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SECONDARY CONTROL: EXAMINING THE INFLUENCE OF SCHOOL
RESTRUCTURING ON HIGH SCHOOL DELINQUENCY

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
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in

The Department of Sociology

by

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# TABLE OF CONTENTS

ACKNOWLEDGMENTS ........................................................................................... ii  
ABSTRACT ................................................................................................................. vii  

## CHAPTER

1 INTRODUCTION ................................................................................................. 1  
1.1 The Problem of School Delinquency ......................................................... 1  
1.2 Defining School Delinquency ..................................................................... 7  
1.3 The Importance of School Delinquency ..................................................... 8  

2 HIGH SCHOOLS, RESTRUCTURING, AND DELINQUENCY .................. 11  
2.1 Introduction ............................................................................................... 11  
2.2 School Organization and Restructuring .................................................. 11  
2.2.1 The Organization of High Schools ...................................................... 11  
2.2.2 School Reform and Restructuring ...................................................... 16  
2.2.3 School Effects on Student Outcomes ............................................... 20  
2.3 Schools, Delinquency, and Social Control .............................................. 25  
2.3.1 Social Control: Two Essential Concepts .......................................... 25  
2.3.1.1 The Character of Social Control .................................................. 28  
2.3.2 Schools as Institutions of Control ...................................................... 32  
2.3.2.1 The Custodial Function of Schools .............................................. 33  
2.3.2.2 Schools as Community Institutions ............................................ 35  
2.3.3 Social Control and Delinquency Theory .......................................... 37  
2.3.3.1 Social Bonding Theory .............................................................. 37  
2.3.3.2 Social Disorganization Theory ................................................... 39  
2.3.3.3 Contextual and Multilevel Approaches ..................................... 42  
2.3.4 Implications for Restructuring Schools ............................................. 45  
2.4 An Informal Control Model of School Delinquency ............................. 48  
2.4.1 Model .................................................................................................. 48  
2.4.2 Expectations ....................................................................................... 49  

3 METHODOLOGY ............................................................................................... 51  
3.1 Data .......................................................................................................... 51  
3.1.1 The High School Effectiveness Study ................................................. 51  
3.1.2 School Communities ........................................................................... 55  
3.2 Measurement ............................................................................................. 57  
3.2.1 Dependent Variables ........................................................................... 57  
3.2.2 Student-level Independent Variables ................................................ 59  
3.2.3 School-level Independent Variables .................................................... 61  
3.3 Data Filters and Final Sample .................................................................... 65  
3.4 Analytic Strategy ....................................................................................... 66
ABSTRACT

Recent years have seen extensive debate on the multitude of problems plaguing secondary education in the United States, and the problem of school crime and deviance is gaining a sizable share of the attention. A wave of school reform sometimes labeled the "restructuring" movement suggests that major organizational changes in schools, especially public schools, can positively affect student achievement and commitment to educational goals. Yet there has been practically no attention paid to the possible effects of restructuring on reducing delinquency in schools.

I examine the impact of high school restructuring on school delinquency using a broad conception of delinquency that considers both minor and serious juvenile disorders within the school setting. My purpose here is to answer the following question: What are the effects of restructuring on school delinquency? The theoretical framework links concepts and variables drawn primarily from social bonding and social disorganization theories of juvenile delinquency to address this problem. The research design entails the secondary analysis of data on a sample of urban public high schools drawn from the 1990-92 High School Effectiveness Study (HSES). Summary census tract data from the 1990 Census of Population and Housing serve as proxies for the characteristics of the neighborhoods in which the high schools are located.

Analyses based on HSES survey data from students in these schools show that the likelihood of engaging in delinquent behavior at school decreases as students’ commitment to school increases. Across schools, the problem of juvenile delinquency is directly influenced by the level of socio-economic deprivation in the surrounding
community. School restructuring neither mediates these effects, nor does it have an impact on the rate of school delinquency. Multilevel analyses using data on students and schools indicate that restructuring conditions the relationship between school commitment and student delinquency, indicating that in moderately restructured schools the importance of individual commitment for preventing delinquency is reduced. A final chapter discusses these findings, the limitations of the study, and directions for further research in this area.
CHAPTER 1
INTRODUCTION

1.1 The Problem of School Delinquency

Recent years have seen extensive debate on the multitude of problems plaguing secondary education in the United States. While the efficacy of high schools in preparing students for higher education and the labor force seems to dominate these discussions, the problem of school crime and deviance is gaining a sizable share of attention. In 1993, Congress passed the Safe Schools Act, whose stated purpose is to "help local school systems achieve Goal Six of the National Education Goals, which provides by the year 2000, every school in America will be free of drugs and violence and will offer a disciplined environment conducive to learning" (U.S. Senate, 1993:1).

In addition, the following recently appeared in, *Indicator of the Month*, a publication of the National Center for Education Statistics:

Research on effective schools has identified a safe and orderly environment as a prerequisite for promoting student academic success. Lack of school safety can reduce school effectiveness, inhibit student learning, and place students who are already at risk for school failure for other reasons in further jeopardy. In recent years, educators and policymakers have voiced growing concern about possible increases in the incidences [sic] of school-related criminal behavior (National Center for Education Statistics, 1994:1).

Toby (1995) notes that much of this attention is due to popular accounts in the media of extreme acts of violence either on or near school grounds. Most of the disciplinary problems experienced by schools are the more commonly-committed kinds
of school violations: simple larcenies, robberies, and assaults (Toby, 1995). In fact, the only study to comprehensively examine crime and violence in secondary schools, the NIE's Safe School Study, concluded that incidents of serious crime in schools are relatively rare (National Institute of Education, 1978). Gottfredson and Gottfredson (1985) maintain, however, that school disorder is a critical problem.

Although the statement by NCES suggests that school disorder influences school effectiveness and achievement, relatively little attention has been given to the ways that school effectiveness and, more generally, school structure can influence delinquent and disruptive behavior among students. Furthermore, research has dealt with how community factors affect school-level crime and violence without additionally considering how these processes eventually influence students. A few studies have considered the contextual implications of school delinquency, but the work in this area is incomplete and has yet to adequately address the methodological issues associated with multiple levels of analysis (Rutter et al., 1979; Gottfredson and Gottfredson, 1985; Figueira-McDonough, 1986; Hellman and Beaton, 1986; Gottfredson et al., 1991; Cernkovich and Giordano, 1992; Felson et al., 1994).

The school itself as a significant intervening context between society and the individual has not been given adequate treatment in theorizing on delinquency. The abundance of empirical macro-level research on delinquency has instead focused on the structural arrangements and processes related to communities, neighborhoods, and families. As Bursik (1988) notes, data on the school as a source of effective community control has mainly been derived from ethnographic research.
Micro-level, social psychological theories of delinquency historically have downgraded the importance of the organizational context of individual delinquent behavior (Bursik and Grasmick, 1993). Even those theories most relevant to schooling—most notably Hirschi's (1969) social bonding theory—limit conceptualization of "school" variables to the individual's relationship with or feelings about school and teachers, or the amount of time devoted to school activities in relation to other pursuits. At this level, schools are often considered theoretically "secondary" to both family and peers in terms of influential contexts (Glueck and Glueck, 1950; cf. Sampson and Laub, 1993). Further, criminologists who have given some weight to the school context, while presumably taking the internal structure and immediate environment into account, have tended to overlook structural differences between high schools (e.g., public vs. private; large vs. small) shown by educational sociologists to be important to educational outcomes (e.g., Cernkovich and Giordano, 1992; Felson et al., 1994).

School structure has been considered to a fuller extent by those contributing to the related school effects and effective schools literatures. Much of the existing research on school effects has examined the ways that schools cultivate positive student outcomes such as academic achievement and commitment to school goals (Bryk and Driscoll, 1988; Lee and Bryk, 1989; Gamoran, 1992; Kerckhoff, 1993; Lee et al., 1993; Hallinan, 1994). A wave of school reform sometimes labeled the "restructuring" movement suggests that major organizational changes in schools, especially public schools, can positively affect student achievement (Murphy, 1991). Although empirical support for the restructuring argument has been sparse, a recent set of studies using data...
from the National Education Longitudinal Study has provided initial support for the value of restructuring schools in positively influencing student academic outcomes (Lee and Smith, 1993; 1995).

The purpose of school restructuring, according to its adherents, is to create more effective schools, in terms of their ability to accomplish the goal of educating students. Educators argue that schools can't be effective if there exists a high level of disruption. Yet there has been practically no attention paid to the possible effects of restructuring on reducing delinquency in schools.¹ In his book on school violence, John Devine (1996) talk about school reformers' myopic focus on classroom dynamics, and their neglect of what is happening in the hallways and outside of schools in the communities.

This study provides support for linking research on school delinquency and disorder, school effects research, and contextual and multilevel studies of school crime and victimization in order to address this problem. In bridging literatures from two distinct sub-fields in sociology—stratification and juvenile delinquency—I intend to answer the following question: What are the effects of restructuring on delinquency?

I use two theoretical perspectives on juvenile delinquency to address this general research question: social bonding theory and social disorganization theory. Although separated by the level of analysis in which they are embedded, these two perspectives are essentially analogous to each other on the basis of their common grounding in

¹ There have been evaluations of the effectiveness of school delinquency prevention programs, which involve similar extensive school changes to achieve the more focused goal of reducing delinquency (Gottfredson, 1986; 1988), as well as alternative schools (see Cox, 1995 for a review).
informal social control (Kornhauser, 1978; Pfohl, 1994). Using elements from Hirschi's (1969) social bonding theory, which suggests that students with stronger bonds to schools, family, and friends will be less delinquent. I address the mechanisms by which restructuring influences student-level delinquency. On the school level, I use concepts and variables derived from social disorganization theory (Shaw and McKay, 1942) to identify characteristics from the communities in which the sampled schools are embedded which may affect restructuring and, ultimately, delinquency. Social disorganization involves a breakdown of social controls at the community level, the original causes of which are rapid social changes in communities. Of particular relevance here is the argument that the intervening process between this rapid social change and delinquency is the failure of community organizations, especially the school. Therefore, I suggest that restructuring will intervene between the process leading from high rates of structural decay in communities to high rates of school delinquency.

By framing this research question within multiple levels, I hope to be able to contribute to a gap in school delinquency studies that exists where school-level delinquency studies end and individual-level studies begin. Furthermore, the proposed research addresses two of Sampson and Laub's (1993) criticisms against the field of criminology: 1) the separation of studies utilizing structural and process variables and 2) an overabundance of cross-sectional delinquency studies. My research design addresses both criticisms: school- and community-level structural variables are used in the same hierarchical models as process variables (e.g., attachments and commitment).
and panel data provide the ability to capture longitudinally a critical (albeit brief) span of time in the life course.

The remainder of this dissertation is structured as follows. Chapter 2 provides the theoretical background necessary for understanding the relationship between school restructuring and high school delinquency, emphasizing the concept of informal social control and its utility in specifying this relationship via the theories of social bonding and social disorganization. Chapter 3 discusses the data used for the study, drawn from the High School Effectiveness Study and census tract data, the measurement of variables, and the analytical strategy for answering the research question. The analyses are divided into three chapters. Chapter 4 begins with the student level of analysis, and tests a model based on social bonding theory. Chapter 5 identifies the issues surrounding delinquency at the school level, and tests a model that incorporates restructuring, school characteristics and processes, and characteristics of the communities in which the sampled schools are located. In Chapter 6, the knowledge drawn from the previous two chapters of the processes going on at both levels of analysis are combined in a set of multilevel models of school delinquency. Finally, Chapter 7 offers conclusions based on the results from the study, directions for further research in this area, and some policy recommendations for schools and their communities. Before continuing on to the next chapter, I elaborate below on the nature and problem of school delinquency.
1.2 Defining School Delinquency

Historically, juvenile delinquency has included a wide array of behaviors; behaviors that extend beyond what we commonly think of as “garden-variety” juvenile criminal behavior (e.g., see Cavan, 1962). As Barlow and Ferdinand (1992) point out, many criminologists prefer to define delinquency as that behavior which leads one to be labeled a delinquent (e.g., adjudicated by a juvenile court). However, the types of delinquent behaviors experienced within schools and in school environments tend to be somewhat less extensive than delinquency in general. My definition of school delinquency is a modification of existing definitions. Jenkins (1995: 221) defines school delinquency as, "acts against persons or property in school that disrupt the educational processes of teaching and learning." I extend this definition to include behavior that might lead one to be labeled as a delinquent by school officials (Barlow and Ferdinand, 1992: 16). The two definitions combined are an integration of objective and subjective definitions of crime and deviance.

I limit the scope of delinquency to school delinquency for two important reasons. First, while schools and schooling processes may affect behaviors in school, at home, and in the neighborhood, we should expect more salient effects on those outcomes that are school-specific. This has to do with the function of schools as institutions of social control, which will be discussed in more detail in Chapter 2. Second, while both the main and subsidiary findings may be of interest to criminologists and educational researchers, my hope is that the key findings of the study would also be informative to educational practitioners interested in the problem of
delinquency and its prevention. They are more likely to limit their interests in delinquency to disorders occurring within or immediately nearby the school. I discuss more concrete policy implications of this study in the concluding chapter.

1.3 The Importance of School Delinquency

Why are schools so important in examining juvenile delinquency? Consider the argument made by Zinsmeister (1990:61): "Schools are the primary public institution in the lives of children. If dangerous disorder is allowed to exist there, children will get a powerfully negative impression of society's interest in protecting them." Gottfredson and Hirschi (1990:105) delve further in suggesting that schools are the primary institutions for engendering self-control in children, and they have a clear interest in recognizing and disciplining "lapses in self control" (i.e., deviant behavior). Thus, Gottfredson and Hirschi suggest that schools may be just as, or even more, important than the family in predicting delinquency.

Research dating back to Cohen (1955) implicates the school in the creation of delinquency. In his book, Adolescent Society, James Coleman (1961) noted that the development of the present system of education whereby youths spend a great deal of time learning outside the home has brought about changes in the status of "youth" in society—a status that has implications for adolescent behavior. Polk (1984) and Liazos (1978) both argue that schools are responsible for alienating many youths from society by segregating them from the adult world, delaying their economic independence until the late teens or twenties, allowing a passive sort of learning to dominate classroom instruction, and denying students' basic human rights. Polk (1984) argues that even
those students who do not experience alienation and accept the mainstream educational system are stratified by schools on the basis of questionable ability grouping and tracking practices. The result is a more intense stratification of outcomes by the time students are of school-leaving age.

Many of the same school effects arguments used by stratification researchers have been used by delinquency researchers to examine the schools' contribution to delinquency. Several investigators have advanced the finding of school effects on academic achievement to consider the role of school failure in causing delinquency (Cernkovich and Giordano 1992; Felson et al 1994; Liska and Reed 1985; Pink 1982; Sampson and Laub 1993). Another set of studies, based on the school reform and effective schools literatures, proposes that creating a more positive schooling atmosphere, making schools more effective in the means they use to deliver instruction, and reducing alienation by implementing smoother school-to-work transitions has the potential to reduce school delinquency (Polk 1984; Lawrence 1985).

The above arguments are especially compelling for the purposes of the proposed research. Along with the consistently strong correlations found between low grades (or school failure) and delinquency, and strong school attachments and delinquency, there are indications of the importance of school organizations for maintaining low levels of disorder (Sampson and Laub, 1993; Braithwaite, 1989: 175-76). Research has tended to separate structure from process in examining the correlates of delinquency, more often focusing exclusively on individual processes leading to deviance or conformity. Thus,
many studies of delinquency have taken the individual actor out of context, ignoring potential structural factors that have been shown to affect these processes. The ignorance of school context places undue attention on the individual student and the concomitant structural backgrounds and pre-existing characteristics brought by them into the school. Several critics have argued that by individualizing the problem of school disorder through different means, such as the medicalization of deviance (Conrad, 1975), biological arguments (Côté and Allahan, 1996), or the emphasis on cultural baggage (Devine, 1996), we are overlooking the role that schools play in contributing to and preventing delinquency. In sum, all of this leads to the argument that school delinquency carries a great deal of importance at the system level. In fact, some have stated that the measurement of school delinquency provides schools and policymakers with another indicator of organizational effectiveness (Gottfredson and Gottfredson, 1985: 197-98).
CHAPTER 2
HIGH SCHOOLS, RESTRUCTURING, AND DELINQUENCY

2.1 Introduction

My aim in this study is to determine the effects of school restructuring on high school delinquency. The purpose of this review chapter is to provide the supporting arguments for such effects. These arguments are divided into two main sections. First, I define restructuring and its relevance to the literatures on school reform, organizational theory, and school effects/effective schools. Second, I argue that schools and schooling play an important role in the study of delinquency—centering these arguments on the concept of social control. This leads to my discussion of two control theories, social bonding and social disorganization, and their usefulness in providing a framework for establishing a link between restructuring and delinquency. The culmination of this chapter is the discussion of a heuristic model of restructuring and school delinquency designed to guide the analyses in the chapters to follow.

2.2 School Organization and Restructuring

The schools we need now are not necessarily the schools we have known. — John Goodlad, *A Place Called School*

2.2.1 The Organization of High Schools

In 1918, the National Education Association recommended that comprehensive high schools be created for the purposes of expanding traditional high school curricula to appeal to students from varying social backgrounds (Commission on the
Reorganization of Secondary Education, 1918). With the onset of the Progressive Education Movement in the 1920's and 1930's, the public comprehensive high school became a mass institution, enrolling about 15 percent of all children in public or private education (Bowles and Gintis, 1976).¹ This was primarily due to the enactment of compulsory attendance laws by most of the states, and the concomitant raising of the legal school leaving age to 16 (Krug, 1964). There were also concerns that a secondary education was increasingly necessary in the United States' industrializing economy (Goodlad, 1984).

Comprehensive high schools got a boost in 1959 with James Conant's publication of The American High School Today, a book arguing for efficient and homogenous secondary education for masses of youths across the nation. Efficiency, according to Conant, could be made possible by increasing the size of high schools; homogeneity was to be achieved by embedding schools in a hierarchical system of school administration. This is exactly what happened. Sizer (1992a) estimates that the average high school enrollment in the U.S. is 700 students, with urban high school enrollments ranging from 1,200 to 4,000 students. As for administration, Toch (1991) credits Conant's arguments with the shrinkage in the number of public school systems.

¹ Powell, Farrar and Cohen (1985) provide additional evidence of this push for mass secondary enrollments, citing an increase from half a million public high school students in 1900 to around 6.5 million in 1940. In 1994, there were approximately 12.4 million public high school students, and about 1.2 million enrolled in private high schools (National Center for Education Statistics, 1995).
from about 40,000 to almost 18,000, in the decade following publication of his book.\footnote{Tyack (1974) indicates that some centralization of school control began at the turn of the century, with reformers seeking to consolidate urban schools under the control of educational experts and out of the hands of political wards. Nevertheless, Meyer and colleagues (1994) point out that the U.S., unlike other industrialized countries, has no real centralized educational system in the form of a national organizational structure. Educational centralization is a reality only at the district and—to a lesser degree—state levels.}

Enrollments in public comprehensive high schools remain tied for the most part, especially in urban areas, to the neighborhoods in the surrounding vicinity of the school, or its catchment area (Coleman et al., 1974).

As suggested by Coleman (1995:12), these developments in the modern high school are similar to some market-based firms, in which "economies of scale appear to be counterbalanced by diseconomies of administrative complexity." However, where industries have created the multidivisional firm to enhance autonomy among individual units, most schools remain tied to a hierarchical and quasi-centralized system of authority. Bureaucratic notions are intimately tied to the development of high schools. The earliest comprehensive high schools were championed by educational reformers relying on Taylor's scientific management theory, an approach that emphasized the fragmentation of tasks and a vertical division of labor (Scott, 1992). Subsequent discussions of the organizational characteristics of schools relied heavily on Weber's (1978) concepts of bureaucracy and rational authority. According to Bidwell (1965), schools are bureaucratic to the extent that there exists a fixed division of labor among administrators and teachers, a hierarchical arrangement of schools and school district
offices, an emphasis on offices rather than people, and a rational set of rules to regulate behavior. Clearly this portrays the school as a rational system—an organization "oriented to the pursuit of relatively specific goals and exhibiting relatively highly formalized social structures" (Scott, 1992:23)—and the comprehensive high school as the ultimate rational response to the demands of the educational environment.

Nevertheless, there are limitations to the image of high schools as rational systems. As with any such organization, one would expect the high school to have goals, or "conceptions of desired ends" (Scott, 1992:19). Sociological functionalists list several: instruction, socialization, social control, certification, and stratification (Spady, 1974; cited in Boocock, 1980). The manifestation of many of these functions escalated in high schools as student populations became less a privileged minority and began to more closely resemble the demographic characteristics of the adolescent population in the United States. High schools were called upon to provide social as well as academic skills. Over this century they have increasingly been charged with taking up the slack for socializing youths and transmitting the values formerly governed by family and church (Boyer, 1983). The number of these services increased dramatically in the 1960's, when Congress conferred on high schools the responsibility of addressing social problems such as poverty, unemployment, and racial discrimination (Goodlad, 1984).

Many characterize comprehensive high schools as institutions stretched thin by numerous, and at times, conflicting goals (Powell et al., 1985; Sizer, 1992a). Goodlad (1985) describes four areas of goals that have emerged over time: academic, vocational, social and civic, and personal. Academic goals cover a broad range of intellectual skills
sought for students by schools. Vocational goals involve school-to-work transitions and teaching students fiscal responsibility. Conant (1959) emphasized the importance of vocational education for non-college-bound students in the comprehensive high school. The latter two goals address the school's function as a socializing agent, and comprise what has been called the "services curriculum" (Powell et al., 1985). Goodlad's (1985) findings indicated that the relative importance of these four goal areas differed among students, teachers, and parents, although all three groups considered each area to be important in schooling. However, Boyer's (1983) survey of high schools found that teachers and students tended to be ignorant of the exact nature of their own school's goals. In summarizing his observations, he states that high schools, "lack a clear and vital mission . . . the institution is adrift" (Boyer, 1983:63).

Some organizational theorists have depicted schools from an open systems perspective. This approach defines organizations as "systems of interdependent activities linking shifting coalitions of participants; the systems are embedded in—dependent on continuing exchanges with and constituted by—the environments in which they operate" (Scott, 1992:25). One of these theorists, Weick (1976), characterized schools as "loosely coupled" systems, or systems in which the normative structure of the school is only loosely related to the actual activities of school participants. This suggests less interdependency among organization members. Unlike many European schools, in U.S. secondary schools the work of teachers is largely independent of the principal's tasks or those of other teachers (McNeil, 1986). On another level, Weick observes loose coupling in the ways that schools adapt and
respond to their immediate environments (e.g., parent-teacher associations, community groups)—a potential hindrance to formalized control by districts.

The open systems model emphasizes that organizational outcomes are produced by processes operating within both the organization and the environment. The value of this perspective is that it attempts to describe the complexity of relationships between individual actors in the organization and the structural features of those organizations. Unlike the rational systems model, it attends to both the formal and informal structures and processes of the organization (Ballantine, 1989; Scott, 1992). It is this broader perspective on high schools that will prove more useful in framing the discussion of school restructuring in the next section, as well as the empirical analysis to follow.

2.2.2 School Reform and Restructuring

A wave analogy has been used by many (Murphy 1991; Rowan 1990; Goodman 1995) to distinguish among recent calls for reform in education. The first wave is generally considered to have started with the report, *A Nation at Risk* (National Commission on Excellence in Education 1983), a set of recommendations calling for tighter and more bureaucratic controls on schools as well as more rigid standards of learning. Accountability was the keyword utilized by reformers advocating a rigid set of "back-to-basics" principles for schools to follow (Bacharach, 1990). First-wave reformers were especially critical of high schools (Powell et al., 1985).

The second wave, known as the "restructuring" wave, arrived with the publication of several reports in 1986 that challenged the bureaucratic, or traditional, mode of school organization, and supported systemic changes in schools (Carnegie Task
Force, 1986; Holmes Group, 1986; National Governors' Association, 1986). Unlike the first wave of calls for school reform, these reports advocated organizational changes originating at the school and district levels, rather than from state legislatures (Bacharach, 1990; Murphy, 1991). Organizational changes entailed movement from a hierarchical bureaucracy, based on authority passed down to the schools from federal, state, and district levels, to a decentralized system focusing on the school level as the critical organizational level in the educational system. Currently, reformers use the terms, school-based decision making (SDM) and site-based management (SBM), to describe the assumption of the primary managerial and educational responsibilities by school-level employees for their school site. SBM may come about through administrative decentralization, such as the case of the principal accepting total responsibility for a school, or a combination of administrative and political decentralization (Ferris, 1992). Since its invocation, the restructuring concept has been used to address several related school reform issues dealing with school organization, design, curriculum, and instruction, prompting some to view the term as a catch-all slogan, or buzzword, for reform (cf. Murphy, 1991; Berends and King, 1994; Hallinan, 1995). I employ the concept in a similar manner to that used in a recent study of restructuring schools by Newmann and Associates (1996:7), who characterize restructuring in the following manner:

We believe that comprehensive restructuring includes such features as site-based management, with meaningful authority over staffing, school program, and budget; shared decision making; staff teams, with frequent common planning time and shared responsibility for most of students' instruction; multiyear instructional or advisory groups; and heterogenous
grouping of almost all students for instruction in the core subjects. Using this definition, we estimate that less than 10 percent of the more than 180,000 U.S. public schools are comprehensively restructured.

These authors go on to point out that schools are neither restructured nor traditional, but that some schools are more restructured (i.e., a greater number of unorthodox practices) than others.

Some authors have observed that restructuring has its roots in the extant organizational literature. In fact, Baldrige and Deal (1983) maintain that separate school reform theories apart from mainstream organizational theories are unnecessary. For example, Rowan (1990) suggests that theoretical explanation for the first and second waves of school reform in the 1980's is grounded in mechanistic and organic management approaches, respectively, to school organization. First conceptualized by Burns and Stalker (1961), mechanistic management is defined by centralized and standardized procedures that inhibit the flexibility of workers for the sake of productivity. Organic management holds that worker flexibility is necessary in some organizations, especially those where information follows a more complex route (Perrow 1967). In organizations characterized by organic management, information tends to flow horizontally rather than through a vertical chain of command, thus fostering increased motivation and commitment among workers (Scott, 1992:252). In sum, the components of organic management for education are closely associated with the components advanced in many of the calls for restructuring (e.g., shared decision making, collaborative efforts by teachers) (Rowan et al., 1991).
A second connection with the organizational literature, and sociological theory in general, is the depiction of schools as communities, small societies, or microcosms of society on an organizational level. This perspective is partially rooted in early sociological writings on community, such as Tönnies' (1887) Gemeinschaft-Gesellschaft dichotomy and Durkheim's (1964) distinction between mechanical and organic solidarity. It is also consistent with modern interpretations of the communitarian perspective (e.g., Bellah et al., 1985; Etzioni, 1996). Like the open systems model, the communal schools model places emphasis on the social psychological and cultural aspects of educational organizations. However, it is a more simplistic approach in that it attempts to simplify the relationships and activities in the school for the purposes of providing a clear set of goals and improving overall effectiveness (Sizer, 1992a). Similar to the dearth of restructuring and organic reforms, community is thought by many to be lacking in high schools—especially large high schools (Newmann and Oliver, 1967; Powell et al., 1985; Wehlage et al., 1989). Toch (1991:272) argues that public schools must become "humane places . . . operating on the basis of commitment among the students and teachers within them rather than on the basis of compliance with rules and regulations alone."

1 Some sociologists, such as Waller (1932), have observed both communal and bureaucratic aspects in schools. However, Bowles and Gintis (1976) contend that the early twentieth-century school reform efforts—mostly inspired by Taylor's scientific management theory—contrasted with the efforts of major Progressive thinkers of the time, such as John Dewey (1916), who advocated more democratic and community-centered forms of schooling than what actually came into existence (and remain the standard today). Their contention is that "Taylorism" in the schools was highly supported by industrialists espousing the same bureaucratic forms in the workplace.
Gregory and Smith (1987) suggest that small high schools are especially adept at achieving community because students and teachers form closer working relationships, which in turn positively influence student outcomes. They believe that school districts must either break up their large high schools into smaller ones (250 students or less), or compromise by breaking up the single organization into smaller units. The latter alternative, called a "house" system, has several supporters in the restructuring literature. Researchers see the division of large high schools into houses with similar functions as a way of engendering community among the school's members and of fostering tightly knit relationships between students and teachers, and within teacher and student enclaves (Goodlad, 1984; Sizer, 1992a; Sizer, 1992b; Cawelti, 1993). Thus, as Lee and Smith (1995) have noted, this type of restructuring is thought to liken the cultures of traditional high schools to the communities found in small schools.

Based on these observations, I suggest that the use of the terms, communal, organic, and restructuring, in describing high schools are quite similar in meaning and in their implications for student outcomes. I address the subject of outcomes in the next section, which outlines some studies that have sought to specify the effects of school organization on student outcomes.

2.2.3 School Effects on Student Outcomes

Stratification and educational researchers show signs of agreement on the significance of certain internal school processes in conditioning teacher, student, and school outcomes— especially students' educational performance. Sociologists, influenced by the Coleman report (Coleman et al., 1966) and the early status attainment
models (Blau and Duncan, 1967; Sewell and Hauser, 1975), tended to view the school as a "black box," where inputs to school from family background and psychosocial characteristics pass through the box to create distributed outputs such as educational aspirations and attainment—without much variation in school influences (Lee et al., 1993). In other words, schools were not viewed as terribly important in determining the educational success of students.4

These findings were challenged immediately by a flurry of ethnographic research by authors such as Kozol (1967) and Rainwater (1970), who actually visited schools and observed firsthand the deteriorating conditions of inner-city schools, as well as the "flight" of middle-class families (along with their children) to better housing and schools in suburbia. More recent research by Kozol (1991) further supports his contention that there are "real" differences between the richest (suburban and predominantly white) and poorest (inner-city and predominantly black) schools, and that these have implications for students in these schools.

The black-box perspective was challenged as well by the discussions of effective schools in the late 1970's and early 1980's (Brookover et al., 1979; Purkey and Smith, 1983). Researchers influenced by the effective schools literature have since sought—with notable success—to find evidence of "school effects" on aspirations, attainment, and other student outcomes (Lee and Bryk, 1989; Bryk and Driscoll, 1988; 4

A line of research influenced by the early status attainment models has since included school structures among other structural locations (such as the workplace, or industry) in assessing "structural" effects on a variety of individual outcomes (see Kerckhoff, 1993; Beck et al., 1978).
Kerckhoff, 1993; Lee et al., 1993). For example, in a study of twelve London secondary schools, Rutter et al. (1979) found that the cumulative effects of several school processes—what they referred to as a school's ethos, or organizational culture—had a significant impact on school levels of student achievement and behavior (e.g., delinquency).

School-effects researchers have given a great deal of attention to one especially pernicious practice in secondary schools: tracking. They have provided evidence that placement in a lower level track has detrimental effects on the probability of upward mobility during and upon leaving school (Alexander et al., 1978; Barr and Dreeben, 1983; Oakes, 1985; Hallinan, 1994). In addition, multilevel analyses by Gamoran (1992) show that tracking's effects on student achievement are in part dependent on the tracking structure in place across high schools. Yet compared to achievement outcomes, there is less agreement on tracking effects on delinquency. Wiatrowski and colleagues (1982) found that a lagged measure of curriculur placement had no significant direct or indirect effects on delinquency among high school students sampled in the Youth in Transition study. In a study of middle-school students, Jenkins (1995) found that ability grouping was only an indirect predictor of school delinquency via students' commitment to schooling.

Several researchers have also found variance in outcomes by school type. Research on school size has shown that students in large high schools demonstrate higher levels of alienation from school and lower levels of school engagement, or attachment (Bryk and Driscoll, 1988; Wehlage et al., 1989; Fowler and Wahlberg,
Second, comparative school-effects research on public, Catholic, and non-Catholic private schools indicates that, controlling for a variety of background and selection factors, students in Catholic schools have on average the highest levels of achievement and engagement, and student achievement in Catholic schools is more equitably distributed. Achievement levels in other private schools are near those of Catholic schools, with students in public high schools lagging behind (Coleman et al., 1982; Coleman and Hoffer, 1987; Lee and Bryk, 1989; Bryk et al., 1993). Bryk (1995) credits a sizable portion of the robustness in Catholic school effects to the tendency of Catholic high schools to develop communal aspects of school organization. Thus, it appears that the "common school effect" on individual student outcomes may be attributable to structural location in a communally organized school—an effect shared by small, Catholic, perhaps other private, and (as I discuss below) restructuring high schools (Coleman et al., 1982; Bryk, 1995).

Two of the few published empirical studies of restructuring also represent some of the latest methodological developments in school effects research. Valerie Lee and Julia Smith conducted two studies of restructuring using middle-school students in the first paper (1993), and high school students in the second (1995). Given my interest in high schools, I focus only on the latter study. The authors begin the piece by noting the lack of consistent theoretical approaches in discussions of restructuring. Their own theoretical framework is constructed from the organic and communal school models. Using data on 10th and 12th graders from the National Education Longitudinal Study, they examine the effects of high school restructuring and school size on change
measures of academic achievement and engagement to school (e.g., how hard students work and how much they feel challenged by school work). Unlike many school effects studies, the authors recognize the multilevel (or hierarchical) nature of their research problem, and propose an analysis strategy that utilizes hierarchical linear modeling (HLM) techniques to determine differences in achievement and engagement both within and between schools. Bryk and Driscoll (1988:20) note that traditional regression analyses employed by school-effects researchers "can produce seriously flawed inferences" in models that treat school-level factors as contextual individual-level measures. Based on their HLM analyses, Lee and Smith (1995) conclude that students in restructured schools (classified as such by a 30-item index of schooling practices), show significantly higher levels of achievement and engagement than those enrolled in traditionally structured schools.

The methodological improvements in modeling made in recent research by Bryk and Driscoll (1988), Gamoran (1992), and Lee and Smith (1993; 1995) hold great promise for the continued study of the structural effects of schools. Yet this line of research shows considerably little concern for the effects of schools on alternative schooling outcomes, such as delinquency. The possibilities for linking restructuring with delinquency seem obvious, for example, given the consistent finding of a moderate to strong correlation between achievement and delinquency (Krohn and Massey, 1980; Wiatrowski et al., 1981; Liska and Reed, 1985; Agnew, 1985; Massey and Krohn, 1986; Wiatrowski and Anderson, 1987; Thornberry et al., 1991; Cernkovich and Giordano, 1992; Jenkins, 1995). These possibilities will be discussed in more detail below.
The following several sections of this review discuss the importance of the concept of social control for the present study, and provide theoretical support for bridging the organizational, educational, and school effects literatures with theoretical perspectives on delinquency in order to examine the effects of restructuring on delinquency.

2.3 Schools, Delinquency, and Social Control

2.3.1 Social Control: Two Essential Concepts

Social control was one of the first concepts developed at length in American sociology, dating back to the turn of the century and the early Chicago School of sociology. It continues to be a concept that is debated within the discipline (see Gibbs, 1989). Over time, the various conceptions of social control developed by sociologists have yielded two central and differing versions of the concept: the classical and the modern (Meier, 1982).

The classical notion of social control first appeared with the extensive work on the topic by Ross (1901). According to this view, social control is any social force developed by a community that sustains the social order of that community. This notion was popularized in the discipline by the Chicago School sociologists of the 1920's — especially by Park and Burgess (1925), who applied the concept to the interrelated problems of how a community deals with the problem of deviance in its midst and how it is able to maintain a certain level of social organization (or disorganization, as the case may be) that allows for the survival of the community. The obtuseness of defining social control as anything extended by a community for the purposes of self-regulation

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is understandable given the dual emphases during this period on 1) the independence of community dynamics from individual characteristics, and 2) pragmatism in sociological research. Janowitz (1975) suggests that this notion of social control was also helpful in describing the ways in which a community prevented the intrusion of coercive control (e.g., by the state). Janowitz (1975:91) singles out W. I. Thomas as one who looked beyond the more simplistic formulations of social order set forth by Tönnies (Gemeinschaft - Gesellschaft) and Durkheim (mechanical vs. organic solidarity):

[Thomas] saw society in institutional terms as consisting of a set of irreducible social groups, from primary groups to complex bureaucratic structures. Social control depended on effective linkage or articulation among these elements; social disorganization resulted from their disarticulation.

In contrast to the classical formulation, the "modern" version of the concept of social control tends to takes the perspective of the individual, rather than the collective. The development of the this conception is attributed mainly to Parsons (1937), who viewed social control as a type of socialization intended to promote conformity among group members. Parson's work is particularly indebted to Durkheim's argument that individuals internalize the norms of society via socialization processes; that "the essence of social control lay in the individual's sense of moral obligation to obey a rule, the voluntary acceptance of duties, rather than in simple external conformity to outside pressures" (Coser, 1982:15). The change in units of analysis between the classical and modern concepts mirrors the general shift in American sociology between pre- and post-World War II from fundamental questions about society and social organization to a concern with social institutions and the behavior and socialization of institutional
members (Janowitz, 1975). The focus on social control as a reaction to the deviant "actor" also relocated emphasis from the characteristics of community types to the characteristics of types of individuals. These changes led to the development of the more familiar notion of social control as the application of negative sanctions designed to punish and/or promote conformity in individuals.

Both the classical and modern versions of social control continue to be viable concepts in sociological research. Although the modern usage is the more common one, the classical concept is central to modern systemic/social disorganization theories of crime and delinquency. One of the major criticisms of the classical conception is that it is overly reliant on normative consensus within a collective for the purposes of maintaining order. Horwitz (1990) argues that the notion of "generally shared norms" in communities is more applicable to pre-industrial societies, where the internalization of norms is more easily achievable via 1) traditional and/or religious beliefs, and 2) the use of sanctions designed to ostracize or shame individuals to the point of conformity. These types of "informal" controls applied by social groups are at the heart of the classical concept, but are less necessary to the modern definition (see below). Bursik and Grasmick (1993) argue that most community residents at least share the belief that their surroundings should be free of crime and disorder, although there is less of a consensus on the latter (cf. Skogan, 1990).

There is at least some consensus among sociologists that the concept of social control is much broader than terms such as power and coercion. In fact, the classical definition of social control is the antithesis of coercive control (Janowitz, 1975).
Horwitz (1990) suggests that the modern definition is not necessarily reliant on coercive control, but can take various forms depending on the source of the response to deviance as well as the characteristics of the norm violator. In the next section, I outline the discussion on the nature of social control, and the feasibility of linking the classical and modern conceptions using the notion of "informal" social control.

2.3.1.1 The Character of Social Control

The source of authority, or those participating in the application of control, determines the character of social control. Criminologists tend to differentiate between two major types of controls: formal and informal. According to Clinard (1974: 254), "formal controls are the official actions of a group or society in response to the behavior of group members, whereas informal controls, such as gossip or ostracism, consist of unofficial group actions." The source of most formal social control is the state (e.g., police, courts), whose power to sanction is validated by the rule of law. Informal social control develops primarily from interpersonal relations and processes of socialization in families, among friends, and within communities.

The qualities of informal social control at both the micro and macro levels are a key issue in this study. Braithwaite (1989: 75) proposes that informal controls produce individual conformity by way of two mechanisms: 1) the individual's fear of disapproval by significant others, and 2) the "pangs of conscience" resulting from the internalization of societal norms by group members. While some sanctions result in the removal or elimination of individuals from the group, Braithwaite's theory suggests that informal controls are really only effective when the individual is re-integrated with the
group. I extend this discussion of individual controls in the section on bonding theory and its relevance to school delinquency (see Section 2.331). At the community level, informal social control spawns the social integration of community members, or what Durkheim (1964) called the "collective conscience." This is tantamount to the statement above that, according to the classical conception, social control depends on normative consensus (i.e., it relies entirely on the notion of informal social control in communities).\

Also, as at the individual level, structural controls are considered effective when they enhance the networks of interpersonal relations in a community, thus increasing the level of social integration (and concomitantly decreasing the level of social disorganization). This particular thread will be taken up again in the section on school delinquency and social disorganization theory (see Section 2.332).

The micro and macro counterparts of informal social control are tied together by the concept of socialization and the internalization of conformity-inducing norms. Durkheim characterized internalization as society existing within individuals and expressed through their social actions (Coser, 1982). The heritage of these ideas can be traced following Durkheim to Mead and Freud, and then to later work by Merton, Parsons, and modern criminological theorists (especially Hirschi). The keys to the

\[5\] The modern concept stresses both formal and informal controls. Thus, informal controls at both micro and macro levels share the need for normative consensus, or agreement on shared norms. For informal social control to effectively deter deviant behavior, individuals must agree on the norms that shun the specific violation in question. Formal controls are only based on shared norms to the extent that they are apparent in the law or non-state official regulations.
micro-macro linkage are norms of conduct, which are defined by Horwitz (1990: 1) as "the standards of right and wrong that prescribe and proscribe what conduct ought or ought not to occur." He goes on to state that, "every social action, relation, or arrangement is permeated by normative qualities that indicate moral conduct" (Horwitz, 1990: 1). The culmination of these normative actions and relations in a community equates to the community self-regulation described by classical social control theorists.

Over the last century, the U.S. and many other industrialized countries have moved from a reliance on informal controls to an emphasis on formal social control and formalized systems of control. Aday (1990) cites Durkheim’s (1964) mechanical-organic solidarity dichotomy and Weber’s (1978) three types of legitimate authority as two of the primary sociological explanations for changes in the nature of social integration in Western societies. Informal social control was clearly the *modus operandi* of agrarian societies, which typify both the characteristics of mechanical solidarity as well as traditional types of authority. With the increasing complexity of the industrialized division of labor at the turn of the century, integration, utilizing Durkheim’s terms, took on the organic qualities of a lesser dependence on social interaction within primary groups to enforce norms, and a more routinized approach to punishing rule-breakers. The industrializing U.S. experienced a growth spurt in "control" institutions, including local police agencies, juvenile courts, penitentiaries, asylums, and schools. These institutions assumed many of the duties for enforcing norms that had previously been the province of tradition-based extended families. In this century we have come to rely more on the rule of law and its enforcement to handle
norm violations. This essentially describes the change in emphasis from traditional to rational-legal authority, and the concomitant change in emphasis from informal to formal social controls. Horwitz (1990: 241) credits what he calls the "expansion of structural individualization" for this shift in integration:

The structure of modern communities, as well as of families, has drastically changed. The development of an automotorized society has led to the dispersion of homes, jobs, and shopping over a broad area . . . More and more people live in sprawling suburbs in large metropolitan areas. People can avoid spending time in the household and neighborhood and are freed to interact and spend their leisure hours with widely scattered others. Many married women are in the labor force, so residential areas are largely abandoned by adults during the daytime. High rates of geographic mobility and divorce mean that people frequently move in and out of areas. As interaction within families and neighborhoods declines, communities no longer have the capacity to exercise strong informal social control [emphasis added].

The above statement illustrates a paradox concerning this shift in the character of social control. The U.S. has become more dependent on formal social controls, but these controls are increasingly less effective in quashing deviance than informal controls (Aday, 1990). Thus, by de-emphasizing the importance of informal controls, we have weakened the overall effectiveness of social control (see e.g., Aday and Thomson, 1992; Horwitz, 1990). At the individual level, perceptual deterrence studies have shown that the deterrent effects of perceived informal controls on the tendency to commit certain

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6 Clinard (1974) notes that non-state agencies engaging in formal social control tend to rely more on rewards, which emphasize compliance to norms of conduct, than on punishments invoked to achieve conformity and deter future rule-breaking. However, there is less research on the effectiveness of these compliance mechanisms (see Reiss, 1984). Natriello (1984) maintains that schools with strong cultures (i.e., communal schools) rely more on compliance than deterrence strategies. An example of such tactics in schools is rewarding students for perfect attendance, a practice conceivably intended to reduce school skipping and dropping out.
types of deviance often outweigh perceptions of formal sanctions (Silberman, 1976; Meier and Johnson, 1977).

More importantly, the two theories discussed below both rest on the idea that the weakening of informal social controls results in a greater probability of delinquency, both at the micro and the macro level. Before moving on to these theories, I discuss in more detail in the next section how the concept of social control is relevant to schools.

2.3.2 Schools as Institutions of Control

The impact of the progressive education movement has transformed the years spent in secondary education into a major transition in social life, and transformed the high school in this country into a key social institution. Although experiences among high school students vary considerably depending on their race, gender, and socioeconomic status, there is growing concern among educational researchers and sociologists over how the structural characteristics of high schools affect students on the path to the diploma (as discussed above). This corresponds with a more general interest in social organizations and how individuals are affected by the structural characteristics of these organizations. How do these interests translate to the relationship between schools and social control? According to Scott (1992: 278), "much of what passes for organizational structure consists of varying types of mechanisms for controlling the behavior of participants." The following two sections outline the ways in which schools effect control and how they contribute to social control in the wider context of the community.
2.3.2.1 The Custodial Function of Schools

The school is here to keep you off the street and out of trouble until you're old enough to get out there and deal with it. — Anonymous high student, quoted by Ernest Boyer, High School: A Report on Secondary Education in America

Educational sociologists outline several functions of schools as social institutions. One of the most basic of these is the role of the school as caretaker for young people during those daytime hours when they are not under parental supervision. Boocock (1980) notes that this control function is not far removed from the service responsibilities to "clients" in Goffmanian total institutions, such as prisons and mental hospitals. Studies of student-teacher interaction and attitudes suggest that the similarities between schools and other control institutions are quite tangible. In a thought-provoking essay on the effects of law on everyday life, Macaulay (1987) suggests that schools serve to produce a future generation of law-abiding citizens by teaching students to value compliance to classroom and school rules. Many students learn to live by the routine of 50-minute class periods and 5-minute hallway exchanges, and both teachers and students assimilate the "tyranny of the lesson plan," which Ritzer (1996: 107) believes enforces the tendency for "producing submissive, malleable students."

This sets off a vicious cycle, as McNeil (1986) concludes from a qualitative analysis of four schools. When teaching and learning become ritualized, students "disengage from enthusiastic involvement in the learning process, [and] administrators often see the disengagement as a control problem" (McNeil, 1986: xviii). Sizer (1992a) points out the one main incentive that prevents many students from totally disengaging...
from schools: the diploma; but he also determined that in many high schools the
diploma was awarded more on the basis of school attendance than on actual mastery of
the curriculum. This illustrates McNeil’s (1986) point that high schools suffer from a
tension between the dual functions of education and control.

Notwithstanding these observations, there seems to be some disagreement over
how much control schools really have over students, and, conversely, how much
freedom is enjoyed by the students themselves. While both functionalist and conflict
perspectives in the sociology of education recognize the control function of schools, and
education at a broader level, it is the conflict theorists who are at the forefront of
examining the role of social control in the development of schools in this country. In
the classic work, *Schooling in Capitalist America*, Bowles and Gintis (1976) maintain
that the related processes of industrialization and capitalized labor were not necessarily
the prime motive for the Progressive movement’s call for mass secondary education.
They claim that it was more likely the tenuous state of the economy during the 1920’s
and 1930’s, in the face of increasing ethnic and cultural heterogeneity, that prompted
reformers to deem schools as a key tool to assimilate the hordes. Nevertheless, schools
were designed to prepare many for work in factories or some other rote-like industry.

Some disagree with the portrayal of comprehensive high schools as factories.
Powell et al. (1985) argue that the drive for mass education initiated not so much with
reformers influenced by scientific management theory and the wonders of capitalism,
but with students’ twin desires for a better entry position into the labor market and a less
demanding, but comprehensive, academic curriculum that would easily lead to the
diploma. They characterize today's high schools as organizations more akin to shopping malls than factories, in that students are freer to make choices about how easy or difficult their curriculum should be. Nevertheless, they realize that schools do control students. One of the most important missions to these schools is to lower truancy rates. Two reasons are offered for this: 1) a vested interest, in that some schools' funding is dependent on attendance rates, and 2) to prevent increases in the dropout rate.

Finally, not being primary groups, schools do not usually have the same opportunities for influencing conforming or deviant behavior as families, or even companions (Barlow and Ferdinand, 1992: 161). Thus, one of the meanings of the title of this dissertation is related to the status of the school in a position of secondary control. But there is plain evidence that schools take seriously their role as control agents. In many contemporary high schools, students are fettered in their movements outside the classroom by hall passes and even I.D. cards, and some schools track the whereabouts of students, both on and off campus, by computer (Toch, 1991). The reach of control has even extended to video surveillance of students riding the school bus (Staples, 1997).

2.3.2.2 Schools as Community Institutions

Schools are institutions of control in another sense, which is related more to the classical definition of social control. Drawn from the Chicago School’s conception of social control as a force that sustains the social order of the community is the idea that the social institutions that are a part of the community are the prime sources of social
control in that community. This is most clear in the writings of Robert Park (1925), who believed that one of the outcomes of urbanization was that communities assigned many of the functions that had previously been the responsibility of the family to "secondary" institutions like the school. Park (1925: 24) wrote: "It is around the public school and its solicitude for the moral and physical welfare of the children that something like a new neighborhood and community spirit tends to get itself organized." Thus, it is clear that Park viewed the school as a key institution—especially in urban communities.

Franklin (1986), in a book on social control in schools, traced much of the history of American school curriculum along the lines of the development of this country from a predominantly agrarian and rural society to a highly industrialized and predominantly urban society. He notes that the most successful Progressive reformers were those popularizing scientific management notions as a means of making schooling more efficient for the population, while at the same time serving to build better communities. However, Franklin seems to think that the latter was given more lip service than honest efforts to bring to a reality. Thus, many of the reformers split over the issue of community and the importance of instilling community within schools:

Where [George Herbert] Mead saw the task of the school as that of mitigating the worst effects of industrial capitalism, thereby fitting the economic system to the needs of individuals in a democratic society, [Franklin] Bobbitt and [Werrett Wallace] Charters saw the task of the school as simply fitting the members of society to the demands of the economic system (Franklin, 1986: 114)
To a great extent, then, the work of school reformers after the 1930's pushed changes in the direction of making schooling more relevant to the needs of the labor market and wider society than the immediate community. Toby (1980) suggests that American urban high schools have become isolated from their surrounding communities, and that this is partially due to the increase in the sizes of high schools after 1950 (discussed in Chapter 2). However, this may be overstating the case. Citing organizational research on schools, Bidwell (1965) concluded that urban schools were probably less integrated within their communities, and that residents of rural communities were probably more likely to take an interest in the activities of local schools. Nonetheless, schools have come to be seen not only as a source of social control for students within the organization, but a stabilizing influence on their communities as well.

2.3.3 Social Control and Delinquency Theory

The theories of social bonding and social disorganization are both theories of informal social control (Bursik, 1988; Sampson and Groves, 1989; Sampson and Laub, 1993; Pfohl, 1994). I link the theories through this concept, which emphasizes the importance of integration, as opposed to deterrence and labeling theories, which tend to put more emphasis on formal social control.

2.3.3.1 Social Bonding Theory

Various manifestations of control theory displaced functionalism in the 1970's as the predominant positivist perspective on crime and deviance. Control theory bears close logical ties to Durkheim (1966), since what causes conformity is the question. In
most interpretations of control theory (Nye 1958; Hirschi 1969; Reckless 1973), the basic premise is that "people are not so much pushed to violate norms and laws as they are contained, controlled, or constrained from acting in those ways" (Aday 1990:69).

The most compelling control theory by far has been Travis Hirschi's (1969) social bonding theory, which appeared with the publication of his book, *Causes of Delinquency*.

According to Hirschi's (1969) version of social control theory, individuals bond to schools and other social institutions. Strong bonds are what allows individuals to conform, and these bonds are comprised of four major elements: attachment, commitment, involvement, and belief. Attachment refers to a "sensitivity to the opinion of others" (Hirschi 1969:16), and commonly takes the form of "affective bonds" with significant others (i.e., parents, peers and teachers). Commitment is reminiscent of Toby's (1957) stakes in conformity, "that are built up by pursuit of, and by a desire to achieve, conventional goals" (Hirschi 1969:162). Involvement is defined such that "a person may simply be too busy doing conventional things to engage in deviant behavior" (Hirschi 1969:22). Belief refers to "the extent to which people believe they should obey the rules of society" (Hirschi 1969:26). The stronger each of these elements are, the greater the pressure to conform to societal norms and the lesser the probability to commit delinquent acts.

Social bonding theory has been one of the more widely tested theories of crime and deviance since its inception, yet support for the theory has been mixed. One reason for this is the substantial inconsistencies in the way the bonding variables have been
operationalized. Another reason is that subsequent researchers had to deal with ambiguities emanating from Hirschi's work. Krohn and Massey (1980) effectively argued that involvement and commitment were conceptually and empirically indistinguishable, and so they used only three bonding variables in their analyses. Other researchers have found some of the elements, like beliefs, to be incredibly more complex than originally thought by Hirschi (Matsueda 1982; Wiatrowski and Anderson 1987).

2.3.3.2 Social Disorganization Theory

The basis for social disorganization theory is the view of the community as an ecological organism, where survival hinges on the interdependence of its social institutions. A portion of Park and Burgess' (1925) human ecology model proposed that the coordination of social institutions within communities was a key factor in the differential rates of juvenile delinquency across urban neighborhoods. They suggested that as urbanization took root in the early 20th century, formal state institutions (i.e., juvenile courts, social service agencies, schools) began to supplement and/or replace more traditional institutions (i.e., family and neighborhood) as social control agents. Park and Burgess (1925) regarded delinquency as a necessary outcome of the failure of community organizations. Social disorganization was the process of the actual breakdown of social control by these organizations. Bursik (1988:535) has defined it as "the inability of a local community to regulate itself in order to attain goals that are agreed to by the residents of that community..."
Social disorganization theory became relatively invisible after the classic article by Robinson (1950) on the problem of ecological correlations was published. Robinson called into question a slew of recently-published ecological-level research on the assertion that most ecological findings were inferior substitutes for individual-level correlations. According to Bursik (1988:522), this article had a "devastating effect" on social disorganization theory, leading to the dominance of social-psychological theories of crime and deviance in the decades following Robinson's article (e.g., see social bonding theory).

Yet social disorganization has enjoyed a comeback in the discipline in recent years, thanks in part to articles by Bursik (1988) and Sampson and Groves (1989). Both of these authors restate the original ideas of the social disorganization model, discussing the advantages and the importance of the perspective, as well as its limitations and needed clarifications by future researchers. Bursik (1988) takes the social disorganization approach of Shaw and McKay (1942), which examines the theory only on the neighborhood level of analysis. He cites several advantages to using the ecological level of analysis in the study of crime. However, he lists some problems (other than the charges of ecological fallacy) that have been leveled against social disorganization research.7

7 One often-cited criticism of the perspective is its lack of consideration for the political and economic processes critical to the creation and maintenance of underprivileged areas. Bursik and Grasmick (1993) suggested a reformulation of social disorganization theory that takes processes such as spatial mismatch and white flight into account. Thus, the effects of social disorganization on crime and delinquency, at the neighborhood level, are thought to be mediated by factors such as the extent of
Of particular importance on this list is his discussion of schools. As discussed above, although many of the Chicago school sociologists cited the importance of schools as a source of neighborhood regulation, empirical work on how schools act in this function has been lacking. Bursik (1988:529) suggests that while social disorganization research has successfully addressed such constructs as family structure and their ability to explain neighborhood victimization rates (Sampson, 1986), applications of the theory "have generally failed to consider the degree to which the socializing capabilities of local schools are a source of neighborhood self-regulation."

In methodological terms, this translates to serious limitations on the ability to match school and neighborhood data, given the differing political boundaries between communities and school districts (Bursik, 1988).

A coinciding idea here is that "ineffective" schools may be regarded as indicators of community disorganization. Like stores and parks, schools remain integrally tied to community organization and are a critical source of the development of formal and informal networks. These networks are a central aspect of the newer systemic formulations of social disorganization theory (Sampson and Groves 1989; Bursik and Grasmick 1993), because they mediate many of the effects of economic deprivation and residential turnover on crime and delinquency. Further, schools are a primary source of socialization to educational values, which is another source of control for communities.

Although racial segregation in the metropolitan area. Rather than assuming that disorganized areas are determined naturally, as did Park and Burgess (1925), this reformulation acknowledges the historical processes that helped to create disorganization in these areas (e.g., housing regulations and a shifting tax base to the suburbs).
If ineffective schools produce high rates of dropouts, this is likely to become evident in the community in the form of higher rates of low-skilled laborers and unemployment.

On the other hand, the level of school delinquency is affected not only by the effectiveness of school organization and school resources, but also by community disorganization and crime (Gottfredson and Gottfredson, 1985; Hellman and Beaton, 1986). Thus, social disorganization is implicated in school delinquency in two ways:

1. High levels of social disorganization in neighborhoods are expected to raise levels of school delinquency.
2. Ineffective schools are indicators of social disorganization in the community.

This latter point acknowledges that the effectiveness of schools can be measured on the one hand by the levels of delinquency and teacher and student victimization in schools. Thus, a safe environment in schools is an indicator of effectiveness. Second, effectiveness can be measured by the level of academic achievement, graduation rates, and dropout rates of the student body.

2.3.3.3 Contextual and Multilevel Approaches

Some theorists (Kornhauser 1978; Bursik 1988; Pfohl 1985) have suggested that social disorganization theory (at least, Shaw and McKay’s traditional statement of it) can be easily viewed as a collective-level analog to individual-level social control theories—especially Hirschi’s social bonding theory. This is so because both assume similar social dynamics; the difference between them is what each of them leaves implicit. First, social disorganization theory is concerned with the ability of neighborhoods to regulate themselves. The concept of social disorganization implies a
lack of attachment of neighborhood residents to normative goals of community survival (e.g., socialization of new members). The theory does not assume that all individuals living in disorganized areas will commit crime, only that crime is more likely under these conditions. Thus, we are left to wonder exactly how the contextual effect of living in disorganized areas weakens the bonds of residents to conventional norms. This is not to say, though, that social disorganization has to explain the behavior of individuals: it does not (Toby 1957). It is simply that some criminologists have felt that social disorganization theory is incomplete in arriving at a total understanding of delinquency and crime.

Second, social bonding theory explicates the nature of the individual’s social bond in defining its four major components, and assumes that individuals with weakened bonds will be free to commit crime. However, it leaves implicit the structural conditions under which the bond is more likely to become weakened (Sampson and Laub 1993). For example, Tony, who is strongly bonded to parents and school, may be more likely to participate in delinquent behavior than Jack, who is similarly bound, precisely because Tony lives in a disorganized area.

Bursik (1988) has suggested that a fruitful avenue of research is contextual social disorganization research. A good example of this is the study by Ora Simcha-Fagan and Joseph Schwartz (1986). The study design involved a quasi-experimental design, in which 12 New York neighborhoods were selected (based on SES and racial composition characteristics), and then individuals were sampled from within each neighborhood. Traditional bonding and delinquent subculture measures had significant
negative effects on individual-level delinquency (both self-reported and official).

Although the contextual effects of neighborhood-level measures of community social disorganization were significant, the authors' design limits the generalizability of their findings. Nevertheless, the study has implications for both social disorganization and social bonding theories.

Contextual designs have been employed to study individual-level delinquency in both the community context (Heilman and Beaton, 1986; Gottfredson and Taylor, 1986) and the school context (Rutter et al., 1979; Figueira-McDonough, 1986; Cernkovich and Giordano, 1992; Felson et al., 1994). Fewer studies have employed multilevel designs to study delinquency (Gottfredson et al., 1991; Simcha-Fagan and Schwartz, 1986), and only one multilevel study has studied school-related disorder problems (Bryk and Driscoll, 1988).

With regard to contextual studies of school-related delinquency, Wiatrowski et al. (1983:771) state: "Delinquency researchers have usually stressed complex educational processes with broad strokes, that involve oversimplified representations of educational environments that mask the potential variation among classrooms and schools." Very few studies of delinquency employing school-derived student samples examine the effects of these schools beyond perceptions of school experiences or indicators of school bonding. In other words, school context, as measured through indicators of organizational structure or processes, remains outside the scope of the majority of the work on school delinquency. Yet even the existing contextual studies have their drawbacks. Due to problems related to data limitations or shortcomings in
approaches to data analysis, these contextual studies have left the door open to varying interpretations of school influences (e.g., Cernkovich and Giordano, 1992; Felson et al., 1994). With the exception of Bryk and Driscoll (1988), the few studies that have conducted multilevel analyses of delinquency have not used HLM, but rather structural equation modeling or ordinary regression analysis.

2.3.4 Implications for Restructuring Schools


> With respect to schooling, I can largely agree with Wilson and Herrnstein (1985: 264-88) that schools which are successful at minimizing delinquency have the same fundamental characteristics as families that succeed at controlling delinquency: they provide a 'firm but nurturant' social environment. They are neither cold and firm nor warm and permissive, but warm and firm.

This theme of schools as having a "warm, but firm" approach to social control not only emphasizes the importance of informal social controls and their potential effectiveness in dealing with the problem of delinquency in schools, but it also implicates the types of measures called for by the restructuring movement in the control of delinquency. Advocates of restructuring, especially those influenced by the communitarian school of thought, portray the positive benefits of public school reform in part as a way to create the type of nurturing environment found in small schools and Catholic schools (Coleman et al., 1982; Bryk, 1995). Thus, the link between restructuring and delinquency is the concept of informal social control. In the

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remainder of this section, I examine some of the ways that restructuring may be linked to delinquency via the theories of informal social control described above.

From a micro social control perspective, restructuring may be viewed as a way to increase students' school bonding. Specifically, restructuring may inhibit delinquency to the extent that it moderates the effects of school attachment and school commitment on delinquency. School attachment is distinguished from attachments to parents or peers, which are also suggested to inhibit individual delinquency (Hirschi 1969; Liska and Reed 1985; Massey and Krohn 1986; Rankin and Kern 1994; Sampson and Laub 1993; Wiatrowski et al. 1981). Restructuring should strengthen individuals' school attachment in two ways. First, such practices as group learning in classrooms and teachers remaining with the same group of students each school year should increase the affective bonds that students develop with other conventional persons in the schools (Braithwaite, 1989: 175). Second, since restructuring involves an emphasis on school goals, students who otherwise would become unattached or alienated in high school might find renewed interest in school and a reason to care about the school upon its restructuring. This might be expressed through satisfaction with classes or positive attitudes towards the school in general.

Restructuring should also positively influence school commitment in two ways. First, Lee and Smith (1995) find that restructuring produces a more equitable distribution of academic achievement in high schools. Given Jenkins' (1995) conclusion that tracking enhances school delinquency by producing lower levels of school commitment among those in lower-level tracks, restructuring should strengthen
school commitment to the extent that the distribution of academic achievement is more equitable in restructured schools. Second, restructuring should also increase the academic achievement of students, which is another indicator of having a stake in conformity (Lee and Smith 1995; Hirschi 1969).

There is little empirical research that has tested such propositions, although one report released by the Office of Juvenile Justice and Delinquency Prevention supported what the authors called the "organizational change approach" to preventing school delinquency. They argued that by implementing several school reforms similar to those called for by restructuring proponents, schools would be able to reduce school disorder by "increasing opportunities for bonding and commitment to conventional behavior..." (Little and Skarrow, 1981: 3-3). Denise Gottfredson (1986; 1988) has found that school change programs designed to prevent delinquency lead to modest positive changes in behavior via school processes such as school bonding.

From social disorganization theory we derive the idea that characteristics from the communities in which public high schools are embedded may affect the nature of restructuring and, ultimately, delinquency. Of particular relevance here is the argument that schools are subject to the level of social control in their communities. As Bursik (1988) and others have argued, disorganized schools tend to exist in disorganized communities. I expect that restructuring, given the organic focus on horizontal authority and flexibility in task achievement, presumably offers an organizational structure better suited to dealing with levels of delinquency in the organization.
In summary, social disorganization theory suggests that restructuring should mediate the effects of potentially harmful community influences on delinquency. Social bonding theory suggests that restructuring should moderate the effects of school bonding on delinquency. These expectations are laid out more formally in the next section, which presents the overall model of school and student delinquency.

2.4 An Informal Control Model of School Delinquency

2.4.1 Model

The above review has brought together two disparate literatures loosely connected by the school-delinquency relationship. First, school effects researchers have developed new ways of thinking about school organizational characteristics and processes. This has led to changes in methodology, with the current emphasis on multilevel analysis. Recent work addressing the effects of restructuring on student outcomes suggests a direction not previously taken in school effects research—the study of alternative student outcomes such as delinquency.

Second, school delinquency research has just recently begun considering the salience of school effects. I suggest that social bonding theory and social disorganization theory are necessary frameworks to fully understand the restructuring-delinquency relationship. Given the known influence of school bonding on delinquency, it is necessary to establish what influences this relationship. As a school-effects construct, restructuring implies that schools are responsible for maintaining the social bond. On the school level, restructuring will aid schools in buffering harmful
influences in the community, and help to create the warm, but firm social climate necessary for lower levels of delinquency.

2.4.2 Expectations

The model presented in Figure 2.1 lays out the major propositions of this dissertation. This overall heuristic is broken up into three major portions in the three analysis chapters to follow. In Chapter 4, I focus on the effects of school bonding on delinquency at the student level of analysis. This model includes a set of predictors relating to students' personal and structural background and social processes outside of school expected to condition the bonding-delinquency relationship. Chapter 5 tests a model of school delinquency at the school level of analysis. The effects of restructuring, other school processes and school characteristics, and community characteristics on school delinquency are assessed in this chapter. In the last analysis chapter, Chapter 6, I employ a trimmed set of predictors to gauge the effects of restructuring and other school-level predictors on student delinquency and the bonding-delinquency relationships in a set of multilevel models. Specifically, the analyses correspond to the following expectations:

**E1:** Students reporting high levels of school bonding will be less likely to engage in delinquency, net of other relevant individual-level predictors (Chapter 4).

**E2:** Schools that are more restructured will have lower rates of delinquency than more traditional schools, net of other relevant school and community factors (Chapter 5).

**E3:** Restructuring will moderate the relationship between school bonding and delinquency, net of other individual- and school-level effects (Chapter 6).
Figure 2.1. Heuristic of Informal Control Model of School and Student Delinquency
CHAPTER 3
METHODOLOGY

3.1 Data

3.1.1 The High School Effectiveness Study

The data I use in this study are a supplement to the National Educational Longitudinal Study (NELS) called the High School Effectiveness Study (HSES) (Scott et al., 1996). Both studies were designed and collected by researchers at the National Opinion Research Center, and are ongoing projects under the auspices of the National Center for Educational Statistics, an agency in the U. S. Department of Education. The NELS began as a two-stage, nationwide stratified sampling design, which resulted in a primary sample of 1,052 middle schools and a secondary sample of approximately 25,000 eighth-grade students. The primary data collection effort entailed self-administered surveys of students, teachers, school administrators (one per school), and parents or guardians (one per student). On the basis of information provided by students in the baseline year, follow-up questionnaires were administered to the same students in 1990 and 1992. The result of this design is that NELS data for the first and second follow-ups are generalizable from the student samples, but because the baseline students dispersed to a wide array of high schools and the fact that these schools by were not sampled randomly, data for NELS high schools by themselves are not considered generalizable to high schools nationwide (Ingels et al., 1990; 1994).
The HSES is a scaled-down version of the NELS (Scott et al., 1996). It contains the same questionnaire items for students, parents, teachers, and school administrators as the NELS; however, there are some important differences between the two data sets. First, the baseline sampling year for HSES ran concurrently with the NELS first follow-up collection for 10th grade in 1990. The HSES sampled from a primary frame of 724 high schools attended by at least one NELS first follow-up student in the 30 largest metropolitan statistical areas (MSA's—see Table 3.1). The target sample size for the baseline year was 276 schools, based on 16 strata cross-classified by urbanicity (urban vs. suburban school), sector (public, Catholic, or other private school), and the NELS within-school student sample size (< 6 NELS students vs. ≥ 6 NELS students). Of the 276 high schools sampled, there are baseline data collected for 246 of them. Unlike the NELS high schools, these schools may be treated as a sample representative of urban and suburban high schools in the 30 largest MSAs.

Students make up the secondary sampling unit of the HSES. The initial sample drawn in the baseline year was 9,141 students. Of these, 3,176 were NELS-sampled students, and 5,965 were selected randomly for HSES. Thus, the overlap in student samples between the two studies accounts for approximately one-third of the HSES sample. Of these 9,141 students, 7,642 participated in the baseline study (84% completion rate). A total of 6,895 baseline students were re-surveyed in the 1992 12th grade followback study. As with the baseline year, the followback study data were collected concurrently with the second follow-up collection efforts for NELS. The data
Table 3.1. MSA Locations for the High School Effectiveness Study:  
High Schools Participating in the Baseline Year, 1990 (N = 247)

<table>
<thead>
<tr>
<th>Northeast</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York, NY</td>
<td>Washington, DC</td>
</tr>
<tr>
<td>Philadelphia, PA</td>
<td>Houston, TX</td>
</tr>
<tr>
<td>Boston, MA</td>
<td>Atlanta, GA</td>
</tr>
<tr>
<td>Nassau-Suffolk, NY</td>
<td>Dallas, TX</td>
</tr>
<tr>
<td>Pittsburgh, PA</td>
<td>Baltimore, MD</td>
</tr>
<tr>
<td>Newark, NJ</td>
<td>Tampa-St. Petersburg, FL</td>
</tr>
<tr>
<td></td>
<td>Miami-Hialeah, FL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Midwest</th>
<th>West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago, IL</td>
<td>Los Angeles, CA</td>
</tr>
<tr>
<td>Detroit, MI</td>
<td>San Diego, CA</td>
</tr>
<tr>
<td>St. Louis, MO</td>
<td>Anaheim-Santa Ana, CA</td>
</tr>
<tr>
<td>Minneapolis-St. Paul, MN</td>
<td>Riverside-San Bernadino, CA</td>
</tr>
<tr>
<td>Cleveland, OH</td>
<td>Oakland, CA</td>
</tr>
<tr>
<td>Kansas City, MO</td>
<td>Phoenix, AZ</td>
</tr>
<tr>
<td>Cincinnati, OH</td>
<td>Seattle, WA</td>
</tr>
<tr>
<td></td>
<td>Denver, CO</td>
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<tr>
<td></td>
<td>San Francisco, CA</td>
</tr>
<tr>
<td></td>
<td>San Jose, CA</td>
</tr>
</tbody>
</table>

Note: Adapted from Table 1-1 in Scott, et al. (1996)
for both 10th and 12th grade waves were collected in the spring semester of the academic year.

The second manner in which HSES differs from NELS is in the purpose of the study and its potential usefulness for researchers interested in school effectiveness. Although NELS provides a great deal of information on school organizational practices and student outcomes, there are serious methodological limitations to using the data to measure contextual effects — especially for the non-random samples of NELS high schools in the first and second follow-up studies. NCES implemented the HSES augmentation of students in NELS high schools in order to accommodate researchers interested in questions requiring the use of multilevel modeling. They accomplished this by re-sampling students in NELS-sampled schools that agreed to participate in HSES. The average sample size within schools is considerably higher in the HSES than in the NELS — approximately 25 students per school. This expansion proved especially necessary for those high schools (primarily in urban areas) attended by only one or two NELS sample members.

The expense of the HSES augmentation limited NCES data collection efforts to high schools in the largest MSAs. Nevertheless, the HSES schools cover a broad range of school types by size, sector, and urbanicity. Due to the small within-school sample sizes mentioned above, I realized early on in this project that the HSES would be more suitable than the NELS for my school- and multi-level analyses.¹ Although the

¹ Student-level analyses using NELS data (N = 9,076) produced very similar findings to those presented in Chapter 4.
urbanicity differences between the HSES and NELS has changed the nature of my research question, I do not believe that moving from NELS to HSES called for any major shift in my theoretical framework, or changed the importance of the question itself. In fact, the problem of school delinquency and the question of whether or not to restructure are probably more salient issues in the urban districts of this country. While the data for this study may limit the extent to which my findings are generalizable to high schools nationwide, the potential importance of the findings in terms of both research and school reform policy should not be diminished.

3.1.2 School Communities

In order to adequately measure characteristics of the communities in which the HSES schools were located, I chose the census tract as the area of reference. I obtained data on census tracts from the TIGER/Census Tract Street Index using the street address for each school provided by the Common Core of Data, a database containing basic information on public elementary and secondary schools in the United States (see section on data filters below). After locating each school within a tract, I used the 1990 Census Summary Tape File 3A to acquire a number of population and housing parameters for each area, which I then used to create the community contextual characteristics described in the next section.

According to the Census Bureau, a tract is a relatively small subdivision of a county, with population ranging from 2,500 to 8,000 persons, and covering a geographical area of approximately 15 to 20 city blocks (U.S. Bureau of the Census, 1993). Thus, I treat the census tract in this study as a proxy for a residential
neighborhood. There are two reasons to justify doing this. First, the tract is a common proxy for neighborhoods in the criminological literature (see e.g., Elliott et al., 1996). In their re-analysis of the NIE’s Safe School Study, Gottfredson and Gottfredson (1985) used the census tract as a neighborhood measure for some of the secondary schools in their sample. Second, one is more likely to approximate the catchment area, or attendance zone, of a high school with a tract than with a smaller unit, such as a block group.

Of course, the treatment of a census tract as a catchment area or neighborhood is not without problems. First, we do not know the actual nature of the catchment areas of these high schools, given that the NCES did not map the attendance boundaries of the NELS or HSES high schools.\(^2\) Second, there are difficulties in determining to what extent any pre-defined “emergent” measure of an area corresponds to how residents themselves define their neighborhood. As Lee and Campbell (1997) have pointed out, a neighborhood is not just a physical entity, but one that also can be identified by demographic (e.g., race, SES) or symbolic aspects (such as place name). However, as

\(^2\) NCES provides two other feasible options to HSES researchers interested in measuring school communities: the zip code and the school district (public schools only). The census tract is preferable to the former, given that tracts do not usually cross political boundaries. The designation of zip codes is also generally less tied to residential patterns. The tract is also preferable to the latter, which tends to cover a much larger geographical area. Although the ratio of school districts to counties in the U.S. is approximately 5:1, in many areas a county is served by a single school district. In earlier work on this study, I began with data from school districts, and in most cases the results were equivalent to those presented in Chapter 5. A few distinctly district-related variables, namely, expenditures per pupil and the differential between median incomes in the tract and the district, were left out of the present analysis due to their null relationships with the outcome variables.
Bursik and Grasmick (1993) suggest, there are advantages to measuring neighborhood characteristics based on emergent properties—or properties based on census-quality tabulations of such characteristics—over measures derived from the aggregated responses of survey respondents that live in the neighborhood, and especially over measures derived from informant reports (i.e., data on neighborhoods provided by school administrators) (see also Gottfredson et al., 1991).

One could argue that the design of this study really requires a three-level model of school delinquency (student, school, and community). However, I argue that high schools correspond to communities on a 1:1 basis, given the theoretically-based perspective of schools as primary institutions in local neighborhoods. To my knowledge, this is the first study to combine the HSES along with community data.

3.2 Measurement

All student-level measures are taken from the HSES student component data file. School-level measures of restructuring, delinquency, and other school characteristics are drawn from the school component file constructed from administrator questionnaire data. Community contextual data, as discussed above, were provided by 1990 census tabulations for tracts. All independent variable measures are from the baseline data collection year (1990), and the dependent variables are taken from the 12th grade followback data (1992).

3.2.1 Dependent Variables

The dependent variable, school delinquency, is measured on both the individual and school levels. Student delinquency is a summed index of weighted responses
relating to self-reports on five items: fighting, cutting or skipping classes, breaking school rules, drinking alcohol, and smoking marijuana (Cronbach’s α = .59). Each of these items refer to the number of times the respondent engaged in these behaviors in school since the beginning of the academic year (0 = Never, or 0 occasions; 1 = Once or twice; 2 = More than twice). Due to the index’s positive skew, index scores are transformed to their natural log (after adding 1 to the component scores).

The measures of school-level delinquency are a set of indices composed of items from the HSES school administrator questionnaire, in which each administrator was instructed to “Indicate the degree to which _________ is a problem with students in your school.” For each of 13 items, responses vary from 1, “No problem,” to 4, “A serious problem.” An overall index of the school delinquency problem is a weighted average of these items (Cronbach’s α = .88) (see Appendix C). Three sub-indices were created from the overall index: school misconduct problem, school drug problem, and school crime problem. The location of the 13 items within the sub-indices is as follows. School misconduct (Cronbach’s α = .78) is a 2-item index measuring tardiness and class cutting. School drug problem (Cronbach’s α = .85) is a 4-item index that includes the following problems: alcohol use, illegal drug use, drunk or high students, and drug dealing. And school crime problem (Cronbach’s α = .84) is a 7-item index containing the following: fighting, gang activity, robbery or theft, vandalism, weapons possession, physical teacher assault, and verbal teacher assault. Items for each of these indices not only correlate highly with their composite measures (all Pearson r’s over .50), but the 13 items, when factor-analyzed, loaded on 3 factors that were practically identical to these
indices. Gottfredson and Gottfredson (1985) support the latter measures over a school measure based on aggregated student self-reports within schools, but I submit that both are biased to a certain degree in their ability to depict school delinquency.

3.2.2 Student-level Independent Variables

According to Hirschi's (1969) version of social control theory, individuals bond to schools and other social institutions. Strong bonds are what allows individuals to conform, and the stronger each of these elements is, the greater the pressure to conform to societal norms and the lesser the probability to commit delinquent acts. As discussed in the previous chapter, I conceptualize a limited application of the theory's bonding elements based on their applicability to the school context. The two key variables relating overall school bonding are attachment and commitment. *School attachment* is the affective bond with teachers and the school itself. It is an additive index (Cronbach's $\alpha = .67$) based on the sum of four items relevant to the general dimension of attachment. *School commitment* is one's stake in conformity as it relates to school goals and outcomes. It is also an index (Cronbach's $\alpha = .65$) based on the summed responses to three items. Higher scores on both of these indices reflect a greater degree of respective school attachment and commitment. The description of index items may be found in Appendix C.

Several variables capture social processes that have shown to co-vary with measures of school bonding in predicting delinquency. Given the importance of family context, I have chosen to include two measures of parental attachment. The first indicates the extent to which a student emphasizes *dependence on parents*, and is
measured by a single item asking the respondent the degree to which he or she feels it is important to get away from his or her parents (1 = Very important; 2 = Important; 3 = Not important). Higher scores indicate a greater level of parental dependence. The second item is a single item that measures the respondent’s affection for parents. Respondents reported the degree to which the following statement was true: “I do not like my parents very much.” The truth metric ranges from 1 to 6. Both of these items were reverse-scored from the original HSES coding.

Besides parental attachment, I also included a summed index measuring parental involvement in schooling (Cronbach’s α = .72). Higher scores on the index suggest that parents are involved to a greater degree in their child’s school life (see Appendix C for items).

Religiosity is included as a measure of religious attachments (see Evans et al., 1995). Respondents were asked to report how often they attended religious services in the past year (1 = Not at all — 8 = More than once a week).

Peer attachment variables are included to capture both the affective bond toward peers as well as to explore students’ involvement in youth subcultures (Osgood et al., 1996). The former is obtained using a measure of the frequency of time spent with friends. Respondents reported how often they visited with friends at the local hangout (1 = Rarely or never — 4 = Every day or almost). The second measure of peer attachment is more suggestive of the delinquent nature of the student’s peers. Respondents were asked, “Among the friends you hang out with, how important is it to be willing to party, get wild?” (1 = Not important; 2 = Important; 3 = Very important).
The last social process variable is sometimes treated as a measure of school commitment, and has proven to be a robust predictor of school delinquency. *Achievement* is the student’s average self-reported academic achievement in math and English from 9th grade to present (1 = Mostly below D — 8 = Mostly A’s). For those not taking math, self-reported grades in English were used, and vice-versa.

The remaining student-level variables serve as controls in the analyses to follow. These include two dummy variables for gender (female = 1) and race/ethnicity (minority = 1); a composite measure for socio-economic status (SES) based on the Duncan measure of parental educational levels and occupation; *track placement*, measured by an indicator of whether or not the student had ever taken a remedial math class while in high school (1 = Yes); and a measure of *prior delinquency* (10th grade) similar to the index for present (12th grade) delinquency (Cronbach’s $\alpha = .58$ — see Appendix C).³

### 3.2.3 School-level Independent Variables

The key independent variable on the school level tackles the concept of school restructuring. Calls for restructuring schools have focused on many different reforms consistent with the organic viewpoint. Some of these reforms are school-based management, shared decision making among teachers and administrators, teacher autonomy and professionalism, team teaching, group learning, and flexible scheduling (Murphy 1991). Although an "umbrella" term, restructuring is mainly centered around the decentralization of school authority and decreasing school and classroom size to

³ Cases with missing data on the non-critical variables (i.e., other than delinquency and school bonding) were assigned the value of the grand mean.
promote more one-to-one interaction between teachers and students. Based on work by Lee and Smith (1995), I chose nine items from the HSES school administrator questionnaire that address unique organizational practices pertaining to at least one aspect of restructuring:

- Independent Study Projects in Math or Science
- Independent Study Projects in English or Social Studies
- Inter-disciplinary Team Teaching
- Common Planning Period for Teachers in the Same Department
- Students in the Same Homeroom for All Years in High School
- Group Learning and Group Rewards for Academic Mastery
- Flexible Time for Class Periods
- Parents Recruited and Used as School Volunteers
- School-within-a-School Program

Each of these items includes an initial set of four items that, for each of the nine aspects, measures whether or not the school employed the practice 1) never, 2) for the past three years, 3) presently, or 4) planned to do so in the future. Based on the results of a Guttman scalogram analysis, the responses to these four sub-items were scaled using a cumulative logic (0 to 3) (McIver and Carmines, 1981). The 9 items in the index each approximate Guttman scales, whose scores are based on the time commitment to restructuring by schools. A higher scale score indicates that a given school has been involved with that particular restructuring practice for a longer period of time. For example, a high score of 3 on the last item means that the school has conducted a school-within-a-school program in the past, currently, and plans to continue doing so in the future. These scales were then summed to form a restructuring index (Cronbach's $\alpha = .79$). Higher scores on the index indicate a greater magnitude of schools' commitment to the restructuring process (see Appendix C).
Another key variable measured at the school site is school size. As discussed in Chapter 2, school effects researchers have revealed a disparity in outcomes between large and small schools. Further, Lee and Smith (1995) showed that school size, given its importance to the ability to create community within schools, is a variable with comparable effects to restructuring on levels of academic engagement and achievement. The school's size of enrollment is the raw number of students enrolled in the high school in 1990.

The remaining school-level variables from the HSES school administrator data are employed as controls to help isolate the independent effects of restructuring and community context on the dependent variables. Use of tracking/ability grouping is a dummy variable indicating whether or not the high school tracked its students into curricula on the basis of academic ability (1 = Yes). Comprehensive school indicates 1 if the administrator identified the school as a comprehensive school, and 0 if some other type of high school, such as a magnet or school of choice. Two more variables, disciplinary emphasis and competitive emphasis, are school processes identified in the literature as important variables in assessing the effects of the school's social climate on school delinquency (see e.g., Figueira-McDonough, 1986). Measured with single items, administrators were asked to indicate how accurately these characteristics described their school's climate: “Discipline is emphasized at this school,” and “Students are encouraged to compete for grades.” Responses vary from 1, “Not accurate,” to 5 “Very accurate.”
Another set of school-level variables describes the context of the school within its surrounding community, and is measured with 1990 tract-level data. The first variable, called the neighborhood deprivation index, is based on social disorganization and school victimization research. Through a combination of factor and reliability analyses, I identified 6 items that represent social and economic deprivation in a community: poverty (percentage of persons below the 1989 poverty level), welfare (percentage of households receiving some form of public assistance\(^4\)), unemployment (percentage of persons 16 years old and over that were unemployed in 1989), housing stability (percentage of housing units that are rented), family structure (percentage of households headed by single females), and dropouts (percentage of civilian persons 16 to 19 years old that are not enrolled in school and are not high school graduates). The use of one or two factors to measure neighborhood deprivation or disorganization is not without precedent in the literature (see Gottfredson and Gottfredson, 1985; Skogan, 1990; Gottfredson et al. 1991; cf. Elliott et al., 1996). One advantage to the singular measure is that it reduces the number of degrees of freedom that would be required in analyses with independent items, which are often fraught with multicollinearity (see below).

The second community variable, public school enrollment, is the percentage of children in the area enrolled at elementary and secondary levels that are enrolled in

\(^4\) According to Census documentation, welfare households are those receiving either Social Security and disability income payments to senior citizens, or Aid to Families with Dependent Children (AFDC) payments.
public schools. This measure serves as both a proxy for the degree to which high
schools are neighborhood schools, in that they serve their surrounding communities, and
the extent to which families in the area support the local school.\footnote{A random inspection of TIGER maps indicated that several of these tracts
contained only the one HSES public high school.}

3.3 Data Filters and Final Sample

Before arriving at final sample sizes for the HSES panel, some data filters were
in order. First, only cases in which student and school data for both the baseline (1990)
and followback (1992) years were retained. This longitudinal panel included completed
questionnaires from 5,449 students and 247 schools. Also, due to the research problem’s
primary relevance for public schools, I chose to leave private schools and their students
out of the analysis. Further, it is only for these public schools that tract-level
community data are available; the NCES does not release a great deal of information on
private schools. This resulted in a total of 3,316 students within 147 public schools. I
determined that a minimum within-school sample size was necessary for adequately
estimating the multilevel models, and thus decided to drop from the sample all schools
containing fewer than 10 students. Finally, all cases which contained missing data on
key student- and school-level variables were deleted in listwise fashion. This last step
resulted in the final sample of 1,157 students within 58 schools—an average of 20
students per school.\footnote{Earlier results indicated some problems with multicollinearity and outliers on
the school level of analysis. Based on high variance inflation factors, I dropped
measures of the percentage minority in the community and a dummy variable indicating}
The final sample is a non-random sample of public high schools within the 30 largest MSA's. Therefore, generalizations of results beyond these schools are to be made with caution. Comparisons between the retained sample and the sample deleted after arriving at the school N of 147 (147 - 58 = 89 schools) reveal selection biases on urban location, school size, and the deprivation factor. Retained schools are much more likely to be located in suburban areas, to be smaller on average, and to have lower deprivation scores. However, none of the dependent variables or key independent variables on the student or school levels vary significantly between the retained and deleted samples.

3.4 Analytic Strategy

My strategy in approaching the multivariate analysis will be to first produce student-level models regressing self-reported delinquency on school bonding measures and the other student-level independent variables. I follow these analyses with a set of prediction models derived from prevalence indicators for each of the student delinquency items. The logic of these analyses is based on a control model extracted from the heuristic model in Figure 2.1. The model provides a check for consistencies with the bonding-delinquency relationship found by previous social control researchers, and addresses the first expectation (E1) from Chapter 2. Further, it allows for the

urban location vs. suburban location. One school was dropped (earlier N = 59) due to a large Cook's D value (0.546) in the OLS regression model predicting the school's delinquency problem in Chapter 5. According to Neter et al. (1990), anything near .50 should be considered influential. Further, plots indicated that it indeed was an outlier, mainly due to an extremely high score on the school delinquency problem index.
identification of the significant individual-level predictors of student delinquency to be used in later analyses.

Chapter 5 features school-level models specifying the effects of restructuring and structural school and community-contextual characteristics on rates of school delinquency. These analyses will be accomplished using conventional multivariate regression techniques. Like those in Chapter 4, they are meant to identify a set of significant predictors for use in the analyses in Chapter 6, and also to provide a response to E2 from Chapter 2.

A final set of analyses are conducted in Chapter 6 using multilevel modeling techniques. According to Bryk and Raudenbush (1992:6), one of the primary advantages of hierarchical models is to show "how variables measured at one level affect relations occurring at another." Ordinary least squares models are unacceptable for multilevel analyses because they tend to inefficiently estimate the effects of structural-level predictors. HLM produces more accurate estimates of the standard errors of group-level coefficients, thus allowing for more conservative tests for structural effects. Further, given the situation of students nested within schools, HLM is capable of estimating the between- and within-group variance components of the mean outcomes (intercepts) and within-school parameter estimates (slopes). Given the latter ability, the results of the HLM analyses will provide a clearer answer to E3 concerning the effects of restructuring on the relationship between school bonding and delinquency.
CHAPTER 4

STUDENTS

4.1 Introduction

The purpose of this chapter is to begin to explain the relationships between delinquency, school bonding, and other relevant variables at the student level of analysis. The approach used is similar to the elaborated modeling approach in Sampson and Laub's (1993) *Crime in the Making*, who regress delinquency on structural characteristics of individuals both with and without measures of social process variables. Later chapters will build on the results presented here to inform analyses on the school and "multi-" levels of analysis, but the analyses of this chapter by themselves are pertinent to previous research at this level of analysis, as I explain below.

4.2 A Model of Student Delinquency

I estimate a model of delinquency in this chapter that could be called, for lack of a more elegant description, a modified control model. It relies most heavily on recent

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1 Agnew (1995) has recently argued that a true test of social bonding theory (or any of the "leading" individual-level theories of crime) is only possible when one is able to measure the intervening motivation between bonding and delinquency: freedom. According to Agnew (1995: 384): "[Control] theories argue that independent variables increase the likelihood of crime because they increase the freedom to engage in crime. Rather than assuming that crime is positively motivated, they assume that crime is prevented through internal and external controls . . . When internal and external controls are low, we are free to act on these incentives." An alternative to explicitly measuring freedom is Matza's (1964) concept of drift, which suggests certain psychological or sociological constraints that bring adolescents to a midpoint between control and freedom — a point where some individuals merely "play at" deviance through involvement in peer subcultures (Campbell, 1969, cited in Hagan, 1991). Over the life
work citing Hirschi’s (1969) social bonding theory as a major influence. This line of
research has built on Hirschi’s original statement of the theory in several ways.

First, a series of studies beginning in the early 1980’s attempted to more fully
describe the nature of the social bond. Krohn and Massey (1980), Wiatrowski and
colleagues (1981), Marcos and colleagues (1986), Massey and Krohn (1986), and
Wiatrowski and Anderson (1987), among others, have employed some type of factor
analysis to identify and/or confirm the existence of latent constructs representing some
or all of the major components of the bond: attachment, commitment, involvement, and
belief. Researchers have found complexities in some of the bonds not previously
identified in Hirschi’s work (e.g., Foshee and Bauman, 1992), and others have
determined that some of the components are conceptually inseparable in certain contexts
(e.g., Massey and Krohn’s, 1986 assessment of the overlap between school involvement
and commitment). Further, whereas Hirschi assumed the bonding elements to be
contemporaneous and independent predictors of delinquency, many of the studies cited
above examined the effects of the elements on each other as well as specifying time lags
between bonding and delinquency measures.

Second, many researchers have integrated the concepts of bonding theory with
key concepts of other delinquency theories—especially Akers’ (1985) social learning
theory—thought to provide more complete explanations of delinquent involvement (e.g.,
course, these individuals will tend to drift more often to conventional forms of behavior
as other bonds are created and existing ones maintained (Sampson and Laub, 1993).
argued that association with other deviants mediates the relationship between the social bond and one's own deviance. And in his review of social bonding theory, Shoemaker (1996) concluded that bonding theory should not be considered a deterministic theory of delinquency, based partly on its omission of delinquent peers as an explanatory variable.

Third, the availability of longitudinal data and structural equation modeling techniques has allowed researchers to explore reciprocal effects between delinquency and social bonds. Liska and Reed (1985) argued that while certain types of attachment (e.g., to parents) should affect delinquency, it is not unreasonable to assume an effect of delinquency on subsequent bonds (e.g., to school). Interactional theory, a recent extension of the integrated bonding theories described above, gathers many of these reciprocal hypotheses into a framework that focuses on the characteristics of these relationships over the life course (Thornberry et al. 1991).

Fourth, both interactional theory and the work of Sampson and Laub (1993) argue that social bonding is a process that mediates the structural effects of family, community, and school on delinquency. As Sampson and Laub (1993) note, criminologists have been slow to recognize the importance of estimating the effects of both structure and process (often opting to focus on one or the other), but these types of models have been around for several years in other fields (e.g., status attainment research). The tendency to focus on process has been attributed to assumptions about the invariance of the bonding-delinquency relationship across social strata such as class, race, and gender. Recent studies challenge some of these assumptions, especially those
related to race (e.g., Cernkovich and Giordano, 1992), gender (e.g., Rosenbaum and Lasley, 1990), and place size (e.g., Gardner and Shoemaker, 1989).

It is these modifications to Hirschi's theory, as well as a consideration of schooling-based correlates of bonding and delinquency (see Chapter 3), that guide the specification of the model analyzed in this chapter. Figure 4.1 presents the modified control model of student delinquency. This is a time-ordered panel model, with all independent and school bonding variables measured in the baseline (10th grade) wave of the High School Effectiveness Study (HSES), and the dependent variable, delinquency, measured in the second wave (12th grade). The model is similar to one estimated by Sampson and Laub (1993) in their re-analysis of the Gluecks' data on 1,000 males. Like Sampson and Laub's model, it is assumed that delinquency is affected by both structural and personal background characteristics, as well as social processes like school bonding. Key to both models is the assumption that school processes mediate much of the effect of the exogenous variables on delinquency. However, there are some important differences between this model and Sampson and Laub's. First, I place school achievement prior to school bonding. I do this to focus the analysis on the endogenous variables of interest, bonding and delinquency, and because control models traditionally interpret school bonding as conditional on school performance (Hirschi, 1969). Second, I include a measure of prior delinquency among the exogenous predictors; not only because it is an important predictor of later delinquency (Liska and Reed, 1985; Agnew 1991), but because it adds stability to a model in which the onset of delinquency cannot be clearly determined (Finkel 1995).
Figure 4.1. Modified Control Model of Student Delinquency
It is also important to note that because prior and current delinquency are measured with slightly different component items, the zero-order correlations between the two indices is not exceedingly high \( (r = 0.50) \). Third, due to limitations in the HSES data, I cannot include an adequate measure of delinquent peers. This may lead to specification problems in the model, but I expect that the peer attachment variables — especially time spent with friends — will capture at least some of the variance that would have been attributed to delinquent peers (Osgood et al. 1996).

Another major issue in the specification of this model is the time lag between measures. Much has been written in general on the advantages of longitudinal data in predicting crime and delinquency (Menard, 1991). Specifically, some have argued for a more logical time order such that social bonds at Time 1 predict delinquency at Time 2 (Agnew, 1991). Due to the means by which delinquency is most often reported — frequency of the behavior over the course of a preceding period (e.g., 12 months) — the argument is that the estimation of contemporaneous effects of bonding on delinquency leads to the prediction of past behavior with present attitudes. Hence, it is logical to employ instead a set of lagged predictor variables corresponding to the period of time covered by self-reports of delinquent behavior.

However, no convincing theoretical argument has been put forth that clearly states how long it takes for the weakened (or non-existent) social bond to result in delinquency. Studies of the bonding-delinquency relationship with longitudinal data vary on the time lag used: 6 months (Thornberry et al., 1991 — Rochester Youth Study) to 12 months (Elliott et al., 1985 — National Youth Survey) to 18 months (Liska and
Reed, 1985 -- Youth in Transition data). Adding further to this problem, Agnew (1991) suggests that lagging social bonds might be neither necessary nor prudent. He argues that the effects of social bonds on delinquency might be more immediate, since there are implicit references to the past in the measurement of most of the bonding elements. Nevertheless, I argue that time order is more clearly distinguishable when employing lagged measures of the predictor variables. In the present data, the HSES students were interviewed in the spring of their 10th and 12th grade years, producing a time lag of 24 months. Given the length of this lag, it is possible that some effects will be under-estimated in the multivariate analyses to follow.²

The remainder of this chapter presents and discusses the results of the separate ordinary least squares (OLS) regression models predicting school attachment, school commitment, and student delinquency. A final set of analyses involves a series of fully-estimated logistic regression models predicting involvement in the specific delinquent behaviors. The descriptive statistics and zero-order correlations for the measures used in this chapter are shown in Appendix A.1.³

² Another limitation in the HSES data is the change in measurement between the baseline (1990) and followback (1992) waves. For example, out of the seven 10th grade items used to create the attachment and commitment indices, only two were included in the 12th grade questionnaire. This prevented the estimation of certain models that might have shed more light on the reciprocal nature of the bonding-delinquency relationship (e.g., panel models with cross-lagged effects).

³ All statistics presented in this chapter are based on the un-weighted HSES data for the 10th to 12th grade student panel. Although student-level weights are available for these data, I was informed by a technical consultant at NCES that these weights are difficult to interpret, and hence do not seem to lend any added credibility and/or powers of generalizability to the high school student population of interest.
4.3 School Attachment

Before examining the models estimating student delinquency, it is necessary to discuss the relationships between the exogenous predictors and school bonding as shown in Figure 4.1. In the models for both school attachment and commitment, the equations are identical on the right side, and both the independent and dependent variables in these models are measured at Time 1 (10th grade). For each school bonding component, two models are estimated. The first is a reduced model regressing attachment [commitment] on personal background, a school structural variable (low track placement), and prior delinquency. The second model is a full model elaborating on the first through the estimation of a set of bonding-related social process variables. This section of the analysis deals with the prediction of school attachment.

Model 1 in Table 4.1 shows standardized and un-standardized OLS parameter estimates for the reduced model predicting school attachment. The model explains only 8 percent of the variance in school attachment, and most of this is attributable to the negative effect of prior delinquency. Thus, we see the first indication in these models of the salience of delinquency for predicting at least one of the measures of school bonding (see Liska and Reed, 1985). None of the other indicators show any significant association with attachment.

Model 2 in Table 4.1 is the full model adding several social process variables to the reduced model. These factors as a block account for almost a 10 percent increase in explained variance. Looking at the same set of predictors from Model 1, we see that prior delinquency has now a weaker effect on attachment ($\beta = -.176; t = -5.99$), but is
<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$b$</td>
<td>Beta</td>
</tr>
<tr>
<td>Female</td>
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<td>SES</td>
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<td>0.008</td>
</tr>
<tr>
<td>Low Track Placement</td>
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<td>-0.023</td>
</tr>
<tr>
<td>Prior Delinquency</td>
<td>-2.429</td>
<td>-0.277 ***</td>
</tr>
<tr>
<td>Religiosity</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Parental Attachment 1</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Dependence on parents</td>
<td>---</td>
<td>---</td>
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<tr>
<td>Parental Attachment 2</td>
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</tr>
<tr>
<td>Affection for parents</td>
<td>---</td>
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<td>Parental Involvement</td>
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<tr>
<th>N</th>
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<th>1157</th>
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<tbody>
<tr>
<td>R-squared</td>
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<td>.17</td>
</tr>
</tbody>
</table>

* p <= .05; ** p <= .01; *** p<= .001

Data Source: 1990-92 High School Effectiveness Study
still a relatively strong predictor. SES has a weak effect and is negatively related to attachment.\(^4\) Achievement has effects stronger than any other predictor (\(\beta = .236; t = 8.00\)), which is not surprising, given the tradition of finding such relationships between achievement and the school bond. Of the social process variables, we see that higher levels of parental involvement are associated with moderate increases in school attachment. The null relationship between parental attachment and school attachment is consistent with Liska and Reed (1985), who found that parental attachment affected delinquency, but not school attachment. The moderate effect of parental involvement on school attachment is expected given the literature on the importance of parents' school involvement on academic engagement, the latter being conceptually similar to school bonding (Newmann, 1992).

Overall, the most important predictors of school attachment are prior delinquency, achievement, and parental involvement. I turn now to the examination of school commitment.

4.4 School Commitment

Table 4.2 presents full and reduced models predicting school commitment in 10th grade. As in the models predicting school attachment, Model 1 combines prior delinquency with background and structural characteristics as the initial set of explanatory variables. All are influential predictors of school commitment, with the exception of minority status. Prior delinquency, as it did for attachment, has a strong

\(^4\) I interpret an effect as "weak" if the standardized estimate is .10 or less (Agnew, 1991:127).
Table 4.2. OLS Models Predicting School Commitment

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$b$</td>
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</tr>
<tr>
<td>Female</td>
<td>0.240</td>
<td>0.074 **</td>
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<td>Minority</td>
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<tr>
<td>SES</td>
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<tr>
<td>Low Track Placement</td>
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<td>-0.126 ***</td>
</tr>
<tr>
<td>Prior Delinquency</td>
<td>-2.027</td>
<td>-0.277 ***</td>
</tr>
<tr>
<td>Religiosity</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Parental Attachment 1</td>
<td>---</td>
<td>---</td>
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<td>Dependence on parents</td>
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<tr>
<td>Affection for parents</td>
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<th></th>
<th>N</th>
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<td>.39</td>
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</table>

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Data Source: 1990-92 High School Effectiveness Study

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negative effect on school commitment — a finding consistent with interactional theory and the same finding in Thornberry et al. (1991). We also see in this model that those students on a lower track exhibit lower levels of school commitment. This result mirrors the tracking-commitment link found by Jenkins (1995), and, as she suggests, justifies a shift in theoretical focus on the formation and maintenance of school bonds from the family to the school. Females show significantly higher levels of school commitment than males in Model 1. Unlike the findings for attachment, these results indicate that the nature of the school bond is not invariant across social strata.

With the introduction of the social process variables completing the full model (Model 2), we see that achievement and parental involvement are clearly the strongest predictors of school commitment. In fact, an increase of one standard deviation in achievement, controlling for the other variables in the model, results in an increase of over one-third of a standard deviation in school commitment (Neter et al., 1990). This is not surprising, given the relatively strong bivariate correlation ($r = .51$) between the two variables. We can also infer from the model that the effect for parental involvement, all other characteristics being equal, means that those students whose parents are actively involved in their education have a higher stake in conformity to educational norms. This finding replicates those of Jenkins (1995) on the importance of parental involvement in predicting school commitment. Further, the effects of tracking remain in the full model ($\beta = -.061; t = -2.57$), although they are clearly reduced. This is most likely the result of the inclusion of achievement in the full model.
The effects of prior delinquency and socio-economic status are visibly suppressed by the entry of the second set of variables into the model, as shown by the reduction in the size of the unstandardized coefficients for each (-.2027 to -.1.018, and .637 to .387, respectively). This is most likely due to the bivariate correlations between achievement and SES (r = .20), and between prior delinquency and several of the social process variables (see Appendix A.1).

Of the remaining social process variables, Model 2 indicates weak positive effects of religiosity on school commitment. The measures of parental attachment do not signify any change in school commitment. This deviates from previous research that found a direct and contemporaneous relationship between parental attachment and commitment (Thornberry et al., 1991).

In summary, the models presented thus far demonstrate a better fit of the explanatory variables with school commitment than with school attachment; however, with the exception of SES, the most salient predictors of commitment — prior delinquency, parental involvement, and achievement — are the same set as those identified in the attachment models.

4.5 Student Delinquency

The models predicting general student delinquency shown in Table 4.3 follow the same logic of model progression as for those of the school bonding variables. I begin with a reduced model containing prior delinquency, personal background, and structural characteristics, and then add to this the measures of social process. The only differences are the inclusion of measures of peer attachment among the social process
Table 4.3. OLS Models Predicting 12th Grade Self-reported Delinquency

<table>
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<th>Model 2</th>
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<td>Beta</td>
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<td>Beta</td>
</tr>
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<td>-0.136  ***</td>
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<td>-0.134  ***</td>
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<td>0.003</td>
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<td>0.006</td>
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<td>0.068   **</td>
<td>0.035</td>
<td>0.056   *</td>
<td>0.033</td>
<td>0.051   *</td>
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<td>Prior Delinquency</td>
<td>0.423</td>
<td>0.465   ***</td>
<td>0.377</td>
<td>0.415   ***</td>
<td>0.365</td>
<td>0.401   ***</td>
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<td>-0.071   **</td>
<td>-0.007</td>
<td>-0.064   **</td>
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<td>Parental Attachment 1</td>
<td>---</td>
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<td>-0.012</td>
<td>-0.041</td>
<td>-0.010</td>
<td>-0.036</td>
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<td>Dependence on parents</td>
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<td>0.000</td>
<td>0.001</td>
<td>0.001</td>
<td>0.003</td>
</tr>
<tr>
<td>Parental Attachment 2</td>
<td>---</td>
<td>---</td>
<td>-0.002</td>
<td>-0.027</td>
<td>-0.001</td>
<td>-0.011</td>
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<td>Affection for parents</td>
<td>---</td>
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<td>0.012</td>
<td>0.057   *</td>
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<td>0.057   *</td>
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<td>Parental Involvement</td>
<td>---</td>
<td>---</td>
<td>-0.001</td>
<td>-0.005</td>
<td>-0.002</td>
<td>-0.006</td>
</tr>
<tr>
<td>Peer Attachment 1</td>
<td>---</td>
<td>---</td>
<td>0.009</td>
<td>0.065   *</td>
<td>-0.004</td>
<td>-0.031</td>
</tr>
<tr>
<td>Time with friends</td>
<td>---</td>
<td>---</td>
<td>-0.002</td>
<td>-0.019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer Attachment 2</td>
<td>---</td>
<td>---</td>
<td>-0.002</td>
<td>-0.019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willing to party</td>
<td>---</td>
<td>---</td>
<td>-0.010</td>
<td>-0.077   *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achievement</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Attachment</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Commitment</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N 1157 1157 1157
R-squared .28 .29 .30

*p <= .05; ** p <= .01; *** p <= .001

Data Source: 1990-92 High School Effectiveness Study
variables, and the addition of school attachment and school commitment in a third model.

Of the first set of variables entered in Model 1, prior delinquency stands out as the most important predictor of current delinquency. However, gender is significant as well, and is negative, indicating that female students are less involved in school-related delinquency than are male students. Interestingly, minority status again displays null relationships with the dependent variable across all three models, as it did with the school bonding variables. However, the lack of direct effects should not surprise those familiar with the literature on delinquency. They complement a large number of studies finding weak to modest relationships between race and self-reported delinquency (Kercher, 1988).

The fact that a strong negative relationship between SES and delinquency is not evident in any of these models corroborates evidence on several studies examined by Tittle and Meier (1990) estimating an often weak or non-existent SES-delinquency relationship. In the case of tracking, previous research has failed to identify it as a direct precedent of delinquency (Wiatrowski et al., 1982; Jenkins 1995). The weak positive effects on delinquency shown across all three models are thus anomalous compared to previous research.

The addition of social process variables in Model 2 does not significantly improve the $R^2$ from the previous model. Again, prior delinquency has the strongest influence on current delinquency, and the effects of gender do not change appreciably. Religiosity shows weak potential as a restraint of student delinquency. Evans et al.
(1995) argue that the effects of religiosity on delinquency may be confounded by the underlying influence of attachments to parents and peers; however, the latter measures are controlled in the model, rendering this possibility unlikely. The other significant predictors among the added variables — time with friends and achievement — display weak effects on delinquency. One should expect some direct effect of achievement on delinquency, given its status in the literature as one of the more consistent correlates of individual-level delinquency (Shoemaker, 1996). Further, the positive relationship that the first peer attachment measure exhibits with delinquency is comparable to recent findings generated from the Monitoring the Future study by Osgood et al. (1996).

Finally, Model 3 includes the bonding variables, school attachment and school commitment, to complete the model predicting student delinquency. Only school commitment shows a significant suppressing effect on student delinquency, although the coefficient is not quite large ($\beta = -0.077; t = -2.42$). One important role of these variables for the modified control model lies in their mediating properties. I examine the potential mediating effects of commitment below in the section discussing indirect effects.

### 4.5.1 Indirect Effects

In further examination of the models in Tables 4.2 and 4.3, it is possible that school commitment has a mediating effect on two variables: achievement and prior delinquency. Although prior delinquency has significant direct effects on delinquency, I suggest that the decrease in its standardized estimates between Models 2 and 3 in Table 4.3 could be due to the partially-mediating effects of school commitment (Baron...
and Kenny, 1986). I use the following formula to calculate the indirect effects:

$$\lambda_{im} = (\gamma_{ij} \cdot \beta_{jm})$$

where $$\lambda_{im}$$ is the indirect effect of the ith independent variable on the dependent variable m (student delinquency). $$\gamma_{ij}$$ is the parameter estimate in the models where exogenous variable I (e.g., achievement) predicts endogenous variable j (school commitment), with relevant controls. $$\beta_{jm}$$ is the parameter estimate in a final model where endogenous variable j (school commitment) predicts m (student delinquency), again with relevant controls (see Shihadeh and Ousey, 1996). The t-test to determine t-ratios and corresponding p-values for the calculated indirect effects is adapted from Clogg and colleagues (1992, 1995).

The results of these tests and the indirect effect estimates are shown in Appendix A.2. Both indirect effects are significant; however, it is apparent that the direct effect of prior delinquency on current delinquency outweighs its indirect effect by far. Regarding

---

5 The test is a simple formula whereby the difference (d) between slopes for the reduced ($$b_r$$) and full ($$b_f$$) models are obtained, which is then divided by its standard error ($$s_d$$) to derive a t-value. The formula to obtain $$s_d$$ for the ith predictor is the square root of:

$$s_d^2 = s^2_{bf} - (s^2_{bn} \cdot [\text{MSE}_f / \text{MSE}_r])$$

where $$s^2_{bf}$$ is the sampling variance, or squared standard error, of the coefficient k in the full model, $$s^2_{bn}$$ is the same quantity for the reduced model, and [MSE_f / MSE_r] is a ratio of the mean squared errors of the full and reduced models. An alternative test is provided by Sobel (1982):

$$s_{\lambda_{im}}^2 = b^2_{ai}(s^2_{bam}) + b^2_{aj}(s^2_{bam}) + s^2_{bm}(s^2_{bam})$$

where $$b^2_{ai}$$ is the square of the regression coefficient for the path, a, between the endogenous variable, j (school commitment), and the ith independent variable (e.g., achievement), $$b^2_{aj}$$ is the square of the regression coefficient for the path, b, between the dependent variable, m (student delinquency) and endogenous variable, j (school commitment), and $$s^2_{bam}$$ and $$s^2_{bam}$$ are the corresponding squared standard errors for those coefficients.
achievement, it seems clear that its negative effects on delinquency operate entirely through school commitment. The direct effects of achievement on delinquency (shown in Model 2) are fully mediated by commitment.

4.5.2 Specific Involvement in Student Delinquency

In the final set of analyses in this chapter, I chose to break down the summary index of self-reported student delinquency into its component behaviors, and to regress each of these separate dependent variables on the full set of predictors. I re-coded each of the behaviors into measures indicating 1 if the student had ever participated in the behavior in the previous school year, and 0 if not. Prior (10th grade) involvement in each behavior is measured similarly. Rather than measuring the incidence of these behaviors, I chose to treat them as discrete outcomes representing the prevalence, or likelihood, to engage in the behavior. I use logistic regression models to estimate these outcomes, given their binary distributions and the inclusion of both categorical and continuous predictors in the models (see Menard, 1995).

There are several reasons to justify making these adjustments to the dependent variable. First, the moderate reliability of the delinquency index (Cronbach's α = .59) suggests that this general measure is not an extremely reliable indicator of the general tendency to participate in student delinquency, which is probably due somewhat to the collapsed coding of the component measures. Second, research by Osgood and colleagues (1988) suggests that the general tendency to deviate is not always consistent across different types of deviant behavior. Therefore, we might expect the predictors of delinquency to vary at least somewhat by type of delinquency. Third, Krohn and
Massey (1980), among others, suggest that the elements of bonding theory are better able to explain the initiation of involvement in deviant behavior than the persistence in deviance over time. Although Paternoster and Triplett (1988) put forward a similar argument in testing an integrated social control theory, their findings did not indicate the tendency of bonding to explain prevalence over incidence (frequency of involvement). Therefore, I argue that the estimation of the modified control model should account for both modes of involvement.

Tables 4.4 and 4.5 present the models regressing each school-related delinquent behavior on the full set of predictors from the hypothesized model. Because these analyses are similar to Model 3 in Table 4.3, I only discuss the key differences between these models. Turning first to some of the background and structural characteristics, there are noticeably inconsistent effects of SES across types of delinquency. Whereas the overall effect of SES on the delinquency index was somewhat weak, there are significant positive effects of SES on school disorders such as skipping school and cutting class, and smoking marijuana in school. Additionally, prior delinquency remains the strongest predictor of current delinquency for each index behavior. There is some variation, however, between behaviors. The effects of past on current behavior are the strongest for marijuana use, and the weakest for alcohol use.6

6 Statistical significance of the unstandardized estimates in logistic regression models is determined by the Wald statistic, which is the square of the ratio of the parameter estimate to its estimated standard error. Significance is determined on the basis of a chi-squared distribution with 1 degree of freedom (Agresti, 1990).
Table 4.4. Logistic Regression Models Predicting Involvement in Delinquency: Fighting, Skipping or Cutting, and Breaking Rules

<table>
<thead>
<tr>
<th></th>
<th>Fighting</th>
<th>Skipping / Cutting</th>
<th>Breaking Rules</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>Odds</td>
<td>b</td>
</tr>
<tr>
<td>Female</td>
<td>-0.981</td>
<td>0.38 ***</td>
<td>-0.280</td>
</tr>
<tr>
<td>Minority</td>
<td>0.297</td>
<td>1.35</td>
<td>0.549</td>
</tr>
<tr>
<td>SES</td>
<td>0.083</td>
<td>1.09</td>
<td>0.419</td>
</tr>
<tr>
<td>Low Track Placement</td>
<td>0.028</td>
<td>1.03</td>
<td>0.370</td>
</tr>
<tr>
<td>Prior Delinquency †</td>
<td>1.853</td>
<td>6.38 ***</td>
<td>2.053</td>
</tr>
<tr>
<td>Religiosity</td>
<td>0.004</td>
<td>1.00</td>
<td>-0.101</td>
</tr>
<tr>
<td>Parental Attachment 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependence on parents</td>
<td>-0.359</td>
<td>0.70 *</td>
<td>-0.098</td>
</tr>
<tr>
<td>Parental Attachment 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affection for parents</td>
<td>-0.057</td>
<td>0.94</td>
<td>-0.077</td>
</tr>
<tr>
<td>Parental Involvement</td>
<td>0.042</td>
<td>1.04</td>
<td>-0.025</td>
</tr>
<tr>
<td>Peer Attachment 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time with friends</td>
<td>0.123</td>
<td>1.13</td>
<td>0.074</td>
</tr>
<tr>
<td>Peer Attachment 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willing to party</td>
<td>-0.047</td>
<td>0.95</td>
<td>0.039</td>
</tr>
<tr>
<td>Achievement</td>
<td>-0.006</td>
<td>0.99</td>
<td>-0.043</td>
</tr>
<tr>
<td>School Attachment</td>
<td>-0.008</td>
<td>0.99</td>
<td>0.024</td>
</tr>
<tr>
<td>School Commitment</td>
<td>-0.186</td>
<td>0.83 *</td>
<td>0.066</td>
</tr>
</tbody>
</table>

| N                         | 1157     | 1157               | 1157          |
| Model Chi-square          | 133.63   | 276.86             | 225.78        |

* p <= .05; ** p <= .01; *** p <= .001

† This is the specific delinquent behavior that matches the dependent variable (e.g., 10th grade fighting predicts 12th grade fighting)

Data Source: 1990-92 High School Effectiveness Study

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Table 4.5. Logistic Regression Models Predicting Involvement in Delinquency: Alcohol and Marijuana Use

<table>
<thead>
<tr>
<th></th>
<th>Alcohol Use</th>
<th>Marijuana Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>Odds</td>
</tr>
<tr>
<td>Female</td>
<td>-0.552</td>
<td>0.58 **</td>
</tr>
<tr>
<td>Minority</td>
<td>0.177</td>
<td>1.19</td>
</tr>
<tr>
<td>SES</td>
<td>0.017</td>
<td>1.02</td>
</tr>
<tr>
<td>Low Track Placement</td>
<td>0.154</td>
<td>1.17</td>
</tr>
<tr>
<td>Prior Delinquency †</td>
<td>0.926</td>
<td>2.53 ***</td>
</tr>
<tr>
<td>Religiosity</td>
<td>-0.040</td>
<td>0.96</td>
</tr>
<tr>
<td>Parental Attachment 1</td>
<td>0.037</td>
<td>1.04</td>
</tr>
<tr>
<td>Dependence on parents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental Attachment 2</td>
<td>0.007</td>
<td>1.01</td>
</tr>
<tr>
<td>Affection for parents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental Involvement</td>
<td>-0.038</td>
<td>0.96</td>
</tr>
<tr>
<td>Peer Attachment 1</td>
<td>0.193</td>
<td>1.21</td>
</tr>
<tr>
<td>Time with friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer Attachment 2</td>
<td>0.159</td>
<td>1.17</td>
</tr>
<tr>
<td>Willing to party</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achievement</td>
<td>-0.003</td>
<td>1.00</td>
</tr>
<tr>
<td>School Attachment</td>
<td>-0.120</td>
<td>0.89 *</td>
</tr>
<tr>
<td>School Commitment</td>
<td>-0.096</td>
<td>0.91</td>
</tr>
</tbody>
</table>

N 1157 1157
Model Chi-square 85.59 436.64

* p <= .05; ** p <= .01; *** p<=.001
† This is the specific delinquent behavior that matches the dependent variable (e.g., 10th grade fighting predicts 12th grade fighting)
Data Source: 1990-92 High School Effectiveness Study

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Among the social process variables in the models, there are additional findings of interest. First, unlike Marcos and colleagues' (1986) finding of a significant relationship between religious attachment and alcohol use, religiosity is only related to skipping or cutting and using marijuana in school. Interpreting the latter, we find that with each unit increase in the frequency of religious involvement, the probability of engaging in marijuana use in 12th grade decreases by about 20 percent. Second, peer attachment variables are strong and positive predictors only of certain delinquent behaviors. Note that the odds of involvement in marijuana use are stronger than the odds for the other behaviors, which suggests the increased salience of peer attachment for predicting substance use (Wallace and Bachman, 1991).

Looking at the endogenous variables, it is obvious from these models that school attachment and school commitment have haphazard effects on delinquent behaviors. In the case of fighting, students who are more committed to school report a lower probability of being involved in fights (odds = .83). The weaker effects of commitment are possibly due to the choice of dependent variables. In their examination of the effects of social bonding components across types of delinquent behavior, Friedman and Rosenbaum (1988) found that school commitment was a better predictor of property offenses than personal offenses. Further, the idiosyncratic effects of commitment (and possibly several other variables) across delinquency types in these models — which is not visible in the model predicting general student delinquency — could be due to the fact that the specific behaviors are not weighted by severity, as they are in the delinquency index.
In conclusion, the models in Tables 4.4 and 4.5 suggest that the modified control model is a better fit in predicting the prevalence of fighting and marijuana use than other types of student deviance. It is not clear from these results, however, to what degree the patterning of results in these models is due to 1) differences in the etiology of specific delinquent behaviors, or 2) the conceptual differences between prevalence and incidence of delinquency.

4.6 Conclusion

This chapter tested a modified control model predicting the delinquent behavior of high school students. Building on the original interpretation of Hirschi's social bonding theory, as well as the more recent modifications of the theory by delinquency researchers (especially Sampson and Laub, 1993), this model specifies student delinquency in particular as an outcome predicted by school bonding, several social process variables, personal and structural background characteristics, and prior delinquency.

Overall, the strongest predictor of 12th grade delinquency is involvement in delinquency in 10th grade. Based on the findings of Osgood and colleagues (1988), it is not surprising that there is this stability in both the general tendency to deviate and involvement in specific types of delinquent behavior — especially given the relatively short span of the life course in question (i.e., 2 years) and the conceptualization of delinquency linking it to schools. The latter enhances stability in deviant behavior on the basis of continual involvement in a social role (i.e., high school student) over the time period studied. This relationship was not a hypothesis of interest in this study,
although it is of some theoretical interest in empirical tests of labeling and societal reaction theories. These studies usually posit an indirect effect of prior delinquency on current delinquency through informal and/or formal labeling by agents of social control (e.g., Matsueda, 1992; Zhang, 1995).

Concerning the minimal increase in explanatory power gained from the addition of the bonding variables in Model 3 (Table 4.3), a few remarks are in order. First, some have argued that social bonding theory is not a powerful causal theory of delinquency on its own, but is rather an important component of integrated delinquency theories (i.e., social process models) (Massey and Krohn, 1986; Shoemaker, 1996). Therefore, Krohn and Massey (1980: 536) hold that "the theory may be expected to explain only a moderate amount of the variance in deviance." Second, studies like the present one that employed longitudinal data to establish time-ordering between bonding variables and delinquency find that the variance explained by the bonding variables is likely to be smaller than that found in cross-sectional studies. Although more logically specified, this time-ordering can be especially troublesome when the time lag between measurements is not controllable by the researcher. As such, the minimal nature of the direct estimates of bonding on delinquency found here should not surprise those familiar with recent tests of social bonding theory.

In sum, the results in this chapter replicate portions of our existing knowledge of student delinquency. However, there are some useful — and some very interesting — results here that pave the way for the exploration of the school restructuring-bonding-delinquency relationship in the next few chapters. In the next chapter, I extract a
different portion of the heuristic model proposed in Figure 2.1 to examine 1) the nature
of delinquency at the school (building) level, 2) the role of restructuring and other
school factors in predicting school delinquency, and 3) the importance of the
community in conditioning these relationships.
5.1 Introduction

In this section of the analysis, I turn from examining the 1,157 student respondents in the filtered sample of the High School Effectiveness Study to the 58 schools from which these students were sampled. Although this represents a substantial shift in the focus on the problem, as explained in Chapter 2 the theme of control and its mechanisms is retained. The purpose of this chapter is to test a control model of school delinquency at the school level of analysis. The findings in this chapter and the previous chapter will then be applied to an examination of delinquency on both the student and school levels in Chapter 6.

5.2 A Model of School Delinquency

Richard Lawrence (1998) points out that the study of school crime over the last several decades has resulted in two major approaches to the problem. First, there are those who identify the school itself as the root of much of the problem. Their perspective is that ineffective schools tend to alienate and frustrate students, thus leading to more disciplinary problems. Their solution is to create school environments where students care about learning (i.e., communal schools). This solution may involve the types of restructuring described in Chapter 2, and which are measured as properties of schools in the models to be tested below. However, it also may be interpreted as a call to change the physical structure of schools to one that allows fewer opportunities
for school disorder to emerge (e.g., reducing school size, or breaking up a large high school into smaller ones).

On the other side are those who see school crime as a function of the community in which the school is embedded. According to the adherents of this perspective, neighborhood deprivation that leads to high rates of community crime should also result in high rates of school disorder. Their recommended solution to reducing school crime is to fix those local problems that lead to higher crime throughout the community. For example, McDermott (1983) has argued that two potential problems result from viewing school crime as something distinct from the organizational environment: 1) blame is placed on the schools for all of their disorder problems, and 2) the solutions offered to prevent such disorder are exclusively school-based strategies. Others on this side agree, arguing that factors conducive to the creation of high-crime areas will also lead to schools with high rates of crime (Wilson and Herrnstein, 1985: 285).

Research on delinquency at the school level, although not as plentiful as individual-level studies, has shown more sensitivity to contextual factors (National Institute of Education, 1978; Gottfredson and Gottfredson 1985). Hellman and Beaton (1986) found community factors such as family structure, various cultural capital indicators, and population and housing measures were influential in predicting school-level delinquency. Support for hypothesizing community contextual effects on school delinquency has been mainly derived from social disorganization theory (as discussed in Chapter 2).
The link between the two sides of the argument in this case involves the intersection between schools and community contexts. Noguera (1995: 206) cites a "pervasive dysfunction" in the relations between students, teachers, and staff in urban public schools, and suggests that these schools' problems are a direct result of the socio-economic deprivation in their surrounding communities. To many, it seems, the panacea for urban schools faced with seemingly intractable social problems dealt to them by their environments is to build strong community within the organization. Some communitarian theorists argue that only when we begin to realize the importance of schools and other community institutions as a valuable source for the development of mutual social relations will we stop treating these institutions as "a means to an end rather than an end in themselves" (Cordella, 1996: 389). It is argued that communal schools—and hence, restructured schools—provide a source of community where none or very little exists outside of school, and fosters an atmosphere where teachers and students care about each other and lend each other social support (Battistich et al., 1995: 629-30; Bryk and Driscoll, 1988: 13).

The model presented in Figure 5.1 is an attempt to test some of these propositions empirically. Again, the basis for the model is the concept of informal social control. On the one hand, it is an application of concepts and propositions drawn from social disorganization theory. Secondly, there is the notion that restructuring, or communal, schools will be more characterized by warm, but firm school climates—a notion positing that informal social controls will be more effective at containing school disruption than formal or coercive controls, or an absence of social control. The model
Figure 5.1. Control Model of School Delinquency
tested here is somewhat of a methodological innovation compared to previous studies of school crime and victimization, in that it is able to test the independent and contemporaneous effects of both community and school variables on school rates of delinquency while controlling for both (cf. Gottfredson and Gottfredson, 1985). Further, it is a more parsimonious test thanks to the identification of key variables in previous studies on school delinquency and victimization (Gottfredson and Gottfredson, 1985; Hellman and Beaton, 1986).

Like the model tested in Chapter 4, this model is a time-ordered model, in which all independent variables are measured in 1990, and the dependent variables are measured in 1992. One important caveat to this is the restructuring index. The index is constructed from items measured in 1990, but the scales for each restructuring practice have a temporal component (as described in Chapter 3 and Appendix C), in that schools were asked not only whether they were engaged in each restructuring practice currently, but also whether they had done so in the past and whether they planned on doing so in the future. Again, as in the student-level model, the length of the time lag between measurements is a critical issue. The two-year time lag may be beneficial in terms of allowing any organizational reforms to yield an impact on school and student outcomes; however, the lag in this case may not be long enough. Some restructuring proponents have argued that the actual restructuring process may take several years to complete, and thus the positive benefits may not be apparent for several years as well (Murphy, 1991). Given the relatively short length of measurement in the HSES, it is possible that
the following analyses are capturing only the immediate effects of restructuring on school delinquency.

To reiterate, the present model is designed to test propositions emanating from Expectation 2 (E2) submitted in Chapter 2. I expect that schools that are more restructured (i.e., with higher scores on the restructuring index) will have lower rates of school delinquency, net of the specified school and community characteristics. The analyses in this chapter are centered on the major part of the model, that in which school delinquency is regressed on the full set of school and community predictors. Before embarking on this main portion of the analysis, I present some descriptive information on the sample of schools used in this chapter, and look at the bivariate relationships between restructuring and school delinquency.

5.3 School Characteristics

Table 5.1 presents the unweighted descriptive statistics for measurements based on the 58 public schools making up the final filtered sample in this study. The components of the deprivation index are presented separately to facilitate their interpretation. The first thing that is apparent is the high degree of variance in the indicators. For example, the percentage of persons below the poverty level in these areas ranges from 0 to a little over 52 percent, with a standard deviation of almost 9 percentage points. Similarly, the distribution of female-headed households in an area ranges from about 1 percent to not quite 28 percent.

These characteristics tend to vary significantly between the 47 schools in suburban areas and the 11 schools in urban areas. Comparing urban school
Table 5.1. Unweighted Descriptive Statistics for Public Schools in the Study (N = 58)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMMUNITY CHARACTERISTICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deprivation Index</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Persons below poverty level</td>
<td>8.19</td>
<td>8.82</td>
<td>0.00</td>
<td>52.37</td>
</tr>
<tr>
<td>% Public assistance households</td>
<td>5.30</td>
<td>5.73</td>
<td>0.00</td>
<td>35.99</td>
</tr>
<tr>
<td>% Unemployment</td>
<td>25.96</td>
<td>8.40</td>
<td>14.10</td>
<td>60.36</td>
</tr>
<tr>
<td>% Rented housing units</td>
<td>34.01</td>
<td>21.06</td>
<td>3.68</td>
<td>98.53</td>
</tr>
<tr>
<td>% Single female-headed households</td>
<td>5.95</td>
<td>4.99</td>
<td>1.24</td>
<td>27.69</td>
</tr>
<tr>
<td>% Young high school dropouts</td>
<td>9.49</td>
<td>8.30</td>
<td>0.00</td>
<td>34.88</td>
</tr>
<tr>
<td>Public school enrollment (%)</td>
<td>87.06</td>
<td>11.32</td>
<td>45.75</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>SCHOOL CHARACTERISTICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size of enrollment</td>
<td>1535.29</td>
<td>675.40</td>
<td>190</td>
<td>2906</td>
</tr>
<tr>
<td>Use of tracking/ability grouping</td>
<td>0.86</td>
<td>0.35</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Comprehensive school</td>
<td>0.91</td>
<td>0.28</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Disciplinary emphasis</td>
<td>4.43</td>
<td>0.77</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Competitive emphasis</td>
<td>3.48</td>
<td>1.03</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Restructuring Index (log)</td>
<td>0.65</td>
<td>0.30</td>
<td>0.00</td>
<td>1.32</td>
</tr>
<tr>
<td><strong>DEPENDENT VARIABLES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Delinquency Problem Index</td>
<td>5.00</td>
<td>1.31</td>
<td>3.06</td>
<td>7.85</td>
</tr>
<tr>
<td>School Misconduct Index</td>
<td>2.48</td>
<td>0.68</td>
<td>1.00</td>
<td>4.00</td>
</tr>
<tr>
<td>School Drug Problem Index</td>
<td>1.89</td>
<td>0.51</td>
<td>1.00</td>
<td>3.00</td>
</tr>
<tr>
<td>School Crime Problem Index</td>
<td>1.61</td>
<td>0.38</td>
<td>1.00</td>
<td>2.71</td>
</tr>
</tbody>
</table>

Data Sources: High School Effectiveness Study, 1990-92; 1990 CPH Summary Tape File 3A

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neighborhoods versus suburban school neighborhoods, the average percentage of persons below the poverty level is 6 percent versus 17 percent, and the average percentage of single female-headed households is 5 percent versus 10 percent, respectively. Unemployment in suburban neighborhoods is approximately 25 percent; it is higher in urban neighborhoods—about 31 percent. The only community characteristic that does not significantly vary between the urban and suburban areas is the percentage of the children in elementary or high schools in the area that are enrolled in public schools.

Of the school characteristics, school size also varies to a noticeable extent. The sample contains some very small schools (smallest = 190 students) and some very large schools (largest = 2906 students), with the average school enrollment at about 1,535 students. Most of the schools in the sample are considered by their administrators to be comprehensive high schools. Those that are not are either magnet schools, or schools of choice. Of the school process variables, it is interesting to note that most of the school administrators characterized their high schools as ones that emphasized discipline.

Among the sub-indices of the dependent variables, school administrators consider school misconduct—tardiness and class cutting—as a more serious problem facing their schools than drugs or more serious delinquent behaviors. This is not surprising, given that most schools are relatively free of very serious crime, and thus tend to focus their attention on less serious behaviors (Gottfredson and Gottfredson, 1985). However, even seemingly minor behaviors have serious implications because
they tend to directly challenge the authority that schools have in their custodial function over students (Powell et al., 1985; Bowditch, 1993).

5.4 School Restructuring and School Delinquency

The bivariate correlations for all of the variables used in the multivariate analyses are shown in Appendices B.1 - B.4. The correlation matrix for the main set of variables is available in Appendix B.1. In short, none of the correlation coefficients between restructuring and any of the measures of school delinquency are statistically significant at even the 0.10 level of probability. In a further set of analyses, I investigate any possible relationships between restructuring and delinquency at a finer level of distinction. For each school, I changed the restructuring measure to a binary measure indicating whether or not a school was engaged in more than three restructuring practices in 1990. The choice of three practices as the point at which to divide schools along traditional/restructured lines is based on a similar measure by Lee and Smith (1995). Further, I broke out the school delinquency index into its 13 component items, which, as stated in Chapter 3, range from a score of 1, meaning that the particular behavior is not a problem, to 4, which indicates that the administrator reports the behavior to be a very serious problem.

Table 5.2 presents the results of differences in schools’ mean component delinquency scores, split by whether the school could be considered restructured or not.

_________________________

1 One should keep in mind, as noted by Newmann and Associates (1996), that the continuous measure of restructuring is more in keeping with the literature on restructuring schools.
<table>
<thead>
<tr>
<th>Restructuring</th>
<th>Restructuring Mean</th>
<th>Tardiness</th>
<th>Cutting</th>
<th>Fighting</th>
<th>Gang Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (N = 46)</td>
<td>2.74</td>
<td>-0.04</td>
<td>2.24</td>
<td>0.30</td>
<td>1.98</td>
</tr>
<tr>
<td>Yes (N = 12)</td>
<td>2.75</td>
<td>2.17</td>
<td>1.67</td>
<td>1.42</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restructuring</th>
<th>Restructuring Mean</th>
<th>Robbery/ Theft</th>
<th>Vandalism</th>
<th>Alcohol Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (N = 46)</td>
<td>1.91</td>
<td>1.51</td>
<td>1.76</td>
<td>0.57</td>
</tr>
<tr>
<td>Yes (N = 12)</td>
<td>1.67</td>
<td>1.67</td>
<td>2.42</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restructuring</th>
<th>Restructuring Mean</th>
<th>Illegal Drug Use</th>
<th>Intoxicated Students</th>
<th>Drug Dealing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (N = 46)</td>
<td>2.00</td>
<td>0.00</td>
<td>1.48</td>
<td>-0.62</td>
</tr>
<tr>
<td>Yes (N = 12)</td>
<td>2.00</td>
<td>1.58</td>
<td>1.75</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restructuring</th>
<th>Restructuring Mean</th>
<th>Weapons Possession</th>
<th>Physical Abuse</th>
<th>Verbal Abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (N = 46)</td>
<td>1.48</td>
<td>0.35</td>
<td>1.09</td>
<td>0.04</td>
</tr>
<tr>
<td>Yes (N = 12)</td>
<td>1.42</td>
<td>1.08</td>
<td>1.67</td>
<td></td>
</tr>
</tbody>
</table>

† The measure of restructuring used in this table is a binary measure indicating whether or not a school is currently engaged in more than three restructuring practices.

* p < .10
As shown in the table, there are almost no significant differences between these two
types of schools in the level of their delinquency problem. The single exception is the
case of fighting, whose mean score in currently restructured schools is lower than that
for non-restructured schools. However, the differences on this particular outcome are
not exceedingly great (t = 1.88; p = .09).

Given that restructuring has no serious direct effects on school delinquency, its
potential as a mediating variable between community context and school delinquency is
null. Thus, I move directly to the multivariate models predicting school delinquency,
rather than moving in the intermediate direction of testing the effects of school and
community characteristics on school restructuring.

5.5 School Delinquency Problem

Table 5.3 presents the first set of models attempting to evaluate the model of
school delinquency specified in this chapter. As noted in the previous section, based on
the almost completely null relationship between school restructuring and school
delinquency, I do not present a set of intermediate models regressing school
restructuring on a set of community and school predictors. It is important to note,
however, that the bivariate relationships shown in Table 5.2 featured dummy indicators
of restructuring fixed at the baseline year of measurement (1990). Given the positive
skew, the models presented in Tables 5.3 and 5.5 utilize the time-varying restructuring
taken to its natural log.
Table 5.3. OLS Models Predicting School Delinquency Problem

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Beta</td>
<td></td>
<td>Beta</td>
</tr>
<tr>
<td><strong>COMMUNITY VARIABLES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deprivation Index</td>
<td>---</td>
<td>---</td>
<td>0.924</td>
<td>0.566 ***</td>
</tr>
<tr>
<td><strong>SCHOOL VARIABLES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size of enrollment</td>
<td>0.001</td>
<td>0.294 **</td>
<td>0.001</td>
<td>0.355 ***</td>
</tr>
<tr>
<td>Comprehensive school</td>
<td>0.943</td>
<td>0.207</td>
<td>2.120</td>
<td>0.458 ***</td>
</tr>
<tr>
<td>Disciplinary emphasis</td>
<td>-0.482</td>
<td>-0.285 **</td>
<td>-0.370</td>
<td>-0.219 **</td>
</tr>
<tr>
<td>Competitive emphasis</td>
<td>-0.334</td>
<td>-0.263 **</td>
<td>-0.210</td>
<td>-0.165</td>
</tr>
<tr>
<td>Restructuring Index</td>
<td>0.772</td>
<td>0.175</td>
<td>0.567</td>
<td>0.128</td>
</tr>
</tbody>
</table>

R-squared: 0.25 0.50

* p <= .10; ** p <= .05; *** p <= .01

Data Sources:

a. 1990-92 High School Effectiveness Study
b. 1990 CPH Summary Tape File 3A
The two models shown in Table 5.3 follow a logical progression, in which the overall measure of the school's delinquency problem is regressed on a block of school variables in a reduced model, and then regressed on these school variables and the neighborhood deprivation index in a full model. Model 1 regresses the overall measure of school delinquency on a set of school characteristics and processes. Beginning with school characteristics, we see that school size has a significant positive relationship with school delinquency. In other words, larger schools have higher rates of delinquency. Schools indicating a great deal of emphasis on discipline and academic competition between students exhibit less of a problem with school delinquency.

The coefficients for school variables undergo some noticeable transformations with the introduction of the community deprivation measure in Model 2. The emphasis on discipline remains a significant predictor of delinquency in the full model; however, its contribution to the model is diminished significantly, as indicated by testing the significance of the difference in the coefficients between Models 1 ($\beta = -.285$) and 2 ($\beta = -.219$) ($d = .112; t = 4.69; p < .01$).

---

2 Due to a concern for degrees of freedom and the fact that they showed weaker associations with school delinquency than the other covariates, I dropped both public school enrollment and use of tracking/ability grouping from the models.

3 Replacing the raw measure with a logged term did not result in any noticeable differences in the model outcome. Plots of school size and delinquency (not shown) indicate that the relationship is linear.

4 This test is the same as that used in the previous chapter to determine the significance of indirect effects, although the application in this case is more in keeping with its intended purpose (see Clogg et al., 1992; 1995).
school effect remains in the presence of school and community contextual characteristics that are all relatively beyond the school's ability to control.

The introduction of the community deprivation index is responsible for these transformations. It is the strongest predictor in the model ($\beta = .566; t = 5.01$), which is not surprising given its respectable bivariate correlation with the dependent variable ($r = .42$). This strong positive effect is in keeping with the literature stating that crime and delinquency in schools mirrors crime in the community (e.g., McDermott, 1983). We would expect these community conditions to have at least this strong an impact on any community-derived measure of juvenile delinquency (Shaw and McKay, 1942; cf. Sampson and Groves, 1989).

Another strong predictor that appears in the full model is the dummy indicator for comprehensive high schools ($\beta = .458; t = 3.86$). The positive relationship indicates that comprehensive high schools have a greater delinquency problem than alternative public schools such as magnets. Both this finding and the impact of school size support the communitarian notion that schools without widely shared values or norms cannot expect compliance to these norms. Conversely, it could also highlight the ability of alternative public schools to procure a safer environment for teachers and students.

There is one caveat to these interpretations: given the small number of cases in the sample, along with the small number of non-comprehensive high schools in the sample, one should be cautioned in generalizing these findings to alternative public schools in metropolitan areas.
Finally, we observe that restructuring has no direct effects on delinquency in either model. The purpose of Table 5.4 is to investigate this null relationship a bit further by breaking up the restructuring measure into its nine component scales. Each row in Table 5.4 represents a model in which the school delinquency problem index was regressed on one of the nine component restructuring practice scales and the remaining covariates specified in Model 2 (the full model) of Table 5.3. Upon running these nine models with the component scales, we see that two of the scales, team teaching and flexible time for classes, have positive partial relationships with school delinquency. The latter, flexible time, is a somewhat stronger predictor ($\beta = .196; t = 1.98$) than team teaching ($\beta = .186; t = 1.74$), but these moderate relationships are borne out by their bivariate correlations with the overall delinquency measure ($r = .20$ and $.15$, respectively; see Appendix B.4). These positive effects are difficult to interpret, especially in light of the fact that they are contrary to E2, which stated that schools that are more restructured will have lower rates of delinquency than more traditional schools, net of school and community contextual characteristics.

Equally important to examining the components of the restructuring index is the regression of the sub-indices of school delinquency on the same set of predictors from Table 5.3. Table 5.5 presents the results of these models. These models show the same effects as those presented earlier, with two exceptions. First, neighborhood deprivation does not show the strong positive effects on school drug problem that it does on the other two sub-indices and the overall measure of the school’s delinquency problem ($Pearson's r = .03; \beta = .126; t = .85$). This could suggest that drug use is a problem less
Table 5.4. OLS Models Regressing School Delinquency Problem on Component Restructuring Scales and other Covariates

<table>
<thead>
<tr>
<th>Restructuring Practice</th>
<th>$b$</th>
<th>Beta</th>
<th>t-ratio</th>
<th>Model R-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>English or social studies independent study projects</td>
<td>0.285</td>
<td>0.143</td>
<td>1.39</td>
<td>0.50</td>
</tr>
<tr>
<td>Math or science independent study projects</td>
<td>0.249</td>
<td>0.119</td>
<td>1.15</td>
<td>0.49</td>
</tr>
<tr>
<td>Interdisciplinary team teaching</td>
<td>0.356</td>
<td>0.186</td>
<td>1.74 $^*$</td>
<td>0.51</td>
</tr>
<tr>
<td>Common planning time</td>
<td>-0.111</td>
<td>-0.053</td>
<td>-0.49</td>
<td>0.48</td>
</tr>
<tr>
<td>Same homeroom for all years</td>
<td>0.130</td>
<td>0.068</td>
<td>0.63</td>
<td>0.49</td>
</tr>
<tr>
<td>Cooperative learning</td>
<td>0.212</td>
<td>0.116</td>
<td>1.10</td>
<td>0.49</td>
</tr>
<tr>
<td>Flexible time for classes</td>
<td>0.464</td>
<td>0.196</td>
<td>1.98 $^{**}$</td>
<td>0.52</td>
</tr>
<tr>
<td>Parents as volunteers</td>
<td>-0.041</td>
<td>-0.023</td>
<td>-0.21</td>
<td>0.48</td>
</tr>
<tr>
<td>School-within-a-school</td>
<td>-0.136</td>
<td>-0.071</td>
<td>-0.69</td>
<td>0.49</td>
</tr>
</tbody>
</table>

* $p <= .10$; ** $p <= .05$; *** $p <= .01$

Each model includes the following covariates: Size of enrollment, Comprehensive school, Disciplinary emphasis, Competitive emphasis, Community Deprivation Index.
Table 5.5. OLS Models Predicting School Delinquency Sub-indices

<table>
<thead>
<tr>
<th></th>
<th>School Misconduct</th>
<th>School Drug Problem</th>
<th>School Crime Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$b$</td>
<td>Beta</td>
<td>$b$</td>
</tr>
<tr>
<td>Deprivation Index</td>
<td>---</td>
<td>---</td>
<td>0.264</td>
</tr>
<tr>
<td>Size of enrollment</td>
<td>0.000</td>
<td>0.021</td>
<td>0.000</td>
</tr>
<tr>
<td>Comprehensive school</td>
<td>0.302</td>
<td>0.125</td>
<td>0.638</td>
</tr>
<tr>
<td>Disciplinary emphasis</td>
<td>-0.226</td>
<td>-0.257**</td>
<td>-0.194</td>
</tr>
<tr>
<td>Competitive emphasis</td>
<td>-0.129</td>
<td>-0.195</td>
<td>-0.093</td>
</tr>
<tr>
<td>Restructuring Index</td>
<td>0.600</td>
<td>0.261*</td>
<td>0.541</td>
</tr>
</tbody>
</table>

R-squared 0.15 0.23 0.12 0.13 0.20 0.44

*p <= .10; ** p <= .05; *** p <= .01

Data Sources:

a. 1990-92 High School Effectiveness Study
b. 1990 CPH Summary Tape File 3A
confined to disorganized areas, or at least that it is perceived as a problem just about everywhere. For example, the mean scores on the drug problem index do not vary significantly between urban and suburban schools (1.77 and 1.92, respectively). In fact, this particular mean is the only one out of the three sub-indices in which suburban schools show a higher score than urban schools.

Second, the restructuring index has a positive and significant association with school misconduct in both the reduced ($\beta = .261; t = 1.94$) and full ($\beta = .235; t = 1.80$) models, whereas it displays null relationships with the other two sub-indices. Again, this is a surprising finding that runs counter to E2, although it is not totally unexpected given the near-significant zero-order correlation between restructuring and school misconduct shown in Appendix B.1 ($r = .20; p = .13$).

A similar set of models as those presented in Table 5.4 were tested for each of the sub-indices; however, in this case none of the component restructuring scales exhibited significant relationships with the dependent variables. Also, Appendices B.5 to B.9 present additional models regressing each of the 13 school delinquency problem components on the full set of predictors shown in Tables 5.3 and 5.5. One interesting observation is that the bivariate relationship between fighting and the binary restructuring measure shown in Table 5.2 does not hold when fighting is regressed on the restructuring index, net of the remaining school and community contextual characteristics.
5.6 Conclusion

This chapter tested an informal control model of school delinquency. Based on previous research and the key distinction between school and community influences identified by Lawrence (1998), the model specified school delinquency as an outcome dependent on relevant school characteristics and processes, community contextual characteristics, and school restructuring.

The key finding from this chapter is that the expected negative relationship between restructuring and school delinquency was not found. In fact, I found that the mean level of school delinquency was higher in restructuring schools—under certain conditions. For example, the overall measure of restructuring is positively associated with school misconduct. This could be attributable to the unsettling of traditional norms in school processes by changes in the organization (i.e., a similar process to rapid social changes leading to a breakdown in self-regulation). Given a longer lag between measurements, the relationship between restructuring and delinquency might confirm earlier expectations.

The positive relationships could also be an indicator of the bias in the measurement of school delinquency, which is reliant on reports by school administrators. Given that school delinquency rates were based on administrator reports, it is possible that those schools in the midst of the restructuring process may show greater sensitivity to behaviors, like class cutting, that directly challenge the school's authority.
On the other hand, and particularly related to the positive relationships between delinquency, flexible time and team teaching, certain reforms may lead to less direct supervision and less control. Interdisciplinary team teaching could lead to teachers losing track of students that they were formerly solely responsible for in their own classes. As for flexible time arrangements (e.g., block scheduling), students may actually have more free time outside of classes—or in the hallways and other locations on school grounds where disruptions are more likely to occur (Devine, 1996).

The most consistent predictor of school delinquency is the community context, represented by the level of neighborhood social and economic deprivation. We would expect this strong relationship given existing arguments by those on the community side of the issue, who tend to see schools as highly open organizational systems influenced to a great extent by their environments (McDermott, 1983). In their study of school victimization, Gottfredson and Gottfredson (1985) estimated that about 30 percent of the variance in high school rates of teacher victimization were attributable to community characteristics. Thus, it appears that on this issue, public high schools are clearly subject to the influence of structural characteristics in their communities.

In their hallmark work on social disorganization, Sampson and Groves (1989) found that community processes such as informal networks and supervision mediated much of the effects of neighborhood deprivation on rates of crime and victimization. School characteristics do not mediate the effects of neighborhood deprivation, but it is important that school characteristics are still important predictors of delinquency after
controlling for community conditions. This is especially key for school processes more controllable at the school site—or, "true" school effects—such as disciplinary emphasis.

Finally, it appears that larger schools have larger delinquency problems, especially in the area of school crime. This replicates the positive bivariate relationship between size and school rates of violence documented in the Safe Schools Study (National Institute of Education, 1978). As Horwitz (1990: 201) notes: "The visibility of deviance is inversely related to group size." In smaller schools, delinquency is easier to detect simply because there are fewer places and opportunities to conceal such behavior. Further, larger schools are usually more characterized by formal rules and formal relations, which, as argued in Chapter 2, are often less effective than informal controls in suppressing deviance. Thus, the suppressing effects of communal schools on delinquency sought for in the shape of restructuring may be more achievable by reducing school size.

In sum, the findings from these analyses have produced some interesting covariates related to school delinquency. Along with those factors at the student level identified in Chapter 4, this now leads us to an examination of how school delinquency and the key relationships (and non-relationships) found thus far may illuminate processes going on at both the school and student levels of analysis. I address these multilevel issues in the next chapter.
CHAPTER 6
STUDENTS AND SCHOOLS

6.1 Introduction

The final set of analyses on school restructuring and high school delinquency are presented below in a set of multilevel models. These models combine the information gained thus far through the models tested at the student and school levels of analysis, and take them a few steps farther. The main purpose of these multilevel analyses is to determine the effects of school restructuring on the relationship between school bonding and delinquency among students. As stated in Expectation 3 (E3) from Chapter 2, the intent is to determine to what degree restructuring conditions this relationship, net of the effects of student- and school-level predictors.

6.2 Multilevel Models

In their book, *Hierarchical Linear Models*, Bryk and Raudenbush (1992) note that tests for organizational effects on individual-level outcomes have only recently begun utilizing data at both the organizational and individual levels of analysis. Further, they argue that the methodology necessary for handling data analyses at more than one level of analysis has only recently become available to researchers. The book is an attempt to extend what they call hierarchical linear modeling, or HLM, as an all-purpose analytical tool for addressing school effects questions, among others.¹

¹ As Bryk and Raudenbush (1992: 17) observe, hierarchical models are often called random effects models because the school-level effects are considered random. They
One of the critical issues for school effects research is the extent to which school processes among students vary systematically across schools. Like the HSES, many educational datasets are based on a two-stage sampling design that samples schools, and then students within schools. Thus, assuming that student characteristics or outcomes are normally distributed, as standard regression procedures do, without regard for the fact that students are almost never randomly distributed across schools (i.e., school assignment is often a function of one's residential location within the school district) may result in the violation of the error normality assumptions of such regression procedures. Multilevel models provide a mechanism by which the independent effects of school-level predictors on student outcomes may be assessed, and for which more accurate standard errors of such effects may be calculated. Multilevel models are also more parsimonious than standard regression models employing interaction terms, especially in cases in which one desired to model several second-level covariates (Kreft and deLeeuw, 1994).

In terms of this particular research problem, several criminologists have cited the importance of contextual research on crime and delinquency (Byrne and Sampson, 1986; Bursik, 1988; Sampson, 1989). More recent studies have ended the drought of contextual research, but many of them have focused solely on the effects of neighborhood characteristics on individuals—without much regard for school characteristics (Simcha-Fagan and Schwartz, 1986; Elliott et al., 1996). Further, Byrne are also known as multilevel models, or mixed models.
and Sampson (1986) point out that contextual studies of crime have often limited their focus on a few community variables, such as poverty and socio-economic status.

Thus, the models presented below are a foray into relatively new territory in delinquency theory and research. One advantage is that many of the relevant variables have already been identified in the literature. Further, the models tested here are even more parsimonious in that they are based on the key predictors at both levels of analysis identified in the two previous chapters.²

6.3 Unconditional Models

The first step in estimating any multilevel model is to run an unconditional model, which is similar to conducting a one-way ANOVA with random effects based on school units. The purpose of this model is to decompose the variance of any level-1 (i.e., student-level) dependent variable into its within- and between-school components. Of particular interest in this first section is the main dependent variable from Chapter 4: 12th grade self-reported student delinquency. As shown by Bryk and Raudenbush (1992), the nature of this beginning hierarchical model is made clearer by splitting it into two models.

\[ Y_{ij} = \beta_{0j} + r_{ij} \]
\[ \beta_{0j} = \gamma_{00} + u_{0j} \]

² The results presented in the following sections are based on analyses done using the HLM/2L software package, which produces two-level multilevel models (Bryk et al., 1996). I ran the same models in SAS with the MIXED procedure (for linear multilevel models) and the GLIMMIX macro (for non-linear multilevel models), which yielded very similar results to those presented in this chapter.
The first model is the student-level model, where it is assumed that $r_{ij} \sim N(0, \sigma^2)$ for $i = 1, \ldots, n_j$ students in school $j$, and $j = 1$ to 58 (schools). The second model is the school-level model, and may be interpreted as meaning that each school’s mean level of student delinquency is a function of the grand mean, $\mu_0$, plus a random error, $u_j$, where it is assumed that $u_j \sim N(0, \tau^2)$. $\tau^2$ is a key component in these models, because it represents the variance of the true school means, $\beta_0$, around the grand mean, $\mu_0$. More simply, it is the variance in student delinquency that exists between schools.

Table 6.1 provides the estimates from the unconditional model pertaining to student delinquency, along with similar models for school commitment and prevalence indicators for specific delinquent behaviors. The fixed effects shown at the top of the table are simply maximum-likelihood estimates of the grand means, $\mu_0$. The important part of this table is the bottom half, which shows the between-school ($u_j$) and within-school ($r_{ij}$) variability in the student-level variables. Beginning with delinquency, the between-school component indicates that there is no significant variation among schools in their mean level of student delinquency. This is a key finding, because it means that if there is no variance between schools on this measure of delinquency, then there is nothing for school-level covariates to explain. Thus, the only variables that are salient for predicting the overall measure of self-reported delinquency are those at the student level identified in Chapter 4.

On the other hand, some of the types of specific involvement in delinquency do vary significantly across schools. These include skipping school and cutting classes, breaking school rules, and smoking marijuana in school. Section 6.5 is devoted to
Table 6.1. Initial Hierarchical Linear Models (HLM's) for School Commitment, Student Delinquency, and the Commitment/Delinquency Slope

Schools (J = 58), Students (N = 1157)

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Estimate†</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment</td>
<td>8.278</td>
<td>0.079  ***</td>
</tr>
<tr>
<td>Delinquency</td>
<td>2.014</td>
<td>0.007  ***</td>
</tr>
<tr>
<td>Commitment slope</td>
<td>-0.013</td>
<td>0.004  **</td>
</tr>
<tr>
<td>Fighting</td>
<td>-2.304</td>
<td>0.104  ***</td>
</tr>
<tr>
<td>Skipping/Cutting</td>
<td>0.188</td>
<td>0.125</td>
</tr>
<tr>
<td>Breaking Rules</td>
<td>-0.702</td>
<td>0.083  ***</td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>-2.005</td>
<td>0.107  ***</td>
</tr>
<tr>
<td>Marijuana Use</td>
<td>-2.662</td>
<td>0.144  ***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Random Effects</th>
<th>Between- school variance</th>
<th>Chi-square</th>
<th>Within- school variance</th>
<th>Intraclass correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment</td>
<td>0.227</td>
<td>161.62     ***</td>
<td>2.432</td>
<td>0.086</td>
</tr>
<tr>
<td>Delinquency</td>
<td>0.001</td>
<td>68.27</td>
<td>0.040</td>
<td>0.012</td>
</tr>
<tr>
<td>Commitment slope</td>
<td>0.00036</td>
<td>90.57      **</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Fighting</td>
<td>0.013</td>
<td>56.55</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Skipping/Cutting</td>
<td>0.657</td>
<td>207.05     ***</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Breaking Rules</td>
<td>0.161</td>
<td>95.21      ***</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>0.178</td>
<td>77.50</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Marijuana Use</td>
<td>0.366</td>
<td>80.32      *</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

* p <= .05; ** p <= .01; *** p <= .001
† Standardized estimates shown in parentheses

Data Sources:
a. 1990-92 High School Effectiveness Study
b. 1990 CPH Summary Tape File 3A

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modeling these behaviors as functions of both student- and school-level covariates. It is also important to note that student-level variances for these behaviors are not calculated because they are non-normally distributed (i.e., 0 or 1).

School commitment also shows itself to be randomly-varying across schools ($t_{oo} = .227; \chi^2 = 161.62$). Adding this to the level-1 variance component ($\sigma^2 = 2.432$) gives us the total variance in school commitment. By taking a proportion of the total variance represented in the between-school variance, we derive the intra-class correlation coefficient, $\rho$, which in this case is 0.086. This means that about 9% of the variance in school commitment is between schools.

The last component shown in this table is that for the relationship, or slope, between school commitment and the self-reported delinquency index. This component is derived from a random coefficients model (not shown). The random coefficients model indicates the degree to which regression models vary between schools, as well as the average parameter estimates across schools. Its utility lies in identifying student-level covariates whose relationship with delinquency varies significantly across schools. The variance component for the commitment-delinquency slope is significant, indicating that this relationship differs significantly across schools. This finding is an important basis for some of the analyses in the next section, because it allows for the modeling of the slope with school-level predictors as well as a determination of the proportion of the variance explained by these covariates. More importantly, it allows a

---

3 Note that the total variance may also be computed by squaring the standard deviation for school commitment provided in Appendix A.1.
test of the last expectation in this study, which is that restructuring will moderate the relationship between school bonding and delinquency. Because school attachment did not exhibit any association with delinquency significantly different from zero (as shown in Chapter 4), the next section is devoted to exploring the identified variability in the commitment-delinquency slope.

6.4 The Commitment-Delinquency Relationship

Table 6.2 presents the HLM results for the model regressing student delinquency on student- and school-level variables. Keep in mind that because we found that delinquency did not vary significantly between schools, the mean delinquency index score across schools is not being modeled. Thus, the school mean, $\beta_{0j}$, is strictly a function of the grand mean, $g_{00}$. The central focus of this model is the prediction of the commitment-delinquency slope, which was found to vary significantly across schools (as shown in Table 6.1). Like the unconditional model, this model may be represented by a student-level model and, in this case, a series of school-level models:

$$
Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Prior Delinquency}) + \beta_{2j}(\text{School Commitment}) + \beta_{3j}(\text{Female}) + \beta_{4j}(\text{SES}) + \beta_{5j}(\text{Religiosity}) + r_{ij} \\
\beta_{0j} = g_{00} \\
\beta_{1j} = g_{10} + u_{1j} \\
\beta_{2j} = g_{20} + g_{21}(\text{Deprivation Index}) + g_{22}(\text{Public school enrollment}) + g_{23}(\text{Competitive emphasis}) + g_{24}(\text{Restructuring Index}) + u_{2j} \\
\beta_{3j} = g_{30} \\
\beta_{4j} = g_{40} \\
\beta_{5j} = g_{50} + u_{5j} 
$$

For these models and the ones to follow, each of the student-level covariates is centered around its grand mean. By doing so, $\beta_{0j}$ may be interpreted as the adjusted mean student delinquency for each school, $j$, after controlling for student-level
Table 6.2. Unstandardized HLM Estimates for Student Delinquency and Commitment

Schools ($J = 58$), Students ($N = 1157$)

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Estimate†</th>
<th>SE</th>
<th>t ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean delinquency ($g_{00}$)</td>
<td>2.013</td>
<td>0.006</td>
<td>346.77 ***</td>
</tr>
<tr>
<td>Prior Delinquency ($g_{10}$)</td>
<td>0.396</td>
<td>0.032</td>
<td>12.23 ***</td>
</tr>
<tr>
<td>Commitment ($g_{20}$)</td>
<td>-0.095</td>
<td>0.036</td>
<td>-2.62 ***</td>
</tr>
<tr>
<td>$\rightarrow$ Deprivation Index ($g_{21}$)</td>
<td>-0.003</td>
<td>0.005</td>
<td>-0.59</td>
</tr>
<tr>
<td>$\rightarrow$ Public School Enrollment ($g_{22}$)</td>
<td>8.56E-004</td>
<td>3.44E-004</td>
<td>2.49 **</td>
</tr>
<tr>
<td>$\rightarrow$ Competitive Emphasis ($g_{23}$)</td>
<td>-0.004</td>
<td>0.004</td>
<td>-1.08</td>
</tr>
<tr>
<td>$\rightarrow$ Restructuring Index ($g_{24}$)</td>
<td>0.035</td>
<td>0.014</td>
<td>2.39 **</td>
</tr>
<tr>
<td>Female ($g_{30}$)</td>
<td>-0.053</td>
<td>0.010</td>
<td>-5.32 ***</td>
</tr>
<tr>
<td>SES ($g_{40}$)</td>
<td>0.012</td>
<td>0.008</td>
<td>1.58</td>
</tr>
<tr>
<td>Religiosity ($g_{50}$)</td>
<td>-0.007</td>
<td>0.003</td>
<td>-2.38 **</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Random Effects</th>
<th>Variance Component</th>
<th>Chi-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior Delinquency ($u_1$)</td>
<td>0.023</td>
<td>94.62 ***</td>
</tr>
<tr>
<td>Commitment ($u_2$)</td>
<td>2.30E-004</td>
<td>81.05 ***</td>
</tr>
<tr>
<td>Religiosity ($u_5$)</td>
<td>7.00E-005</td>
<td>73.03 *</td>
</tr>
</tbody>
</table>

* $p <= .10$; ** $p <= .05$; *** $p <= .01$
† Standardized estimates shown in parentheses

Data Sources: 1990-92 High School Effectiveness Study; 1990 CPH Summary Tape File 3A

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covariates. Given that the direct effects of school-level variables on delinquency are not being modeled, this is less important here. However, this will be an issue for the non-linear models of specific involvement in delinquency presented in the next section.

Also, based on preliminary analyses examining the variability of these Level-1 covariates, gender and SES, along with delinquency, were found not to vary significantly at the school level. Thus their effects in these models are fixed, in that they are allowed to vary randomly only at the student level. For the variables measured as random effects (prior delinquency, school commitment, and religiosity), the $\beta_y$ are modeled as a function of the average estimate, $g_{i0}$, plus a random effect associated with each Level-2 unit.

Looking first at the fixed effects for the student-level covariates in Table 6.2, we see that the HLM estimates closely conform to that found using student-level-only OLS regression models (shown in Chapter 4, Table 4.3) with the exception of SES, which is not a significant predictor. These equivalent findings are not surprising, given Bryk and Raudenbush's (1992: 91-92) evidence that Level-1 OLS regression analyses will more closely conform to HLM analyses than Level-2 OLS models, especially if the $n_y$, or the within-group sample sizes, are closer to being equivalent across schools (i.e., a balanced design).4

---

4 The HLM fixed effects are weighted least squares estimates that are adjusted for the within-school sample sizes. I also ran a series of OLS student-level models (not shown) regressing student delinquency on these predictors, along with a set of interaction terms between school commitment and school-level covariates. As expected, the OLS results produced standard errors for school variables that were smaller, although I found effect sizes for the interaction terms similar to the fixed effects.
Let us turn now to the effects of the school-level covariates on $\beta_2$, the slope between school commitment and the self-report delinquency index. These represent a trimmed set of predictors drawn from an earlier full model that included the entire set of school and community characteristics described in Chapter 5. To determine the proportion of the variance explained by the Level 2 variables, or the improvement over the random coefficients model, we compare the between-school variability from the random coefficients model ($\tau_{20} = 0.00036$) and this ($\tau_{20} = 0.00023$) model. Deriving the proportion shows that these four variables explain about 36% of the variance between schools in the commitment-delinquency slope.

Of these predictors, it is first and foremost an interesting sign that neither the neighborhood deprivation index, nor the degree of school emphasis on academic competition, condition the relationship between school commitment and delinquency. This leaves public school enrollment and restructuring, which both show significant positive effects. In other words, both of these variables have a flattening effect, in that they reduce the magnitude of the negative relationship between commitment and delinquency. As for the former variable, public enrollment, this could indicate that in areas where a higher percentage of school-age children are enrolled in public schools, there is an over-arching stake in conformity to educational norms that reduces the need for an exceedingly high level of school commitment by any particular student. For restructuring, the significant effect on the slope suggests, in accordance with E3, that the

shown here of school variables on the commitment-delinquency slope.
degree of restructuring in schools moderates the connection between commitment and
delinquency across schools ($b = .035; \beta = .207; t = 2.39$). Thus, given higher values on
the restructuring index, one would expect delinquency to become less dependent on
school commitment.

Plotting the mean fitted values for $\beta_2$, along each unit of the original
restructuring index provides a somewhat clearer picture of the conditioning effect that
restructuring has on the relationship between commitment and delinquency. This plot is
shown in Figure 6.1. Each point on the y-axis represents the average fitted slope for the
schools located at the corresponding value of the restructuring index on the x-axis. The
values for restructuring are based on the un-logged index values, which range from 0 to 20. Looking at the left side, one sees that the negative slope for those schools with no
restructuring practices begins to decrease in magnitude (of course, it increases in
arithmetic value) as schools report more engagement in restructuring. But the effect
size begins to increase again as the scale scores move from 6 to 10. Thus, schools that
are currently engaged in approximately 4 to 6 restructuring practices, or who are
committed to a long-term engagement in a few practices, seem to reduce the need for
strong individual school commitment. These schools may have created the warm, but
firm climates some argue to be most effective in preventing school delinquency.

\[\text{Because most of the schools are at the lower end of the restructuring index's}
\text{frequency distribution, it could be problematic to assign much weight to the points}
\text{beyond the score of 10.}\]
Figure 6.1. Average Commitment-Delinquency Slope (HLM Fitted Value) by Restructuring Scale Score ($J = 58$)

Note: Number of schools at each scale score: 0 (3), 1 (10), 2 (7), 3 (7), 4 (4), 5 (7), 6 (10), 7 (4), 9 (2), 10 (1), 15 (1), 17 (1), 20 (1)
6.5 Specific Involvement in Delinquency

The next set of multilevel models regresses the measures of specific involvement in student delinquency identified as randomly-varying in Table 6.1 on a set of student- and school-level predictors. In this case, rather than school-level covariates predicting slopes, we are interested in predicting the intercepts for the behaviors of interest: skipping school and cutting classes, breaking school rules, and smoking marijuana. Recall that these are discrete outcomes representing the prevalence, or likelihood, to engage in the behavior. Given that they are non-normally distributed (i.e., 0 or 1), the HLM procedures applied here are similar to the logistic regression analyses used in Chapter 4. Again, for each of the three behaviors, the estimated model may be represented as a student-level model and a series of school-level models:

$$
\log(P_{ij}[1-P_{ij}]) = \beta_{0j} + \beta_{1j}(\text{Prior prevalence}) + \beta_{2j}(\text{School Commitment}) + \beta_{3j}(\text{Female}) + \beta_{4j}(\text{SES}) + \beta_{5j}(\text{Religiosity})
$$

$$
\beta_{0j} = g_{00} + g_{01}(\text{Deprivation Index}) + g_{02}(\text{Public school enrollment}) + g_{03}(\text{Size of enrollment}) + g_{04}(\text{Comprehensive school}) + g_{05}(\text{Disciplinary emphasis}) + g_{06}(\text{Competitive emphasis}) + g_{07}(\text{Restructuring Index}) + u_{0j}
$$

$$
\beta_{1j} = g_{10}
\beta_{2j} = g_{20}
\beta_{3j} = g_{30}
\beta_{4j} = g_{40}
\beta_{5j} = g_{50}
$$

As with logistic regression analysis, at the student level we are estimating the log odds that student $i$ in school $j$ will engage in the specific behavior, given a set of student-level, $X_{ij}$, and school-level, $W$, covariates. Note that at the school level we are predicting $\beta_{0p}$, which is the adjusted mean prevalence, or likelihood, of engaging in the specific delinquent behavior for each school, $j$, after controlling for the $X_{ij}$. Note also
that the remaining $\beta_y$ are treated solely as fixed effects, upon the basis of preliminary random coefficients models (not shown) which indicated that none of the effects of the student-level covariates on specific delinquency varied significantly across schools.

Similar to the model for student delinquency in Table 6.2, Table 6.3 shows that the fixed effects of the student-level covariates on the prevalence of involvement in these types of school delinquency generally correspond with the findings presented in Chapter 4. However, school commitment appears on average to be a stronger suppressor of breaking rules and marijuana use than it was in the models in Tables 4.4 and 4.5. Also, religiosity displays consistently negative effects in the present models, where it was only significant for skipping/cutting and marijuana use in the student-level models. Some of these observed differences are probably due to the dissimilarity in the models between the two chapters. Logistic regression models are more sensitive to changes in the number of covariates than standard ordinary least squares models (Agresti, 1990).

Looking at the school-level fixed effects on school mean delinquency outcomes, there appear to be very few direct effects. Public school enrollment is a significant covariate in two of these models: skipping school/cutting classes ($b = -.021; t = -2.24; \text{Odds} = .98$) and breaking rules ($b = -.017; t = 1.98; \text{Odds} = .98$). For both dependent variables, it appears that with each point increase in the percentage of school-going children that are enrolled in public schools, the mean school odds of engaging in these behaviors decreases by about 2 percent. One could interpret this to mean that schools
Table 6.3. Unstandardized HLM Estimates for Student Involvement in Specific Delinquency

Schools (J = 58), Students (N = 1157)

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Skipping/Cutting</th>
<th>Breaking Rules</th>
<th>Marijuana Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean prevalence (g00)</td>
<td>1.377</td>
<td>0.738</td>
<td>-0.570</td>
</tr>
<tr>
<td>--&gt; Deprivation Index (g01)</td>
<td>-0.228</td>
<td>0.053</td>
<td>-0.017</td>
</tr>
<tr>
<td>--&gt; Public School Enrollment (g02)</td>
<td>-0.021</td>
<td>-0.017</td>
<td>0.003</td>
</tr>
<tr>
<td>--&gt; Size of enrollment (g03)</td>
<td>2.60E-04</td>
<td>2.60E-05</td>
<td>2.95E-04</td>
</tr>
<tr>
<td>--&gt; Comprehensive school (g04)</td>
<td>-0.842</td>
<td>0.672</td>
<td>-1.008</td>
</tr>
<tr>
<td>--&gt; Disciplinary emphasis (g05)</td>
<td>0.062</td>
<td>-0.230</td>
<td>-0.131</td>
</tr>
<tr>
<td>--&gt; Competitive Emphasis (g06)</td>
<td>0.124</td>
<td>0.096</td>
<td>-0.177</td>
</tr>
<tr>
<td>--&gt; Restructuring Index (g07)</td>
<td>0.528</td>
<td>-0.179</td>
<td>-0.204</td>
</tr>
<tr>
<td>Prior prevalence (g10)</td>
<td>1.973</td>
<td>1.238</td>
<td>2.365</td>
</tr>
<tr>
<td>Commitment (g20)</td>
<td>-0.031</td>
<td>-0.151</td>
<td>-0.247</td>
</tr>
<tr>
<td>Female (g30)</td>
<td>-0.268</td>
<td>-1.064</td>
<td>-0.218</td>
</tr>
<tr>
<td>SES (g40)</td>
<td>0.178</td>
<td>0.042</td>
<td>0.420</td>
</tr>
<tr>
<td>Religiosity (g50)</td>
<td>-0.090</td>
<td>-0.088</td>
<td>-0.258</td>
</tr>
<tr>
<td>Variance Component (u0)</td>
<td>0.247</td>
<td>0.203</td>
<td>0.302</td>
</tr>
</tbody>
</table>

* p <= .05; ** p <= .01; *** p <= .001
† Standardized estimates shown in parentheses

Data Sources: 1990-92 High School Effectiveness Study; 1990 CPH Summary Tape File 3A
that are more supported by their communities are more able to control those disruptive behaviors that challenge the school’s authority.

Of the remaining school-level variables, the only other significant relationship is that between the neighborhood deprivation index and the school mean odds of marijuana use. Had I not conducted the school-level analyses in Chapter 5, this might be construed as an unexpected finding. However, the school’s drug problem was the only type of school delinquency not strongly influenced by the neighborhood level of deprivation. The negative relationship shown in Table 6.3 suggests not only that the drug problem is evenly distributed across schools, but that the school mean odds of using marijuana in school are greater for schools in less disorganized areas. Put another way, students in high schools located in socially and economically deprived communities are, on average, less likely to report having used marijuana in school since the beginning of the school year.

6.6 Conclusion

The multilevel models presented in this final analysis chapter sought to answer Expectation 3 in determining the effects of school restructuring on the relationship between school commitment and school delinquency among students. The positive and significant effects of restructuring on the commitment-delinquency slope indicate support for the proposition. The flattening of this particular slope in the presence of restructuring suggests that in schools that are restructured to a moderate extent, the need for a high level of commitment by students in restraining their delinquent behavior in school appears to be reduced. One caveat to this finding is a reminder that the effect of
school commitment on delinquency is not terribly large; thus, any indirect potential that restructuring might have in preventing delinquency is dependent on the existing relationship between the two student-level variables.

Gottfredson and her colleagues (1991) found that, compared to neighborhood influences, school characteristics had very little effect on individual measures of delinquency. This is also the case here, as evidenced by the fact that none of the school characteristics displayed any significant associations with the three measures of specific involvement in delinquency, and the fact that the overall student delinquency index did not vary significantly between schools. Of the school-level predictors, only public school enrollment showed any potential in its negative effects on skipping school and cutting class, and breaking school rules. As discussed above, the negative relationship shown between neighborhood deprivation and marijuana use in school is somewhat perplexing. It is possible that this effect could be highlighting some bias in self-reports of deviant behavior.

In summary, these findings suggest that the variables most able to explain student-level school delinquency are those measured at the individual level. An exception to these direct conclusions is the key effect of restructuring on the relationship between school commitment and student delinquency. The findings from this chapter and from previous chapters are discussed in further detail in the next chapter, which concludes this study.
CHAPTER 7

CONCLUSION

7.1 Summary and Discussion of Findings

In one of his last essays, James Coleman (1995) proposed that building social capital in schools through cooperative teaching and learning would pay off in gains in students' educational achievement. Educational research suggests that a wide array of similar reforms enhances many positive student outcomes, and they have classified these reforms under the concept of "school restructuring." The purpose of school restructuring, according to its adherents, is to create more effective schools, in terms of their ability to accomplish the goal of educating students. Educators argue that schools cannot be effective if there exists a high level of disruption. Yet practically no attention has been paid to the possible effects of restructuring on reducing delinquency in schools. In this study, I have examined the impact of high school restructuring on school delinquency using a broad conception of the problem incorporating research strategies on school delinquency and disorder, school effects, and contextual and multilevel studies of school crime and victimization. My purpose in this dissertation has been to answer the following question: What are the effects of restructuring on school delinquency? This chapter summarizes the findings pertaining to this research question, discusses some of the limitations in the findings, and offers some directions for future research and policy.
I approached the research question with a set of expectations stated at the conclusion of Chapter 2. The first expectation, E1, required testing a modified control model—a model based on contemporary revisions of Hirschi's (1969) social bonding theory—specifying school delinquency at the student level of analysis as an outcome predicted by school bonding, several social process variables, personal and structural background characteristics, and prior delinquency. The results of these analyses reveal this first expectation to be only partially supported. Of the two types of school bonding tested—commitment and attachment—only school commitment produced the expected inverse relationship with student delinquency, net of the remaining variables in the model. Further, the negative effects of school commitment were primarily confined to the general measure of overall delinquency. Of the prevalence indicators of specific involvement in delinquency, commitment exhibited a significant partial association only with fighting in school.

Although salient, the direct effects of school commitment on 12th grade self-reported delinquency are somewhat weak in comparison to other variables in the model, namely self-reported delinquency in 10th grade, gender, and a measure of religious bonds. Research employing commitment as a predictor of delinquency has consistently shown it to have either a weak or moderate influence on various measures of delinquency (Krohn and Massey, 1980; Elliott et al., 1985; Massey and Krohn, 1986; Friedman and Rosenbaum, 1988; Paternoster and Trippett, 1988; Rosenbaum and Lasley, 1990; Agnew, 1991; Thornberry et al., 1991; Cernkovich and Giordano, 1992; Jenkins, 1995). However, there are two important points to make here: 1) the time lag
between the measurement of commitment and delinquency—two years—is at least twice as great as those found in the studies cited above that used panel data, and 2) one should expect to find a weaker association between commitment and delinquency than found in studies using cross-sectional data, which confound the reciprocal effects of the two variables by not being able to control their time-ordering. Therefore, the modest relationship between these school-specific measures of commitment and delinquency should not surprise those familiar with more recent tests of social bonding theory (e.g., Agnew, 1991).

At the school level, I argued that schools that were more restructured than others would have lower rates of school delinquency (E2). Using various measures of both restructuring and school delinquency from HSES administrator data on 58 high schools, my analyses did not support this expectation. In order to fully investigate these relationships, I employed an informal control model derived from social disorganization theory and macro-level research on school crime and victimization. Controlling for school characteristics and a measure of socio-economic deprivation in the surrounding community, restructuring not only showed an absence of negative effects on delinquency, but revealed positive relationships under some conditions.

Schools characterized as more restructured had higher levels of school misconduct (tardiness and class cutting). This could suggest that comprehensive organizational changes result in uncertainties among the student body concerning the normative boundaries of behavior under the new system (Erikson, 1962). Although changes are implemented to produce more positive outcomes, the unsettling of the "old
way" of doing things may actually result in an unintended increase in negative outcomes (e.g., higher rates of truancy), especially in the initial stages of restructuring. At the community level, social disorganization theorists argue that changes in a social system lead to a breakdown in informal social controls when those changes occur very rapidly. An analogous argument at the school level is that schools that enact structural changes in one semester as opposed to implementing them over a five-year period may experience significantly higher rates of school disorder, at least in the short term.

When I examined the nine component practices of the restructuring index, I found that the greater use of flexible class periods and interdisciplinary team teaching resulted in a greater overall problem with school delinquency. This lends support to the idea that structural changes result in a breakdown in controls. The use of non-traditional class time arrangements, such as block scheduling, may give students more unstructured free time. Team teaching could lend itself to less direct supervision of students if a single teacher, as part of a team, meets with a larger number of students each week due to the team’s rotating schedule. Thus, while classroom dynamics and instruction may improve, teachers—who are the main source of institutional control—may lose the ability to serve the school in their secondary role as guardians of activity outside the classroom (Devine, 1996).

Two more interesting findings at the school level involved neighborhood deprivation and school size. Both showed a strong positive association with the delinquency problem across schools. In the case of the former, there are many who argue that school and community crime are two sides of the same coin, so to speak.
Given the clear tendency shown in the literature for socially disorganized and socio-
economically deprived areas to possess higher rates of delinquency, we should not be
surprised that schools in such areas also have more problems with delinquency. Why?
As open systems, schools and their communities are co-dependent. The school is
subject to the harsh realities of crime experienced by the community (McDermott, 1983:
Menacker et al., 1990; Noguera, 1995). Thus, we should expect neighborhood
deprivation to have a strong direct effect on school delinquency. However, this finding
was generally confined to the misconduct and crime indices; administrators in schools
located in less-affluent environments were not significantly more or less likely to report
a school drug problem than their counterparts in more affluent areas.

In addition, schools with larger student enrollments reported greater delinquency
problems. As a matter of defensible space, larger schools provide more opportunities
for school disorder because they offer more places and opportunities to conceal
disruptive behavior. This finding also supports the arguments of those who suggest that
the Conant-ian rationale for large high schools has overlooked the positive aspects of
community found in small schools (Gregory and Smith, 1987). It may be that the most
effective form of school restructuring in terms of its implications for delinquency may
be to break up large high schools into smaller ones, or to create a house system in which
relatively smaller subdivisions are created within a single large school. Under the latter
solution, the activities of students and teachers are contained within their own "house."
This type of system is a direct attempt by large schools to engender the communal
aspects of small schools, without the need to physically break up these schools (Size. 1992b).

Finally, I combined the findings of the two previous chapters in order to determine what effects school restructuring would have on the student-level relationship between school commitment and delinquency. Corresponding to E3, I expected that the commitment-delinquency slope would vary significantly between schools, and that restructuring would be a source for explaining at least some of this variance. This indeed is the case. The negative partial relationship between commitment and delinquency becomes "flatter" as scores on the restructuring index increase from zero (no restructuring practices) to four or six (a moderate level of restructuring). Beyond this, the effect of restructuring begins to decrease again, which means that the negative slope between commitment and delinquency becomes greater in magnitude. Hence, I conclude that student delinquency is less dependent on school commitment within schools that are moderately restructured.

The idea that school commitment is less important for predicting delinquency in restructured schools suggests that the school meets the student at least part of the way in the *process* of school bonding. In other words, it is not as critical for students in these schools as compared to other schools to develop a stake in educational goals. The clearest conclusion that can be drawn from this relationship is that school commitment is more equitably distributed among students in restructured schools. Students in these schools share a roughly equivalent commitment to norms of educational achievement (i.e., getting good grades; going to college). This is not surprising, given 1) the findings...
of achievement being more equitably distributed in restructured schools (Lee and Smith, 1995), and 2) the strong positive effects of achievement on school commitment shown in Chapter 4.

Before considering the directions that future research and educational policy might take, I address below some of the limitations and contributions of the study.

7.2 Limitations and Contributions of the Study

In the section on data filtering in Chapter 3, I discussed some of the apparent selection bias in the filtered samples of 58 schools and 1,157 students. The schools that were retained were more suburban, smaller, and located in neighborhoods characterized by lower levels of deprivation than the schools filtered out. Therefore, the findings discussed above have questionable generalizability to any meaningful population of metropolitan public high schools. However, because none of the key variables differ significantly between those students and schools left in the analysis and those left out, we may assume a certain degree of robustness in the major findings of this study.

An additional problem has to do with the measurement of the dependent variables. In particular, there is a potentially serious bias issue related to measuring the nature of a school’s delinquency problem using only data collected from school administrators. To the extent that some unmeasured characteristic(s) of administrators correlate both with their reports of the school’s delinquency problem and, for example, their assessment of the school’s disciplinary emphasis, there exists the possibility of a spurious relationship between disciplinary emphasis and school delinquency problem. Unfortunately, the HSES does not include any personal information on the school
administrators that might be employed to control for the possibility of spurious
correlations. One source of relief is Gottfredson and Gottfredson's (1985) finding that
their prediction models for school victimization based on principal reports did not differ
appreciably from models based on aggregated self-reports by teachers and students of
victimization.1

Also on this issue, it is unfortunate that the levels of school and community
crime could not be compared in this study. It would take some original data collection
efforts to measure crime rates at the tract level across U.S. metropolitan areas. Most
studies that are able to utilize neighborhood data on crime are granted special access to
official crime data by law enforcement agencies, and thus are usually forced to select
one or a few cities from which to draw their sampling frame of neighborhoods (e.g.,
Rountree and Land, 1996). National-level studies with community crime data, such as
the NIE's (1978) Safe School Study, are much less common.

Thirdly, Lee and Smith (1995) have recognized the weaknesses in attempting to
assess organizational change programs such as restructuring schools and their effects
using secondary survey analysis. What surveys cannot provide for the researcher is a
sense of the extent to which "real" organizational change is occurring in these
restructuring schools. How much of the professed change is a symbolic response to the
environmental pressure on schools to give the appearance of institutional legitimacy?

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1 On the student level, construct validity seems to be less of a problem with self-
reports of school delinquency—especially drug use—as long as recall periods are
reasonably short (Harrison, 1995).
Consider the following:

The educational system is well known for its propensity to adopt, but not to implement, instructional innovations. This tendency has been seen as an indication of organizational weakness and incompetence. From an institutional point of view, however, it can be seen as part of the process by which the system retains its strength. As innovations arise and become legitimated in the environment, they are organizationally incorporated. Innovations that threaten to make the hidden instructional core of the school more public and coordinated bring enormous potential costs to school organizations—the costs of coordination, of managing instability and unpredictability, of conflict, of revealed failure and delegitimation, and so on. They must be incorporated to bring legitimacy, but the incorporation need not be accompanied by effective implementation. Thus innovations are adopted, but they rarely filter down through the organization to effective implementation: this situation is part of the basic structure of the enterprise. It is particularly the case that structural changes that alter and integrate technical work relations are especially unlikely to survive.

Institutional theorists argue that schools are prime examples of organizations with institutional environments, and that schools symbolically alter their educational work to conform with the demands of that environment (Meyer and Rowan, 1977; Scott, 1992). Powell and colleagues (1985) refer to this symbolic adaptation by high schools to change their traditional structures to something new and innovative as accommodation. Efforts to restructure may thus come into conflict with pressures for legitimacy and the tendency by school administrators to accommodate these pressures. If Murphy (1991: 26) is correct in characterizing the school principal as the "nexus of restructuring efforts," this undoubtedly makes the accommodation of restructuring efforts much more likely. There is a good chance that once undertaken, only the changes that least come into conflict with the existing power structure will survive.

Anderson and Stiegelbauer (1994) found this to be true in a case study of one secondary
school. Seven years after initial restructuring efforts were begun, the changes made in the curricular and instructional aspects of the school organization had become institutionalized; however, changes in school governance that involved teachers and parents in school policy decisions did not endure, and the school's management reverted to its original structure. It may be that those schools that successfully restructure are either less ambitious in their efforts (i.e., they are moderately restructured), or perhaps they are schools that have already been delegitimized or considered failures (e.g., inner-city schools).

Despite the above limitations, this study has filled some of the gaps in the literature on school delinquency and effective schools, and made attempts to push the boundaries of mainstream theoretical understandings of school delinquency. First, the present study is one of the few existing efforts to evaluate empirically the importance of school restructuring to student and school outcomes (cf. Lee and Smith, 1995). It is also one of the few attempts to address the phenomenon of restructuring by those who are not self-professed advocates of the restructuring movement.

Second, this is one of a handful of studies to measure "school effects" on unconventional student outcomes (i.e., delinquency). Most of the research on school effects has examined the ways that schools contribute to positive outcomes among students, such as academic achievement and engagement (Rutter et al., 1979; Bryk and Driscoll, 1988; Lee and Bryk, 1989; Gamoran, 1992; Kerckhoff, 1993). It is also one of a small set of recent studies that has begun estimating school effects using multilevel modeling.
The third innovation in this study is the bridging of micro- and macro-level delinquency theories. At the micro, or individual, level, social psychological theories of delinquency historically have downgraded the importance of the organizational context of individual delinquent behavior (Bursik and Grasmick, 1993). Even those theories most relevant to the school context have conceptualized the problem of school delinquency solely in terms of the student's attitudes to schooling and/or school officials (e.g., Hirschi's social bonding theory). At the macro level, there are few studies that have assessed the effects of a linear combination of school structural characteristics and school communities on delinquency with a sample size larger than a half-dozen schools (cf. Gottfredson and Gottfredson, 1985). These comparative assessments are critical for determining those relationships between school characteristics and delinquency that are not derivative of the compositional nature of the areas in which they are located. Such "true" school effects, as was shown for a school's disciplinary emphasis, demonstrate that schools hold a certain level of ability to control delinquency within the organization and independently of community influences. In bridging both levels of analysis, this study is a response to the mandate voiced by some criminologists for the multilevel study of crime and delinquency. In their view, this is a critical area for bridging the work of researchers at different levels, and in extending mainstream criminological theories at both levels (Bursik, 1988; Sampson, 1989). This study was an effort to apply two classical theories of juvenile delinquency—social bonding theory and social disorganization theory—to the problem of school delinquency, and to link the theories together via the concept of informal social control.
7.3 Future Research and Policy Directions

Based on the findings in this study, there are several options for future research in the general areas of restructuring and school delinquency. The first would be to test a similar set of models on the effects of school restructuring on school victimization rates and the probability of student victimization. This should also involve looking at those specific practices, team teaching and flexible time for classes, that had unintended positive effects on school delinquency.

Second, and based on the findings related to gender at the student level, one possible extension of the present study would be to determine whether school restructuring equalizes the effect of school commitment on delinquency to the same extent for girls as it does for boys. According to research by Figueira-McDonough (1986) and feminist theories of delinquency, we would expect changes in the gender-egalitarian nature of the school’s structure and climate to have an impact of the mean differences between boys and girls in their delinquent behavior. Hence, the interaction between gender and school commitment in predicting delinquent behavior might be conditioned by school restructuring.

Third, more elaboration on the interdependence and use of formal and informal social controls in schools is warranted. With many high schools increasingly turning to formal, coercive types of controls, such as metal detectors, security guards, drug dogs, ID cards, and camera surveillance, what effects will this have on the rate of delinquency in these schools (Staples, 1997)?
Finally, another important project is a longitudinal study of public schools designed to identify the characteristics and processes of school districts, communities, and schools that influence the decision to initiate restructuring (e.g., whether it is more often a district- or school-based decision) and to persist in restructuring efforts. Beyond case studies, we know very little about the general patterns of these decisions, and are forced to rely on questionable estimates of the number of schools in this country considered to be in the process of restructuring (Newmann and Associates, 1996).

This study also has some possible implications for educational policy. For example, in the conclusion of their monograph on school victimization, Gottfredson and Gottfredson (1985: 198) state that schools must look beyond the standard use of achievement and graduation statistics to rate the effectiveness of their organizations: "Much is to be gained by broadening the scope of measurement to include school safety and other aspects of school management and school climate." The positive effects of restructuring on school-level delinquency found in Chapter 5 thus are something for school-effects and effective schools researchers to consider in their future efforts. What does it tell us about a school if restructuring has positive effects on both academic achievement and truancy rates? Can a school be judged effective if both achievement and delinquency levels are high?

Also, there are implications for the time lag that must be applied in assessing the effects of restructuring on delinquency or any other school outcomes. Based on the positive effects of restructuring on school delinquency found here, it is possible that delinquency and other negative disruptions may increase in the short term following the
initialization of a restructuring plan; however, there is a possibility that the ameliorative
effects of restructuring on such outcomes, if they occur, will not be observed for five or
six years. A clear understanding of the impact of high school restructuring on school
delinquency will require a combination of long-term observation and fieldwork to
disentangle the "real" effects of restructuring from the symbolic accommodation to
pressures to restructure without any real change.
REFERENCES


145


153


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APPENDIX A

ADDITIONAL STUDENT-LEVEL ANALYSES
Table A.1. Zero-order Correlation Coefficients for Student-level Variables (N = 1157)

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Mean 2.01 0.51 0.17 0.35 0.12 3.42 2.33 5.21 11.89 2.68 2.01 7.02 8.72 11.31 2.04
S. D. 0.20 0.50 0.38 0.70 0.32 1.77 0.70 1.28 2.47 0.96 0.74 1.45 1.63 1.95 0.22

KEY: 1. 12th Grade Delinquency Index 6. Religiosity 11. Peer Attachment 2: Importance of parties
  2. Female 7. Parental Attachment 1: Dependence on parents 12. Achievement
Table A.2. Decomposition of Effects on 12th Grade Self-reported Delinquency for Prior Delinquency and Achievement

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† Full model including: Female, Minority, SES, Low Track Placement, Religiosity, Parental Attachment (1 & 2), Parental Involvement, and School Commitment
‡ Reduced model excluding School Commitment
* p <= .01; ** p <= .001
APPENDIX B

ADDITIONAL SCHOOL-LEVEL ANALYSES
Table B.1. Zero-order Correlation Coefficients for School-level Variables (N = 58)

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<tr>
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<td></td>
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<td></td>
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<td>-0.27</td>
<td>-0.22</td>
<td>-0.26</td>
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<tr>
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<td></td>
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<td></td>
<td>0.07</td>
<td>-0.18</td>
<td>-0.16</td>
<td>-0.07</td>
<td>-0.21</td>
<td>-0.08</td>
</tr>
</tbody>
</table>

Data Sources:

a. 1990-92 High School Effectiveness Study
b. 1990 CPH Summary Tape File 3A
Table B.2. Correlations among School Delinquency Problem Items

<table>
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<tr>
<th></th>
<th>1.</th>
<th>2.</th>
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<th>11.</th>
<th>12.</th>
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<td>4. Gang activity</td>
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</tr>
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<td>5. Robbery/theft</td>
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<td>0.33</td>
<td>1.00</td>
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<td>6. Vandalism</td>
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<td>7. Alcohol use</td>
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<td>8. Illegal drug use</td>
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<td>9. Drunk/high</td>
<td>0.21</td>
<td>0.15</td>
<td>0.26</td>
<td>0.23</td>
<td>0.42</td>
<td>0.39</td>
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<td>10. Drug dealing</td>
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<td>0.27</td>
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<td>11. Weapons poss.</td>
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<td>0.52</td>
<td>0.19</td>
<td>0.41</td>
<td>-0.24</td>
<td>-0.05</td>
<td>0.08</td>
<td>0.17</td>
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<td>12. Physical abuse</td>
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<td>-0.23</td>
<td>0.00</td>
<td>0.17</td>
<td>0.27</td>
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<td>1.00</td>
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<td>13. Verbal abuse</td>
<td>0.14</td>
<td>0.14</td>
<td>0.42</td>
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<td>0.44</td>
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<th>9.</th>
<th>10.</th>
<th>11.</th>
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<th>13.</th>
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<tbody>
<tr>
<td>Mean</td>
<td>2.74</td>
<td>2.22</td>
<td>1.91</td>
<td>1.50</td>
<td>1.86</td>
<td>1.74</td>
<td>2.41</td>
<td>2.00</td>
<td>1.50</td>
<td>1.68</td>
<td>1.47</td>
<td>1.09</td>
<td>1.67</td>
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<td>Std. dev.</td>
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<td>0.77</td>
<td>0.57</td>
<td>0.78</td>
<td>0.54</td>
<td>0.55</td>
<td>0.84</td>
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<td>0.63</td>
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</table>

Data Source: 1990 - 92 High School Effectiveness Study
Table B.3. Correlations among Restructuring Practice Scales

<table>
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<th>Practice</th>
<th>1.</th>
<th>2.</th>
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<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
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<tbody>
<tr>
<td>1. English or social studies independent study projects</td>
<td>1.00</td>
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<td></td>
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<tr>
<td>2. Math or science independent study projects</td>
<td>0.90</td>
<td>1.00</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Interdisciplinary team teaching</td>
<td>0.21</td>
<td>0.12</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. Common planning time</td>
<td>0.24</td>
<td>0.14</td>
<td>0.46</td>
<td>1.00</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5. Same homeroom for all years</td>
<td>0.34</td>
<td>0.25</td>
<td>0.29</td>
<td>0.39</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Cooperative learning</td>
<td>0.20</td>
<td>0.09</td>
<td>0.45</td>
<td>0.55</td>
<td>0.28</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Flexible time for classes</td>
<td>0.29</td>
<td>0.19</td>
<td>0.23</td>
<td>0.13</td>
<td>0.34</td>
<td>0.13</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Parents as volunteers</td>
<td>0.28</td>
<td>0.21</td>
<td>0.14</td>
<td>0.20</td>
<td>0.30</td>
<td>0.19</td>
<td>0.37</td>
<td>1.00</td>
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<tr>
<td>9. School-within-a-school</td>
<td>0.38</td>
<td>0.31</td>
<td>0.45</td>
<td>0.52</td>
<td>0.33</td>
<td>0.40</td>
<td>0.16</td>
<td>0.28</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Percentage of HSES public schools in which practice was in place in 1990:

| Percentage | 22 | 22 | 40 | 17 | 33 | 38 | 7 | 47 | 14 |

Data Source: 1990 - 92 High School Effectiveness Study
Table B.4. Correlations between Restructuring Practice Scales and School Delinquency Indices

<table>
<thead>
<tr>
<th></th>
<th>School Delinquency Problem</th>
<th>School Misconduct Problem</th>
<th>School Drug Problem</th>
<th>School Crime Problem</th>
</tr>
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<tbody>
<tr>
<td>English or social science independent study projects</td>
<td>0.06</td>
<td>0.10</td>
<td>-0.04</td>
<td>0.07</td>
</tr>
<tr>
<td>Math or science independent study projects</td>
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<td>0.10</td>
<td>-0.05</td>
<td>0.03</td>
</tr>
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<td>Interdisciplinary team teaching</td>
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<td>0.14</td>
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<td>0.09</td>
</tr>
<tr>
<td>Common planning time</td>
<td>-0.12</td>
<td>0.16</td>
<td>-0.12</td>
<td>-0.09</td>
</tr>
<tr>
<td>Same homeroom for all years</td>
<td>0.10</td>
<td>0.09</td>
<td>0.03</td>
<td>0.14</td>
</tr>
<tr>
<td>Cooperative learning</td>
<td>0.18</td>
<td>0.00</td>
<td>-0.07</td>
<td>0.15</td>
</tr>
<tr>
<td>Flexible time for classes</td>
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<td>0.08</td>
<td>0.05</td>
<td>0.15</td>
</tr>
<tr>
<td>Parents as volunteers</td>
<td>0.01</td>
<td>0.15</td>
<td>-0.11</td>
<td>0.04</td>
</tr>
<tr>
<td>School-within-a-school</td>
<td>-0.06</td>
<td>0.05</td>
<td>-0.20</td>
<td>-0.13</td>
</tr>
</tbody>
</table>

Data Source: 1990 - 92 High School Effectiveness Study
Table B.5. OLS Models Predicting Tardiness, Class Cutting, and Fighting

<table>
<thead>
<tr>
<th></th>
<th>Tardiness</th>
<th>Class Cutting</th>
<th>Fighting</th>
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<tr>
<td></td>
<td>Beta</td>
<td>Beta</td>
<td>Beta</td>
</tr>
<tr>
<td>COMMUNITY VARIABLES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deprivation Index</td>
<td>0.406 ***</td>
<td>0.159</td>
<td>0.365 ***</td>
</tr>
<tr>
<td>SCHOOL VARIABLES</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Size of enrollment</td>
<td>0.113</td>
<td>-0.012</td>
<td>0.018</td>
</tr>
<tr>
<td>Comprehensive school</td>
<td>0.300 **</td>
<td>0.180</td>
<td>0.397 ***</td>
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<tr>
<td>Disciplinary emphasis</td>
<td>-0.080</td>
<td>-0.312 **</td>
<td>-0.036</td>
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<tr>
<td>Competitive emphasis</td>
<td>-0.042</td>
<td>-0.209</td>
<td>-0.212</td>
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<td>Restructuring Index</td>
<td>0.188</td>
<td>0.235 *</td>
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<td>R-squared</td>
<td>0.20</td>
<td>0.22</td>
<td>0.26</td>
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</table>

* p <= .10; ** p <= .05; *** p <= .01

Data Sources:
a. 1990-92 High School Effectiveness Study
b. 1990 CPH Summary Tape File 3A
Table B.6. OLS Models Predicting Gang Activity, Robbery/Theft, and Vandalism

<table>
<thead>
<tr>
<th></th>
<th>Gang Activity</th>
<th>Robbery/Theft</th>
<th>Vandalism</th>
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<td>0.510 ***</td>
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<td><strong>COMMUNITY VARIABLES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deprivation Index</td>
<td>0.397 ***</td>
<td>0.061</td>
<td>0.159</td>
</tr>
<tr>
<td><strong>SCHOOL VARIABLES</strong></td>
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<td></td>
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<td>Size of enrollment</td>
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<td>Comprehensive school</td>
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<td>-0.331 ***</td>
<td>-0.214 *</td>
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<tr>
<td>Disciplinary emphasis</td>
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<td>-0.059</td>
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<tr>
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<td>0.22</td>
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</table>

* p <= .10; ** p <= .05; *** p <= .01

Data Sources:

a. 1990-92 High School Effectiveness Study
b. 1990 CPH Summary Tape File 3A

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Table B.7. OLS Models Predicting Alcohol and Drug Use

<table>
<thead>
<tr>
<th></th>
<th>Alcohol Use</th>
<th>Drug Use</th>
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<tbody>
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<td></td>
<td>Beta</td>
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<td>Deprivation Index</td>
<td>-0.176</td>
<td>0.087</td>
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<tr>
<td><strong>SCHOOL VARIABLES</strong></td>
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<td>Size of enrollment</td>
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<td>Comprehensive school</td>
<td>0.071</td>
<td>0.330 **</td>
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<td>Disciplinary emphasis</td>
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<td>Restructuring Index</td>
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<td><strong>R-squared</strong></td>
<td>0.15</td>
<td>0.13</td>
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* p <= .10; ** p <= .05; *** p <= .01

Data Sources:
a. 1990-92 High School Effectiveness Study
b. 1990 CPH Summary Tape File 3A
### Table B.8. OLS Models Predicting Intoxication and Drug Dealing

<table>
<thead>
<tr>
<th></th>
<th>Intoxicated Students</th>
<th>Drug Dealing</th>
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<td></td>
<td><em>Beta</em></td>
<td><em>Beta</em></td>
</tr>
<tr>
<td><strong>COMMUNITY VARIABLES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deprivation Index</td>
<td>0.290 *</td>
<td>0.329 **</td>
</tr>
<tr>
<td><strong>SCHOOL VARIABLES</strong></td>
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</tr>
<tr>
<td>Size of enrollment</td>
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<td>0.069</td>
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<tr>
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<td>-0.152</td>
<td>-0.084</td>
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<tr>
<td>Competitive emphasis</td>
<td>-0.044</td>
<td>-0.075</td>
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<td>Restructuring Index</td>
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<tr>
<td><strong>R-squared</strong></td>
<td>0.12</td>
<td>0.19</td>
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</table>

* p <= .10; ** p <= .05; *** p <= .01

Data Sources:
a. 1990-92 High School Effectiveness Study
b. 1990 CPH Summary Tape File 3A
Table B.9. OLS Models Predicting Weapons Possession and Teacher Abuse

<table>
<thead>
<tr>
<th></th>
<th>Weapons Possession</th>
<th>Physical Abuse</th>
<th>Verbal Abuse</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Beta</td>
<td>Beta</td>
<td>Beta</td>
</tr>
<tr>
<td>COMMUNITY VARIABLES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deprivation Index</td>
<td>0.488 ***</td>
<td>0.234</td>
<td>0.282 **</td>
</tr>
<tr>
<td>SCHOOL VARIABLES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size of enrollment</td>
<td>0.407 ***</td>
<td>0.054</td>
<td>0.013</td>
</tr>
<tr>
<td>Comprehensive school</td>
<td>0.386 ***</td>
<td>0.224</td>
<td>0.389 ***</td>
</tr>
<tr>
<td>Disciplinary emphasis</td>
<td>-0.154</td>
<td>0.153</td>
<td>-0.052</td>
</tr>
<tr>
<td>Competitive emphasis</td>
<td>0.071</td>
<td>-0.081</td>
<td>-0.224 *</td>
</tr>
<tr>
<td>Restructuring Index</td>
<td>0.141</td>
<td>0.137</td>
<td>0.161</td>
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</table>

R-squared 0.40 0.11 0.24

* p <= .10; ** p <= .05; *** p <= .01

Data Sources:
a. 1990-92 High School Effectiveness Study
b. 1990 CPH Summary Tape File 3A
APPENDIX C

DESCRIPTIONS OF INDICES AND SCALES

DELINQUENCY

DESCRIPTION: Student's self-reported school delinquency in 12th grade.

TYPE: Index (weighted additive), continuous

HSES COMPONENTS:
1. S2S8F\(^2\) In first semester, # times R got into physical fights at school \(\text{WEIGHT} = 1.47\)
2. S2S9B In first semester, # times R cut or skipped classes \(\text{WEIGHT} = 0.25\)
3. S2S9D In first semester, # times R got in trouble for not following school rules \(\text{WEIGHT} = 0.86\)
4. S2S85A Since beginning of school year, # times R has been under the influence of alcohol on school grounds \(\text{WEIGHT} = 1.75\)
5. S2S85B Since beginning of school year, # times R has been under the influence of marijuana or hashish on school grounds \(\text{WEIGHT} = 2.11\)

ALPHA: .59
METRIC: Raw: (1 'Never / 0 occasions', 2 'Once or twice', 3 'More than twice') (recoded)

PRIOR DELINQUENCY

DESCRIPTION: Student's self-reported school delinquency in 10th grade.

TYPE: Index (weighted additive), continuous

HSES COMPONENTS:
1. S1S9D In first semester, # times R got into a physical fight at school \(\text{WEIGHT} = 1.47\)
2. S1S10B In first semester, # times R cut or skipped classes \(\text{WEIGHT} = 0.25\)
3. S1S10C In first semester, # times R got in trouble for not following school rules \(\text{WEIGHT} = 0.86\)
4. S1S78B # of occasions during the last 12 months in which R had alcoholic beverages to drink \(\text{WEIGHT} = 1.75\)
5. S1S80AB # of occasions during the last 12 months in which R had marijuana or hashish \(\text{WEIGHT} = 2.11\)

ALPHA: .58
METRIC: Raw: (1 'Never / 0 occasions', 2 'Once or twice', 3 'More than twice') (recoded)

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1 Some weights derived from Wolfgang et al., 1985, *The National Survey of Crime Severity*.

2 Mnemonics (e.g., S2S8F) and descriptions are from the HSES documentation. The prefix, S2S-, refers to variables contained in the followback (12th grade) student component of the data set. Note that all student variables except the 12th grade student delinquency index contain the S1S-prefix. At the school level, variables have either an S1C- or S2C-prefix.
SCHOOL ATTACHMENT

DESCRIPTION: A "sensitivity to the opinion of others," as measured here attachment takes the form of "affective bonds" with teachers and the school itself.

TYPE: Index (additive), continuous

HSES COMPONENTS:
1. S1S7J In class often feel put down by teachers (1 Strongly agree . . . 4 Strongly disagree)
2. S1S7L Most teachers listen to student (1 Strongly agree . . . 4 Strongly disagree) (reverse scored)
3. S1S66A Student thinks the classes are interesting (1 Strongly agree . . . 4 Strongly disagree) (reverse scored)
4. S1S66G Teachers expect student to succeed in school (1 Strongly agree . . . 4 Strongly disagree) (reverse scored)

ALPHA: .67
METRIC: 4 (low) - 16 (high)

SCHOOL COMMITMENT

DESCRIPTION: Stakes in conformity "that are built up by pursuit of, and by a desire to achieve conventional [school-related] goals."

TYPE: Index (additive), continuous

HSES COMPONENTS:
1. S1S38 How important are good grades to student (1 Not important . . . 4 Very important)
2. S1S51 Does student plan to go to college after high school (0 No, 1 Yes)
3. S1S64B Chances that student will go to college (1 Very low . . . 5 Very high)

ALPHA: .65
METRIC: 2 (low) - 10 (high)

PARENTAL INVOLVEMENT

DESCRIPTION: Degree to which parents are involved in the student's school life.

TYPE: Index (additive), continuous

COMPONENTS:
1. S1S100A How often parents check student's homework (1 Often . . . 4 Never) (reverse scored)
2. S1S100B How often parents help student with homework (1 Often . . . 4 Never) (reverse scored)
3. S1S105A Discussed school courses with parents (1 Never . . . 3 Often)
4. S1S105D How often discussed grades with parents (1 Never . . . 3 Often)
5. S1S105F Discussed prep for the ACT/SAT test (1 Never . . . 3 Often)
6. S1S105G Discussed going to college with parents (1 Never . . . 3 Often)

ALPHA: .72
METRIC: 5 (low) - 20 (high)
RESTRUCTURING

DESCRIPTION: The degree to which schools are reformed in line with a wave of reforms called the restructuring movement.

TYPE: Index (additive), continuous

HSES SUB-COMPONENTS: Each item is derived from 4 original HSES items relating to the time period(s) in which the practice was put into effect.

1. S1C73*1 Never used *
2. S1C73*2 Used * in the past 3 years. \{0 = No; 1 = Yes; Recoded\}
3. S1C73*3 Currently using *
4. S1C73*4 Plan to use * in the future.

COMPONENTS: Guttman-style scales for 9 restructuring practices:

<table>
<thead>
<tr>
<th>Practice</th>
<th>Coefficients of Reproducibility</th>
<th>Scalability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. S1C73B* English/social studies independent study projects</td>
<td>.94</td>
<td>.69</td>
</tr>
<tr>
<td>2. S1C73C* Math/science independent study projects</td>
<td>.93</td>
<td>.66</td>
</tr>
<tr>
<td>3. S1C73E* Interdisciplinary team teaching</td>
<td>.91</td>
<td>.68</td>
</tr>
<tr>
<td>4. S1C73F* Common planning time</td>
<td>.94</td>
<td>.66</td>
</tr>
<tr>
<td>5. S1C73G* Same homeroom for all years</td>
<td>.97</td>
<td>.82</td>
</tr>
<tr>
<td>6. S1C73H* Cooperative learning</td>
<td>.94</td>
<td>.67</td>
</tr>
<tr>
<td>7. S1C73J* Flexible time for classes</td>
<td>.97</td>
<td>.54</td>
</tr>
<tr>
<td>8. S1C73K* Parents as volunteers</td>
<td>.92</td>
<td>.65</td>
</tr>
<tr>
<td>9. S1C73Q* School-within-a-school</td>
<td>.97</td>
<td>.74</td>
</tr>
</tbody>
</table>

ALPHA: .79

METRIC: Pure scales for each item range as follows: (0 = Never; 1 = Present; 2 = Past & present; 3 = Past, present, & future). Errors were scored using the Goodenough-Edwards technique (McIver and Carmines, 1981). Although the potential high score on the index is 27, the actual metric ranges from 0 to 20.
## SCHOOL DELINQUENCY PROBLEM

<table>
<thead>
<tr>
<th>MNEMONIC</th>
<th>DESCRIPTION</th>
<th>SUB-INDEX</th>
<th>WEIGHT(^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2C57A</td>
<td>Tardiness</td>
<td>Misconduct</td>
<td>0.25</td>
</tr>
<tr>
<td>S2C57C</td>
<td>Class cutting</td>
<td>Misconduct</td>
<td>0.25</td>
</tr>
<tr>
<td>S2C57D</td>
<td>Physical conflicts</td>
<td>Crime</td>
<td>1.47</td>
</tr>
<tr>
<td>S2C57E</td>
<td>Gang activity</td>
<td>Crime</td>
<td>11.74</td>
</tr>
<tr>
<td>S2C57F</td>
<td>Robbery or theft</td>
<td>Crime</td>
<td>2.88</td>
</tr>
<tr>
<td>S2C57G</td>
<td>Vandalism</td>
<td>Crime</td>
<td>2.88</td>
</tr>
<tr>
<td>S2C57H</td>
<td>Use of alcohol</td>
<td>Drugs</td>
<td>1.1</td>
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<tr>
<td>S2C57I</td>
<td>Use of illegal drugs</td>
<td>Drugs</td>
<td>1.42</td>
</tr>
<tr>
<td>S2C57J</td>
<td>Drunk/high students</td>
<td>Drugs</td>
<td>1.7</td>
</tr>
<tr>
<td>S2C57K</td>
<td>Drug dealing near/at school</td>
<td>Drugs</td>
<td>8.5</td>
</tr>
<tr>
<td>S2C57L</td>
<td>Weapons possession</td>
<td>Crime</td>
<td>4.64</td>
</tr>
<tr>
<td>S2C57M</td>
<td>Physical abuse of teachers</td>
<td>Crime</td>
<td>1.47</td>
</tr>
<tr>
<td>S2C57N</td>
<td>Verbal abuse of teachers</td>
<td>Crime</td>
<td>1.47</td>
</tr>
</tbody>
</table>

\(^3\) Some weights derived from Wolfgang et al., 1985, *The National Survey of Crime Severity*; others are from Cernkovich and Giordano (1992).
VITA

Michael O. Maume was born in Norfolk, Virginia in 1969. He graduated from Kempsville High School in Virginia Beach, Virginia in 1987. He went on to receive his bachelor of arts degree in sociology from Virginia Wesleyan College in 1992. In 1994, he earned his master of arts degree in sociology with a concentration in criminology from the College of William and Mary. He entered the doctoral program in sociology at Louisiana State University in the Fall semester of 1994. After the completion of his studies in the Spring semester of 1998, he will begin employment as an Assistant Professor of Sociology at Ohio University in Athens, Ohio.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Michael O. Maume

Major Field: Sociology

Title of Dissertation: Secondary Control: Examining the Influence of School Restructuring on High School Delinquency

Examiners:

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

April 6, 1998