight items comprising the traditional measure of self-control index are (1) I often act on the spur of the moment without stopping to think; (2) I don't devote much thought and effort to prepare for the future; (3) I often do whatever brings me pleasure here and now, even at the cost of some distant goal; (4) I'm more concerned with what happens to me in the short run than in the long run; (5) I like to test myself every now and then by doing something a little risky; (6) Sometimes I will take a risk just for the fun of it; (7) I sometimes find it exciting to do things for which I might get in trouble; and (8) Excitement and adventure are more important to me than security. Each of the eight

items has a response category ranging from (1) strongly disagree to (5) strongly agree. The scale was tested for reliability and found to have strong internal consistency with a Cronbach alpha of .800. Factor analysis revealed the presence of a single underlying factor.

Hirschi's "Redefined" Self-Control Measure. The "redefined" measure of self-control is a 10-item factor weighted index (Cronbach alpha = .810). The items comprising the "redefined" measure of self-control index vary slightly from Hirschi (2004), but capture his reconceptualization appropriately: (1) In general, I like school, (2) Grades are very important to me, (3) I usually finish my homework, (4) Homework is a waste of time, (5) I try hard in school, (6) Education is so important that it's worth it to put up with things about school that I don't like, (7) When I go someplace, I leave a note for my parents or call them to tell them where I am, (8) My parents know where I am when I am not at home or at school, (9) I know how to get in touch with my parents if they are not at home, and (10) My parents know who I am with if I am not at home. Each of the ten items has a response category of (1) Strongly disagree, (2) Disagree, (3) Neither Agree nor Disagree, (4) Agree, and (5) Strongly Agree. Responses were recoded as necessary so that a high score indicates low self-control. Factor analysis revealed the presence of a single underlying factor.

Opportunity. Gottfredson and Hirschi's (1990) general theory states that crime can be explained through the interaction of low self-control and illegitimate opportunity. As an indicator for opportunity, respondents estimated how many of their friends engage in a wide range of delinquent and criminal activities (Longshore and Turner, 1998). Response options were (1) None of them, (2) Few of them, (3) Half of them, (4) Most,

and (5) All of them. Higher scores indicate greater illegitimate opportunity. This 12-item factor weighted index has a high level of reliability with an alpha of .928. While this indicator does not directly address the specific nature of what constitutes an opportunity to commit crime and use illicit substances, it is a useful opportunity to engage in crime because people with more crime-involved friends probably receive more offers to commit crime (Chapple 2005). Regardless of how an individual comes to have criminal friends and regardless of his/her own criminal history and motivations, opportunity to commit further crime is probably greater when one has a greater proportion of friends who are criminals.

Control Variables

In order to ensure that any relationship between self-control and the outcomes were not spurious, several variables measuring demographic characteristics are included in the analyses as controls while testing the hypotheses. Consistent with previous research, the analyses include standard controls for race, sex, and socioeconomic status (Piquero and Bouffard 2007).

Sex. A single item indicates whether the respondents are male or female. The responses were recoded so that 0 = female and 1 = male.

Ethnic/Racial Background. A single item determines ethnicity /racial background of the participants. Participants noted if they were: (1) White/Angelo, not Hispanic; (2) Black/African American; (3) Hispanic/Latino; (4) American Indian/Native American; (5) Asian/Pacific Islander/Oriental; and (6) Other. The responses were collapsed and recoded so that 0 = non-white and 1 = white.

Socioeconomic Status. The G. R. E. A. T. dataset did not have any information regarding annual household income. Therefore, the current research uses parental education as an indicator of socioeconomic status. Parental education ranged from grade school or less to more than college. The socioeconomic status variable is created by averaging the father's education level and the mother's education level of each respondent. A higher score indicates higher socioeconomic status.

CHAPTER FOUR: RESULTS

Univariate Analysis

Table 1 presents descriptive data for the three dependent variables (property offending, violent offending, and substance use), as well as the independent variables (traditional self-control, redefined self-control, and opportunity), and the control variables (gender, race/ethnicity, and socioeconomic status).

The current sample contains several outlying observations with regard to the dependent variables, raising concern for skewness of the data. The standard deviations of the dependent variables are substantially large relative to the means for property offending, violent offending, and substance use. Therefore, it is necessary to use the natural logarithm of the dependent variables for the analyses.

(Insert Table 1 Here)

Bivariate Analysis

Table 2 presents the Pearson correlation coefficients for the independent and dependent variables as well as the covariates. Although correlation does not indicate causation, it does indicate how two variables relate to one another in terms of significance, magnitude, and direction of the effect. As Table 2 indicates, significant correlations are present among numerous variables employed in the present research.

It is useful to correlate variables for three reasons. First, significant correlations establish the statistical validity of the measures. Second, correlations help to identify

potential problems associated with multicollinearity. Multicollinearity reduces the reliability of the regression analyses due to the presence of highly correlated independent variables. Finally, correlations allow for an examination of the variables at a bivariate level.

A correlation matrix was computed to examine the degree of association between the control, explanatory, and dependent variables. As shown in Table 2, the three dependent variables (property offending, violent offending, and substance use) have a positive correlation with each other. For those correlations, the coefficients range from .376 to .433, and all are significant at the .01 level. Further, gender ($r = .128$, $p < .01$), race/ethnicity ($r = -.029$, $p < .05$), socioeconomic status ($r = -.043$, $p < .01$), traditional self-control measure ($r = .257$, $p < .01$), redefined self-control measure ($r = .262$, $p < .01$), and opportunity ($r = .429$, $p < .01$) are significantly related to property offending.

A similar pattern emerges for violent offending. Gender ($r = .118$, $p < .01$), race/ethnicity ($r = -.045$, $p < .01$), socioeconomic status ($r = -.041$, $p < .01$), traditional self-control measure ($r = .233$, $p < .01$), redefined self-control measure ($r = .260$, $p < .01$), and opportunity ($r = .405$, $p < .01$) are significantly related to violent offending.

Likewise, all predictor variables significantly correlate with substance use. Gender ($r = .075$, $p < .01$), race/ethnicity ($r = .052$, $p < .01$), socioeconomic status ($r = -.088$, $p < .01$), traditional self-control measure ($r = .320$, $p < .01$), redefined self-control measure ($r = .333$, $p < .01$), and opportunity ($r = .471$, $p < .01$) have significant correlations with substance use.

The three independent variables are all moderately and positively correlated with one another. For these correlations, the Pearson coefficients range from .448 to .513, and

all are significant at the .01 level. Although a correlation exists between the independent variables, Variance Inflation Factors and Tolerance Statistics reveal this correlation is not strong enough to warrant concern for multicollinearity.

(Insert Table 2 Here)

Multivariate Analysis

Multivariate linear regression is the primary statistical tool used in the examination of these data. For this investigation, twenty-four Ordinary Least Squares regression analyses are performed in order to determine the strength, direction, and predictive power of the relationship between the independent variables and the logarithms of the dependent variables.

Tables 3, 4, and 5 provide results from a series of OLS regression models predicting property offending, violent offending, and substance use. The objective of these analyses is to test Hypothesis 1, whether low self-control is related to predicting involvement in the aforementioned activities as well it offers a comparison between the traditional measure of self-control and the redefined measure of self-control. In each case, the control variables remain the same: gender, race/ethnicity, and socioeconomic status.

Table 3 presents the results of regressing property offending on self-control and the covariates. The analysis begins with a baseline model composed of three variables: gender, race/ethnicity, and socioeconomic status (Table 3, Model 1). All three of these variables attain significance in the model. Males ($\beta = .277$, $p < .01$), non-whites ($\beta = -.067$, $p < .05$), and those of lower SES ($\beta = -.033$, $p < .01$) are more likely to report

involvement in property crimes. This model explains about two percent of the variance in property offending.

Model 2 adds the traditional self-control scale. The traditional self-control measure exerts a significant positive effect on property offending ($\beta = .266$, $p < .01$), suggesting that individuals with low self-control are more likely to engage in property offenses. The effect of self-control is also the strongest in the model. Respondent's gender, race/ethnicity, and socioeconomic status also retain their statistically significant independent effects on property offending. The model accounts for eight percent of the variance in property offending.

When the redefined measure of self-control replaces the traditional indicator of self-control in a model predicting property offending (Model 3), the results reveal that this redefined measure is also a significant predictor of property offending ($\beta = .245$, $p < .01$). Those reporting a lower level of this redefined measure are more likely to be involved in property crime. In addition, gender ($\beta = .089$, $p < .01$) and socioeconomic status ($\beta = -.033$, $p < .05$) continue to have a direct effect on property offending.

(Insert Table 3 Here)

Table 4 presents the results of regressing the dependent variable violent offending on self-control and the control variables. Concerning the variable violent offending, in the baseline model (Model 1), gender ($\beta = .120$, $p < .01$), race/ethnicity ($\beta = -.047$, $p < .01$), and socioeconomic status ($\beta = -.044$, $p < .01$) are statistically significant, suggesting that males, non-whites, and those of lower socioeconomic status are more likely to report involvement in violent offenses.

In Model 2, the traditional self-control scale exerts a positive and significant effect ($\beta = .220$, $p < .01$), indicating that individuals reporting a low level of this traditional measure of self-control are more likely to engage in violent offenses, net of demographic characteristics. Gender ($\beta = .093$, $p < .01$), race/ethnicity ($\beta = -.045$, $p < .01$), and socioeconomic status ($\beta = -.033$, $p < .01$) attain significance in the model. Model 2 account for seven percent of the variance in violent offending.

In Model 3 of Table 4, the redefined self-control scale replaces the traditional measure. The results of regressing violent offending on the redefined measure of self-control reveal that this measure of self-control exerts a significant positive influence on violent offending ($\beta = .245$, $p < .01$). The covariates continue to exert a direct influence on violent offending. The model accounts for eight percent of the variance in violent offending.

(Insert Table 4 Here)

Table 5 provides the results of regressing substance use on self-control and the control variables. As shown in Model 1, gender ($\beta = .077$, $p < .01$), race/ethnicity ($\beta = .050$, $p < .01$), and socioeconomic status ($\beta = -.091$, $p < .01$) are statistically significant predictors of substance use, with males, whites, and lower SES individuals reporting higher rates of substance use.

In Model 2, the traditional measure of self-control exerts a positive and significant effect ($\beta = .312$, $p < .01$) on substance use. Gender ($\beta = .038$, $p < .05$), race/ethnicity ($\beta = .053$, $p < .01$), and socioeconomic status ($\beta = -.075$, $p < .01$) continue to have a direct effect on substance use in the model. Although the three covariates attain significance,

the strongest predictor in the model is the traditional self-control scale. The model explains approximately eleven percent of the variance in substance use.

When the redefined measure ($\beta = .328$, $p < .01$) replaces the traditional indicator of self-control, the results reveal that this measure is also a significant predictor of substance use. The respondent's race/ethnicity ($\beta = .062$, $p < .01$) and socioeconomic status ($\beta = -.075$, $p < .01$) continue to exert a direct effect on substance use. Model 3 explains twelve percent of the variance in substance use.

(Insert Table 5 Here)

Tables 6, 7, and 8 examine the direct and interactive effects of self-control and opportunity on juvenile delinquency, thus testing Hypothesis 2. Table 6 presents the results with property offending as the dependent variable. Table 7 shows the OLS regression models with violent offending, while Table 8 displays the results when the dependent variable is substance use.

To test whether the interaction between opportunity and self-control explains variation in juvenile delinquency, three sets of four OLS regression models were developed. As previously mentioned, self-control is measured using two scales: (1) traditional and (2) redefined. A higher value on either scale indicates lower levels of self-control. The interaction term is a multiplicative term created by multiplying self-control by opportunity.

In Model 1 of Table 6, both traditional self-control and opportunity have a significant, positive influence on property offending ($\beta = .076$, $p < .01$ and $\beta = .387$, $p < .01$ respectively), with opportunity having a greater direct impact than self-control. Model 2 adds the traditional self-control-opportunity interaction term. As expected, an

interactive effect of self-control and opportunity on property offending is found ($\beta = .193$, $p < .01$). Respondent's gender continued to have significant effects as does self-control and opportunity. These results indicate that individuals with low self-control are more likely to commit property offenses when presented with the opportunity than those with low self-control not presented with the opportunity.

Model 3 and Model 4 present the results of the redefined self-control scale and opportunity. In Model 3, both redefined self-control and opportunity have a positive significant effect on property offending, with opportunity ($\beta = .389$, $p < .01$) having a greater direct impact than self-control ($\beta = .067$, $p < .01$) as indicated by the Beta coefficients. An interactive effect of redefined self-control and opportunity is found ($\beta = .174$, $p < .01$) in Model 4. Redefined self-control, opportunity, and gender retain their direct effect.

(Insert Table 6 Here)

Table 7 shows the OLS regression models when violent offending is regressed on the direct and interactive effects of self-control and opportunity. In Model 1, the direct effects of both traditional self-control and illegitimate opportunity are statistically significant ($\beta = .061$ and $\beta = .368$ respectively). Like the previous analyses, opportunity had a greater direct impact on violent offenses than the self-control measure.

Model 2 add the traditional self-control-opportunity interaction term. Consistent with prior research and expectations, the interaction term ($\beta = .160$, $p < .01$) exerts a significant effect on violent offending, net of self-control and opportunity. Gender continues to have a direct effect on violent offending.

Concerning the direct effects of the redefined self-control scale and opportunity (Model 3), both exert a statistically significant impact on violent offending, with opportunity having the greater direct impact. Redefined self-control had a standardized coefficient of .080 and opportunity had a standardized coefficient of .358. Both were significant at the .01 level. As expected in Model 4, Redefined Self-Control x Opportunity ($\beta = .165$, $p < .01$) was statistically significant when included with the direct effects of self-control and opportunity. The interaction term was also a better predictor of violent offending than self-control alone in Model 5. The results of these models reveal that individuals with low self-control are more likely to commit violent offenses when presented with the opportunity than those with low self-control.

(Insert Table 7 Here)

Table 8 examines the direct and interactive effects of self-control and opportunity (crime-involved friends) on substance use. In Model 1, the direct effects of both the traditional measure of self-control and opportunity exert a statistically significant influence on substance use. The standardized coefficient for traditional self-control was .131 while the standardized coefficient for opportunity was .419. The results of the analysis reveal that illegitimate opportunity is a stronger indicator of substance use than self-control.

Model 2 adds the interaction term (Traditional Self-Control x Opportunity). In line with my predictions, when included with the direct effects of self-control and opportunity, the interaction term ($\beta = .114$, $p < .01$) was significant, indicating that those with low self-control are more likely to use drugs when they have the opportunity than those with low self-control not presented with the opportunity to use illegal substances.

Model 3 and Model 4 utilized the redefined self-control scale. Similar results are found for these analyses as found when using the traditional measure of self-control. In Model 3, both redefined self-control ($\beta = .138$, $p < .01$) and opportunity ($\beta = .415$, $p < .01$) attain significance, explaining 25 percent of the variance in substance use for this adolescent sample. By adding the interaction term (Redefined Self-Control x Opportunity) to the prediction equation in Model 4, the explained variance remains relatively unaffected. However, the results reveal that the interaction term Redefined Self-Control x Opportunity is a significant predictor of substance use ($\beta = .111$, $p < .01$). Individuals with low self-control are more likely to engage in substance when presented with the opportunity.

(Insert Table 8 Here)

The results of the previous analyses establish both self-control measures as significant predictors of property offending, violent offending, and substance use. The issue now is whether the redefined self-control measure produces more favorable outcomes than the traditional self-control scale, thereby testing Hypothesis 3. A *z* test is used to determine if a significant difference exists between the two measures of self-control (Paternoster, Brame, Mazerolle, and Piquero 1998).

For property offending, the *z* test revealed that no statistically significant difference exists between the traditional self-control measure and the redefined self-control scale. In sum, the analysis indicates that the redefined measure of self-control does not outperform the traditional measure ($z = .005$).

When examining which measure of self-control is a better predictor of violent offending, similar results emerge as that above. The coefficient produced from the *z* test

indicates that a significant difference does not exist between the two measures of self-control ($z = -1.18$). Against expectations, the redefined self-control scale does not explain more of the variance than the traditional measure of self-control when examining violent offending.

The coefficient obtained from a z test reveals that there is no significant difference between the two measures of self-control when predicting substance use ($z = -.71$). Once again, the redefined self-control measure does not explain more of the variance than the traditional self-control scale.

To further examine which measure of self-control is a better predictor for explaining juvenile delinquency, three additional regression models were computed.

Table 9 shows the results of the regression of the logarithm of self-reported property delinquency. The model explains approximately 20 percent ($R^2 = .195$) of the variation in self-reported property offending. The results indicate that four of the independent variables were significant predictors of property crime. Illegitimate opportunity ($\beta = .374$, $p < .01$) was the strongest predictor of property offenses in the model. However, the traditional self-control scale ($\beta = .059$, $p < .01$), and the redefined self-control scale ($\beta = .044$, $p < .01$) both continued to have a direct influence on property offending in this full model. From these findings, the traditional measure of self-control is a better predictor of property offending than the redefined self-control scale.

(Insert Table 9 Here)

The results of regressing self-reported violent delinquency on the independent variables is presented in Table 10. This model explains approximately 17 percent ($R^2 = .174$) of the variance in violent delinquency for this adolescent sample. The results

indicate that three of the independent variables were significant predictors of violent delinquency, with opportunity ($\beta = .349$, $p < .01$) having the greatest direct effect. The issue at hand though is which measure of self-control is the better predictor of violent offenses. The analysis reveals that redefined self-control scale ($\beta = .066$, $p < .01$) is a better predictor of violent offending than the traditional self-control measure ($\beta = .037$, $p < .01$).

(Insert Table 10 Here)

Table 11 reports the regression of self-reported substance use on the independent variables. This prediction equation explains approximately 26 percent of the variance in substance use ($R^2 = .255$). Of the independent variables, five were significant predictors of substance use. Both measures of self-control have statistically significant effects on substance when included in the same model; however, the analysis reveals that the redefined self-control scale ($\beta = .103$, $p < .01$) is a better predictor of substance use than the traditional self-control scale ($\beta = .093$, $p < .01$).

(Insert Table 11 Here)

Of more importance are the figures concerning the changes in the explained variance (R^2) between models. In every instance, adding the redefined self-control scale to the prediction equation that contains the traditional measure of self-control, opportunity, and the control variables, the explained variance increases significantly. For property offending, the explained variance increases from 19.4 percent (Table 6, Model 1) to 19.5 percent (Table 9). Although this change in explained variance is quite low, an *F* test reveals that such a change is statistically significant at the .01 level. The change in the explained variance for violent offending is .3. The explained variance in Table 7,

Model 1 is 17.1 percent and the explained variance in Table 10 is 17.4 percent. This change in R^2 is statistically significant at the .01 level according to an *F* test. For substance use, the explained variance is 24.8 percent without the redefined self-control scale (Table 8, Model 1). By adding the redefined self-control scale to the prediction equation, the explained variance increases to 25.5 percent. The change in R^2 is .007. Although the change in the explained variance is relatively small, an *F* test reveals that this change is significant ($p < .01$).

Similarly, adding the traditional measure of self-control to the prediction equation containing the redefined self-control scale, opportunity, and the control variables also increases the explained variance significantly. For property offending, the explained variance increased from 19.2 percent (Table 6, Model 3) to 19.5 percent (Table 9). An *F* test revealed that this .3 percent increase in the explained variance is significant at the .01 level. Table 7, Model 3 has an R^2 of .173. Adding the traditional self-control measure to the prediction equation increases R^2 to .174 (Table 10). For violent offenses, the change in the explained variance is .1 and is statistically significant. The prediction equation excluding the traditional self-control scale (Table 8, Model 3) for substance use has an R^2 of .250. Table 11 indicates that by adding the traditional self-control scale, R^2 increases to .255. By adding the traditional measure of self-control to the prediction equation, the explained variance increases by .5 percent. The results of an *F* test reveal that although this change in explained variance is low, it is still statistically significant at the .01 level.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

Discussion

Gottfredson and Hirschi (1990) advanced a general theory of crime, positing that a lack of self-control can explain all crime and deviance. They argue that this lack of self-control stems from ineffective parenting in the early childhood years, and individuals who commit any one deviant act will tend to commit other deviant acts as well.

The general theory of crime (1990) has received a substantial amount of attention in recent years, especially with regard to the measurement and operationalization of self-control. Researchers still have not reached a consensus on the best measurement methods for self-control. However, there have been significant findings to continue research and investigation into the propositions of the general theory of crime.

Hirschi (2004) has recently taken on the self-control measurement issue, and devised a new measurement strategy for self-control. Gottfredson and Hirschi (1990) originally defined self-control as the "tendency to avoid acts whose long-term costs exceed their momentary advantages" (Gottfredson and Hirschi 1994, 3). However, Hirschi (2004, 543) redefined self-control as "*the tendency to consider the full range of potential costs of a particular act*." Stated differently, "self-control is the set of inhibitions one carries with one wherever one happens to go" (Hirschi 2004, 543). By redefining self-control, Hirschi (2004) "moves the focus from the long-term implications

of the act to its *broader* and often contemporaneous implications" (Hirschi 2004, 543). For Hirschi then, self-control must contain elements of both cognizance and rational choice.

The purpose of this study is to investigate the relationship between low self-control and juvenile delinquency (property offending, violent offending, and substance use). The effort here extends much of the prior research on the general theory by employing two measures of self-control—the traditional measure and Hirschi's (2004) redefined measure. Additionally, this study examines how Hirschi's redefined measure of self-control compares to the traditional measure of self-control. Four key findings emerge from the analyses.

First, the analyses reveal findings on Gottfredson and Hirschi's core proposition that low self-control is positively related to delinquent involvement—property offending, violent offending and substance use. The traditional measure of self-control is positively and significantly related to juvenile delinquency, indicating that individuals with low self-control are more likely to engage in delinquent behaviors. The low self-control-delinquency relationship holds across the three delinquency measures, thus lending support to Gottfredson and Hirschi's generality claim. Likewise, Hirschi's redefined measure of self-control is also positively and significantly related to property offending, violent offending and substance use. These initial findings of this measure of self-control lend support for Hirschi's reconceptualization and measurement of self-control.

Second, a series of *z* tests revealed that no statistically significant difference exists between the two self-control scales. However, in a full model containing both measures

of self-control, the redefined measure of self-control proved to be a stronger predictor of violent offending and substance use but not property offending.

Third, opportunity is a significant predictor of delinquency. In fact, the results of the analyses reveal that opportunity is more valuable of a predictor for delinquency than either measure of self-control. Individuals reporting greater illegitimate opportunity also reported higher levels of delinquent involvement, net of self-control. In the present research, opportunity proves to be a stronger indicator of delinquency than self-control. However, opportunity did not eliminate the direct effects of self-control and self-control retained its independent effects on juvenile delinquency.

Finally, the interaction between self-control and opportunity is significantly related to juvenile delinquency. Individuals with low self-control are more likely to commit delinquent acts when presented with the opportunity to do so than individuals with low self-control not presented with the opportunity. Although an interactive effect emerges from the analyses, self-control and opportunity retain their direct effects, which suggest that self-control and opportunity affect delinquency independently of each other as well as through their interaction.

This exploratory research, however, does not provide the final word on any aspects of Gottfredson and Hirschi's general theory of crime especially with regard to the measurement and operationalization of self-control.

Limitations

The present study is limited in several aspects, causing caution against the generalization of the findings. The data used for these statistical analyses are from a non-random sample of adolescents and not representative of the adolescent population across

the United States. As such, strong generalizations should not be made to the adolescent population as a whole. In addition, the data were obtained from a public school-based survey, resulting in certain limitations. These limitations include the exclusion of private school students, truant students, absent/tardy students, as well as the possible under representation of high-risk youths. As with any self-report data, there is the possibility that some individuals may either exaggerate or conceal their acts of delinquency. Still others may inaccurately recall certain events, which pose a threat to the reliability of the data.

It is also important to note that the data used in the current analyses are cross-sectional. Therefore, this study is limited in its inferences about the causality of low self-control. Additionally, as a secondary analysis, the measures are limited in scope and breadth to the questions available in the G. R. E. A. T. questionnaire. In short, because this thesis uses secondary data not collected with the expressed purpose of assessing Hirschi's reconceptualization of self-control, information regarding the number and salience of the factors that one is believed to take into account when deciding whether to offend are not present.

The study did not control for measures from competing theoretical models, such as deterrence, social learning, social disorganization, and strain theories. These unmeasured variables are known to be important in the etiology of crime and deviance. If the addition of other theoretical variables did not alter the effect size of self-control in a combined model, then self-control could be seen as having an independent effect on juvenile delinquency beyond the effects of the additional variables.

The under theorizing of opportunity by Gottfredson and Hirschi is a significant oversight in their theory. The exact definition and meaning of opportunity is not clearly explained by these researchers. By failing to suggest how to operationalize or measure opportunity, past research on the general theory has often used rudimentary measures of opportunity or failed to include it at all. This research measured opportunity as the number of friends engaged in delinquent activities. Future research on would be better served by developing a more valid measure of opportunity.

Conclusion

The hypotheses proposed by Gottfredson and Hirschi (1990) are particularly important in the attempt to understand crime and deviance. Prevention of potential criminals as well as rehabilitation of known offenders could be impacted by the implications of this theory. Addressing self-control in child development and searching for ways to modify self-control could prove to be very important if Gottfredson and Hirschi (1990) are correct.

Gottfredson and Hirschi's (1990) general theory sets forth the proposition that all criminal and deviant behaviors can be explained by the same variable--self-control. The implications for such a general theory are vast in practical application, and if criminal and deviant behaviors are attributable to one common underlying factor, then society could potentially be much more efficient in controlling crime and formulating public policy.

In general, the issue may not be whether one measure of self-control produces more favorable outcomes than the other measure of self-control. It is possible that the traditional measure and the redefined measure cover somewhat different aspects of self-control. If that is the case, then the issue is whether the domain of self-control tapped by

the redefined measure is more strongly associated with juvenile delinquency than the domain elicited by the traditional self-control scale. Despite expectations and Hirschi's (2004) recommendation for measuring self-control, the redefined self-control scale does not appear to provide stronger predictions from self-control theory than does the traditional measure of self-control.

In sum, the empirical test of Hirschi's redefinition of self-control has generated results that are certainly worth pursuing in future research. It seems that researchers examining self-control need to seriously consider the inclusion of the kinds of situationally based measures outlined by Hirschi (2004).

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APPENDIX

Table 1. Descriptive Statistics for Variables in the Analyses

Variables	Minimum	Maximum	Mean	Std Deviation	N
Dependent Variables					
Property Offending	0	748.33	2.95	22.93	5923
Violent Offending	0	715.00	3.81	24.94	5928
Substance Use	0	990.00	7.53	37.52	5925
Independent Variables					
Traditional Self-Control	-2.66	2.71	0.00	1.00	5597
Redefined Self-Control	-1.91	4.07	0.00	1.00	5723
Opportunity	-1.02	3.64	0.00	1.00	5545
Traditional x Opportunity	-4.68	9.87	0.47	1.16	5286
Redefined x Opportunity	-6.66	14.83	0.50	1.41	5419
Control Variables					
Gender (Male = 1)	0	1	0.48	0.50	5884
Race (White = 1)	0	1	0.40	0.49	5935
Socioeconomic Status	1	7	4.53	1.50	5850

Table 2. Bivariate Correlations for Gender, Race/Ethnicity, Socioeconomic Status, Property Offending, Violent Offending, Substance Use, Traditional Self-Control, Redefined Self-Control, and Opportunity

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Gender											
Pearson Correlation	1										
2. Race/Ethnicity											
Pearson Correlation	.019	1									
3. Socioeconomic Status											
Pearson Correlation	.026*	.003	1								
4. Property Offenses											
Pearson Correlation	.128**	-.029*	-.043**	1							
5. Violent Offenses											
Pearson Correlation	.118**	-.045**	-.041**	.432**	1						
6. Substance Use											
Pearson Correlation	.075**	.052**	-.088**	.426**	.376**	1					
7. Traditional Self-Control											
Pearson Correlation	.121**	-.005	-.047**	.257**	.233**	.320**	1				
8. Redefined Self-Control											
Pearson Correlation	.163**	-.033*	-.043**	.262**	.260**	.333**	.513**	1			
9. Opportunity											
Pearson Correlation	.144**	-.112**	-.081**	.429**	.405**	.471**	.448**	.476**	1		
10. Traditional x Opportunity											
Pearson Correlation	.066**	.037**	-.034**	.329**	.291**	.283**	.130**	.207**	.395**	1	
11. Redefined x Opportunity											
Pearson Correlation	.060**	.033*	-.030*	.323**	.307**	.306**	.169**	.343**	.400**	.626**	1

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Table 3. Linear Regression Models of Property Offending on Control Variables and Self-Control

Variables	Model 1		Model 2		Model 3	
	B (SE)	β	B (SE)	β	B (SE)	β
Control Variables						
Gender	.277 (.027)	.130**	.213 (.027)	.100**	.191 (.027)	.089**
Race/Ethnicity	-.067 (.028)	-.031*	-.063 (.027)	-.029*	-.048 (.027)	-.022
Socioeconomic Status	-.033 (.009)	-.046**	-.024 (.009)	-.034*	-.025 (.009)	-.035*
Explanatory Variables						
Traditional Self-Control			.266 (.014)	.243**		
Redefined Self-Control					.265 (.014)	.245**
Constant	.098 (.046)		.087 (.045)		.095 (.045)	
R^2	.019		.078		.078	
F	39.251**		124.621**		125.259**	

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

Table 4. Linear Regression Models of Violent Offending on Control Variables and Self-Control

Variables	Model 1		Model 2		Model 3	
	B (SE)	β	B (SE)	β	B (SE)	β
Control Variables						
Gender	.271 (.029)	.120**	.210 (.029)	.093**	.180 (.029)	.080**
Race/Ethnicity	-.108 (.030)	-.047**	-.104 (.029)	-.045**	-.087 (.029)	-.038**
Socioeconomic Status	-.033 (.010)	-.044**	-.025 (.09)	-.033**	-.024 (.009)	-.032**
Explanatory Variables						
Traditional Self-Control			.256 (.015)	.220**		
Redefined Self-Control					.281 (.015)	.245**
Constant	.142 (.049)		.132 (.048)		.138 (.048)	
R^2	.018		.066		.076	
F	36.189**		104.330**		121.927**	

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

Table 5. Linear Regression Models of Substance Use on Control Variables and Self-Control

Variables	Model 1		Model 2		Model 3	
	B (SE)	β	B (SE)	β	B (SE)	β
Control Variables						
Gender	.208 (.035)	.077**	.104 (.034)	.038**	.061 (.034)	.023
Race/Ethnicity	.140 (.036)	.050**	.146 (.034)	.053**	.172 (.034)	.062**
Socioeconomic Status	-.082 (.012)	-.091**	-.068 (.011)	-.075**	-.068 (.011)	-.075**
Explanatory Variables						
Traditional Self-Control			.435 (.017)	.312**		
Redefined Self-Control					.452 (.017)	.328**
Constant	.526 (.059)		.509 (.056)		.521 (.056)	
R^2	.016		.112		.121	
F	32.874		187.174**		203.329	

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

Table 6. Direct and Interactive Effects of Self-Control and Opportunity on Property Offending

Variables	Model 1		Model 2		Model 3		Model 4	
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β
Control Variables								
Gender	.135 (.025)	.063**	.131 (.025)	.061**	.130 (.025)	.061**	.137 (.025)	.064**
Race/Ethnicity	.030 (.025)	.014	-.006 (.025)	-.003	.034 (.025)	.016	.006 (.025)	.003
Socioeconomic Status	-.007 (.008)	-.010	-.006 (.008)	-.009	-.007 (.008)	-.010	-.008 (.008)	-.011
Explanatory Variables								
Traditional Self-Control	.083 (.014)	.076**	.096 (.014)	.088**				
Redefined Self-Control					.072 (.014)	.067**	.035 (.014)	.033**
Opportunity	.425 (.015)	.387**	.333 (.015)	.303**	.427 (.015)	.389**	.367 (.015)	.334**
Interaction Terms								
Traditional x Opportunity			.187 (.012)	.193**				
Redefined x Opportunity							.137 (.010)	.174**
Constant	.010 (.042)		-.064 (.042)		.012 (.042)		-.046 (.042)	
R^2	.194		.225		.192		.217	
F	284.579**		286.329**		282.498**		273.336**	

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

Table 7. Direct and Interactive Effects of Self-Control and Opportunity on Violent Offending

Variables	Model 1		Model 2		Model 3		Model 4	
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β
Control Variables								
Gender	.131 (.027)	.058**	.127 (.027)	.056**	.121 (.027)	.054**	.129 (.027)	.057**
Race/Ethnicity	-.010 (.027)	-.004	-.041 (.027)	-.018	-.007 (.027)	-.003	-.035 (.027)	-.015
Socioeconomic Status	-.007 (.009)	-.010	-.007 (.009)	-.009	-.007 (.009)	-.010	-.008 (.009)	-.010
Explanatory Variables								
Traditional Self-Control	.071 (.015)	.061**	.083 (.015)	.071**				
Redefined Self-Control					.092 (.016)	.080**	.055 (.016)	.048**
Opportunity	.430 (.016)	.368**	.349 (.017)	.299**	.418 (.016)	.358**	.357 (.016)	.306**
Interaction Terms								
Traditional x Opportunity			.165 (.013)	.160**				
Redefined x Opportunity							.138 (.011)	.165**
Constant	.054 (.045)		-.012 (.045)		.058 (.045)		.000 (.045)	
R^2	.171		.192		.173		.195	
F	244.566**		235.290**		247.943**		239.138**	

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

Table 8. Direct and Interactive Effects of Self-Control and Opportunity on Substance Use

Variables	Model 1		Model 2		Model 3		Model 4	
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β
Control Variables								
Gender	-.004 (.031)	-.002	-.007 (.031)	-.003	-.020 (.031)	-.007	-.014 (.031)	-.005
Race/Ethnicity	.275 (.031)	.099**	.248 (.031)	.090**	.284 (.031)	.103**	.261 (.031)	.094**
Socioeconomic Status	-.044 (.010)	-.049**	-.044 (.010)	-.048**	-.045 (.010)	-.049**	-.045 (.010)	-.050**
Explanatory Variables								
Traditional Self-Control	.182 (.018)	.131**	.193 (.018)	.138**				
Redefined Self-Control					.191 (.018)	.138**	.161 (.018)	.116**
Opportunity	.588 (.018)	.419**	.518 (.019)	.370**	.579 (.018)	.415**	.529 (.019)	.378**
Interaction Terms								
Traditional x Opportunity			.141 (.015)	.114**				
Redefined x Opportunity							.111 (.013)	.111**
Constant	.402 (.052)		.346 (.052)		.409 (.052)		.362 (.052)	
R^2	.248		.259		.250		.259	
F	392.046**		345.902**		394.252**		346.092**	

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

Table 9. Linear Regression of Property Offending on Explanatory and Control Variables

Variables	B (SE)	β
Control Variables		
Gender	.128 (.025)	.060**
Race/Ethnicity	.030 (.025)	.014
Socioeconomic Status	-.007 (.008)	-.009
Explanatory Variables		
Traditional Self-Control	.065 (.015)	.059**
Redefined Self-Control	.048 (.016)	.044**
Opportunity	.410 (.015)	.374**
Constant	.013 (.042)	
R^2	.195	
F	239.039**	

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

Table 10. Linear Regression of Violent Offending on Explanatory and Control Variables

Variables	B (SE)	β
Control Variables		
Gender	.120 (.027)	.053**
Race/Ethnicity	-.010 (.027)	-.004
Socioeconomic Status	-.007 (.009)	-.009
Explanatory Variables		
Traditional Self-Control	.043 (.017)	.037**
Redefined Self-Control	.076 (.017)	.066**
Opportunity	.406 (.016)	.349**
Constant	.059 (.045)	
R^2	.174	
F	207.906**	

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

Table 11. Linear Regression of Substance Use on Explanatory and Control Variables

Variables	B (SE)	β
Control Variables		
Gender	-.025 (.031)	-.009
Race/Ethnicity	.274 (.031)	.099**
Socioeconomic Status	-.044 (.010)	-.048**
Explanatory Variables		
Traditional Self-Control	.129 (.019)	.093**
Redefined Self-Control	.142 (.019)	.103**
Opportunity	.544 (.019)	.389**
Constant	.411 (.052)	
R^2	.255	
F	338.844**	

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