

## **THEORETICAL PREDICTORS OF DELINQUENCY IN AND OUT OF SCHOOL AMONG A SAMPLE OF RURAL PUBLIC SCHOOL YOUTH\***

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### ABSTRACT

This paper compares predictors of in-school and out-of-school delinquency and is based on data collected from 2,011 subjects at two elementary, one middle, and one high school in a rural school district. Predictors were derived from a variety of theoretical perspectives including social organization and social control; interactionist theory; differential association and social learning; strain, culture conflict, and critical theory. In addition, several demographic variables were included in the analysis. Regression results revealed that negative peer influence, victimization experience, attachment to school, gender, general strain, alienation, and the student's self-reported response to a weapon at school were significant predictors of delinquency both in and out of school. Moreover, the relative contribution of each predictor in explaining delinquency was similar in the in-school and outside-school models. The paper concludes with a discussion of the policy implications of these findings for the schools studied.

Numerous studies have examined predictors of delinquent behavior. These studies serve as partial tests of various theoretical explanations of delinquency such as routine activities theory (Osgood et al. 1996), deterrence theory (Dejong 1997; Paternoster 1987), biological explanations (Conley and Bennett 2000; Ellis 1982), social psychological theories (Bandura and Walters 1959; Bushman and Anderson 2001; Johnson et al. 2002), social structural theories (Agnew 1992; Brooks-Gunn and Duncan 1997; Morenoff, Sampson, and Raudenbush 2001; Sampson and Groves 1989; Wallace 1991), learning theories (Akers 1998; Elliott, Huizinga, and Ageton 1985; Matsueda and Heimer 1987), control theories (Gottfredson and Hirschi 1990;

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Hirschi 1969), and conflict theories (Hagan, Gillis, and Simpson 1987; Simpson and Ellis 1994). More recently, efforts have been undertaken to develop integrated (Elliott, Ageton, and Canter 1979; Matsueda 1992; Thornberry 1987) or developmental approaches (Catalano and Hawkins 1996; Loeber 1996; Moffit 1993; Sampson and Laub 1993; Thornberry 1997) to understanding delinquent behavior and to more clearly identify risk factors associated with delinquency (Hawkins et al. 1998; Lipsey and Derzon 1998; Loeber and Farrington 2001).

In this paper, we explore theoretical predictors of general delinquency committed both within the school setting and outside school in a rural setting. We begin by providing a brief review of the literature on in-school delinquency, then we describe the predictors used in the research and how well they predict in-school delinquency. Additionally, we examine predictors of delinquency committed outside school and use this knowledge to model theoretical predictors of in-school and out-of-school delinquency. Finally, we note potential weaknesses of the research, make recommendations for additional research in this area, and highlight several policy-relevant findings for the schools studied.

#### IN-SCHOOL DELINQUENCY: A BRIEF REVIEW OF THE LITERATURE

Although several studies have addressed delinquent behavior in a variety of social contexts and have examined how various school factors are related to delinquency, few studies have looked at delinquency committed in school settings. Nevertheless, the studies that have examined delinquency within schools have provided valuable insights on how schools contribute to the problems of school disruption and delinquency. These insights are significant because there is considerable evidence that school disruption and delinquency (including violent delinquent behaviors) are significant problems in many schools. This conclusion is buttressed by findings from the recent *Indicators of School Crime and Safety: 2006*. According to this study, 81% of all public schools experienced one or more violent incidents during the 2003-2004 school year (Dinkes et al. 2006). Moreover, in that same year, 8% of secondary public school teachers were threatened with injury by a student at school and 4% were physically attacked by a student (Dinkes et al. 2006). Coupled with data indicating that even higher levels of less serious delinquency, disruption, and victimization occur each year (Gottfredson et al. 2000), concluding that school disruption, delinquency, and victimization represent a substantial social problem is reasonable.

Disruption, delinquency, and victimization at school have deleterious effects on students and teachers and seriously compromise the quality of the learning and

working environment that they experience. Concerns about school victimization can impair students' ability to concentrate, make them less eager to learn, and can lower academic performance (Lawrence 1998; Lowry et al. 1995; McDermott 1980).

Nevertheless, delinquency, crime, and victimization are not limited to school settings. In fact, school age youths are more likely to suffer fatal violence away from school and most nonfatal violent crime victimizations (i.e., sexual assaults, robberies, and aggravated assaults) occur outside school (Dinkes et al. 2006; Snyder and Sickmund 2006). Additionally, other research demonstrates that the peak time for violent juvenile victimization on school days is from 3 to 7 p.m. (Snyder and Sickmund 2006). As such, any discussion of the problem of delinquency in school must also consider delinquency out of school as well.

#### *Predictors of Delinquency In and Out of School: Theoretical Background*

Predictors of delinquency in and outside school identified in the literature represent a range of theoretical perspectives and mirror predictors designed to explain general delinquency. Conceptually, these predictors may be seen as representing key elements of social (school) organization, control, environmental design, social interactionist, differential association, social learning, strain, culture conflict, and critical theories.

*Social organization and social control theories.* Predictors of delinquency that focus on school communal organization, bonding, and attachment to school may be seen as derivatives of social disorganization and control theories as reflected in the works of Sampson (Morenoff et al. 2001; Sampson and Raudenbush 2001; Sampson, Raudenbush, and Earls 1997) and Hirschi (1969). As Payne, Gottfredson, and Gottfredson (2003:751) note, the "idea of communal school organization is similar to Sampson's concept of neighborhood collective efficacy" which is a product of cohesion among neighborhood residents and the desire of those in the neighborhood to exert control over public space (Sampson and Raudenbush 2001). According to Sampson et al., neighborhoods characterized by collective efficacy will exert more informal controls on community members and, in turn, will have lower levels of crime and delinquency (Morenoff et al. 2001; Sampson and Raudenbush 2001; Sampson et al. 1997).

As Payne et al. (2003) note, school and community organization may discourage delinquency by strengthening students' bond to the school. According to Hirschi's (1969) control theory, youths are less likely to engage in delinquency when they are attached and committed to conventional social institutions, are involved in conventional activities, and hold conventional beliefs. Thus, attachment to school,

commitment to educational activities and success, participation in school activities, and belief in the legitimacy of school rules will decrease the probability that students will engage in delinquent behaviors (Welsh, Green, and Jenkins 1999). In fact, Gottfredson and Gottfredson (1985) found that schools with high levels of student attachment and belief in conventional rules experienced lower levels of student and teacher victimization.

*Differential association and social learning theories.* Association with delinquent peers has been a strong predictor of delinquent behavior (Farrington and Loeber 2000; Gottfredson 2001). Moreover, participation in youth gangs is related to increased levels of offending (Esbensen and Huizinga 1993; Thornberry et al. 1993; Thornberry 1998). According to differential and social learning theories, delinquency is more likely when youths are exposed to attitudes and beliefs that support illegal behavior, when peers model delinquent behavior, and when delinquent behavior is reinforced, conditions that are even more likely to exist when youths associate with or belong to gangs. Nevertheless, existing data indicate that only a small percentage of school behavior problems are gang related, however, those that do occur are often serious (Spergel 1990). Indeed, research by Ralph et al. (1995) found that students who attend schools where there are gangs report higher levels of victimization and fear and were more likely to carry weapons than students in schools without gangs.

*Strain, culture conflict, and critical theories.* Although many writers view schools as social institutions intended to produce social equality, others maintain that schools operate to reproduce and legitimate the class structure by replicating a hierarchal division of labor within the school (Bowles 1971; Bowles and Gintis 1976). As Cohen (1955:113) notes, working class boys are at a particular disadvantage in achieving success in school because such institutions are designed to “reward middle-class ambition and conformity to middle-class expectations” [emphasis in the original]. As a result, students who are unsuccessful in school, either socially or academically, can experience strain that increases the likelihood of delinquent behavior. Strain may result in a variety of adaptations by youths within the school setting including involvement in delinquent behavior (c. f. Merton 1938; Cohen 1955), may encourage youths to associate with youths in similar circumstances, may encourage the development of delinquent subcultures (Cohen 1955), or act as a predisposing condition that increases the likelihood of delinquency for some individuals under certain circumstances (Agnew 1992).

In the early 1990s, Agnew (1992) began a series of articles where he outlined the basis for what has become known as general strain theory. In expanding strain

theory, Agnew argues that crime and delinquency result from negative affective states that result from: (1) relationships where an individual prohibits another from achieving a valued goal; (2) relationships where something a person has that is valued is taken away; and (3) relationships where something is imposed on a person that is unwanted (Agnew 1992). Agnew argues that each type of relationship has the potential to elicit several negative emotions (such as fear, depression, and anger) and these negative emotions serve as preconditions for delinquency. Most of his recent works have supported this thesis (Agnew 2001; Agnew and White 1992; Agnew et al. 2002).

The literature identifies several theoretical constructs linked to delinquency in school settings. However, previous studies have typically employed large national samples or samples selected from urban middle or high schools. Although this research has produced important insights into school delinquency, it may not accurately identify factors related to delinquency inside and outside schools in rural areas, or among younger students. Nor do these studies compare predictors of school delinquency with predictors of delinquency in other settings. Although we may expect considerable commonality in predictors across school and social institutional contexts, given the saliency of school as a social institution and the prominence it plays in delinquency theory, there may be some characteristics of schools that increase the probability of in-school delinquency. As such, expanding the research regarding known theoretical predictors of delinquency in at least two ways is important. First, efforts should be undertaken to examine theoretical predictors of delinquency among rural youth. Secondly, while numerous studies focus on theoretical predictors of delinquency overall, and a smaller number focus on theoretical predictors of delinquency in school, we were unable to uncover any studies that examined theoretical predictors of delinquency *both* in school and outside school in a rural setting. In this study, we attempt to add to the literature in both areas.

In the following section we describe theoretical constructs representing various theoretical perspectives on in-school delinquency. These constructs are derived from communal school organization, social bonding and control theories; from interactionist theories; from differential association and social learning theories; and from strain, culture conflict, and critical theories. Although most of the measures used have been reasonably robust predictors of both delinquency at school and away from school, we also include some predictors that have not been strong predictors of delinquent behavior in school settings because of their theoretical significance (e.g., alienation, Gottfredson 2001).

## METHODS AND PROCEDURES

This study emanates from a larger study designed to assess students' perceptions of school safety in four public schools. The following describes the sites, subjects, testing procedures, and data analyses used in this study.

### *Sites*

The data for this study were collected in a predominately rural county (population approximately 73,000) in the Appalachian region of the U.S. The school district in this county consists of nine elementary, three middle, and two high schools that serve approximately 8,500 students. In addition, the school district operates several other education programs including an alternative school. Of these schools, two elementary, one middle school, and one high school were used as research sites because they were felt to serve the most diverse population of students in the county with respect to their racial, academic, geographic, and behavioral characteristics. Moreover, students at each school lived in the same attendance area, thus, the elementary school serves as a feeder school to the middle school; similarly, the middle school serves as a feeder for the high school.

The two elementary schools contained kindergarten through the fifth grade. However, in these two schools only students in grades 3 through 5 were involved in the study (N=238 and N=186, respectively). At the middle school, which consisted of sixth, seventh and eighth grades, all grade levels were included (N=563). The largest subsample (N=977) came from the high school that housed the ninth through twelfth grades. The smallest subsample (N=47) came from the alternative school that provided services to youths in grades 6 through 12.

### *Subjects*

A total of 2,011 students served as subjects for this study. The subjects were approximately evenly split in terms of gender with 48.5% being male and 51.5% being female. This proportional breakdown of gender was consistent across all of the schools except the alternative school that was predominantly male (81.8%). The sample was predominantly White (83.2%), with only 16.8% of the sample indicating a Non-White race/ethnicity. Students were also evenly distributed across grade levels; among those who indicated their grade, 8.3% were third graders, 6.2% were fourth graders, 7.0% were fifth graders, 10.7% were sixth graders, 8.6% were seventh graders, 9.8% were eighth graders, 15.1% were ninth graders, 13.6% were tenth graders, 11.7% were eleventh graders, and 9.0% were twelfth graders.

*Testing Procedure*

The survey instruments were developed by university researchers at the request of the superintendent and resulted from a series of meetings with school administrators. After the survey instruments were finalized, packets containing instructions for administering the surveys and the survey instruments were delivered to the schools at the end of April 2000. The instruments were administered during the first two weeks in May to each student in attendance (except for students in special education classes). Survey administration was conducted by teachers who had received instructions on survey administration.

At the elementary school level, teachers read surveys to students. At the middle school, the alternative school, and the high school, surveys were self-administered after the teacher read brief instructions regarding the purpose and importance of the survey and reviewed basic survey procedures. Survey administration took approximately 30 to 45 minutes and no major problems with the administration were reported.

Subjects participated voluntarily. Before the survey, letters were mailed to students' homes that explained the purpose of the survey and indicated that students would be omitted from the research at the request of the parent or guardian. Also, before survey administration, students were reminded that their participation was voluntary, their responses would be anonymous, and they could cease participation at any time. Once subjects completed the survey, they were instructed to place the forms in and seal the envelope that accompanied the survey instrument. Overall, 78% of the students in grades 3 through 12 enrolled in the five schools participated in the survey. This includes 83% of the elementary school students enrolled, 92% of the middle school students, 70% of the high school students, and 73% of the alternative school students.

*Data Analysis*

Nineteen scales and sub-scales were initially developed based on researcher logic, intent, and face validity. Then item analysis, factor analysis, and scale inter-correlations were performed to assess the measurement validity and reliability of all scales and sub-scales. The data revealed that all of the measures used in this study exhibited strong psychometric properties (i.e., internal consistency reliability, and construct validity).<sup>1</sup> Next, descriptive analyses were generated for all subjects

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<sup>1</sup>Results of the psychometric analyses performed are reported in detail in Soderstrom and Elrod (2006).

on the final versions of the scales and sub-scales. These descriptive analyses included calculating means and standard deviations, in addition to bivariate correlations (not presented) between all scales and sub-scales.<sup>2</sup>

Based on the strength of statistically significant bivariate associations between scales/sub-scales and the two scales serving as dependent variables in this study (i.e., self-reported delinquency both inside and outside school), nine of the scales were selected to serve as potential predictors in stepwise linear regression models. Descriptive information for these measures are included in Table 1 and the wording of the items used to comprise the scales are included in the Appendix. As all variables included in the regression models had at least 90% response rates, listwise deletion was used to address the question of missing data.

## RESULTS

What follows are the results for the descriptive and regression analyses for variables determined to be statistically significant and included in the final stepwise regression models presented below.<sup>3</sup>

### *Descriptive Statistics for Scales*

Both the Delinquency at School and the Delinquency Outside School scales are 10-item measures that ask subjects to indicate the number of times (coded (0) none, (1) one, (2) two, (3) three, and (4) four or more times) they have committed various delinquent acts while at school and while away from school. Students were asked how many times in the last year they engaged in the following activities: taken something from someone using force, weapons or threats; threatened someone verbally; threatened someone with a weapon; beaten someone up; taken something belonging to another person when they were not around; touched or grabbed someone in a private place; picked on or bullied someone; hurt someone so bad that they needed bandages or a doctor; been in a fight where a group of your friends were against another group; and damaged someone else's property. Subjects generally reported low levels of delinquency (see Table 1), and indicated higher

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<sup>2</sup>Discussion of the descriptive characteristics of subjects on the non-significant predictors can be found in Soderstrom and Elrod (2006).

<sup>3</sup>Given the large sample size, only relationships that demonstrated a statistically significant relationship at  $p < .001$  or less are included in the stepwise regression tables.

levels of delinquency committed outside school ( $M=6.22$ ) than while at school ( $M=4.14$ ). The correlation between the two scales was  $.77$ .

TABLE 1. DESCRIPTIVE STATISTICS FOR SCALES

SCALE	N	SCORE		STANDARD	
		RANGE	MEAN	DEV.	ALPHA
Delinquency at school. ....	1934	0-40	4.14	6.83	.87
Delinquency outside school.	1909	0-40	6.22	9.01	.90
Negative peer influence.....	1892	0-8	2.53	1.88	.66
Attachment to school.....	1914	0-9	5.63	2.69	.85
Self-report victimization.....	1971	0-6	1.87	1.56	.63
General strain.....	1895	0-10	1.86	2.08	.73
Victimization response.....	1762	0-6	3.68	2.23	.87
Importance of others. ....	1947	0-5	3.83	1.27	.60
External alienation.....	1923	0-5	0.92	1.31	.64
Weapon threat response.....	1927	0-6	4.23	2.09	.87
School climate. ....	1915	0-8	5.00	1.96	.64

The Negative Peer Influence scale (see the Appendix for items comprising the measure) is an eight-item measure that asks subjects to indicate whether they feel their friends get into a lot of trouble in and outside school. Students reported generally low levels ( $M=2.53$ ) of negative peer influence (see Table 1).

The Attachment to School scale is made up of nine items that ask subjects to indicate whether they like various authority figures in their school (e.g., teachers, principal, counselors, etc.), their classes, if they believe teachers care about students, and if they belong at their school. The average scale score on the scale ( $M=5.63$ ) was in the middle scale score range (see Table 1). This was interpreted to mean that, overall, students reported moderate levels of attachment to school.

The Self-report Victimization scale is a six-item measure that asks subjects to indicate whether they were the victims of the following offenses during that school year: theft; robbery; physical threats or attacks; verbal threats; sexual assault; and being picked on or bullied. The average scale score on the scale ( $M=1.87$ ) was relatively low, indicating that students generally reported minimal amounts of

school victimization (see Table 1). Nevertheless, 76.6% of the students surveyed reported being a victim of one or more of the listed offenses during that school year.

The General Strain scale includes 10-items that ask subjects to indicate whether they have experienced several stressful conditions (e.g., divorced parents, major illness in family, moving, etc.) over the past year. Subjects generally scored very low on this composite measure of strain ( $M=1.86$ ). Thus, the student sample, as a whole, reported limited exposure to a variety of stressful events during the year before the survey.

The Victimization Response scale is a six-item measure that asks subjects to indicate whether they would report threats made to them at school to various school officials (e.g., teacher, principal, counselor, etc.). Interestingly, the average scale score for the scale ( $M=3.68$ ) was only in the middle of the scale score range (see Table 1). Thus, overall, students felt that they could tell only about half the school officials listed if they felt threatened at school.

The Importance of Others scale is a five-item measure that asks subjects to indicate how important they perceive a number of events such as getting good grades and the opinions of friends and parents. The average scale score ( $M = 3.83$ ) was rather high, given the scale score range of 0-5 (see Table 1). As such, students generally valued success in school and the opinions of their parents and teachers.

The External Alienation scale is a five-item index that asks subjects to indicate whether they feel they are ill-thought-of or whether they are generally alienated from parents, teachers, and others at school. The scale asks subjects about their feelings of alienation from external sources of validation (e.g., perceiving that parents or teachers think you are a bad kid). The average score was extremely low ( $M=0.92$ ) (see Table 1). Students did not feel stigmatized or alienated from their parents, teachers, and others at school.

The Weapon Threat Response scale is a six-item measure that asks subjects to indicate whether they would report to school officials various weapon-related events such as someone having possession of a gun or other weapon at school. The average scale score on the scale ( $M=4.23$ ) was moderately high indicating that most students would report weapons possession by others to school authorities (see Table 1).

The School Climate scale is an eight-item index that asks subjects to indicate the degree to which they feel they are treated in a respectful, orderly, and fair manner, particularly with respect to understanding and being held accountable for violations of school rules. The average scale score ( $M=5.00$ ) was in the middle of the scale score range (see Table 1). Thus, it was inferred that, overall, students

perceive the schools to be average in their treatment of students and in their enforcement of rules.

*Predictors of In-School and Out-of-School Delinquency*

For the multivariate models in this study, stepwise linear regression was used to determine the best fitting regression models because it allowed for the prediction models to be sequentially generated based on the relative importance of each predictor added to the models.

The results of regressing the in-school delinquency index on the demographic and theoretical variables are presented in Table 2. The results (all significant at  $p < .001$ ) indicate that the student's gender along with their (1) response to a weapons threat, (2) attachment to school, (3) view of academic success and the importance of others, (4) feelings of alienation from external sources, (5) negative peer influences, (6) self-reported victimization experiences, and (7) experiences of general strain are significant predictors of in-school delinquency. Males ( $\beta = .12$ ) and students who (1) were less willing to report the presence of weapons at school to school officials ( $\beta = -.14$ ), (2) had lower levels of attachment to the school ( $\beta = -.11$ ), (3) were less likely to value the opinions of school officials and seek academic success ( $\beta = -.13$ ), (4) experienced greater levels of alienation from external sources ( $\beta = .09$ ), (5) reported higher levels of negative peer influence ( $\beta = .15$ ), (6) had been victimized more often ( $\beta = .18$ ), and (7) had higher levels of general strain ( $\beta = .10$ ) were significantly more likely to engage in delinquency within the school setting. The variables included in the model explained 30.8% of the variation in delinquent activity in school.

The results of regressing the out-of-school delinquency index on the demographic and theoretical variables are presented in Table 3. Except for the feelings of external alienation (which did not reach statistical significance) and grade level (where students in lower grades were more likely to engage in delinquency away from school than their counterparts in higher grades), the predictors of out-of-school delinquency were consistent with those that predicted in-school delinquency. The results again indicate that males ( $\beta = .09$ ) and those students who (1) were less willing to report the presence of weapons at school to school officials ( $\beta = -.16$ ), (2) had lower levels of attachment to the school ( $\beta = -.09$ ), (3) were less likely to value the opinions of school officials and seek academic

TABLE 2. IN-SCHOOL DELINQUENCY REGRESSED ON DEMOGRAPHIC AND THEORETICAL PREDICTORS (STEPWISE MODEL).

VARIABLE	B	S.E.	BETA
Males. ....	1.50	.29	.12
Weapon threat response. ....	-.43	.07	-.14
Attachment to school. ....	-.26	.06	-.11
Importance of others. ....	-.65	.13	-.13
External alienation. ....	.48	.13	.09
Negative peer influence. ....	.53	.09	.15
Self-report victimization. ....	.76	.10	.18
General strain scale. ....	.30	.07	.10
Constant. ....	5.11	.73	

NOTE:  $F=72.34$ ;  $p<.001$ ;  $R^2=.308$   $df=1472$

success ( $\beta=-.13$ ), (4) reported higher levels of negative peer influence ( $\beta=.16$ ), (5) had been victimized more often ( $\beta=.14$ ), and (6) had higher levels of general strain ( $\beta=.08$ ) were significantly more likely to engage in delinquency within the school setting. Additionally, students in lower grades were significantly more likely to report engaging in delinquency away from school than their counterparts in higher grades ( $\beta=-.09$ ). The variables included in the model explained 28.6% of the variation in delinquent activity in school.<sup>4</sup>

The results presented above indicate that each of the four theoretical indices that had previously demonstrated success in predicting delinquent behavior had the

<sup>4</sup>We tested several models containing interaction terms for all of the theoretical indices included in this paper. While some associations in the models achieved statistical significance, we felt that this was due to the sample size more than the substantive impact of the interaction term. In fact, the inclusion of the interaction terms reduced the amount of explained variance in each model (as much as 5 percent) because the interactions added more unexplained variance to the model than explained. As such, the models included in these tables include only the main effects for all variables. These results are available from the authors upon request.

TABLE 3. OUT-OF-SCHOOL DELINQUENCY REGRESSED ON DEMOGRAPHIC AND THEORETICAL PREDICTORS (STEPWISE MODEL)

VARIABLE	B	S.E.	BETA
Males. ....	1.59	.40	.09
Grade. ....	-.29	.08	-.09
Weapon threat response. ....	-.66	.11	-.16
Attachment to school. ....	-.30	.09	-.09
Importance of others. ....	-.91	.17	-.13
Negative peer influence. ....	.74	.12	.16
General strain scale. ....	.34	.10	.08
Self-report victimization. ....	.80	.13	.14
Constant. ....	12.35	1.47	

NOTE:  $F=58.15$ ;  $p<.001$ ;  $R^2=.286$ ;  $df=1463$

expected statistically significant impact on delinquency both in the school setting and outside school. Additionally, in both models, the ranking of the strength of association was almost identical, although there were some important differences. First, for out-of-school delinquency, negative peer influence and the students' self-reported response to a weapons threat on campus were the best predictors of delinquent activity; for in-school delinquency, self-report victimization experiences had the strongest association with delinquency, followed by negative peer influence and the students' self-reported response to a weapons threat on campus. Interestingly, the explained variation was consistent across models, as approximately 30% of delinquency both in and out of the school setting is explained by the variables in the analysis.

Furthermore, neither the impact of race nor perceptions of the school climate (both of which have been determined to predict delinquency) was strong enough to be included in the stepwise regression analyses. As such, it appears that the theoretical models used in this study are (a) consistent and (b) influential predictors of delinquency both in and outside school, even after controlling for demographic variables frequently associated with delinquency in other studies.

## DISCUSSION AND CONCLUSIONS

The results of this study generally support the findings of previous studies that have examined relationships between constructs derived from differential association, social control, general strain, alienation, and delinquency. Children who indicated that they were exposed to the greatest levels of negative peer influence were significantly more likely to engage in delinquency both at school and away from school. Further, as expected, students who reported high levels of victimization, low levels of attachment to school, males, as well as youths who experienced greater levels of strain in their life and youths who felt most alienated from their peers, were significantly more likely to engage in both in-school and out-of-school delinquency. These results are consistent with previous studies examining the predictors of delinquency.

Contrary to studies that have found a link between race and both victimization and delinquency among school populations in (e.g., Snyder and Sickmund 2006; Welsh 2001; Welsh et al. 1999) and outside school (e.g., Snyder and Sickmund 2006), the present study revealed no such relationship. Additionally, and unlike other studies, this research found that students in lower grades were more likely to engage in out-of-school delinquency but not in-school delinquency. These findings support other studies (e.g., Anderman and Kimweli 1997; Schreck, Miller, and Gibson 2003) that have found that the institutional and social context within which youths interact plays a significant role in structuring their behaviors, not simply the demographic characteristics of youths themselves.

The findings from this study thus suggest that the best predictors of in-school delinquency (i.e., negative peer influence, attachment to school, self-report victimization, general strain, gender, alienation) are also the best predictors of out-of-school delinquency. As such, each of the theoretical perspectives examined in this study (i.e., social organization/control theory; differential association/social learning theory; strain/culture conflict/labeling/critical theory) adds something to our understanding of delinquency both in and out of school.

Furthermore, our findings also suggest that adolescent lifestyles are also important in that those youth who were most often victimized were also those youth most likely to engage in delinquency both in-school and away from school. As such, it appears that a social milieu exists that promotes both victimization and involvement in delinquency. Some adolescents, in reaction to negative influences from peers, poor attachment to parents, and feelings of alienation and strain from the larger society, engage in behaviors that make them (a) more likely to be victimized by crime and (b) more likely to engage in delinquent behavior as well.

Consequently, increasing attachment to parents and conformist activities and friends and decreasing the negative emotions experienced by many adolescents will not only reduce delinquency at school and away from school, but will reduce victimization among those youth most likely to engage in delinquency as well.

Nevertheless, the finding that students in lower grades were more likely to engage in out-of-school delinquency (but not in-school delinquency) is somewhat puzzling at first glance. This finding, however, does make sense in this rural sample. As demonstrated earlier, few students engaged in either in-school or out-of-school delinquency. Nevertheless, as the results presented in Table 4 suggest, sixth graders (and to some extent, seventh graders) are significantly more likely to engage in in-school delinquency than youth in lower grades. Additionally, except for seventh graders, sixth graders were significantly more likely to engage in out-of-school delinquency than all other students.

At least among this sample, then, the transition from fifth to sixth grade coincides with a transition from elementary school (where classes are small and children are closely supervised and generally closely connected to the school) to entrance into middle school, where students are generally less likely to be closely supervised and connected to the schools. In fact, in this rural school district, each of the middle schools (including the one included in this study) are currently poor academic achievers (as measured by the federal No Child Left Behind Standard) and report significantly more disciplinary actions for both school board and law violations than their elementary counterparts. As such, although the finding that youth are more delinquent in middle school than elementary school is not unique to this sample, the problem is particularly acute here.

#### FUTURE RESEARCH

This effort has provided additional support for each of the theoretical perspectives examined in this study. Nevertheless, it should be noted that all of the variables together explained less than one-third of the variance in the model. Consequently, several other factors contribute to predicting involvement in delinquency that are not included in this study. For example, one of the best predictors that has emerged in the literature regarding delinquency involves self-reported gang membership. In practically all studies examining this relationship, adolescents who self-report membership in a gang are significantly more likely to engage in delinquency. However, gangs were not viewed as a problem by the rural school district under study here so a question measuring gang membership was not

TABLE 4. COMPARISON OF IN-SCHOOL AND OUT-OF-SCHOOL DELINQUENCY BY GRADE.

GRADE	TYPE OF DELINQUENCY	LISTWISE			STD.	
		N	MIN.	MAX.	MEAN	DEV.
3 <sup>rd</sup>	In-School	130	.00	25.00	2.21	4.82
	Out-of-School		.00	36.00	4.36	6.96
4 <sup>th</sup>	In-School	110	.00	17.00	2.52	3.95
	Out-of-School		.00	32.00	3.60	5.41
5 <sup>th</sup>	In-School	131	.00	21.00	2.65	4.19
	Out-of-School		.00	36.00	4.93	6.50
6 <sup>th</sup>	In-School	193	.00	32.00	6.23*	7.29
	Out-of-School		.00	40.00	10.36*	10.23
7 <sup>th</sup>	In-School	163	.00	40.00	5.14	6.96
	Out-of-School		.00	40.00	8.98***	10.19
8 <sup>th</sup>	In-School	182	.00	27.00	3.84	5.81
	Out-of-School		.00	40.00	5.71	8.77
9 <sup>th</sup>	In-School	285	.00	40.00	4.63	7.34
	Out-of-School		.00	40.00	6.70	9.45
10 <sup>th</sup>	In-School	251	.00	40.00	3.98	6.97
	Out-of-School		.00	40.00	5.67	9.03
11 <sup>th</sup>	In-School	220	.00	40.00	3.69	7.00
	Out-of-School		.00	40.00	4.77	8.23
12 <sup>th</sup>	In-School	171	.00	40.00	4.33	8.08
	Out-of-School		.00	40.00	5.06	9.09

\*Significantly higher than the means for grades 3-5 using Scheffe post hoc comparisons.

\*\*Significantly higher than the means for all other grades but 7<sup>th</sup> grade using Scheffe post hoc comparisons.

\*\*\*Significantly higher than the means for 3<sup>rd</sup>, 4<sup>th</sup>, and 11<sup>th</sup> grades using Scheffe post hoc comparisons.

included in the survey. Nevertheless, future research should attempt to measure other types of youth peer networks to examine their influence on delinquency such as those suggested by Schwendinger and Schwendinger (1985) in their book *Adolescent Subcultures and Delinquency*. As the relationships uncovered here may be contingent upon the rural nature of this sample or the measures of delinquency under study here, future research should also examine how well the variables in our models predict different types of delinquency with samples drawn from different regions and populations.

Another limitation of this research concerns the measurement of the theoretical constructs under study. With respect to the theoretical perspectives examined in this study, having a more comprehensive set indicators for each theoretical construct would have been helpful. Cao (2004) makes a cogent argument that researchers studying theoretical predictors of crime should seek to standardize measurement of these theories and provides several scales designed to assist in this effort. Nevertheless, as with many research efforts, space and time constraints forced us to limit the number of measures for each of the theoretical frameworks included in this study. Future efforts should build on the knowledge gained from this study and develop a more comprehensive set of clear, concise measures of each of the theoretical constructs to insure that the associations found in this study are reliable.

The results of this study suggest that several theoretical predictors of delinquency (both inside and outside school settings) are important; consequently, programs designed to affect these theoretical predictors may be effective in reducing delinquency. One of the most common settings for these programs is within the school setting. As Gottfredson (1997) has argued, there are several types of school-based programs that work to reduce crime and delinquency. These programs can be broadly grouped into three categories: (1) programs aimed at setting expectations and norms for student behavior; (2) programs that provide comprehensive instruction focusing on several social competencies (e.g., responsible decision-making, social problem solving, developing self-control); and (3) programs empowering youths, parents, and community members to play an active role in improving the school setting (Gottfredson 1997).

The results of this study thus provide a theoretical explanation for Gottfredson's findings. Programs aimed at setting expectations and norms for student behavior will reduce general strain and, perhaps, alienation as students gain a clearer picture of what is expected of them. Programs that provide social competencies such as responsible decision-making, increased self-control, and

problem-solving skills will encourage students to choose friends with more conformist behaviors and attitudes, increase attachment and commitment to school and the larger society, and give youths skills to resolve conflicts with others when they arise. Finally, programs that empower youths, parents, and the community will decrease the alienation of students, reduce many strains that these youth experience, and encourage cooperative effort between students and their parents. In effect, then, the results from this study provide the theoretical underpinnings for effective school-based crime prevention programs. Moreover, this knowledge will allow school administrators and policy makers to further develop and strengthen programs designed to reduce school violence and disruption.

#### REFERENCES

- Agnew, Robert. 1992. "Foundation for a General Strain Theory of Crime and Delinquency." *Criminology* 30:47-87.
- Agnew, Robert. 2001. "Building on the Foundation of General Strain Theory: Specifying the Types of Strain Most Likely to Lead to Crime and Delinquency." *Journal of Research in Crime and Delinquency* 38:319-61.
- Agnew, Robert., Timothy Brezina, John P. Wright, and Francis T. Cullen. 2002. "Strain, Personality Traits, and Delinquency: Extending General Strain Theory." *Criminology* 40:43-72.
- Agnew, Robert., and H.R. White. 1992. "An Empirical Test of General Strain Theory." *Criminology* 30:475-99.
- Akers, Ronald L. 1998. *Social Learning and Social Structure: A General Theory of Crime and Deviance*. Boston: Northeastern University Press.
- Anderman, Eric M., and David M.S. Kimweli. 1997. "Victimization and Safety in Schools Serving Early Adolescents." *Journal of Early Adolescence* 17:408-38.
- Bandura, Albert. and Richard Walters. 1959. *Adolescent Aggression: A Study of the Influence of Child-Training Practices & Family Interrelationships* New York: Ronald Press.
- Bowles, Samuel. 1971. "Unequal Education and the Reproduction of the Social Division of Labor." Pp. 36-64 *Schooling in Corporate Society*, edited by M. Carnoy. New York: David McKay Company.
- Bowles, Samuel. and Herbert Gintis. 1976. *Schooling in Capitalist America*. New York: Basic Books.
- Brooks-Gunn, Jeanne. and Greg J. Duncan. 1997. "The Effects of Poverty on Children". *The Future of Children* 7:34-9.

- Bushman, Brad and Craig A. Anderson. 2001. "Media Violence and the American Public." *American Psychologist* 56:477-89.
- Cao, Liqun. 2004. *Major Criminological Theories: Concepts and Measurements*. Belmont, CA: Thompson Wadsworth.
- Catalano, Richard F. and J. David Hawkins. 1996. "The Social Development Model: A Theory of Anti-social Behavior." Pp.149-97 in *Delinquency and Crime: Current Theories*, edited by J.D. Hawkins. New York: Cambridge University Press.
- Cohen, Albert K. 1955. *Delinquent Boys: The Culture of the Gang*. New York: Free Press.
- Conley, Dalton and Neil G. Bennett. 2000. "Is Biology Destiny? Birth Weight and Life Chances." *American Sociological Review* 65:458-67.
- Dejong, Christina. 1997. "Survival Analysis and Specific Deterrence: Integrating Theoretical and Empirical Models of Recidivism." *Criminology* 35:561-76.
- Dinkes, Rachel, Emily F. Cataldi, Grace Kena, and Katrina Baum. 2006. *Indicators of School Crime and Safety: 2006* (NCES 2007-003/NCJ 214262). U.S. Departments of Education and Justice. Washington, DC: U.S. Government Printing Office.
- Elliott, Delbert S., Suzanne S. Ageton, and Rachelle J. Canter. 1979. "An Integrated Theoretical Perspective on Delinquent Behavior." *Journal of Research in Crime and Delinquency* 16:3-27.
- Elliott, Delbert S., David Huizinga, and Suzanne S. Ageton. 1985. *Explaining Delinquency and Drug Use*. Beverly Hills, CA: Sage
- Ellis, Lee. 1982. "Genetics and Criminal Behavior." *Criminology* 10:43-66.
- Esbensen, Finn-Aage and David H. Huizinga. 1993. "Gangs, Drugs and Delinquency in a Survey of Urban Youth." *Criminology* 31:565-89.
- Farrington, D.P. and R. Loeber. 2000. "Epidemiology of Juvenile Violence." *Child and Adolescent Psychiatric Clinics of North America* 9:733-48.
- Gottfredson, Denise C. 1997. "School-based Crime Prevention." Pp. 5-1-5-74 in *Preventing crime: What works, what doesn't, and what's promising*, edited by L.W. Sherman, D. Gottfredson, D. MacKenzie, J. Eck, P. Reuter, S. Bushway. College Park, MD: University of Maryland Department of Criminology and Criminal Justice.
- \_\_\_\_\_. 2001. *Schools and Delinquency*. New York: Cambridge University Press.
- Gottfredson, Denise C., Gary D. Gottfredson, and Lois G. Hybl. 1993. "Managing Adolescent Behavior: A Multiyear, Multischool Study." *American Education Research Journal* 30:179-215.

- Gottfredson, Gary D. and Denise C. Gottfredson. 1985. *Victimization in Schools*. New York: Plenum Press.
- Gottfredson, Gary D., Denise C. Gottfredson, Ellen R. Czeh, David Cantor, Scott B. Crosse, and Irene Hantman. 2000. *A National Study of Delinquency Prevention in School. Final Report*. Ellicott City: Gottfredson Associates.
- Gottfredson, Michael R. and Travis Hirschi. 1990. *A General Theory of Crime*. Stanford, CA: Stanford California Press.
- Hagan, John, John Simpson, and A.R. Gillis. 1987. "Class in the Household: A Power-control Theory of Gender and Delinquency." *American Journal of Sociology* 92:788-816.
- Hawkins, J. David, Todd I. Herrenkohl, David P. Farrington, Devon D. Brewer, Richard F. Catalano, and Tracy W. Harachi. 1998. "A Review of Predictors of Youth Violence." Pp. 106-46 in *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions*, edited by R. Loeber and D.P. Farrington. Thousand Oaks, CA: Sage.
- Hirschi, Travis. 1969. *Causes of Delinquency*. Berkeley, CA: University of California Press.
- Johnson, Jeffrey G., Patricia Cohen, Elizabeth M. Smailes, Stephanie Kasen, and Judith S. Brook. 2002. "Television Viewing and Aggressive Behavior During Adolescence and Adulthood." *Science* 295:2468-71.
- Lawrence, Richard. 1998. *School Crime and Juvenile Justice*. New York: Oxford University Press.
- Lipsey, Mark W. and James H. Derzon. 1998. "Predictors of Violent or Serious Delinquency in Adolescence and Early Adulthood: A Synthesis of Longitudinal Research." Pp. 86-105 in *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions*, edited by R. Loeber and D.P. Farrington. Thousand Oaks, CA: Sage.
- Loeber, Rolf. 1996. "Developmental Continuity, Change, and Pathways in Male Juvenile Problem Behaviors and Delinquency." Pp. 1-27 in *Delinquency and Crime: Current Theories*, edited by J.D. Hawkins. New York: Cambridge University Press.
- Loeber, Rolf. and David P. Farrington, eds. 2001. *Child Delinquents: Development, Intervention, and Service Needs*. Thousand Oaks, CA: Sage.
- Lowry, Richard, David Sleet, Carlton Duncan, Ken Powell, and Lloyd Kolbe. 1995. "Adolescents at Risk for Violence." *Educational Psychology Review* 7:7-39.

- Matsueda, Ross L. 1992. "Reflected Appraisals, Parental Labeling, and Delinquency: Specifying a Symbolic Interactionist Theory." *American Journal of Sociology* 97:1577-1611.
- Matsueda, Ross L. and Karen Heimer. 1987. "Race, Family Structure, and Delinquency: a Test of Differential Association and Social Control Theories." *American Sociological Review* 52:826-40.
- McDermott, Joan. 1980. "High Anxiety: Fear of Crime in Secondary Schools." *Contemporary Education* 52:18-23.
- Merton, Robert K. 1938. "Social Structure and Anomie." *American Sociological Review* 3:672-82.
- Moffitt, Terrie E. 1993. "Adolescence-Limited and Life-Course-Persistent Antisocial Behavior: A Developmental Taxonomy." *Psychological Review* 100: 674-701.
- Morenoff, Jeffrey D., Robert J. Sampson, and Stephen W. Raudenbush. 2001. "Neighborhood Inequality, Collective Efficacy, and the Spatial Dynamics of Urban Violence." *Criminology* 39:517-60.
- Osgood, D. Wayne, Janet K. Wilson, Patrick M. O'Malley, Jerald G. Bachman, and Lloyd D. Johnston. 1996. "Routine Activities and Individual Deviant Behavior." *American Sociological Review* 61:635-55.
- Paternoster, Raymond. 1987. "The Deterrent Effect of Perceived Certainty and Severity of Punishment: A Review of Evidence and Issues." *Justice Quarterly* 42:173-217.
- Payne, Allison A., Denise C. Gottfredson, and Gary D. Gottfredson. 2003. "Schools as Communities: the Relationships among Communal School Organization, Student Bonding, and School Disorder." *Criminology* 41:749-77.
- Ralph, John H., Kelly W. Colopy, Christine McRae, and Bruce Daniel. 1995. *Gangs and Victimization at School*. Washington, DC: National Center for Educational Statistics.
- Sampson, Robert J. and W. Byron Groves. 1989. "Community Structure and Crime: Testing Social Disorganization Theory." *American Journal of Sociology* 94:774-802.
- Sampson, Robert J. and John H. Laub. 1993. *Crime in the Making: Pathways and Turning Points Through Life*. Cambridge, MA: Harvard University Press.
- Sampson, Robert J. and Stephen W. Raudenbush. 2001. *Disorder in Urban Neighborhoods. Does it Lead to Crime?* Washington, DC: National Institute of Justice.

- Sampson, Robert J., Stephen W. Raudenbush, and Felton Earls. 1997. "Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy." *Science*, 277:918-24.
- Schreck, Christopher J., J. Mitchell Miller, and Chris L. Gibson. 2003. "Trouble in the School Yard: a Study of the Risk Factors of Victimization at School." *Crime and Delinquency* 49:460-84.
- Schwendinger, Herman and Julie S. Schwendinger. 1985. *Adolescent Subcultures and Delinquency*. New York: Praeger.
- Simpson, Sally S., and Lori Ellis. 1994. "Is Gender Subordinate to Class? An Empirical Assessment of Colvin and Pauly's Structural Marxist Theory of Delinquency." *Journal of Criminal Law and Criminology* 85:453-80.
- Snyder, Howard N. and Melissa Sickmund. 2006. *Juvenile Offenders and Victims: 2006 National Report*. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.
- Soderstrom, Irina R. and Preston Elrod. 2006. "Assessing Students' Perceptions of School Victimization and School Safety: A Psychometric Assessment of Relevant Instruments." *Journal of School Violence* 5(1):5-28.
- Spergel, Irving A. 1990. "Youth Gangs: Continuity and Change." Pp. 171-275 in *Crime and Justice*, edited by M. Tonry and N. Morris. Chicago: University of Chicago Press.
- Thornberry, Terence P. 1987. "Toward an Interactional Theory of Delinquency." *Criminology* 25:863-87.
- \_\_\_\_\_. 1997. *Developmental Theories of Crime and Delinquency*. New Brunswick, NJ: Transaction.
- \_\_\_\_\_. 1998. "Membership in youth gangs and involvement in serious and violent juvenile offending." Pp. 147-66 in *Serious and Violent Juvenile Offenders, Risk Factors and Successful Interventions*, edited in R. Loeber and D.P. Farrington. Thousand Oaks, CA: Sage.
- Thornberry, Terence P., Marvin D. Krohn, Alan J. Lizotte, and Deborah Chard-Wierschem. 1993. "The Role of Juvenile Gangs in Facilitating Delinquent Behavior." *Journal of Research in Crime and Delinquency* 30:55-87.
- Wallace, Rodrick. 1991. "Expanding Coupled Shock Fronts of Urban Decay and Criminal Behavior: How U. S. Cities Are Becoming 'Hollowed Out'." *Journal of Quantitative Criminology* 7:333-55.
- Welsh, Wayne N. 2001. "Effects of Student and School Factors on Five Measures of School Disorder." *Justice Quarterly* 18:911-47.

Welsh, Wayne N., Jack R. Greene, and Patricia H. Jenkins. 1999. "School Disorder: The Influence of Individual, Institutional, and Community Factors." *Criminology* 37:73-115.

## APPENDIX

### *Negative Peer Influence Scale*

Respondents were asked to indicate whether they felt the following statements were true or false.

- My friends often try to get me to do things the teacher does not like.
- Some of my friends have been in trouble at school or in the community.
- Some of my friends have been in trouble a lot.
- My best friend belongs to a gang.
- My best friend gets into trouble a lot.
- My best friend comes to school almost every day (recoded).
- My best friend plans to go to college (recoded).
- Most of my friends think that getting good grades is important (recoded)

Responses to the first five statements were coded so that Yes = (1); responses to the final three statements so that No = (1). Responses were summed so that scores ranged from 0 to 8.

### *Attachment to School Scale*

Respondents were asked to indicate "how well they liked" the following:

- The teachers
- The principal
- The school
- Your classes
- The counselor(s)
- The librarian
- The adults in the cafeteria.

Responses of "like" were coded as (1); "dislike" was coded as (0). Respondents were also asked to indicate whether they agreed or disagreed with the following statements:

- Teachers at this school care about the student
- I feel like I belong at this school.

Respondents who agreed were coded as (1); those who disagreed were coded as (0). Responses to the nine statements were summed so that those who scored highest had the strongest attachment to school.

#### *Self-Report Victimization Scale*

Respondents were asked to indicate if any of the following had happened to them this school year:

- Had something stolen from your desk, locker or other places at school.
- Someone has taken money or things directly from you by using force, weapons or threats.
- Someone has physically threatened, attacked, or hurt you at school.
- Someone has verbally threatened you at school.
- Someone has touched or grabbed you in a private place.
- Someone has picked on or bullied you.

Responses were coded so that responses of yes were coded as (1); no responses were coded as (0). Responses were summed so that those who scored highest on the victimization index had been victimized by the most actions under study here.

#### *General Strain Scale*

Respondents were asked to indicate if any of the following things had happened to them during the last year:

- Parents got a divorce.
- A parent got married.
- Someone at home became seriously ill or died.
- Someone at home was involved in a serious accident.
- Someone at home was arrested or got into trouble with the law.
- Someone at home lost their job.
- We moved to another house.
- I changed schools.
- My father moved in/out of the house.
- My mother moved in/out of the house.

Responses were coded so that responses of yes were coded as (1); no responses were coded as (0). Responses were summed so that those who scored highest on the general strain scale had experienced the highest number of actions under study here.

#### *Victimization Response Scale*

Respondents were asked to indicate if they agreed or disagreed with the following statements:

- If someone threatens you, do you feel you can tell the following people about it?
- Your classroom teacher
- The principal
- Any teacher in the school
- Adults in the cafeteria
- The librarian
- The counselor

#### *Importance of Others Scale*

Respondents were asked to indicate how important each of the following was to them:

- What your friends think about you
- What your teachers think about you
- The grade you get in school
- Getting along with your parents
- Having a number of close friends

#### *External Alienation Scale*

Respondents were asked to indicate if they agreed or disagreed with the following statements.

- My family is not interested in my problems.
- My parents think that I am a bad kid.
- My teachers think that I am a bad kid.
- My teachers are not interested in my problems.
- The students at my school think that I am a bad kid.

Respondents who agreed were coded as (1); those who disagreed were coded as (0). Responses were summed so that those who agreed with the most statements scored the highest on the alienation scale.

*School Climate Scale*

Respondents were asked to indicate if the following statements were true or false at their school:

- Students often break the rules at our school because they know they can get away with it.
- Students at my school understand what the school rules are.
- When kids get in trouble, teachers and administrators treat them fairly.
- When students break the rules in my school, they are usually caught and punished.
- The teachers and the principal sometimes treat kids unfairly because of how they dress or wear their hair.
- If you get in trouble at this school the teachers and the principal will never treat you fairly again.
- I have a lot of respect for my teachers.
- My teachers help me with my work when I need it.