

Testing the Cultural Invariance of Parenting and Self-Control as Predictors of American Indian Delinquency*

Gregory D. Morris

California State University, Stanislaus

Peter B. Wood

Mississippi State University

R. Gregory Dunaway

Mississippi State University

Abstract. *We test the invariance of the “full model” of self-control using a sample of white and American Indian high school students. American Indians in our sample reported significantly lesser parenting, lower self-control, and higher levels of vandalism and personal offending, but not property offending. Race-specific regressions find that parenting significantly influenced self-control for white respondents only—not American Indians. Self-control significantly influenced all three forms of delinquency for each race. Parenting significantly predicted property offending and vandalism for each race, but failed to predict personal offending for either. Z-tests on the various influences revealed no significant differences by race, with the exception of the influence of parenting on vandalism. These findings provide support for the invariance of the full model of self-control but suggest that the influence of parenting on American Indian delinquency is somewhat different from whites. We also discuss our findings relative to the mediation effect of self-control on the parenting/delinquency relationship.*

Keywords: American Indian; parenting; self-control; delinquency; invariance

Introduction

Gottfredson and Hirschi (1990) purport self-control as “A General Theory of Crime” due to the universal explanatory power of their theory. According to the authors, inadequate parenting results in low self-control (of offspring), which in turn leads to crime and analogous behaviors. What makes the theory “general” is that these influences are more or less invariant across samples (Tittle, Ward, and Grasmick, 2003). But while numerous studies using various samples and analytical techniques have supported the causal operation of the theory (Pratt and Cullen, 2000), relatively few have focused on the role of parenting within self-control theory. Even fewer explicitly test whether the influence of key variables is invariant across samples and sub-samples. We are not aware of any cross-sample invariance tests that include the influence of parenting as it applies to self-control theory.

We explore the invariance of the “full model” of

self-control by incorporating one of the most culturally distinct groups within U.S. borders: American Indians. Criminological literature depicts American Indians as among the most troubled, yet least studied groups in North America (Young, 1988). Furthermore, research typically fails to include a comparable group of whites, and testing standard criminological theories on American Indian crime and delinquency is virtually absent (Lester, 1999). Using subsamples of American Indian and white public high-school students, we test the cultural invariance of self-control as a dependent and independent variable, which includes invariance tests on the direct and indirect (via self-control) influence of parenting on delinquency. Following the method promoted by Paternoster et al. (1998), and used in previous invariance tests on self-control (see Tittle et al., 2003; Vazsonyi and Crosswhite, 2004), we apply z-tests of significance to any differential influences by race. Our analyses provide a useful extension of previous invariance tests due to the cultural milieu of American Indians as well as our incorporation of the

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full model of self-control. Moreover, our research attends to the aforementioned empirical deficiencies related to American Indian delinquency.

Self-Control

Self-control is posited as “A General Theory of Crime” because it is derived from what Gottfredson and Hirschi (1990) believe is a constancy of criminality. This constancy is a hedonistic human nature based upon the self-interested pursuit of pleasure and avoidance of pain. Where individuals differ is in their ability to repress such impulses. Those less capable will tend toward immediate gratification, low frustration tolerance, self-centeredness, and risk taking, and they prefer physical over mental activities and simplistic rather than complex tasks. Individuals with low self-control are prone to crime because crime is simple, risky, self-centered and gratifying with little effort or delay.

Low self-control is the tendency for the above characteristics (dimensions) to “come together in the same person” (Gottfredson and Hirschi, 1990:91), producing a single, latent (unidimensional) trait that universally explains crime and analogous behavior. But while Gottfredson and Hirschi (1990) define low self-control as an individual propensity, the authors are clear that it is not a trait which drives individuals toward crime in the positivistic sense. Rather, the less self-control one has, the less he or she is able to judge the negative consequences of his or her hedonism; hence, such individuals are more prone to crime. And though some argue that the dimensions of self-control are incompatible as a single latent construct (Marcus, 2004), the application of self-control as a unidimensional trait is generally supported by the criminological community (Turner, Piquero, and Pratt, 2005), with the most popular measure of self-control being the Grasmick et al. (1993) scale.

Self-Control as an Independent Variable

Most self-control research uses self-control as an independent variable; these studies have regularly found support for the variable. A meta-study on the theory (Pratt and Cullen, 2000) found that self-control generally predicts crime and analogous behavior regardless of sample and analytical technique. Cross-cultural support for self-control as a predictor of deviance has since been found using Canadian (Nakhaie, Silverman, and LaGrange, 2000), German (Marcus, 2003), and Spanish samples (Romero et al., 2003). Vazsonyi et al. (2001) found similarities in the influence of self-control on deviance in Hungary,

the Netherlands, Switzerland, and the U.S. Beyond the “West,” Vazsonyi et al. (2004) found that self-control significantly influenced an array of delinquent behaviors among Japanese adolescents (but not male alcohol use), and low self-control actually decreased the likelihood of female alcohol use. Hwang and Akers (2003) found that self-control modestly influenced Korean substance use, though the effect was diminished when social learning variables were added to the model.

Self-Control as a Dependent Variable

Gottfredson and Hirschi are certain that self-control develops “prior to the age of responsibility for crime” (1990:90), and therefore is the result of early child-rearing practices. Though the authors allow for innate differences, proper parenting is designated as the overriding source of self-control since it is “always possible whatever the configuration of individual traits” (1990:96). However, parenting can go wrong for any one of four reasons (Gottfredson and Hirschi, 1990:98).

First, the parents may not care for the child (in which none of the other conditions would be met); second, the parents, even if they care, may not have the time or energy to monitor the child’s behavior; third, the parents, even if they care and monitor, may not see anything wrong with the child’s behavior; finally, even if everything else is in place, the parents may not have the inclination or the means to punish the child.

Though Gottfredson and Hirschi begin with affective attachment as the major determinant of parenting, it is the three elements of the parenting—*monitoring* the child’s behavior; *recognizing* deviant behavior when it occurs; and *punishing* such behavior—that most directly influence self-control. Specific to monitoring, Gottfredson and Hirschi state, “the connection between social control and self-control could not be more direct than in the case of parental supervision of the child” (1990:99). The authors consider recognition the least researched of the three elements. They cite the well-documented role of consistency as key to proper punishment.

To a lesser extent, other familial variables are implicated as influences on self-control. These include the number of biological parents in the home, number of siblings, and mother working outside the home. The affective bond of biological parents increases the likelihood of proper parenting when compared to other caregivers. The more children one has the less time available for attending to each one. Gottfredson and Hirschi (1990) provide various reasons for why mothers working outside the home contribute to low-self control. Nevertheless,

they argue that adequate parenting can be achieved independent of these.

In spite of Gottfredson and Hirschi's (1990) urging that self-control be tested as both an independent and dependent variable, only a handful of studies include parental measures. Using an array of parenting variables, Feldman and Weinberger (1994), Gibbs, Giever, and Martin (1998), Hay (2001), Polakowski (1994), Pratt, Turner, and Piquero (2004), Unnever, Cullen, and Pratt (2003), and Turner et al. (2005) found that most of their selected measures acted as partial influences upon self-control¹. Nonetheless, results are mixed and the magnitude of influence is not considered robust by all. For example, Cochran et al. (1998) found parental attachment to have a significant positive influence, but parental supervision did not. In an analysis by race, Pratt et al. (2004) found that parental supervision influenced self-control for both white and non-white respondents. Contrary to expectations, however, their monitoring/discipline variable was positively associated with low self-control for each race. Though Hay found that his monitoring/discipline variables significantly influenced self-control, he considered the magnitude of influence "less than impressive" (2001:720). Wright and Beaver (2005) found their parenting variables to be inconsistently and weakly related to self-control in kindergarten and first grade, and that the influence of parenting depended on whether parents or teachers reported child self-control. They also determined that Ordinary Least Squares (OLS) regression overestimated the influence of parenting when considering genetic influences. Wright and Beaver suggest that extant research on parenting and self-control reveals a moderate relationship at best and that "there is reason to cast doubt over the validity of this body of research" (2005:1174).

Self-Control as a Mediator

Whether the influence of parenting on delinquency is direct or indirect via self-control is unsettled. According to Pratt et al. (2004:220) "Gottfredson and Hirschi view parental socialization as a distal cause of criminal behavior in that its effect on crime operates solely through the development of self-control." Likewise, Unnever et al. argued that "when parental influence occurs, it is exerted through the narrow conduit of self-control" (2003:472). This point of view assumes that parenting is associated with crime and delinquency, but that self-control mediates the direct influence of parenting on delinquency; hence, the parenting influence is indirect via self-control. Such an interpretation, however, is based on the role of parent-

ing as the producer of a trait (self-control). Parenting can also limit delinquency by directly reducing opportunity (LaGrange and Silverman, 1999). A less supervised child with hedonistic tendencies (whatever the degree) is more likely to deviate. Though Gottfredson and Hirschi never openly specified the mediation aspect of self-control, they initially (Gottfredson and Hirschi, 1990) considered opportunity an important element of crime and later stated (Hirschi and Gottfredson, 1995) that self-control and opportunity are independent in their influence upon crime.

For studies that include the full model of self-control, in each instance parenting significantly influenced deviance when self-control was excluded from the analysis. However, results varied with the addition of self-control as a predictor. Hay (2001) and Unnever et al. (2003) found their parental variables retained a significant direct effect on delinquency when controlling for self-control. Polakowski (1994), Gibbs et al. (1998), and Feldman and Weinberger (1994) found that the association between parenting and deviance was mediated by self-control. That is, parenting indirectly influenced deviance via self-control. Pratt et al. (2004), Turner et al. (2005), and Wright and Beaver (2005) included parenting, but only self-control as the dependent variable. Whether parenting is a direct or indirect influence on crime and delinquency appears to be an unresolved issue of self-control theory.

Invariance of Self-Control

Though a variety of methodologies have been applied to self-control theory, explicit tests on the invariance of self-control are rare. As noted by Tittle et al. (2003), if self-control is as universal as Gottfredson and Hirschi claim, the influence of key variables should vary little across (sub)samples. Vazsonyi and Crosswhite (2004) and Tittle et al. (2003) tested this hypothesis by employing the z-score method recommended by Paternoster et al. (1998). This method tests the equality of regression coefficients across samples. Using three self-control and four deviance measures, Tittle et al. (2003) compared the effects of self-control across gender and age. For each self-control/deviance combination tested, self-control significantly influenced deviance for both males and females, and z-scores indicated that the influence did not vary significantly by gender (with the exception of "variety" self-control on future crime/deviance). Among four age categories, self-control consistently failed to influence deviance for the oldest, and the magnitude of influence was always greatest for the youngest category. In the middle categories, significant influences existed for most self-control/deviance combinations. Z-scores

revealed that the influence of self-control differed significantly between the youngest and the oldest, and in many instances, influences also differed significantly from the youngest to the middle age categories. Using a sample of African American and Caucasian youth, Vazsonyi and Crosswhite (2004) compared the effects of self-control by gender and race on eight categories of deviance. With the exception of theft and assault, the influence of self-control on deviance did not differ significantly between male and female African American youth. When conducting gender specific analyses, for males, self-control significantly predicted all forms of deviance for both races; however, z-scores revealed that the influence on school misconduct differed significantly by race. For females, z-scores showed that the influence of self-control by race differed significantly for alcohol use, drug use, school misconduct, and total deviance (though self-control significantly influenced each of these deviance measures for both races). Moreover, self-control significantly predicted theft and assault for Caucasian but not African American females, yet z-scores revealed that the regression coefficients did not differ significantly by race. These studies cast at least some doubt on the invariance of self-control. Regardless, neither study tested the invariance of parenting as it applies to self-control theory.

American Indian Culture and Delinquency

Despite a relative lack of inquiry, research finds that American Indians are one of the most deviant of all racial/ethnic groups in the United States. Official statistics have long reported American Indians as disproportionate offenders for most transgressions (Armstrong, Guilfoyle, and Melton, 1996; Greenfeld and Smith, 1999; Krisberg et al., 1987; Reasons, 1972; Stewart, 1964). This is especially true for juvenile crime rates (Andrews, 1999). Moreover, official rates of American Indian crime are excessive in spite of mass underreporting (Wakeling et al., 2001). Official statistics aside, self-report studies paint a similar picture. According to most, delinquency is higher for American Indians when compared to the general population (Donnermeyer et al., 1996; Forslund and Cranston, 1975; Lorch and Chien, 1988; Robbins and Alexander, 1985), though at least one study (Jensen, Stauss, and Harris, 1977) found similar rates of American Indian and Anglo delinquency. But as Lester (1999) notes, most studies fail to compare American Indian delinquency to a similarly-situated sample of whites.

Both official and self-report findings must be interpreted with caution due to the vast heterogeneity within Native America. There are more than 500 tribes, which

vary by region, reservation residence, and involvement in native culture (Beauvais, 1998). Moreover, two-thirds of the U.S. American Indian population resides on non-native lands (Beauvais, 1998). In spite of such heterogeneity there appears to be a number of core cultural values salient to American Indian traditions, which stand in contrast to the surrounding Anglo culture (Nel, 1994). These include topics ranging from nature and reciprocity to time and space (Yates, 1987), integrated and united versus splintered and competing thought (DeFaveri, 1984), cooperative and group-oriented versus hierarchical and individualistic orientation (Swisher, 1990; Gilbert, 2000). Because of these differences, explanations of American Indian deviance entertain cultural issues not common to other U.S. racial/ethnic groups. Specifically, the American Indian/Anglo cultural divide is significant enough that the divide itself is implicated. It is believed that the differences generate conflict, marginality, and anomie, thus increasing the probability of deviance².

Though cultural *difference* may be implicated, overall, there is nothing pointing to native traditions as problematic per se (Beauvais and LaBoueff, 1985). One exception may relate to parental practices. In a review of etiological research on American Indian substance use, Herring concludes that “a lack of clear-cut sanctions against substance use exists among Native American Indians” (1994:580). Herring (1994) cites several studies (Edwards and Edward, 1988; Schinke et al., 1988a; Schinke et al., 1988b) claiming that American Indians grow up in an environment where alcohol and substance use is not regarded as deviant but a sign of adulthood. Weibel-Orlando (1984) reported that about one third of participants in her study first drank with a close relative. But consistent with most research on American Indian crime and delinquency, these studies fail to include a comparable sample of whites. In fact, while Herring attributes American Indian substance use to parenting, he also states “the evidence indicates that many etiological influences are the same for Native American Indians as they are for other ethnic groups” (1994:579).

Even if substance use is less sanctioned, this may not be the case with other forms of delinquency. According to Silverman (1996), and Armstrong, Guilfoyle, and Melton (1996), the depiction of American Indians as disproportionately criminal or delinquent is largely the product of alcohol- and substance-related offenses. Substance use aside, few etiological studies include other forms of delinquency among American Indians. Regardless of theoretical claims, Ledlow (1992) concludes there is little empirical support for cultural arguments. There is presently no evidence that American Indians and whites differ

in interpersonal traits related to criminal behavior (Lester, 1999).

Current Investigation

The influence of self-control on crime and analogous behavior is well documented. The influence of parenting on self-control is inconsistent. Research on the mediating role of self-control on the parenting/crime relationship is mixed. Invariance tests are few, and those that exist fail to test the invariance of parenting as it relates to self-control theory.

Our goal is to explore the invariance of the full model of self-control using a sample of American Indian and white youth. We test the invariance of parenting as a predictor of self-control and the invariance of self-control as a predictor of delinquency. By extension, we test the invariance of the direct and indirect (via self-control) influence of parenting on delinquency. We do as previous self-control invariance studies have done and assume that our groups differ in some meaningful way. We emphasize cultural difference due to the cultural independence on which Gottfredson and Hirschi (1990) construct self-control theory. As they state, the similarities in crime and criminality outweigh the differences and therefore “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 can encompass the reality of cross-cultural differences in crime rates” (1990:175). The literature on American Indian culture provides the foundation for which our particular assumption of group difference is based.

We address four primary research questions. 1) Do parenting, self-control, and delinquency differ between American Indians and whites? 2) Is the influence of parenting on self-control invariant? 3) Is influence of self-control on delinquency invariant? 4) Are the direct and indirect influences of parenting on delinquency invariant? Though secondary to our invariance tests, we use the last three questions to estimate self-control as a mediator of the parenting influence upon delinquency. We also address the issues of age and gender as they relate to self-control theory.

Data and Methodology

The data for this study were gathered from six public high school districts in Oklahoma, a state well suited for such research since American Indians are the largest racial or ethnic minority. Schools from each of the five

geographic regions of the state (central, northeast, southeast, northwest/panhandle, and southwest) were selected and include urban, rural, and mixed school districts. The original project from which these data are derived was a study of racial/ethnic differences in the prevalence, incidence, and etiology of delinquency, particularly American Indians. Consequently, special consideration was given to maximize the number of American Indian respondents and variation in tribal membership.

Anonymous questionnaires were administered by research staff and school officials to all students, attending grades 9 through 12, who were present the day of the survey. Participation was voluntary and written parental permission was required. Attrition due to voluntary participation, parental permission, and absenteeism reduced the proportion of completed questionnaires to approximately 43 percent of the total enrollment of the schools sampled. Though the response rate varied among participating schools, it proved to be similar to rates reported by other researchers who have adopted the requirements of voluntary participation and parental permission required by both school officials and the Institutional Review Board’s (IRB) policy regarding protected groups in human subject research (Cochran et al., 2002). The percentage of American Indians in our sample was proportionate to the overall enrollment of the targeted schools (20.2 % versus 22.1%), though males were slightly under-represented (44.4% versus 48.9%). After deleting other races, the sample included 1,122 white and 382 American Indian respondents.

Our analyses begin with mean comparisons by race of all variables. This is followed by a series of race-specific regressions. The first regression model tests the influence of parenting on self-control. The second model tests the direct influence of parenting on delinquency. The third model includes both parenting and self-control as predictors of delinquency. Using the method described by Paternoster et al. (1998), we then test whether any influences (regression coefficients) differ significantly by race. The familial variables number of parents, number of siblings, and mother working are also included in each regression (due to Gottfredson and Hirschi’s hypotheses), though invariance tests are not applied to these variables. All regressions control for age and gender.

These models are also used to explore the mediating effect of self-control on the parenting/delinquency relationship. Judd and Kenny (1981) recommend three regression models for testing mediation: (1) Regressing the mediator on the independent variable; (2) regressing the dependent variable on the independent variable; (3) regressing the dependent variable on both the indepen-

dent variable and the mediating variable. Because our regression models parallel this methodology, we use them to estimate the mediation effect of self-control for both American Indians and whites. We consider the invariance test central to our analyses, with the mediating test as a secondary benefit.

Independent and Dependent Variables

Our familial variables include parenting, number of parents and number of siblings in the household, and the extent to which the mother works outside the home. Parenting is measured using three indicators that ask respondents to report the monitoring, recognizing, and punishing practices of their parents. Responses for each indicator range from 1 (strongly disagree) to 4 (strongly agree). The reliability of our parenting indicators (Table 1) is similar for American Indian (.69) and white (.61) respondents; hence, additive parenting scales are produced for each race. The parent and sibling variables come from a single question asking “How many of the following people live in the same household with you? Response options include: Father; Mother; How many brothers?; and How many sisters? Number of parents is coded 0, 1, or 2. Our coding does not distinguish whether a parent is mother or father, nor are we able to consider stepparents. Number of siblings is the sum of brothers and sisters. Mother working outside the home consists of four response options ranging from never (1) to most of time (4). Indicators and descriptive statistics are included in the Appendix.

We employ the Grasmick et al. (1993) self-control scale, which is comprised of six dimensions (immediate gratification, simplicity, risk-taking, physicality, anger, and self-centeredness) made up of four indicators each, for a total of 24 items. Each item includes Likert responses ranging from 1 (strongly disagree) to 4 (strongly agree). This scale is the most widely used measure of self-control and has been established as valid and reliable (Tittle et al., 2003); hence, it is a reasonable choice for our test of invariance. Table 1 reveals that the 24 items are internally consistent for American Indians ($\alpha = .88$), and whites ($\alpha = .87$). Removing any of the indicators reduces the respective Chronbach’s alpha. We sum the 24 items to produce our self-control scales.

Delinquency includes three categories—personal offending, property offending, and vandalism—made of five indicators apiece (see Appendix). For each indicator, respondents are asked to report the number of times in the past year he or she has participated in a specific act. When scaled additively, each category of delinquency

Table 1. Reliability Analysis by Race on Parenting, Self-Control, and Delinquency

	American Indian		White	
	N	α	N	α
Parenting	378	.69	1,117	.61
Self-control	364	.88	1,058	.87
Personal offending	367	.69	1,090	.67
Property offending	362	.68	1,058	.71
Vandalism	368	.65	1,085	.61

revealed a considerable positive skew (personal = 5.13; property = 5.95; vandalism = 17.88). We transform the data by recoding indicator responses 0 (never) and 1 (one or more), then sum the indicators into their appropriate offense category. The transformation significantly reduces the skew of each scale (personal = 1.83; property = 1.58; vandalism = 1.96). According to Tabachnik and Fidell (1996), analyses involving such moderate skews of similar degree would not be significantly improved with further transformation. For American Indians and whites, reliability analysis (see Table 1) justifies the use of all indicators for personal offending ($\alpha = .69$; .67, respectively), property offending ($\alpha = .68$; .71, respectively), and vandalism ($\alpha = .65$; .61, respectively) additive scales.

Results

Table 2 reports the means and standard deviations of each variable by race. We include the demographic variables age and gender since they are the best known correlates of crime (Gottfredson and Hirschi, 1990). Gender is coded 0 (female) and 1 (male), and the distribution is fundamentally equal for each race. Forty-two percent of American Indians are male, 44 percent of whites are male. Age ranges from 15 to 21, and displays a fairly normal distribution for each race. Parenting ranges from 3 to 12; high scores signify better parenting. Self-control ranges from 24 to 96; high scores signify greater self-control. Though some prefer to code self-control so that high scores equal low self-control, we side with Tittle, Ward, and Grasmick (2004) who argue that such a procedure adds unnecessary interpretation difficulties. Finally, all delinquency categories range from 0 to 5; high scores signify more participation in delinquency.

The only means that do not differ significantly are gender and property offending. Among key variables, American Indians report less adequate parenting and low self-control compared to whites. American Indians also report higher levels of personal offending and vandalism. Though most mean differences by race are statisti-

Table 2. Descriptive Statistics by Race for Variables Included in the Analyses and T-Tests of Significance on Mean Scores

	American Indian			White			Sig.
	N	Mean	SD	N	Mean	SD	
Age	381	17.22	1.12	1,119	17.09	1.03	.034
Gender	382	.42	.49	1,120	.44	.50	.334
Parents	380	1.53	.63	1,118	1.69	.55	.000
Siblings	381	1.46	1.35	1,118	1.19	1.17	.001
Mother working	382	3.12	1.20	1,122	2.95	1.28	.022
Parenting	378	10.12	1.97	1,117	10.46	1.65	.002
Self-control	364	61.25	12.32	1,058	63.79	11.87	.001
Personal offending	367	.86	1.24	1,090	.61	1.05	.000
Property offending	362	.97	1.28	1,058	.84	1.25	.104
Vandalism	368	.66	1.07	1,085	.52	.94	.027

cally significant, the magnitude of difference is generally slight.

Regression Analyses

Table 3 reports the race-specific, standardized OLS regression coefficients for self-control, personal offending, property offending, and vandalism as dependent variables. Self-control is the dependent variable in the

first column (model 1). Under each delinquency category are two models. The first (model 2) denotes the direct influence of parenting. The second (model 3) includes self-control with parenting as predictors of delinquency.

Beginning with model 1, the results are not encouraging for the theoretical assertions of self-control as a dependent variable. For white respondents, parenting is a significant but modest positive influence (.09) on self-control. As hypothesized, better parenting leads to

Table 3. Standardized OLS Regression Coefficients by Race

(Dependent Variables = Self-Control, Personal Offending, Property Offending, and Vandalism)

	Self-control	Personal offending	Property offending	Vandalism
American Indian				
Age	.17 **	-.05	.00	-.06
Gender (male=1)	-.10	.26 **	.23 **	.23 **
Parents	-.02	-.03	-.04	-.09
Siblings	-.03	.10	.10	.06
Mother working	.00	-.05	-.06	.00
Parenting	.04	-.07	-.06	-.22 **
Self-control			-.31 **	-.38 **
R ²	.036	.082	.174	.116
N	358	361	345	357
White				
Age	.09 **	-.03	.01	-.05
Gender (male=1)	-.15 **	.23 **	.17 **	.26 **
Parents	.01	-.03	-.02	-.07 *
Siblings	.00	.09 **	.09 **	.09 **
Mother working	-.03	.04	.04	.05
Parenting	.09 **	-.03	-.01	-.10 **
Self-control			-.36 **	-.33 **
R ²	.037	.064	.189	.096
N	1,047	1,078	1,025	1,046

* = significant at $p < .05$ ** = significant at $p < .01$

self-control. However, parenting fails to significantly impact (.04) the self-control of American Indians. These findings suggest that poor parenting is not likely to be the dominant source of low self-control among our respondents, especially for American Indians. Furthermore, since parenting more or less fails to influence self-control, the likelihood of indirect parenting influences on delinquency is slim; hence, mediation is doubtful. The remaining familial variables also fail to influence self-control for each race.

Turning to delinquency as the dependent variable, when self-control is excluded (model 2), parenting significantly influences property offending and vandalism for both American Indians (-.22, -.24, respectively) and whites (-.10, -.09, respectively) in that better parenting decreases the likelihood of each. When self-control is added (model 3) the influence of parenting remains statistically significant for American Indian (-.20, -.21, respectively) and white (-.08, -.07, respectively) property offending and vandalism. Nevertheless, self-control significantly predicts each form of delinquency for American Indian (-.31, -.38, -.38) and white respondents (-.36, -.33, -.35), and the magnitude of influence is more robust than parenting. Moreover, when self-control is included as a predictor of delinquency, the explained variance of the model (3) is notably larger than that of the parenting model (2).

According to Baron and Kenny, mediation occurs if “a previously significant relation between the independent and dependent variables is no longer significant” (1986:1176) when the mediating variable is introduced to the model. When self-control is introduced, the influence of parenting on delinquency remains significant (and largely unchanged). This further suggests that the influence of parenting on delinquency is not mediated by self-control, implying that the effects of parenting are largely direct, not indirect via self-control. Parenting failed to significantly impact personal offending regardless of race or the inclusion of self-control.

Among the demographic influences, younger respondents of both groups are significantly more likely to report low self-control. This finding is in line with previous research on age and self-control (Tittle et al., 2003) and is theoretically consistent since Gottfredson and Hirschi (1990) allow for the possibility of improvement in self-control with age. Gender significantly influences white but not American Indian self-control. White females report higher self-control than white males. According to Tittle et al. (2003), females should report higher self-control since they are generally more supervised. Regardless, the explained variance of model

1 is less than 4 percent for each race, suggesting little influence among our predictors.

When testing these demographic influences on delinquency, with the exception of vandalism for whites, no significant age/delinquency coefficients exist. However, this significant age/vandalism coefficient is reduced to insignificance with the addition of self-control. Similar reductions in other age/delinquency coefficients appear when self-control is added to the model. Coupled with the significant influence of age on self-control, the influence of age on delinquency appears to occur through self-control. The overall lack of age influence, however, delimits this interpretation. As for gender, American Indian and white males are significantly more likely to report all forms of delinquency whether or not self-control is included in the model—an issue we return to in the discussion.

Tests of Significance by Race (Z-Scores)

The crux of our analyses is presented in Table 4, which reports the unstandardized regression coefficients and standard errors for our race-specific regressions. Applying the method outlined by Paternoster et al. (1998), we use these to calculate a z-score. This score verifies whether the differences in regression coefficients by race are statistically significant. We first test the invariance of parenting on self-control (model 1). We then test the invariance of the direct influence of parenting on delinquency (model 2). Finally, we test the invariance of parenting and self-control on each form of delinquency (model 3). We report the invariance tests on both the direct and indirect influences of parenting on delinquency for two reasons. First, we wish to address the overall lack of research on the etiology of American Indian delinquency, especially whether or not it differs from other groups. Secondly, previous research has implicated parenting as a disproportionate source of American Indian delinquency (Herring, 1994). Consequently, while the findings reported in Table 3 indicate a lack of mediation, both direct and indirect influences (on delinquency) are compared to check for the invariance of parenting as fully as possible. All coefficients reported in Table 4 are derived from the previous models (Table 3), which control for age, gender, number of parents and siblings, and mother working.

Beginning with model 1, although parenting is a significant influence upon white but not American Indian self-control, the difference by race is not statistically significant. This suggests that the influence of parenting on self-control is invariant, though we are guarded in this assessment due to the overall lack of influence. In a

Table 4. Unstandardized OLS Coefficients, Standard Errors, and Z-Scores

(Dependent Variables = Self-Control, Personal Offending, Property Offending, and Vandalism)

	American Indian		White		z-Score
	B	SE	B	SE	
Self-control					
Parenting	.269	.334	.650 **	.222	.95
Personal offending					
Parenting (direct)	-.045	.033	-.021	.019	.75
Parenting	-.036	.032	-.007	.018	.91
Self-control	-.031 **	.005	-.032 **	.003	.17
Property offending					
Parenting (direct)	-.145 **	.033	-.076 **	.023	1.53
Parenting	-.132 **	.031	-.062 **	.022	1.56
Self-control	-.040 **	.005	-.035 **	.003	.83
Vandalism					
Parenting (direct)	-.130 **	.028	-.053 **	.017	2.41 *
Parenting	-.115 **	.027	-.037 **	.017	2.43 *
Self-control	-.032 **	.004	-.027 **	.002	1.12

Note: Coefficients control for age, gender, parents, sibling, and mother working.

* = significant at $p < .05$ ** = significant at $p < .01$

similar vein, the influence of self-control on delinquency does not vary significantly by race. In combination, these findings support the invariance claims of self-control theory.

When comparing the influence of parenting on delinquency by race, the unstandardized regression coefficients are notably larger for American Indians (more than double in most instances). However, z-scores show that American Indian/white differences in the influence of parenting are statistically significant ($p < .05$) for vandalism only, whether or not self-control is included in the model. This suggests that parenting is a better predictor of American Indian vandalism compared to whites. In combination, our invariance tests suggest that the role of self-control is essentially similar for American Indians and whites, but the role of American Indian parenting on delinquency is slightly different, independent of self-control³.

Discussion

Our analyses yield five primary findings. 1) American Indians report poor parenting, low self-control, and higher levels of delinquency (personal offending and vandalism) relative to white respondents, though the differences are not dramatic. 2) Parenting is not a robust predictor of self-control for either group. 3) Self-control

is a fairly robust predictor of delinquency for both groups. 4) Parenting is a significant predictor of property offending and vandalism (but not personal offending) for both groups, independent of self-control. 5) Self-control influences are invariant by race, but parenting influences differ somewhat by race. Though not central to our analysis, we also discuss the mediation effect of self-control, as well as age and gender in relation to self-control theory.

Gottfredson and Hirschi (1990) insist that poor parenting is the primary source of low self-control, and that a handful of other familial variables are secondary influences. Controlling for age and gender, we find that parenting significantly influences the self-control of white but not American Indian respondents. However, z-scores reveal that the difference by race is not statistically significant. While we interpret this finding as support for the invariance of parenting on self-control, the meager influence of parenting for both groups stands in contrast to theoretical expectations and most, but not all research on self-control as a dependent variable. Our findings side with others who question the influence of parenting on self-control (see Cochran et al., 1998; Wright and Beaver, 2005). All of our other familial variables fail to predict self-control.

Nevertheless, parenting significantly influences property offending and vandalism for both groups, and this influence is significant whether or not self-control is

included in the model. However, invariance tests show that parenting is a significantly stronger predictor of American Indian vandalism compared to whites. For our particular sample and measures, it appears that American Indian parenting disproportionately contributes to vandalism when compared to white parenting. This does not imply that American Indian parenting is inadequate compared to whites (mean differences in parenting were slight, albeit significant), just that parenting is a more robust predictor.

As for self-control as a predictor of delinquency, our tests effectively support the invariance thesis. Self-control significantly predicted the likelihood of personal offending, property offending, and vandalism for both American Indian and white youth. In each instance, the influence of self-control is of decent magnitude and z-scores show that the influence does not differ significantly by race.

In combination, our regression findings also suggest that the influence of parenting on delinquency is not mediated by self-control for either race; hence, parenting is a direct influence on delinquency, not indirect via self-control. With the exception of Hay (2001) and Unnever et al. (2003), this finding is also at odds with the majority of previous research on parenting and self-control. We are cautious with this interpretation, however, due to the wording of our items. Asking about the practices of parents when respondents were younger poses at least two problems. One, it is likely that respondents' parents are consistent over time and that those who were better supervised when younger are better supervised at the time of our study. This being the case, our parenting measures would influence opportunity (yet not the development of self-control as a trait). Two, our measures may be complicated by memory issues. Current parenting practices may influence the way our respondents recall previous parenting practices. For example, respondents with currently lax parents may believe their parents were always lax. The same is true for currently strict parents and the belief they were strict when the respondents were younger.

In addition to opportunity, we interpret our parenting-related findings with caution for other reasons. First, the lack of parental influence on self-control may reflect a weakness of our three-item parenting measure. Among those who found significant influence, Gibbs et al. (1998) used a 40-item monitoring/discipline measure. Hay (2001) employed four monitoring and four discipline measures, each asked separately for both mothers and fathers. Feldman and Weinberger (1994) addressed multiple dimensions that included attachment as well as consistency and severity of punishment measures. However, Unnever et al. (2003) and Turner et al. (2005)

used only four items, two for supervision and two for monitoring/discipline. Pratt et al. (2004) applied a two-item scale on lecturing and punishing. Polakowski (1994) also used only two items, one for supervision and one for consistency of punishment. In defense of our findings, Wright and Beaver (2005) also question the influence of parenting on crime, yet their parenting measures included a nine-item parental involvement scale, a nine-item parental withdrawal scale, a four-item parental affection scale, a three-item family rules scale, and a two-item physical punishment measure.

Another weakness of our parenting measure is that it does not capture the breadth and depth of potential cultural differences between American Indian and white parenting. Problematic as this may be, our measures are operationalized to address the issue of parenting as specified by Gottfredson and Hirschi (1990), and include a recognition measure in addition to monitoring and punishment. Among the aforementioned studies, only Cochran et al. (1998) included an explicit recognition measure, which was scaled with three other items: rule setting, monitoring, and punishment. Though Gibbs et al. (1998) and Hay (2001) argue that lacking a recognition measure is not overly problematic, Gottfredson and Hirschi (1990) state that this is the parenting item in most need of empirical research. Furthermore, both Cochran et al.'s (1998) and our findings question the influence of parenting on self-control.

Arguably the strongest support for our parenting measure is that it significantly influences delinquency (two of three forms), in the expected direction, independent of self-control, for both groups. Operational shortcomings aside, at a minimum our findings cast doubt on Gottfredson and Hirschi's claim that "differences in self-control probably far outweigh differences in supervision in accounting for racial or ethnic variations" (1990:153) in crime. Given the limited and unsettled nature of existing parental measures, we agree with Pratt et al. (2004), Turner et al. (2005), and Wright and Beaver (2005) that the trend toward more research on self-control as a dependent variable is needed, especially in light of the weight Gottfredson and Hirschi (1990) attach to parenting as the overriding determinant. We view our analyses as an exploratory step, and hope our findings spur future research on the parenting invariance issue related to both self-control and American Indian delinquency.

Though not a focus of our study, we address the age and gender findings due to limited research on the topics. The effect of self-control on the age/crime association is largely indeterminable. Younger respondents reported lower self-control with our sample, which is theoretically

consistent, but age is largely unrelated to delinquency. We attribute the lack of age influence on delinquency to the limited age distribution of our sample. As for gender, it has been argued that if self-control is the robust predictor its authors claim it to be, it should significantly reduce the gender/crime association (Tittle et al., 2003). Previous research on gender and self-control is mixed. Burton et al. (1998), LaGrange and Silverman (1999), and Tittle et al. (2003) found at least some support for self-control as a mediator of the gender/crime association. Gibbs et al. (1998) found that the gender influence on crime had both a direct as well as an indirect effect via self-control. Our findings reflect the latter. When self-control is added to the model, gender remains a significant predictor of all forms of delinquency for both American Indian and white respondents. Regardless, self-control is the strongest predictor in this model, which, minimally, is not at odds with the theory.

We would be remiss not to address the assumption of cultural difference on which our invariance tests are based. We rely on extant literature to support the notion that American Indians are culturally distinct from their white counterpart. Hence, we assume cultural difference (as other tests of invariance have done) without any measures of such. Future research would be well served to include measures of the assumed differences.

Other caveats include our sample and the dimensionality of self-control. School-based self-report surveys are known to disproportionately exclude adolescents prone to delinquency (Tracy, Wolfgang, and Figlio, 1990). Students with low self-control are also less likely to complete the IRB requirements or the survey (Piquero, MacIntosh, and Hickman, 2000). Previous research has also questioned the use of the Grasmick et al. (1993) self-control scale as a unidimensional construct (Marcus, 2004). Nevertheless, the Grasmick et al. (1993) scale is known for its face validity, is the most widely tested measure of self-control, and has been supported as a significant predictor of a wide assortment of deviant behaviors. Because we are concerned with extending current tests on the invariance of self-control theory (which also applied the Grasmick et al. scale) to include the role of parenting, this scale is a logical choice.

We must also mention one particular aspect shared by virtually all of our American Indian respondents: only five reside on traditional native lands. This could be seen as a hindrance to our research, but we would argue against such a conclusion for several reasons. As cited earlier, American Indians are a vastly heterogeneous group and it would be erroneous to consider any sample as representative of the population as a whole. Secondly, two-thirds of

the U.S. American Indian population does not reside on a reservation (Beauvais, 1998), and these are the American Indians largely ignored in self-report delinquency research (Lester, 1999). Furthermore, research has shown that non-reservation American Indians maintain distinct native practices that distinguish them from the Anglo world (Michel, 2002; Poupart, 2002). Finally, non-reservation American Indians have recently been cited as more at risk than their reservation counterpart (Grossman et al., 1994; Lewin, 2004). In light of these issues, one could argue our sample is preferred to a reservation sample. If nothing else, the use of non-reservation American Indians is a reasonable advancement of existing tests of significance on the invariance of self-control, and addresses the etiology of a relatively troubled group.

Our use of regression analysis for testing the mediating effect of self-control is potentially problematic. According to Baron and Kenny (1986) using multiple regression to estimate mediation requires two assumptions—one, that there be no measurement error in the mediator, and two, that the dependent variable not cause the mediator. A common method for dealing with these issues is the use of structural equation modeling (SEM). However, the mediation effect of self-control is a secondary concern in our analyses. Our primary goal is to test the invariance of parenting and self-control in relation to American Indian delinquency. Research focused on the mediation effect of self-control would benefit from the use of SEM.

Our analyses explore the invariance of the “full model” of self-control and we encourage more stringent tests, especially those which include invariance tests on non-parental predictors as recently explored by Unnever et al. (2003), Pratt et al. (2004), Turner et al. (2005) and Wright and Beaver (2005). Past research centered on self-control as an independent variable and now the focus has shifted to self-control as a dependent variable. We believe it is best to simultaneously test self-control as an independent and dependent variable. Such analyses should estimate the mediating effect of self-control by including the direct and indirect influences of parenting and other predictors (whatever they may be). Most of all, we encourage cross-sample invariance tests on each influence.

Finally, our tests attend to the much needed empirical research on the etiology of American Indian delinquency, on or off reservation. American Indians have been documented as “the most severely disadvantaged of any population within the U.S.” (Yates, 1987:1135), yet the source of their illegal behavior remains relatively unstudied. Extant literature appears divided over whether or not the etiology of American Indian deviance is somehow dis-

tinct from standard criminological theories, and whether American Indian parenting is a culturally distinct source. For these reasons alone we consider this test of parenting and self-control an important step in understanding American Indian delinquency. For now, we accept self-control and parenting as predictors of American Indian delinquency (in a manner similar to white delinquency) and encourage further research comparing other theoretical perspectives, including those that more intricately address the role of culture.

Endnotes

1. Unnever et al. (2003), Pratt et al. (2004), Turner et al. (2005) and Wright and Beaver (2005) also found significant, non-parenting influences upon self-control.

2. The problem of American Indian cultural orientation includes numerous theoretical interpretations. Details can be found in LaFromboise, Coleman, and Gerton, 1993; and Morris, Crowley, and Morris, 2002.

3. Regression models excluding number of parents, siblings, and mother working were run but not reported. Excluding these variables did not appreciably alter the regression coefficients reported in Table 3. However, the parenting z-scores related to property offending (direct/indirect; 1.97/1.98) are significant ($p < .05$) when these variables are excluded.

References

Andrews, Cheryl. 1999. *Tribal Youth Program*. Fact Sheet #108. Office of Juvenile Justice and Delinquency Prevention: U.S. Department of Justice.

Armstrong, Troy, Michael Guilfoyle and Ada Melton. 1996. "Native American Delinquency: An Overview of Prevalence, Causes, and Correlates." Pp. 75-95 in *Native Americans, Crime, and Justice*, edited by M. O. Nielsen and R. A. Silverman. Boulder, CO: Westview Press.

Baron, Reuben M. and David A. Kenny. 1986. "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations." *Journal of Personality and Social Psychology* 51:1173-1182.

Beauvais, Fred. 1998. "American Indians and Alcohol." *Alcohol Health and Research World* 22:253-260.

Beauvais, Fred and Susan LaBoueff. 1985. "Drug and Alcohol Abuse Intervention in American Indian Communities." *International Journal of Addictions* 20:139-171.

Burton, Velmer S. Jr., Francis T. Cullen, T. David Evans, Leanne Fiftal and R. Gregory Dunaway. 1998. "Gender, Self-Control, and Crime." *The Journal of Research in Crime and Delinquency* 35:123-147.

Cochran, John K., Peter B. Wood, Christine S. Sellers, Wendy Wilkerson and Mitchell B. Chamlin. 1998. "Academic Dishonesty and Low Self-Control: An Empirical Test of a General Theory of Crime." *Deviant Behavior* 19:227-255.

Cochran, John K., Jennifer Wareham, Peter B. Wood and Bruce J. Arneklev. 2002. "Is the School Attachment/Commitment-Delinquency Relationship Spurious?: An Exploratory Test of Arousal Theory." *Journal of Crime and Justice* 25:49-70.

DeFaveri, Ivan. 1984. "Contemporary Ecology and Traditional Native Thought." *Canadian Journal of Native Education* 12:15-21.

Donnermeyer, Joseph F., Ruth W. Edwards, Ernest L. Chavez and Fred Beauvais. 1996. "Involvement of American Indian Youth in Gangs." *Free Inquiry in Creative Sociology* 24:167-174.

Edwards Daniel E. and Margie E. Edwards. 1988. "Alcoholism Prevention/Treatment and Native American Youth: A Community Approach." *Journal of Drug Issues* 18:103-115.

Feldman, S. Shirley and Daniel A. Weinberger. 1994. "Self-Restraint as a Mediator of Family Influences on Boys' Delinquent Behavior: A Longitudinal Study." *Child Development* 65:195-211.

Forslund, Morris S. and Virginia A. Cranston. 1975. "A Self-Report Comparison of Indian and Anglo Delinquency in Wyoming." *Criminology* 13:193-198.

Gibbs, John J., Dennis Giever and Jamie S. Martin. 1998. "Parental Management and Self-Control: An Empirical Test of Gottfredson and Hirschi's General Theory." *Journal of Research in Crime and Delinquency* 35:40-70.

Gilbert, W. Sakiestewa. 2000. "Bridging the Gap Between High School and College." *Journal of American Indian Education* 39:36-58.

- Gottfredson, Michael and Travis Hirschi. 1990. *A General Theory of Crime*. Stanford, CA: Stanford University Press.
- Grasmick, Harold G., Charles R. Tittle, Robert J. Bursik, Jr. and Bruce J. Arneklev. 1993. "Testing the Core Empirical Implications of Gottfredson and Hirschi's General Theory of Crime." *Journal of Research in Crime and Delinquency* 30:5-29.
- Greenfeld, Lawrence A., and Steven K. Smith. 1999. *American Indians and Crime*. Washington D.C.: U.S. Department of Justice, Bureau of Justice Statistics, February.
- Grossman, David C., James W. Krieger, Jonathan R. Sugarman and Ralph A. Forquera. 1994. "Health Status of Urban American Indians and Alaska Natives." *Journal of the American Medical Association* 271:845-850.
- Hay, Carter. 2001. "Parenting, Self-Control, and Delinquency." *Criminology* 39:707-736.
- Herring, Roger D. 1994. "Substance Use Among Native American Indian Youth: A Selected Review of Causality." *Journal of Counseling and Development*. 72:578-592.
- Hirschi, Travis and Michael R. Gottfredson. 1995. "Control Theory and the Life-Course Perspective." *Studies on Crime and Crime Prevention* 4:131-142.
- Hwang, Sunghyun and Ronald L. Akers. 2003. "Substance Use by Korean Adolescents: A Cross-Cultural Test of Social Learning, Social Bonding, and Self-Control Theories." Pp. 39-63 in *Social Learning and the Explanation of Crime: A Guide for the New Century, Advances in Criminological Theory*, Vol. 11, edited by R. L. Akers and G. F. Jensen. New Brunswick: Transaction.
- Jensen, Gary F., Joseph H. Stauss and V. William Harris. 1977. "Crime, Delinquency, and the American Indian." *Human Organization* 36:252-257.
- Judd, Charles M. and David A. Kenny. 1981. "Process Analysis: Estimating Mediation in Evaluation Research." *Evaluation Research* 5:602-619.
- Krisberg, Barry, Ira Schwarz, Gideon Fishman, Zvi Eisikovits, Edna Guttman and Karen Joe. 1987. "The Incarceration of Minority Youth." *Crime and Delinquency* 33:173-205.
- LaFromboise, Teresa, Hardin L. K. Coleman and Jennifer Gerton. 1993. "Psychological Impact of Biculturalism: Evidence and Theory." *Psychological Bulletin* 114:395-412.
- LaGrange, Teresa C. and Robert A. Silverman. 1999. "Low Self-Control and Opportunity: Testing the General Theory of Crime as an Explanation for Gender Differences in Delinquency." *Criminology* 37:41-72.
- Ledlow, Susan. 1992. "Is Cultural Discontinuity an Adequate Explanation for Dropping Out?" *Journal of American Indian Education* 31:21-36.
- Lester, David. 1999. *Crime and the Native American*. Springfield, IL: Charles C. Thomas.
- Lewin, Sam. 2004. "Urban Indians: More at Risk than Anyone." *Native American Times* 9:7.
- Lorch, Barbara and Cynthia Yueh Au Chien. 1988. "An Exploration of Race and Its Relationship to Youth Substance Use and Other Delinquent Activities." *Sociological Viewpoints* 4:86-100.
- Marcus, Bernd. 2003. "An Empirical Examination of the Construct Validity of Two Alternative Self-Control Measures." *Educational and Psychological Measurement* 63:674-706.
- Marcus, Bernd. 2004. "Self-Control in the General Theory of Crime: Theoretical Implications of a Measurement Problem." *Theoretical Criminology* 8:33-55.
- Michel, Karen Lincoln. 2002. "Indian in the City: Cultural Survival After Relocation." *Native Americas* 19:46-51.
- Morris, Christopher H., Susan L. Crowley and Carolyn Thomas Morris. 2002. "A Measure of Traditionalism for American Indian Children and Families: Psychometric Properties and Factor Structure." *The Journal of the National Center* 10:33-55.
- Nakhaie, M. Reza, Robert A. Silverman and Teresa C. LaGrange. 2000. "Self-Control and Social Control: An Examination of Gender, Ethnicity, Class and Delinquency." *Canadian Journal of Sociology* 25:35-39.
- Nel, Hohanna. 1994. "Preventing School Failure: The Native American Child." *The Clearing House* 67:169-174.

- Paternoster, Raymond, Robert Brame, Paul Mazerolle and Alex R. Piquero. 1998. "Using the Correct Statistical Test for the Equality of Regression Coefficients." *Criminology* 36:859-866.
- Piquero, Alex R., Randall MacIntosh and Matthew Hickman. 2000. "Does Self-Control Affect Survey Response? Applying Exploratory, Confirmatory, and Item Response Theory Analysis to Grasmick et al.'s Self-Control Scale." *Criminology* 38:897-929.
- Polakowski, Michael. 1994. "Linking Self- and Social Control with Deviance: Illuminating the Structure Underlying a General Theory of Crime and Its Relation to Deviant Activity." *Journal of Quantitative Criminology* 10:41-78.
- Poupart, Lisa M. 2002. "Crime and Justice in American Indian Communities." *Social Justice* 29:144-160.
- Pratt, Travis C. and Francis T. Cullen. 2000. "The Empirical Status of Gottfredson and Hirschi's General Theory of Crime: A Meta-Analysis." *Criminology* 38:931-964.
- Pratt, Travis C., Michael G. Turner and Alex R. Piquero. 2004. "Parental Socialization and Community Context: A Longitudinal Analysis of the Structural Sources of Low Self-Control." *Journal of Research in Crime and Delinquency* 41:219-243.
- Reasons, Charles. 1972. "Crime and the American Indian." Pp. 319-326 in *Native Americans Today*, edited by H. M. Bahr, B. A. Chadwick, and R. C. Day. New York: Harper and Row.
- Robbins, Susan P. and Rudolph Alexander Jr. 1985. "Indian Delinquency on Urban and Rural Reservations." *Free Inquiry in Creative Sociology* 13:179-182.
- Romero, Estrella, J. Antonio Gomez-Fraguela, M. Angeles Luengo and Jorge Sobral. 2003. "The Self-Control Construct in the General Theory of Crime: An Investigation in Terms of Personality Psychology." *Psychology, Crime and Law* 9:61-86.
- Schinke, Steve, M Y. Bebel, Mario S. Orlandi and Gilbert J. Botvin. 1988a. "Prevention Strategies for Vulnerable Publics: School Social Work Practices to Prevent Substance Abuse." *Journal of Drug Issues* 11:17-43.
- Schinke, Steve, Gilbert J. Botvin, Joseph E. Trimble, Mario A. Orlandi, Lewayne D. Gilchrest and Von S. Locklear. 1988b. "Preventing Substance Abuse Among American Indian Adolescents: A Bicultural Competence Skills Approach." *Journal of Counseling Psychology* 35:87-90.
- Silverman, Robert A. 1996. "Patterns of Native American Crime." Pp. 58-74 in *Native Americans, Crime, and Justice*, edited by M. O. Nielsen and R. A. Silverman. Boulder, CO: Westview Press.
- Stewart, Omer. 1964. "Questions Regarding American Indian Criminality." *Human Organization* 23:61-64.
- Swisher, Karen G. 1990. "Cooperative Learning and the Education of American Indian/Alaskan Native Students: A Review of the Literature and Suggestions for Implementation." *Journal of American Indian Education* 29:36-43.
- Tabachnik, Barbara G. and Linda S. Fidell. 1996. *Using Multivariate Statistics*. New York: Harper Collins.
- Tittle, Charles R., David A. Ward and Harold G. Grasmick. 2003. "Gender, Age, and Crime/Deviance: A Challenge to Self-Control Theory." *Journal of Research in Crime and Delinquency* 40:426-453.
- Tittle, Charles R., David A. Ward and Harold G. Grasmick. 2004. "Self-Control and Crime/Deviance: Cognitive vs. Behavioral Measures." *Journal of Quantitative Criminology* 19:333-365.
- Tracy, Paul E., Marvin E. Wolfgang and Robert M. Figlio. 1990. *Delinquency Careers in Two Birth Cohorts*. New York: Plenum Press.
- Turner, Michael G., Alex R. Piquero and Travis C. Pratt. 2005. "The School Context as a Source of Self-Control." *Journal of Criminal Justice* 33:327-339.
- Unnever, James D., Francis T. Cullen and Travis C. Pratt. 2003. "Parental Management, ADHD, and Delinquent Involvement: Reassessing Gottfredson and Hirschi's General Theory." *Justice Quarterly* 20:471-500.
- Vazsonyi, Alexander T., Janice E. Clifford Wittekind, Lara M. Belliston and Timothy D. Van Loh. 2004. "Extending the General Theory of Crime to 'The East': Low Self-Control in Japanese Late Adolescents." *Journal of Quantitative Criminology* 20:189-216.

- Vazsonyi, Alexander T. and Jennifer M. Crosswhite. 2004. "A Test of Gottfredson and Hirschi's General Theory of Crime in African American Adolescents." *Journal of Research in Crime and Delinquency* 41:407-432.
- Vazsonyi, Alexander T., Lloyd E. Pickering, Marianne Junger and Dick Hessing. 2001. "An Empirical Test of a General Theory of Crime: A Four-Nation Comparative Study of Self-Control and the Prediction of Deviance." *Journal of Research in Crime and Delinquency* 38:91-131.
- Wakeling, Stewart, Miriam Jorgensen, Susan Michaelson and Manley Begay. 2001. *Policing on American Indian Reservations*. National Institute of Justice.
- Weibel-Orlando, Joan. 1984. "Substance Abuse Among American Indian Youth: A Continuing Crisis." *Journal of Drug Issues* 14:313-335.
- Wright, John Paul and Kevin M. Beaver. 2005. "Do Parents Matter in Creating Self-Control in their Children? A Genetically Informed Test of Gottfredson and Hirschi's Theory of Low Self-Control." *Criminology* 43:1169-1202.
- Yates, Alayne. 1987. "Current Status and Future Directions of Research on the American Indian Child." *American Journal of Psychiatry* 144:1135-1142.
- Young, Thomas J. 1988. "Substance Use and Abuse Among Native Americans." *Clinical Psychology Review* 8:125-138.

About the authors:

Gregory D. Morris is an Assistant Professor of Criminal Justice at California State University Stanislaus. His research interests include developmental theories of crime, culture and crime, offense versatility, and environmental criminology. He has recently published in *Crime and Delinquency* and *Sociological Inquiry*. Morris received the Ph.D. from Mississippi State University in 2003.

Peter B. Wood is a Professor of Sociology, the Director of the Program in Criminal Justice and Corrections, and a Research Fellow in the Social Science Research Center at Mississippi State University. His research includes the study of factors that motivate and maintain habitual offending, and issues associated with correctional policy and practice. His work has appeared in *Criminology*, *Justice Quarterly*, *Journal of Research in Crime and Delinquency*, *Punishment and Society*, and *Deviant Behavior*. Wood received the Ph.D. from Vanderbilt University in 1988.

R. Gregory Dunaway is a Professor of Sociology, and is a Research Fellow at the Social Science Research Center at Mississippi State University. His research interests include inequality and crime, rural crime, criminal justice ideology, and criminological theory. He has recently published in *Justice Quarterly*, *Criminology*, *Deviant Behavior*, and *Sociological Spectrum*. Dunaway received the Ph.D. from University of Cincinnati in 1990.

Contact information:

Gregory D. Morris (corresponding author): Department of Criminal Justice, California State University, Stanislaus, 801 West Monte Vista Avenue, Turlock, CA 95382. E-mail: gmorris@csustan.edu

Peter B. Wood: Department of Sociology, Anthropology, and Social Work, Mississippi State University, P.O. Box C, Mississippi State, MS 39762. E-mail: wood@soc.msstate.edu

R. Gregory Dunaway: Department of Sociology, Anthropology, and Social Work, Mississippi State University, P.O. Box C, Mississippi State, MS 39762. E-mail: dunaway@soc.msstate.edu

Appendix A. Descriptive Statistics

Descriptive statistics reflect raw mean scores and standard deviations of indicators by race.

	American Indian		White	
	Mean	SD	Mean	SD
Self-Control				
Risk taking				
I like to test myself every now and then by doing something a little risky.	2.93	.94	2.96	.93
Sometimes I will take a risk just for the fun of it.	2.80	1.03	2.78	1.05
I sometimes find it exciting to do things for which I might get in trouble.	2.47	1.09	2.42	1.10
Excitement and adventure are more important to me than peace and security.	2.29	1.02	2.14	1.00
Simplicity				
I frequently try to avoid projects that I know will be difficult.	2.55	.97	2.51	.99
When things get complicated, I tend to quit or withdraw.	2.08	.98	1.99	.91
The things in life that are easiest to do bring me the most pleasure.	2.41	.99	2.21	.96
I dislike really hard tasks that stretch my abilities to the limit.	2.19	1.00	2.09	.93
Anger				
I lose my temper pretty easily.	2.49	1.11	2.37	1.11
Often, when I'm angry at people I feel more like hurting them than talking to them about why I am angry.	2.41	1.11	2.19	1.09
When I'm really angry, other people better stay away from me.	2.56	1.12	2.36	1.07
When I have a serious disagreement, it's usually hard for me to talk calmly about it without getting upset.	2.84	1.10	2.75	1.06
Self-centeredness				
I try to look out for myself first, even if it means making things difficult for other people.	2.38	1.00	2.29	.94
I'm not very sympathetic to other people when they are having problems.	1.65	.86	1.51	.81
If things I do upset people, it's their problem not mine.	1.87	.97	1.68	.85
I will try to get the things I want even when I know it's causing problems for other people.	1.90	.93	1.79	.84
Physicality				
If I had a choice, I would almost always rather do something physical than something mental.	2.78	.96	2.68	1.03
I almost always feel better when I am on the move than when I am sitting.	3.03	.97	2.95	.98
I like to get out and do things more than I like to read or contemplate ideas.	3.19	.97	3.23	.91
I seem to have more energy and a greater need for activity than most other people my age.	2.76	.89	2.65	.91
Immediate gratification				
I don't devote much thought and effort to preparing for the future.	1.98	.98	1.76	.90
I often do whatever brings me pleasure here and now, even at the cost of some distant goal.	2.51	1.01	2.44	1.03
I'm more concerned with what happens to me in the short run than in the long run.	2.30	1.06	2.04	.99
I much prefer doing things that pay off right away rather than in the future.	2.52	.99	2.41	.98
Parental supervision				
<i>Monitor</i> : Generally, when I was younger my parents/guardians kept a pretty close eye on me.	3.31	.88	3.42	.77
<i>Recognize</i> : Generally, when I was younger my parents/guardians recognized when I had done something wrong.	3.38	.82	3.52	.68
<i>Punish</i> : Generally, when I was younger my parents/guardians punished me when they knew I had done something wrong.	3.44	.81	3.52	.74
Mother working				
Did your mother have a paid job when you were growing up?	3.12	1.20	2.95	1.28
Interpersonal offending				
Hit an instructor or supervisor.	.25	3.23	.09	.83
Gotten into a serious fight at work or school.	.61	1.56	.41	1.23
Taken part in a fight where a group of your friends were against another group.	.88	2.59	.45	1.34
Hurt someone badly enough to need medical attention.	.49	1.97	.46	3.17
Used a gun or knife or some other weapon to get something from someone else.	.21	.77	.12	.75
Property offending				
Stolen something from someone worth less than \$50.	1.10	4.51	1.00	4.40
Stolen something from someone worth more than \$50.	.42	2.71	.39	3.53
Shoplifted something from a store without paying for it.	1.45	5.07	1.08	4.32
Taken a car without permission for a joyride.	1.32	5.75	.53	1.70
Stolen something from a car.	.67	3.62	.40	2.09
Vandalism				
Damaged a car on purpose.	.82	4.36	.53	2.41
Gone into or broken into a house or building when you weren't supposed to.	.56	2.95	.34	1.32
Set fire to someone else's stuff/property.	.36	3.82	.13	1.12
Damaged school property on purpose.	.89	4.09	.67	4.26
Damaged property at work on purpose.	.43	4.24	.19	2.67