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# Self-efficacy, conventional cognitive coping, and the strain-delinquency relationship: A test of general strain theory

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# SELF-EFFICACY, CONVENTIONAL COGNITIVE COPING, AND THE STRAIN-DELINQUENCY RELATIONSHIP: A TEST OF GENERAL STRAIN THEORY

by

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CERTIFICATE OF APPROVAL

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PH.D. THESIS

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## ABSTRACT

Agnew's (1992) general strain theory (GST) provides a framework for understanding individual and social factors that influence juvenile delinquency. Given the breadth of ideas encompassed by GST, tests typically focus on particular elements rather than testing the theory as a whole. Studies have provided a great deal of support for many of the core tenets of GST (e.g., Agnew and White 1992), while failing to produce conclusive support for others (e.g., Paternoster and Mazerolle 1994). Specifically, Agnew (1992) argues that the relationship between strain and delinquency is conditional, although research regarding what factors and through what mechanisms these factors shape the relationship is not conclusive. This project studies particular forms of strain — noxious peer relationships and bullying victimization — as well as tests the conditioning effects of self-efficacy within the strain-delinquency relationship.

Self-efficacy is defined as one's personal evaluation of their ability to produce desired outcomes in a given situation (Bandura 1987, 1997). Agnew (1992) suggests self-efficacy is a coping resource that will condition the relationship between strain and delinquency. It is hypothesized that variations in self-efficacy will translate to differences in selected methods for coping and engagement in conventional coping adaptations to strain.

I test the relationship between various forms of strain, self-efficacy and delinquency using two distinct data sets and methodologies. Findings from cross-sectional and longitudinal analyses indicate noxious peer relationships and bullying victimization are both positively related to delinquency. The theoretical implications surrounding the importance of self-efficacy as a coping resource, which promote conventional cognitive coping, are highlighted. But, indirect tests suggest this idea is not supported. In this research, self-efficacy does not moderate the relationship between strain and delinquency in the expected manner. Across methods and measures, strain and self-efficacy influence delinquency independent of each other.

The dissertation concludes with a discussion of future research possibilities and policy implications.

## PUBLIC ABSTRACT

Agnew's (1992) general strain theory (GST) provides a framework for understanding individual and social factors that influence juvenile delinquency. Given the breadth of ideas encompassed by GST, tests must focus on particular elements, rather than testing the theory as a whole. Studies have provided a great deal of support for many of the core tenets of GST (e.g., Agnew and White 1992), while failing to produce conclusive support for others (e.g., Paternoster and Mazerolle 1994). Specifically, Agnew (1992) argues that the relationship between strain and delinquency is conditional, although research regarding what factors and through what mechanisms these factors shape the relationship is not conclusive. This project studies particular forms of strain — noxious peer relationships and bullying victimization — as well as tests the conditioning effects of self-efficacy within the strain-delinquency relationship. The theoretical implications surrounding the importance of self-efficacy as a coping resource, which promotes conventional cognitive coping, are highlighted. I test the relationship between strain, self-efficacy, and delinquency using two distinct data sets and methodologies. Findings from cross-sectional and longitudinal analyses indicate both noxious peer relationships and bullying victimization are positively related to delinquency. Self-efficacy does not moderate the relationship between strain and delinquency in the expected manner. A core conclusion drawn from this work is that strain and self-efficacy operate independently to influence delinquency. Suggestions surrounding future works that may be inspired by this research, and the potential value in the development of self-efficacy and cognitive coping abilities for youths, conclude this dissertation.

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# CHAPTER I
# INTRODUCTION

The high incidence of delinquency committed by adolescents in the United States is a serious concern (Office of Juvenile Justice and Delinquency Prevention, 2013). There are several competing criminological theories that aim to explore the factors that influence these growing levels of delinquency. A more recent theory of crime and delinquency, General Strain Theory (GST), does not reject or compete with more classic theories, but rather accepts their claims and attempts to expand and clarify what aspects of an individual's life influence their criminal behavior. Individual factors, life experiences, and personal relationships all have been shown to influence one's criminality. These factors represent sources of stress and are thus considered strain according to this theoretical paradigm (Agnew 1989, 1992, 2006). Experiencing strain elicits negative emotions. These emotions present a need to react in a manner that eliminates the strain or reduces the stress produced. According to GST, criminal coping or delinquency allows individuals to deal with these negative emotions when conventional means for doing so are blocked.

Since the introduction of GST, a significant number of empirical studies, focusing on a variety of populations and using diverse methodologies, have provided support for the theory's key claims (Agnew and Brezina, 1997; Agnew et al. 2002; Agnew and White 1992; Aseltine, Gore, and Gordon 2000; Baron 2004; Broidy 2001; Hoffmann and Su 1997; Mazerolle and Maahs 2000; Mazerolle and Piquero 1997; Paternoster and Mazerolle 1994; Piquero and Sealock 2000). In alignment with the propositions outlined by Agnew (1985, 1989, 1992), these works have uncovered a wide range of strains that are significantly related to delinquency. Criminal victimization, family conflict, and school strain are all examples of strain that are consequential for delinquency. Additionally, some research has focused on the outlined role of anger and negative

emotions as a mediating mechanism in this relationship. These works support the prediction that strain influences delinquency through its influence on emotionality (Aseltine et al. 2000; Mazerolle and Piquero 1997; Piquero and Sealock 2000). In addition, several works have tested the conditioning hypothesis of GST: that the strain-delinquency relationship will be conditioned by a number of factors, including self-esteem, self-efficacy, family attachment and negative emotionality (see Agnew et al. 2002; Agnew and White 1992; Hoffman and Miller 1998; Paternoster and Mazerolle 1994; Mazerolle and Maahs 2000; Piquero and Sealock 2000). These studies, centrally focused on the conditioning assumption, have yielded inconsistent results. Taken together, though, GST has proven to be a viable theory for understanding and explaining juvenile delinquency.

Because of the proposed additive nature of experienced strain (Agnew 1989) — the more strain an individual experiences, the more likely the strain will result in delinquency — a majority of GST research studies how combined strain is related to delinquency (see Mazerolle and Piquero 1997; Mazerolle and Maahs 2000; Kort-Butler 2009). While these works contribute to our understanding of the prevalence and consequences of strain on juvenile delinquency, they fail to disentangle the types of strain that may most strongly influence delinquency. The problem of juvenile delinquency is indeed multifaceted, but one element likely to play a major role in adolescent behavioral outcomes is the quality of the interpersonal relationships they maintain (Agnew 2001). In accordance with the propositions of GST, in particular those centered on the impact of noxious stimuli, research suggests adolescents who experience negative interpersonal relationships are more inclined toward deviance than peers who report more positive relationships and interactions (Aseltine et al. 2000; Mazerolle and Maahs 2000). However, few works have looked explicitly at the issue and outcomes of noxious peer associations in school.

This is surprising given the longstanding concern and increased attention by parents, educators, and school officials in recent decades on bullying within schools (Ttofi et al. 2011). Within the United States and abroad the research interest in occurrence and ramifications of bullying has been great (Ericson 2001; Limber and Nation 1998; Olweus 1978; Tattum 1989). Bullying can be defined as any situation in which an individual is exposed to negative actions of another individual against whom they have difficulty defending themselves (Olweus 1978). The types of behaviors recognized as bullying are quite extensive and can include both physical and verbal forms of interaction. Bullying is one factor that contributes to youths' evaluations of their peer relationships as negative or positive. The incidence of bullying in American schools is not trivial. In their work, Nansel et al. (2001) concluded about thirty percent of all students were involved in bullying behaviors, either as the victim or the perpetrator. A vast amount of research concentrates on the negative physical, psychological, emotional and academic outcomes of bullying victimization (Olweus 1993; Schneider et al. 2012). Research consistently demonstrates bullying victimization can have detrimental outcomes for victims and is a strong predictor of future criminality for perpetrators (Ttofi et al. 2011). This later realization has led some criminologists to apply theories of crime and delinquency to understandings of bullying. However, despite this trend and the fact that bullying victimization as a source of strain fits cleanly within the theoretical framework of GST, surprisingly few works have examined bullying victimization as a source of strain as opposed to an outcome of strain. The work presented in this dissertation is thus valuable, contributing to this limited literature.

The relative lack of research exploring this particular source of strain in school is further unexpected given the likelihood that such negative interactions and relationships develop in this setting. In the United States, young persons are required by law to attend school, spend a bulk of their time in this setting and by default must interact with their

peers in this setting. These facts contribute to the likelihood that noxious peer relationships are likely to evolve in this setting. Similarly, given the compulsory nature of school, in instances when these noxious peer interactions are likely to lead to delinquency, this delinquency might present in the school setting, as well. For example, an individual who experiences a high magnitude of noxious peer relationships in school may skip school in an effort to alleviate the stress these interactions produce. Or, they may engage in a fight as a result of continued peer abuse in school in an attempt to stop the negative interactions.

The research presented in Chapter III and Chapter IV of this dissertation is designed, in part, to merge the gap between GST research and bullying studies. Specifically, the studies presented in this dissertation will examine how instances of bullying victimization and the broader construct noxious peer relationships in school are related to delinquency. The research in Chapter III focuses on school delinquency. Chapter IV will study school delinquency and further look at delinquency occurring outside of school. As noted earlier, a bulk of GST research studies the compounding nature of a broad range of strains. While a core goal of the research presented in this dissertation is to examine noxious peer relationships and bullying precisely, the research presented in Chapter IV also will examine the relationship between strain conceptualized more exhaustively and delinquency. These examinations will help discern the specific types of strain that might be most valuable in understanding the causes of juvenile delinquency.

In addition to enhancing knowledge about the role of noxious peer relationships in promoting juvenile delinquency, a second principal focus of this dissertation is elaborating the potential influence of conventional coping on the strain-delinquency relationship. Existing research has tested (and often supports) many of the propositions of general strain theory. The ability or likelihood that positive or conventional coping

adaptations to strain will weaken the strain-delinquency relationship is one proposition of GST that has received relatively minimal empirical attention is the role of positive or conventional coping adaptations to strain. Agnew (1992) suggests individuals have differing levels of access to coping resources, both internal and external characteristics that shape the likelihood they will engage in conventional coping. Further, he outlined three potential types of conventional coping that, when used successfully, will alleviate the need to respond to strain through delinquency and crime.

Agnew (1992) proposed persons adapt to strain or the negative emotions that result from the presence of strain using conventional emotional, behavioral, and cognitive coping strategies. According to Agnew's typology, emotional adaptations to strain include a variety of coping efforts aimed at reducing the emotional response elicited by strain. Behavioral coping to eliminate strain or counter stress can include engaging in prosocial behaviors to reduce stress or help-seeking behaviors. Lastly, Agnew (1992) suggests that individuals can employ cognitive rationalizations or reinterpretations to minimize the negative effects of strain, i.e., minimizing the importance of life realms in which they are experiencing strain or downsizing the negative aspects of strain so they may not seem so bad. Having coping resources at one's disposal and understanding how to engage in prosocial coping will influence the actual use of conventional coping adaptations, contributing to individual differences in behavioral outcomes of strain.

Studies that examine the conditioning role of conventional coping typically demonstrate these strategies weaken the relationship between strain and delinquency. Piquero and Sealock (2000), for example, found that emotional resources significantly affect the relationship between strain and property offenses. Jennings et al. (2009) conclude the use of physical coping strategies lessened the likelihood that individuals would respond to strain through more aggressive, delinquent means. Despite findings that suggest that coping resources and skills condition the relationship between strain and

delinquency, relatively few studies focus on understanding the way conventional cognitive coping impacts the strain-delinquency research. This is an evident gap in the existing GST literature. Much of the value that comes from understanding the processes that shape delinquent behavior is the potential to interfere in this process in a positive manner.

It is suggested that knowledge centered on conventional adaptations to strain gained from this dissertation project could inform school policy and programming. This dissertation project may guide recommendations to improve the efficacy of existing bullying prevention programs, reducing the likelihood that victimization and noxious peer relationships more broadly might lead to delinquency, further benefitting students. While there is a critical need to explore the use of all proposed alternative coping mechanisms, cognitive coping, it is argued, is of particular interest for these policy and programming ventures. This form of coping is one that may be taught (Agnew 1995). The suggestion that conventional cognitive coping can be developed in youths to increase the likelihood they can successfully deal with problems and negative interactions to avoid delinquent responses to strain aligns with findings within the drug treatment literature. Research in this area suggests that these types of coping skills are advantageous for drug users upon their release from treatment (Avants et al. 2000; Gossop et al. 2002; Lipsey and Wilson 1998; Spooner 1999; Tripodi and Bender 2011). Similarly, intervention efforts for a wider range of delinquent populations have shown the efficacy of developing problem-solving skills as a beneficial coping mechanism to reduce the risk of future deviance (see Amendola and Oliver 2010). Thus, research in this area may aid in better arming our youth with a legitimate means to deal with experiences of strain and have an overall impact on delinquency levels.

While theoretical focus is placed on the value of conventional cognitive coping, an empirical focus is placed on one particular coping resource likely to shape engagement

in this type of coping: self-efficacy. Self-efficacy is defined as a person's belief in their ability to attain the desired outcome in a given situation (Bandura 1986, 1997). Agnew (1992) suggests self-efficacy is one coping resource likely to intervene in the relationship between strain and delinquency. He argues self-efficacy is a critical element that will shape conventional behavioral coping efforts. This dissertation asserts self-efficacy should be explored as influentially linked to and impacting the cognitive coping process. Explicitly, this dissertation emphasizes the prospect that one's level of self-efficacy will influence their willingness to engage in cognitive coping efforts.

A vast quantity of research demonstrates self-efficacy shapes cognition (Bandura 2001), impacts optimism and task persistence (Bandura 1997; Maddux 1995; Schwarzer 1992), influences behavioral outcomes (Bandura 1997; Pajares 1996; Schunk 1995; Zimmerman et al. 1992) and influences coping following distressing situations (Bandura 1997; Benight and Bandura 2004; Bandura and Zimmerman 1999). Despite these important findings from self-efficacy research, the concentration on self-efficacy in the GST literature is marginal and results are conflicting (see Agnew and White 1992; Paternoster and Mazerolle 1994). This project underscores the importance of self-efficacy for conventional cognitive coping arguing that if a person's general sense of self-efficacy is lacking, it is unlikely they will have the ability or the drive to problem-solve or reinterpret strain in a beneficial way.

The theoretical ideas outlined in this dissertation project intend to illuminate the probable link between self-efficacy, conventional cognitive coping and strain. Further, empirical examinations presented in Chapters III and IV will test the hypothesized moderating influence that self-efficacy has on the strain delinquency relationship. As is the case with cognitive coping, a focus on self-efficacy is advantageous given the

potential for this information to guide policy and programming suggestions.[1] Self-efficacy, like cognitive coping skills, can be developed (Fencl and Scheel 2005; Margolis and Mccabe 2006; Schunk 1987; Schunk and Pajares 2002), directly shapes behavioral outcomes (Bandura 1997; Epel, Bandura, and Zimbardo 1999; Pajares 1996; Pintrich and De Groot 1990; Schunk 1995; Zimmerman, Bandura, and Martinez-Pons 1992) and may influence the likelihood youths faced with strain will react through conventional means.

Existing GST work with a focal emphasis on the moderating role of self-efficacy is minimal and has produced mixed results. As such, a second core objective of this research is to expand upon current tests of general strain theory through examining this under examined caveat: self-efficacy as a coping resource. The research in Chapters III and IV of this dissertation intends to clarify the role that self-efficacy plays in the strain-delinquency relationship. Further, the studies presented in the subsequent chapters of this dissertation are intended to act as a framework for future research that can more fully explore the theoretically outlined relationship between noxious peer relationships (and other pertinent sources of strain), self-efficacy, conventional cognitive coping, and delinquency.

## ***Project Significance***

The issue of delinquency is multifaceted and a full understanding of the personal and social factors that lead individuals to either commit or abstain from delinquent behavior is an unattainable goal. But, using a GST approach, the research presented in this dissertation aims to provide a better understanding of the underlying processes that influence delinquency, especially among our nation's youth. Uncovering the complexities of these phenomena could have meaningful effects on both policy and programming

[1] In addition, this research will test an evidenced direct effect of self-efficacy on delinquent lines of action (Aas et al. 1995; Hays and Ellickson 1990; Zimmerman et al. 1995). These works suggest that self-efficacy directly influences delinquency such that individuals with high self-efficacy are significantly less likely to engage in delinquency.

within state schools that may positively impact juveniles by lessening the likelihood they will offend, among other benefits.

The research presented in this dissertation intends to contribute to the GST literature in two significant ways. First, though the theoretical importance of noxious peer relationships seems clear, few works have looked explicitly at this type of strain. The research presented in Chapter III and Chapter IV will test the relationship between noxious peer relationships (specifically those occurring in school) and a variety of delinquency outcomes and indicators of delinquency. Further, these studies examine bullying victimization specifically as a source of strain that may result in delinquency, contributing to a relatively small but increasing body of literature. Second, both empirical studies will focus attention on the potential role of conventional coping. These studies will test the idea that self-efficacy is a coping resource that is likely to intervene in the strain-delinquency relationship due to its outlined relationship or influence on conventional cognitive coping. Aligned with Agnew's (1992) propositions, a core hypothesis examined in this dissertation is whether individuals who have a greater ability to cope with strain using cognitive reinterpretation will less often react to strain in a delinquent way.

This research is a necessary step in understanding how delinquency is impacted by interactions and peer relationships and to reiterate, a chief contribution of work in this realm is the potential to inform intervention efforts. The rationale behind the current research is that of the theorized coping mechanisms, conventional cognitive coping is a resource that may be applied most broadly. Existing work demonstrates teaching coping skills that focus on enhancing adolescents' ability to manage and reduce stress has a positive impact on delinquent outcomes (Clarke et al. 1995; Kazdin and Weisz 1998; Gonzales et al. 2001; Beaver, Wright, and Maume 2008). As such, a bulk of the value of this dissertation work lies in the potential to guide future research in a way that might

substantially contribute to delinquency intervention efforts in school. Though limited in scope, results from this research may be used to inform policy and programming focused on bullying intervention to better target the issues associated with bullying victimization and noxious peer relationships more broadly.

By incorporating elements like developing self-efficacy and teaching problem-solving techniques, current intervention practices that aim to influence school issues, including bullying and delinquency, also can limit the negative consequences associated with experiencing bullying victimization. Incorporating coping resource development and teaching conventional coping strategies in existing interventions are not only likely to reduce bullying practices, but also limit the ramifications of noxious peer relationships, bullying, and strain more generally. Further, as is reviewed extensively in Chapter II and Chapter V of this dissertation, implementing self-efficacy development is likely to yield positive results for students beyond the potential contribution to their conventional coping abilities.

## ***Plan of the Dissertation***

This project focuses on two empirical analyses. Chapter III will test the outlined propositions of GST utilizing data from the base year of the Educational Longitudinal Study (2002). Using a cross-sectional methodology, this study examines the relationship between self-reported bullying victimization and a wider range of noxious peer interactions and self-report school delinquency. And, it examines the interaction effect of strain and self-efficacy to understand if self-efficacy appears to moderate this relationship. Chapter IV of this dissertation will test these same ideas using data obtained by the National Educational Longitudinal Survey across three time points (eighth grade, tenth grade, and twelfth grade). Employing a longitudinal research design allows me to test similar ideas while addressing some of the inherent limitations associated with the use of cross-sectional methodology. While the range of survey items indicative of

noxious peer relationships and bullying in this data set are more constrained than those available in the Educational Longitudinal Study, this data set does provide several strong indicators of more general life strain, as well as a broader range of delinquency measures. As such, the second study presented in this dissertation explores the relationship between bullying victimization, criminal victimization by one's peers, general life strains and a variety of delinquency outcomes (not restricted to behaviors exhibited in school).

Chapter II is intended to expand on the ideas introduced to this point and elucidate the theoretical background and rationale for the empirical studies conducted as part of this dissertation project. Chapter III describes the data and methods used to conduct the cross-sectional analyses. In addition, the results of this cross-sectional study and general conclusions drawn from the work are presented. Similarly, Chapter IV presents an in-depth review of the data and methods applied for the longitudinal analyses, as well as the results of this work and conclusions derived from the findings. Chapter V intends to merge the understandings resulting from the two studies presented in Chapter III and Chapter IV. A summary of common findings and review of inconsistencies is provided. Additionally, great attention is dedicated to reviewing the potential benefits of this and suggested future work. Specifically, Chapter V includes a review of bullying intervention programming and research centered on the potential to teach self-efficacy. Additionally, I discuss the potential value of teaching problem-solving skills or conventional cognitive coping for reducing delinquency. From this, recommendations are posed regarding the implementation of program elements that will benefit students on a comprehensive scale. Lastly, Chapter V discusses limitations of the research conducted for this dissertation and directions for future research.

# CHAPTER II
# THEORETICAL BACKGROUND AND RATIONALE

The preceding chapter briefly discussed the connection between strain, self-efficacy, and delinquency. Further, it introduced the trends in empirical attention directed toward these subjects. Motivated in part by the attention and extent of these issues (see Batsche and Knoff 1995) and by an objective to better understand the processes by which these two phenomena are connected, this dissertation project is comprised of two empirical studies. The current chapter reviews the theoretical and empirical literature used to derive my research questions and hypotheses for the analyses in Chapters III and IV. I begin with a brief review of Merton's anomie theory. I next review, in detail, the impetus for the development of Agnew's general strain theory. I outline how general strain theory expanded upon the anomie theory framework. There is an emphasis on the introduction of additional sources of strain and, in particular, those forms of strain principal to this dissertation research. Finally, this chapter summarizes research on the importance of self-efficacy in influencing behavior and addresses the theoretical link between self-efficacy as a coping resource and engagement in conventional cognitive coping behaviors.

## ***Merton's Anomie Theory***

Although its popularity has experienced some shifts over time, strain theory has been a staple explanation of crime since its initial appearance in the late 1930s. Merton (1938) originally argued that blocked avenues to attaining monetary success led to deviant behavioral adaptations. He argued the American culture simultaneously over-emphasizes accumulation of monetary rewards and pursuit of the American Dream while under-emphasizing and limiting the available legitimate means to obtain monetary goals. Thus, while all persons value the end goal — monetary attainment — some persons (or class of people) lack legitimate opportunities to meet those goals. The imbalance between

the American cultural emphasis on monetary success and the amount of legitimate opportunities afforded by our social structure to attain this presents itself as frustration or stress within the individual. Further, Merton posited the imbalance within the United States culture, namely a strong emphasis on monetary goals and an under-emphasis on legitimate means to obtain those goals, leads some groups to turn to illegitimate avenues to attain economic success. In short, they use crime to accomplish the conventional goals they value.

## ***General Strain Theory***

A central criticism of Merton's anomie theory has been its implication that crime is concentrated primarily among the lowest social classes, an argument that was empirically called into question by survey-based research and research that focuses on crime commission by a variety of groups (studies on corporate crime or juvenile crime and delinquency, for example) (see Thio 1975 for a more exhaustive review of critiques). The limited support for classic anomie/strain theory (Agnew 1985; Agnew and Passas 1997; Aseltine, Gore, and Gordon 2000; Bernard 1987; Colvin 2000; Kornhauser 1978) in studies of juvenile delinquency prompted the development of Robert Agnew's (1985) general strain theory (GST). Agnew (1985) was able to reinvigorate interest in strain theory by detailing a number of individual sources of strain beyond economic goal blockage. Further value of GST stems from its explanation of factors that often distinguish between individuals who adapt to strain in a deviant versus prosocial fashion.

Agnew developed a theory of crime based on individual-level concepts, detailing the particular traits most likely to result in delinquency. Like classic anomie/strain theory, GST argues experiencing stress is a major source of criminal motivation. However, it articulates a broader theoretical discussion of the types of experiences defined by individuals as stressful. More specifically, GST proposes several major stressors — both

within and outside the economic realm — that can produce delinquency when individuals do not employ effective forms of conventional coping (Agnew 1992).

A core development of GST is that the principal catalyst for offending is no longer defined solely or even primarily as the inability to achieve monetary success (Agnew 1985). Instead, Agnew (1992, 2006) proposes there are a variety of conditions or relationships that can be experienced as aversive (Agnew 1992; Simons et al. 2003), including being treated in an unjust manner or being unable to attain one's valued economic and non-economic goals (Agnew 1999). In particular, Agnew (1992) classifies stressors into three categories: the loss of something of value, the inability to achieve positively-esteemed stimuli or goals, and the presentation of negative stimuli.

The loss of valued stimuli occurs when an individual loses an object or relationship of value. The second source of strain — the failure to achieve positively-valued goals — includes the inability to attain the monetary success, social status, desired or positive relationships or respect one desires. The third source of strain is the experience or presentation of negative stimuli. This source of strain comprises a variety of experiences, including abuse, adverse relationships, and negative life events. Agnew (1992, 2006) proposes these strains produce negative emotions and delinquency among individuals who do not possess legitimate strategies for coping with loss, failure, or adverse situations.

In identifying the strains that are most likely to produce delinquency (and offending more broadly), Agnew (2001) suggested stressors that are viewed as unjust are among those most likely to lead to delinquency. Some factors that lead individuals to view stressors as unjust include 1) the stressor was caused by others and not by the victim or bad luck; 2) the perpetrator of the injustice inflicted the stressor on purpose; 3) the perpetrator intended harm; 4) the victim believes the stressor is undeserved; and, 5) the stressor involves treatment regarded as disrespectful, inconsiderate, or aggressive. Based

on these criteria, Agnew distinguished stressors like peer abuse, child abuse and neglect, race discrimination, and negative experiences at school to be among the most criminogenic (Agnew 2001). Agnew's propositions about strain draw on the studies and findings within stress research. The sources of strain outlined are the theoretical parallel to what stress literature has labeled "stressors." The term *stressor* refers to environmental, social and internal demands that require individuals to readjust their patterns of behavior (Thoits 1995). Stressors produce a physiological and emotional reaction within the individual. A resulting outcome of this stress process oftentimes is a behavioral response to the stressor itself (Pearlin et al. 1981). Similarly, GST argues experiencing strain or stressors can lead to negative emotional states, which, in turn, can increases the chances of delinquency (Agnew 1992, 1995, 2001; Baron 2006, 2008).

Agnew argues anger is the most important emotional response to strain for understanding delinquency. This is because anger is associated with feelings of powerlessness and stimulates a need to react and correct the situation (Brezina 1996, 1998; Brezina, Piquero, and Mazerolle 2001; Broidy 2001; Hay and Evans 2006; Macdonald et al. 2005; Mazerolle et al. 2003; Mazerolle and Piquero 1998). That is, anger acts as a catalyst for corrective action among individuals who attempt to eliminate, escape, or react against the source of strain (see Agnew 2006 for a comprehensive review of this research).

Consistent with this, some research shows emotions help mediate the relationship between strain and delinquency (Aseltine et al. 2000; Hay and Meldrum 2010; Hollist, Hughes, and Schaible 2009). However, delinquency is not an inevitable outcome of strain and negative emotions. The probability of delinquent outcomes is greatest when people lack prosocial ways to deal with strains. When that occurs, adolescents may turn to "retaliatory, instrumental or escapist responses" (Mazerolle and Maahs 2000:755). For instance, Labouvie's (1986a, 1986b) work suggests strained social relationships are

related to alcohol and drug use, particularly for individuals who have a weakened sense of powerfulness. For individuals who lack means and methods for prosocial coping, anti-social responses to strain can occur as an attempt to resolve the strain by removing it or to relieve the negative emotions elicited by strain.

GST details several conventional resources for coping with strain that may moderate or buffer the strain-delinquency relationship. Conventional adaptations — or conventional coping strategies — can be used to lessen the impact of strain or reduce the negative emotions elicited by strain. Three proposed coping strategies include cognitive, behavioral and emotional coping. I will review each proposed mechanism outlined by Agnew (1992), however the present research focuses on the ability or aptitude for conventional cognitive coping in particular. Cognitive coping refers to the ability to rationalize or reframe the stressors, i.e., focus on the good that may come from experiencing the stress, convince oneself that the strain is not so bad -- in a way that is less delinquency inducing. Conventional behavioral coping includes conventional behavioral efforts aimed at countering stressors, including help-seeking behaviors, negotiating with the source of strain, engaging in prosocial behaviors that reduce stress rumination, and so on. Lastly, emotional coping refers to efforts aimed at directly alleviating the negative emotions that stem from strain, including engaging in relaxation exercises. Differential access to and use of conventional coping strategies thereby help distinguish individuals who are more prone to respond to strain and negative emotions with delinquency from those who are less likely to do so. The research presented in this dissertation suggests that an individual trait or coping resource — self-efficacy — is one indication of a person's ability to engage in prosocial *cognitive* coping. This idea will be revisited and elaborated upon in subsequent sections of this chapter and in the studies presented in Chapters III and IV.

Beyond the arguments already discussed, Agnew recognized "if strain theory is to have any value, it must be able to explain the selection of delinquent versus non-delinquent adaptations" (Agnew 1992:70). Thus, general strain theory focuses attention on the circumstances under which stressors are most influential. Specifically, Agnew conceptualized delinquency will stem from strain and stressful situations or interactions more typically when: 1) they are higher in magnitude, meaning the strain is interpreted more negatively; 2) the sources of strain are seen as unjust; 3) pressure exists to respond to the stressor in a delinquent manner; and 4) when the individual experiencing the strain has low self-control (see Agnew 1992; Agnew, Rebellon, and Thaxton 2000; Baron 2008).

Agnew also recognized individual traits influence the likelihood one will react to stressors in a delinquent manner. Traits are not recognized as conventional coping adaptations in and of themselves. Rather, these individual attributes impact one's response to strain, whether one seeks out/employs prosocial mechanisms to cope with strain versus responding delinquently. Personal factors, particularly a tendency toward negative emotionality and low constraint, have been shown to condition the effect of strain on delinquency (Agnew 2006). Individuals who are have high levels of negative emotionality and low levels of constraint will more often react to strain with delinquency. Other traits, such as moral beliefs, self-esteem, or self-efficacy are hypothesized to act as a resource for coping (Agnew 1992).[2] Possessing these resources allows the individual to more successfully apply conventional coping strategies as opposed to resorting to non-conventional reactions to strain. Further, these traits have a reciprocal role in the strain relationship, because they increase the likelihood an individual will perceive an event as strain producing. Possessing these traits is associated with an increased contact with

[2] Subsequent sections of Chapter II direct significant attention to the role of coping resources and research that empirically test these ideas.

objective stressors or sources of strain, situations most people would consider strain inducing (Agnew et al. 2002).

I have briefly outlined the core theoretical propositions of GST. Subsequent sections will focus on the theoretical components of GST central to this dissertation research. The next section focuses on noxious peer relationships and bullying victimization as particularly relevant sources of strain affecting juveniles. Given the current magnitude of noxious peer associations (Jackson et al. 2012; Moon and Morash 2012; Perry, Kusel, and Perry 1988; Toby 1983a, 1983b) bullying behaviors that occur in schools (Dake, Price, and Telljohann 2003; Orpinas, Horne, and Staniszewski 2003; Sampson 2002), having a complete understanding of the link between noxious peer associations and delinquent behaviors could have strong policy and program implications.

## ***Strain as the Presence of Noxious Stimuli:***

## ***Bullying Victimization and Noxious Peer Relationships as Sources of Strain***

The research presented in Chapters III and IV of this dissertation focuses on a particularly relevant source of strain for young persons, the presentation of noxious stimuli (Agnew 2001; Agnew and White 1992). I argue noxious peer associations and bullying victimization more specifically, in some instances, will increase the chances of delinquency, consistent with the arguments presented in GST. Given the special standing of peer abuse in the theory, it is somewhat surprising this particular stressor has received far less attention than other forms of stress (see Agnew 2001; Agnew et al. 2002). Indeed, Agnew's (2001) review of the literature led him to state, "At this point, it seems safe to conclude that crime is related to verbal and physical assaults, including assaults by parents, spouses/partners, teachers, and probably peers" (Agnew 2001:325). Thus, an emphasis of this dissertation research is on better understanding the relationship between noxious peer associations and delinquency. In this and the subsequent section, I will

outline the current focus and state of the bullying literature, discuss its relevance as a source of strain and discuss more broadly the relevant literature on the effect of noxious peer associations (bullying victimization is one element of this). As noted, Chapter IV also will study the effect of general life strains on delinquency. Given this, the succeeding section briefly outlines the theoretical foundation for these analyses.

A large body of bullying research sheds light on the prevalence of bullying behaviors (Boulton and Underwood 1992; Finkelhor et al. 2005; Haynie et al. 2001; Nansel et al. 2001; Seals and Young 2003; Stephenson and Smith 1989) and the consequences of these negative interpersonal practices (Besag 1989; Ericson 2001; Limber and Nation 1998; Olweus 1978; Tattum 1989). Patchin and Hinduja cite that "overall, conservative estimates maintain that at least 5% of those in primary and secondary schools (aged 7-16)" are bullied each day, but the percentage is likely to be much higher (2011:729). Their thorough review of existing bullying literature suggests upwards of thirty percent of adolescents in the United States act within a bully-victim relationship at any given time (2011:729). The repercussions of victimization have proved to be detrimental across life realms. Studies focusing on the negative outcomes of bullying have found victims suffer not only physically, but also from a variety of psychological problems, such as depression, anxiety, school avoidance and associated learning problems (Browne and Falshaw 1996; Greenbaum, Turner, and Stephens 1988; Moon, Hwang, and McCluskey 2011; Olweus 1993; Rigby and Slee 1999; Salmon et al. 2000).

In light of the negative consequences peer bullying victimization produces, it is quite reasonable to consider bullying victimization as a source of strain in the GST framework. Most generally, a source of strain is any event or relationship in which ''others are not treating the individual as he or she would like to be treated'' (Agnew 1992:48). Key aspects of the definition of bullying are the occurrence is intentional and

aggressive in nature and occurs between persons with unequal (actual or perceived) power (Haynie et al. 2001; Nansel et al. 2001; Robers et al. 2010). Given this typical application, peer bullying (or "peer abuse," as it was labeled by Agnew [2001]) represents a distinct type of noxious stimulus likely to affect subsequent delinquency. Despite fitting nicely into the strain theory framework, the experience of interpersonal strains, or bullying victimization more specifically, has only recently become a focus of GST scholars, and remains a relatively unexplored research issue.

Agnew argued insufficient attention has been afforded to negative treatment in the form of peer abuse. Agnew and colleagues (2002) also made this case as it was the foundation for their research studying the impact of being picked on by other kids on delinquency. Some research shows peer bullying victimization leads to delinquency (Cullen et al. 2008; Sigfusdottir, Gudjonsson, and Sigurdsson 2010). However, others report no relationship between peer bullying victimization and delinquency (Agnew et al. 2002; Unnever, Colvin, and Cullen 2004). While the theoretical reasoning seems clear, the results of research looking at this association do not provide an entirely clear picture.

Peer bullying as a source of interpersonal strain received some attention after Agnew (2001) highlighted peer abuse as an important source of strain that had "been neglected as a type of strain" (Agnew 2001:346). He argued peer abuse was likely very consequential for delinquency because bullying is likely to be perceived as high in "magnitude" or "degree," the extent to which an event is negatively evaluated, disliked or seen as having a negative impact on one's life (Agnew 2009). Given the obligatory nature of school attendance and the centrality of peer relations for adolescents, bullying victimization that occurs within school is likely perceived as more severe or detrimental than other, non-interpersonal stressors. In addition, bullying victimization is likely to be viewed as unjust; "bullying often will violate the basic norms of justice" (Hay and Meldrum 2010:449).

But, in relation to the breadth of research that looks at bullying as an adolescent social problem (e.g., Ttofi and Farrington 2011) and the extensive research that looks at the negative psychological impacts of bullying victimization (see Hawker and Boulton 2000), studies focused on the delinquency outcomes of bullying victimization are lacking. Hay and colleagues (Hay and Meldrum 2010; Hay, Meldrum, and Mann 2010) note that despite the fact that bullying victimization is a source of strain experienced by a non-trivial proportion of students, it has been largely ignored in GST and, more broadly, in criminological research. Some studies suggest victimization/bullying by peers is significantly related to subsequent delinquency or deviance (e.g., Agnew and Brezina 1997; Baron 2004; Cullen et al. 2008; Hay and Evans 2006; Hinduja and Patchin 2007; Moon and Morash 2012; Sigfusdottir et al. 2010; Ybarra and Mitchell 2004). Moon and Morash (2012) tested the relationship between a variety of strains and delinquency and found bullying victimization did significantly predict some forms of delinquency. However, results of research focused on the delinquency implications of peer bullying victimization do not provide conclusive evidence. Some similarly focused studies fail to report a relationship between bullying victimization and delinquency (Agnew et al. 2002; Cullen et al. 2008; Unnever et al. 2004). In sum, the current state of GST research provides evidence on both sides of the relationship; at times reporting bullying victimization is significantly related to delinquency and at others, finding this proposed relationship null.

The research presented in subsequent chapters of this dissertation will aim to better understand the inconsistencies within the GST literature. Perhaps the findings are inconsistent because peer bullying influences delinquency only for some individuals and not for others. For instance, Agnew et al. (2002) underscore bullying influences delinquency only among older adolescents and among youths with certain personality dispositions. The dissertation research emphasizes conditions under which noxious peer

relationships, peer bullying, and strain more generally may be more or less likely to produce delinquency by emphasizing some youths are better apt to utilize conventional coping strategies to deal with peer bullying than are other youths. Thus, the research is aimed at understanding the mixed findings on the peer bullying-delinquency relationship.

Bullying victimization is highlighted as a source of strain that is particularly important for juveniles and, in some instances, is shown to be a strong predictor of delinquency. This type of strain is only one example of negative stimuli, the third form of strain detailed by Agnew (1985; 1989; 1992). Similarly, it is one element that may constitute a more broad type of strain — noxious peer associations — which fits in this strain category. Noxious peer associations are social relations or interactions that are negative in tone. They can involve emotional maltreatment, physical harm or other sources of adversity. Experiencing noxious associations with one's peers, difficult relationships or interactions, are likely to produce negative affective responses, therefore increasing the likelihood of delinquency. Violent and criminal victimization among adolescents is not a trivial issue (Toby 1983b). Experiencing these negative interactions is a significant source of strain. These forms of strain, compounded with bullying victimization, contribute to the overall noxiousness of peer relationships or interactions. Along these lines, Perry et al. (1988) assessed the social and behavioral outcomes of a wide range of noxious peer interactions, including verbal and physical abuse by peers. Similarly, this research also will study the relationship between noxious peer associations more broadly and delinquency.

The research presented in Chapter III will examine the impact of in-school noxious peer associations on school delinquency. While I have failed to locate research examining this relationship specifically, previous GST studies concluded various types of noxious relationships as significant for understanding delinquency (Agnew and White 1992; Mazerolle 2006; Mazerolle et al. 2000; Paternoster and Mazerolle 1994).

Specifically, these works tend to study the negative impact of noxious parental relationships as a relevant source of strain for understanding delinquency. Mazerolle (2006) concludes explicitly that the strain and stress attributed to negative relations with adults is a significant predictor of delinquency for both males and females. Noxious peer relations in school, like the noxious parental relationships studied in previous works, are occurring in a situation difficult for youths to avoid or remove themselves from and are likely to affect delinquency. It is suggested individuals who experience bullying victimization and who are treated negatively in other ways by their peers, in other words, those who report more noxious peer relationships, also will engage in more delinquency than peers who report fewer negative interactions with classmates. Chapter III will build upon the foundation of limited works examining negative social relations and noxious parental associations, studying the impact of negative social relations on delinquency in addition to focusing on the effect of bullying victimization.

The research presented in this dissertation will examine this relationship. Both empirical chapters will examine peer bullying victimization that occurs within the school setting. Additionally, Chapter III will look at the relationship between aversive treatment by one's peers in this setting more generally — noxious peer relationships and delinquency. While both empirical chapters focus on noxious interpersonal peer relationships, which are theorized to positively affect levels of delinquency (given their outlined fit within the GST framework), analyses in Chapter IV will additionally study the relationship between more general life strains and delinquency.

### ***General Life Strains***

In addition to a central focus on noxious peer associations, this work also will test the most fundamental claims of GST: that experiencing a variety of life strains (loss of valued stimuli, failure to achieve positively valued goals, and the presentation of negative stimuli) will effect delinquency. In his formulation of GST, Agnew (1985) notes the

cumulative nature of strain arguing the more sources of strain with which an individual is faced, the more likely delinquency will result. Further, Agnew (1989) and more recent studies suggest the benefits of utilizing a composite or scale measures of strain. Utilizing a scale measure is consistent with existing GST research, allowing for analysis of the cumulative effects of experienced general life strains on delinquency (Mazerolle and Piquero 1997; Mazerolle and Maahs 2000; Kort-Butler 2009). The research presented in Chapter IV will test these very foundational claims of GST. A strain scale will be utilized to understand to what extent youths have experienced general life strains. For example, this strain scale will account for the loss of valued stimuli in the form of familial relationships or the presentation of negative stimuli in the form of serious illness.

In testing the basic premises of GST utilizing a general strain scale, this dissertation research aims to add to a body of literature supporting these core claims. The following section will direct focus to the importance of conventional coping and self-efficacy within the GST framework. Utilizing a more general measure of strain provides an additional platform to test the proposed theoretical role self-efficacy may play in the strain-delinquency relationship. The research presented in Chapter IV will build upon that of Chapter III by similarly testing the impact of self-efficacy in the noxious peer associations-delinquency relationship and testing this mechanism in the general strain-delinquency relationship.

### ***Conventional Coping Mechanisms: Adaptations to Strain and Negative Affect***

In outlining the core theoretical constructs of GST, Agnew (1985) asserts the relationship between strain and delinquency is mediated by emotional responses and moderated by several individual and social elements that may further intervene in or influence this relationship. This dissertation aims to highlight the importance of conventional cognitive coping as a key intervening mechanism in the strain-delinquency relationship. A key contribution of the research presented in this dissertation is its focus

on self-efficacy as a coping resource that may promote conventional cognitive coping. Agnew (1992) suggests the strain-delinquency relationship will be ameliorated if individuals have certain coping resources and can engage in conventional cognitive, behavioral, and emotional methods to cope with strain. The analyses presented in Chapters III and IV draws from this chapter's discussion and test the idea that self-efficacy moderates the relationship between strain and delinquency. Hereafter, I direct attention to reviewing the theoretical importance of conventional coping in the GST framework, emphasize conventional cognitive coping methods, and discuss the hypothesized relationship between conventional cognitive coping and the construct self-efficacy. The succeeding section will then discuss the construct self-efficacy and aim to explicitly outline how self-efficacy is likely to influence engagement in prosocial cognitive coping in particular. Further, this section will outline the reasoning behind this work's expectation that self-efficacy will directly influence delinquency.

The effects of stressors or strain on individual outcomes and potential protective factors have piqued the interest of scholars across many disciplines including sociology, psychology, criminology and social work (Goodkind et al. 2009). Conventional coping is an under-examined caveat of GST as it relates to bullying. GST argues one's emotional response to sources of strain may influence or drive one to respond with deviance. But, this is not always the case, as the relationship between strain and delinquency is conditioned by a number of factors (Broidy and Agnew 1997). These factors influence the ability to engage in delinquent versus non-delinquent coping, the costs of these potential reactions to the individual, and individual disposition toward delinquent adaptations. Such factors include coping resources (including self-efficacy) and coping skills (the actual ability to enact methods that reduce strain and negative affect), as well

as things like conventional social support, level of social control and associations with delinquent others.[3]

Many of the factors highlighted by Agnew (1992) as having a theorized significance in shaping whether strain results in delinquency have been examined in the empirical literature. These include coping skills, self-esteem, self-efficacy, family attachment, moral beliefs, and association with delinquent peers (Agnew and White 1992; Aseltine et al. 2000; Hoffmann and Miller 1998; Mazerolle and Maahs 2000; Mazerolle and Piquero 1997; Mazerolle et al. 2000; Paternoster and Mazerolle 1994; Piquero and Sealock 2000). These works fail to produce paralleled conclusions regarding the conditioning effects predicted by GST. For example, Agnew and White (1992) found exposure to delinquent peers and self-efficacy both conditioned the relationship between strain and delinquency. However, replication and expansion by Paternoster and Mazerolle (1994) failed to support the conditioning hypotheses. Later work by Hoffmann and Miller (1998) provides evidence that strain will impact delinquency net of whether subjects have high self-efficacy, self-esteem and low exposure to delinquent others. But, work by Mazerolle and Maahs (2000) provides evidence the strain-delinquency relationship is conditioned by a number of factors, including exposure to delinquent peers and holding deviant beliefs. At present, then, there is much uncertainty regarding the conditioning hypothesis with GST and concerning the specific factors that condition the effect of strain on delinquency.

A unique development of GST, and key to the current research, is the suggested avenues for conventional coping that may reduce the likelihood that particular types of strain promote delinquency. Agnew suggested that in response to the negative emotions strain elicits, people engage in "coping strategies" (Agnew 1992). Coping is defined as

[3] Given the theoretical importance of these latter three elements, the central focus of other theories of crime and delinquency, analyses in subsequent chapters will control for these factors when measures for doing so are available.

"cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus and Folkman 1984:142). Typically individuals have a habitual behavioral preference for the way they deal with such demands, known as a coping style (Agnew 2006; Kort-Butler 2009). GST presents crime and delinquency as responses to strain and negative emotions that are meant to help alleviate the negative emotions (see Brezina 1996). However, criminal and delinquent responses to strain are not the norm, but rather occur when individuals lack the ability to cope in a legal manner.

Recall there are three theorized coping strategies. The first is cognitive coping, or the ability to reframe stressful events to make them seem less problematic. The second strategy involves behavioral coping, which encompasses conventional behavioral efforts — help-seeking behaviors and attempts to negotiate with tormentors — to alleviate strain (Agnew, 1992:69).[4] The final strategy is emotional coping, which here refers to conventional attempts to alleviate negative emotions, including the use of relaxation exercises, physical activity, or other behaviors that push negative emotions away.

When conventional methods for relieving strain are accessible and enacted, the likelihood individuals will react to strain through delinquency is diminished. While the proposed impact and potential benefit of the conventional coping mechanisms outlined in GST are clear, research focused on prosocial coping in particular, is limited. Studies tend to look at how various behaviors (often considered delinquency or deviance to varying extents) influence the affect produced by strain. That is, to what extent do deviant responses to strain act to reduce strain or the negative affect strain elicits? In one such study, Brezina (1996) examined the impact of various forms of delinquency on reducing the emotional responses to sources of strain. He found delinquent behaviors, such as

[4] Behavioral coping theoretically can include deviant and delinquent responses. For conceptual clarity and distinctness from my outcome variable, I will focus on non-deviant or conventional types of behavioral coping.

escape-avoidance (e.g., running away from home or skipping school to avoid aversive interactions in those settings), compensation (e.g., an individual who feels they have been unjustly deprived of valuable resources may attempt to acquire those or similar resources through theft or force), and retaliation (e.g., physical aggression, vandalism, or theft as a corrective response to strain), did allow individuals to reduce the negative emotional consequences of strain by enabling them to avoid strain directly or by alleviating the negative affect resulting from strain. That is, delinquency is shown to be a response that promotes relief from strain.

Though limited, some work has focused attention on the impact of conventional coping in the strain-delinquency relationship. In their study of the relationship between sources of strain in school, school-based coping and delinquency, Lee and Cohen (2008) find that viewing stressful events as being temporary, pursuing social support, and/or participating in conventional school-based activities all impact the stressors-delinquency relationship. Similarly, Piquero and Sealock's (2000) research suggests the positive influence of five distinct coping skills: cognitive, physical, social, emotional and spiritual adaptations. And, Jennings et al. (2009) concluded behavioral adaptations to strain weaken the relationship between strain and delinquency. So, while Agnew (1992) argues coping can be classified in three ways, there are no clear guidelines for categorizing coping efforts. Although investigations of the specific stress management techniques employed by juveniles are lacking the minimal research, focus on conventional coping has yielded positive results. The paucity of studies examining the proposed moderating role of conventional coping mechanisms on this strain-delinquency relationship has compelled the current research.

### ***Conventional Cognitive Coping***

This dissertation is focused primarily on conventional cognitive coping. Conventional cognitive coping is a unique coping method in that it is likely a teachable

approach to dealing with strain. The engagement in conventional coping often relies on resources external to the individual; things like supportive relationships, the availability of monetary or other resources, etc. Cognitive coping as discussed by Agnew (1992) is a proficiency that, it is argued, can be practiced and developed within the individual. Cognitive coping refers to the ability to rationalize or reframe the stressors. This is a skill that had been practiced and advanced in juvenile delinquents with positive behavioral results (MacKenzie and Hickman 2006) and could potentially be a skill utilized on a wider scale. This unique characteristic of conventional cognitive coping lends itself to inclusion in policy and programming aimed at reducing delinquency in schools.

The theoretical framework outlined by Agnew (1992, 2001, 2006) suggests cognitive coping abilities (as well as other coping adaptations) play a moderating role in the strain-delinquency relationship. That is, cognitive coping strategies could, in fact, prevent or at least minimize the need for crime (Konty 2005; Froggio, Zamaro, and Lori 2009). It is theorized individuals with higher cognitive coping abilities will be able to reinterpret objective strains in a manner that minimizes their importance. This reinterpretation resolves the internal drive to respond to stressors or strain with delinquency. By cognitively reinterpreting the situation, the sources of strain and the negative emotions these produce become less problematic. Consequently, individuals are less likely to turn to delinquent or criminal behaviors to address strain. The ability to rationalize stressors in a unique (less detrimental) way can take many forms. But, the most pertinent method, given the theoretical propositions and empirical tests within this dissertation, is for persons to minimize the importance of stressful events, circumstances, or relationships (Agnew 1992; Cullen et al. 2008).

One element subsumed in the construct of cognitive coping is individual problem-solving capability. Developing this skill is a focus of delinquency programming that has been shown efficacious. This is similar to a form of coping addressed by Kort-Butler

(2009): approach coping. This is a response characterized by logical analysis and positive reappraisal; a reinterpretation of the situation that views the circumstances in a less detrimental light. It allows individuals to adapt successfully to these negative or strain-inducing events. Similarly, Rocque (2008) explains cognitive coping as an ability to minimize the strain and maximize the subjective importance of "good" outcomes or accepting personal responsibility for negative outcomes. This form of coping can be summarized by three phrases: "it's not important," "it's not that bad," and "I deserve it" (Agnew 1995:46). Preston (2006) provides the following illustration as an example of cognitive coping. An individual, who has been fired from his/her job, in an effort to deal with this life strain, may attempt to or successfully convince himself/herself that he/she did not enjoy or want that job anyway. Empirical tests examining the moderating role of this proposed conventional coping mechanism are scarce; and, of all conventional methods, cognitive coping has been researched the least (Rocque 2008). Thus, there is a clear gap in the literature.

Though research centered on conventional adaptations to strain and cognitive coping in particular are scarce, the theorized benefits are clear. Individuals who are able to think clearly about the strain they are experiencing, and the resulting emotions they feel, are less likely to react using less conventional and at times delinquent responses. "The extent of an individual's capacity to lessen the emotional distress due to strain by applying such skills can be highly influential. Such a capacity may determine whether the youth is able to avoid resorting to delinquent activity to ameliorate the negative effects of strain" (Piquero and Sealock 2000:460). Youth with a high capacity to cognitively reinterpret a stressful situation can consider possible solutions or ways to lessen the strain they are experiencing or the negative emotions those strains elicit without resorting to deviance.

As noted, several of the conventional coping adaptations suggested by Agnew (1992) are dependent on external resources or relationships. Given this, it seems obvious the accessibility of these coping mechanisms varies across persons. Similarly, while there is a potential to develop conventional cognitive coping (an internal coping skill), the ability to engage in this coping method is variable. That is, each of the coping mechanisms outlined by GST are not equally available to all persons (Agnew 1992; Froggio et al. 2009). Further, it is suggested adolescents may respond to strain with deviance and delinquency because they, more so than adults, lack the ability and resources to remove themselves from stressful situations likely to trigger negative emotion (Agnew 1985:156). As noted earlier, juveniles often lack the means to escape aversive situations (bullying interactions that occur in school, for example). More broadly, GST suggests conventional problem-solving can be more limited for young persons, leaving crime and drug use as viable means to address strain (Agnew 1992; Brezina 2000). Juveniles are more likely to have limited access to internal and external resources for legitimately dealing with stress. Young persons who find themselves in stressful situations with few resources for dealing with stress may behave delinquently as a way to get away from that aversive environment or remove the source of the aversion. For example, an individual experiencing high levels of strain within school, such as that which can result from noxious peer associations, has few options for removing themselves from this situation other than skipping school, lashing out at bullies, or behaving in a manner that would get them removed from school. Taken together, these ideas further suggest the benefits of a teachable form of conventional coping. There is value in developing the ability to cognitively reinterpret these noxious interactions or relations in a way that makes them less central or stress-inducing.

It is clear engagement in conventional coping is dependent on a number of factors and is therefore variable across individuals. One factor of particular importance to

engagement in conventional cognitive coping techniques is self-efficacy. In many ways, one's aptitude for cognitive coping or their ability to reinterpret strain-inducing situations (and resulting affect) is a reflection of their general sense of self-efficacy. Agnew (1992) has deemed self-efficacy a coping resource that is particularly important in influencing behavioral coping strategies. This dissertation asserts self-efficacy should be explored as influentially linked to and impacting the cognitive coping process. Self-efficacy, like cognitive coping skills, can be developed (Fencl and Scheel 2005; Margolis and Mccabe 2006; Schunk 1987; Schunk and Pajares 2002), directly shapes behavioral outcomes (Bandura 1997; Epel, Bandura, and Zimbardo 1999; Pajares 1996; Pintrich and De Groot 1990; Schunk 1995; Zimmerman, Bandura, and Martinez-Pons 1992), and may influence the likelihood that youths faced with strain will react through conventional means. The direct benefits of self-efficacy will be reviewed and the direct relationship of self-efficacy and delinquency is studied in both Chapters III and IV. Further, this dissertation is concentrated toward a caveat of strain theory not comprehensively explored — the role of self-efficacy in the relationship between peer bullying and delinquency.

### ***A Review of Self-Efficacy Research and the Theoretical Link Between Conventional Cognitive Coping and Self-Efficacy***

Albert Bandura (1994) defines perceived self-efficacy as individuals' "beliefs about their capabilities to produce effects" (Bandura 1994:71). A primary concern of self-efficacy theory and research are notions of personal control and agency. In his review of potential factors and resources likely to impact the strain-delinquency relationship, Agnew (1992) suggests self-efficacy is important because individual self-efficacy will shape or influence whether strained individuals choose to cope with these strains through conventional behavioral means. These propositions imply the significance of self-efficacy within the GST framework as an essential resource that shapes conventional coping choices. While Agnew (1992) focuses on the relationship between self-efficacy and

prosocial behavioral coping, I suggest self-efficacy as a personal resource will greatly influence whether individuals ultimately engage in cognitive coping strategies (particularly reinterpreting the importance of strain-inducing situations/relationships). Self-efficacy is a resource that will influentially shape a person's aptitude or ability to cognitively cope with strain

Research in psychology has shown self-efficacy plays an important role in shaping cognitions — the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses — as well as behavioral responses (Bandura 2001). Self-efficacy beliefs influence the interpretation of situations as perilous or stress inducing.[5] Further, self-efficacy beliefs significantly impact the selection of challenges individuals undertake, in the exertion directed toward goal-attainment (whether people put forth the efforts to attain goals is influenced in part by perceived likelihood they can achieve their desired outcomes) and is shown to influence ideas of optimism and persistence in the face of certain situations/interactions (Bandura 1997; Maddux 1995; Schwarzer 1992).

A bulk of self-efficacy research is concerned with self-efficacy as the basis for individual action, agency. While many other things influence and guide action, whether a person feels they have power to produce desired effects or manipulate a given situation/interaction in an anticipated manner is key. Self-efficacy beliefs regulate human functioning through cognitive, motivational, affective, and decisional processes. They affect whether individuals think in self-enhancing or self-debilitating ways; how well

[5] The research presented in Chapters III and IV tests the hypothesis that self-efficacy will have a direct effect on delinquency. This direct relationship between self-efficacy and delinquency could be attributed to the noted relationship between self-efficacy and the interpretation of situations as stressful. This research measures objective strains (those assumed to be stress-inducing) and it could be that individuals who have high levels of self-efficacy simply do not interpret these situations as stressful. As such, these high self-efficacy individuals may present with less subsequent delinquency. Additional reasoning and research regarding the direct effect of self-efficacy on delinquency is reviewed later in this chapter.

they motivate themselves and persevere in the face of difficulties; the quality of their emotional life and vulnerability to stress and depression; resiliency to adversity; and the choices they make at important decisional points that set life courses. Through these diverse means, belief in one's capability to exercise some measure of control in the face of taxing stressors promotes resilience for them.

Additional self-efficacy research primarily conducted in psychology links self-efficacy with coping and further informs the suggestions for self-efficacy's fit in the GST framework presented here. Bandura's work (e.g., Bandura 1997) shows individuals who have confidence in their ability to solve problems (those who have a stronger sense of self-efficacy) use their cognitive resources more effectively and are more likely to continue to search for solutions to problems. Self-efficacy also has been shown to predict coping given traumatic life events (Bandura and Zimbardo 1999). In their coping-centered research, Benight and Bandura (2004) look specifically at self-efficacy regarding one's ability to cope with adverse or traumatic situations. They find perceived coping self-efficacy is a key intervening factor in recovery from these distressing instances. Looking at a wide array of stressors (that easily fit within the three-fold strain typology outlined by Agnew (1985)), for example interpersonal traumatization or the death of a loved one, they find self-efficacy not only influences affective arousal, but also shapes resulting behavior.

Taken together, this research informs the suggestions posed regarding the role of self-efficacy in the GST framework. Self-efficacy is likely to influence the strain-delinquency relationship as it will influence *sensitivity* to, and more importantly (for this dissertation work) *reaction* to strain. Self-efficacy beliefs, I argue, are particularly important regarding the use of conventional coping adaptations. An individual's belief in their ability to produce valued outcomes in a given situation (at least to some extent) dictates whether they will engage in efforts to cognitively reinterpret the strain. Those

who feel they can respond to strain in a prosocial manner to produce desired results will be less inclined to respond with delinquency. Further, it is plausible that persons with diminished efficacy beliefs do not feel they have the ability to successfully engage in conventional adaptations, therefore are less likely to respond to strain in these prosocial ways. Because self-efficacy shapes engagement in prosocial coping, it will present as a significant moderator in the strain-delinquency relationship.

Like research focused on conventional coping, GST studies that place central attention on the role of self-efficacy are limited. Agnew (1992) argues self-efficacy will influence sensitivity and reaction to strain. It is one of a number of elements suggested to condition the impact of strain on delinquency. In particular, he suggests those persons high in self-efficacy will be more likely to feel they can cope with strain in a non-delinquent manner, leaving them less inclined to criminal coping. However, empirical research with a focal interest in the role of self-efficacy is limited and results are conflicting (Agnew and White 1992; Mazerolle and Maahs 2000; Patternoster and Mazerolle 1994). Agnew and White (1992) found partial support for the idea that the strength of the relationship between strain-delinquency is dependent on self-efficacy. In their replicating research, Paternoster and Mazerolle (1994) report a relationship in the opposite direction. They found a stronger effect of strain on delinquency for individuals with high levels of self-efficacy, although they suggest not much be vested in this finding given its minimal impact on the model's explained variance. Regardless of these mixed results, the outlined theoretical importance of self-efficacy and the scarcity of research examining the role of self-efficacy in the strain-delinquency relationship have spurred the research presented in subsequent chapters of this dissertation.

In an effort to further clarify the importance of self-efficacy and the mechanism through which it operates, the research presented in Chapter IV also will test the idea that self-efficacy not only moderates the strain-delinquency relationship, but in fact, mediates

this relationship. A moderator function of self-efficacy would be indicative, as reviewed above, of the buffering effects of self-efficacy; weakening the relationship between strain and delinquency. The data used for the analyses presented in Chapter IV allows for an additional test of the mechanism through which self-efficacy impacts this relationship. Specifically, this research also will test the mediator function of self-efficacy (Ensel and Lin 1991). It indirectly tests the idea that the impact of strain on affective responses is mediated by the extent of self-efficacy. While affective data is not available, the ideas are tested by examining influences on the ultimate outcome — delinquency — which Agnew (1985) argues results from negative affect.

Within psychological and stress literature, mediators often explain how external events take on psychological significance (Baron and Kenny 1986:1176) that in turn impacts behavioral outcomes. In this way, mediator variables speak to or specify how or why the observed, measurable effects occur. With regard to the mediator function of self-efficacy in the strain-delinquency relationship, it could be the relationship between delinquency and strain is explained by self-efficacy. That is, strain will diminish levels of self-efficacy for some individuals; when individuals lack sufficient self-efficacy, delinquency may result. Research implicating self-efficacy as pertinent in perceptions of strain and resulting affective states was reviewed briefly above. Along these lines, the concept of perceived control has been said to mediate the impact of aversive events (Averill 1973; Litt 1988; Miller 1979). Given this, one might speculate whether experienced strain (noxious peer relationships, bullying victimization, and general life strain) will result in delinquency. This depends in large part on how strain affects self-efficacy, which in turn impacts delinquency. Strain may deteriorate self-efficacy beliefs and individuals with low self-efficacy will interpret these situations as aversive and anger-inducing, which in turn might result in delinquency. However, when one's sense of control over outcomes is great, these events will not register in this manner. That is, they

do not result in negative affect and therefore no need to cope (through delinquent or prosocial means) exists.

Perceptions of efficacy have been shown to counteract peer pressure to engage in delinquency (Bandura et al. 1996; Caprara, Regalia, and Bandura 2002) and also have been shown to foster prosocial behavior (Bandura et al. 2001). Similarly, perceived inefficacy is related to negative psychological and behavioral outcomes (Bandura et al. 1999). But, to what extent does perceived inefficacy explain the relationship between strain and delinquency? Chapter IV will include a test of these ideas. Specifically, research will study the relationship between strain (in eighth grade) and delinquency (in twelfth grade). Assuming an effect is found, subsequent analyses will include a measure of self-efficacy (in tenth grade) to see if the inclusion of this variable diminishes ____.

A bulk of the self-efficacy research reviewed to this point supports the idea that self-efficacy will impact conventional cognitive coping, the ability of individuals to engage in cognitive reinterpretations of strain-inducing relationships and interactions. The studies presented in the subsequent chapters will test these claims. Chapter IV will assess self-efficacy as a moderating and mediating mechanism. In addition, self-efficacy literature also concludes the direct relationship between self-efficacy and behavioral outcomes. Much research in this area concentrates on the benefits of self-efficacy for academic outcomes (Bandura 1997; Pajares 1996; Schunk 1995; Zimmerman et al. 1992), suggesting high self-efficacy significantly influences positive academic achievements.

Though more limited, some research has looked at the relationship between self-efficacy and delinquency behaviors. These works highlight the suggestion self-efficacy is one personal resource that will shape decision-making processes. Recall self-efficacy refers to the belief that one's behavior will result in wanted outcomes. Behavior choices, and in particular problem behavior, then is shaped by judgments of this perceived control (Aas, Klepp, and Laberg 1995; Chung and Elias 1996; Ludwig and Pittman 1999). Given

this, youths who perceive themselves likely to succeed at socially-valued behaviors will be less likely to engage in delinquency. Along these lines, research has shown self-efficacy is linked with involvement in a number of deviant behaviors. In their research Aas and colleagues (1995) found individuals with low self-efficacy were more likely to drink alcohol than high self-efficacy peers. Similarly, Hays and Ellickson (1990) found individuals with higher levels of self-efficacy engage in substance use (alcohol, tobacco, and marijuana use) less frequently than their low self-efficacy peers. Concluding from the work reviewed here, the research presented in Chapters III and IV will study the direct relationship between self-efficacy and strain under the assumption those persons presenting with higher levels of self-efficacy will less often engage in delinquency. That is, self-efficacy will have a direct effect on delinquency in these empirical examinations.

This dissertation focuses academic efforts toward better understanding conventional cognitive coping and in particular, how self-efficacy, a potentially valuable resource, impacts delinquency through allowing individuals to engage in cognitive coping. There is possibly great value in understanding the relationship between strain, self-efficacy (conventional cognitive coping) and delinquency. As a coping resource self-efficacy — and subsequently, cognitive coping adaptations — are unique, in that engaging in these types of coping strategies are not dependent on other persons or concrete, external resources. Rather, it is argued, these are skills that can be developed to varying extents in all adolescents. Given this, and the positive outcomes impacted by self-efficacy and prosocial problem solving, the research presented in Chapters III and IV of this dissertation have the potential to guide policy and programming aimed at influencing noxious peer relationships and juvenile delinquency.

### ***Summary of Theoretical Mechanisms and Research Questions***

The core premise of GST is that when faced with stress-inducing situations, individuals who lack conventional avenues to deal with the situation and resulting affect

will be more likely to behave delinquently (in an effort to reduce strain and negative affect). Further, according to GST and the psychological research reviewed here, self-efficacy should condition the relationship between strain and delinquency. Agnew (1992) says this is one of many potential coping resources that may shape how individuals respond to strain. The self-efficacy research reviewed suggests its importance in shaping affective responses and individual action and engagement of coping mechanisms. So, as Agnew (1992) noted, it is likely self-efficacy influences in significant ways the likelihood that individuals will engage in prosocial behavioral coping. But, beyond this, it is probable one's level of self-efficacy significantly impacts individual ability and likelihood of engaging in cognitive reinterpretations of stress-inducing situations, as well.

Given this theoretical framework and the empirical research in this area, the studies within this dissertation ask the following questions:

1) What is the nature and extent of the relationship between experiencing a variety of sources of strain and delinquency? A focal question of the studies presented in subsequent chapters is the relationship between experiences of noxious peer relationships and delinquency. Additionally, the studies presented in Chapter III and Chapter IV address specifically the relationship between bullying victimization and delinquency. And, the research presented in Chapter IV will study the link between a variety of general life strains and delinquency. Do noxious peer relationships, and specifically bullying victimization, and stressful life experiences significantly predict higher levels of delinquency as proposed by GST?
2) Does a significant and direct relationship between self-efficacy and delinquency present in the expected manner? That is, do those students who report higher levels of self-efficacy, on average, report less frequent

delinquent and deviance outcomes than peers with diminished levels of self-efficacy?

3) The studies presented in Chapters III and IV examine the role of self-efficacy in the strain-delinquency relationship. The final research question addressed by the work within this dissertation asks whether self-efficacy acts as a moderating mechanism between strain and delinquency. In other words, these works ask: is the relationship between experienced strain and delinquency diminished for those students who report higher levels of self-efficacy?

The research questions proposed are mutually guided by the theoretical foundations and empirical works in the areas of GST, coping, and self-efficacy. The studies presented in subsequent chapters intend to examine the importance of noxious peer relationships, bullying victimization and general life strain in understanding juvenile delinquency. The work reviewed heretofore suggests these forms of strain are likely to result in delinquency under certain circumstances. Chiefly, delinquency will result when youths lack conventional mechanisms for coping with these strains. Further, the research presented in Chapters III and IV will test the above-outlined idea that self-efficacy conditions this relationship, based on the theorized link of self-efficacy and conventional cognitive coping. This research intends to clarify the nature of these relationships and act as a catalyst for future works. These should explore more exhaustively how self-efficacy influences engagement in both conventional behavioral and cognitive coping strategies.

## ***Conclusion***

GST has sparked a substantial body of research that has shed light on the link between encountering sources of strain, emotions, crime and deviance. However, core propositions have yet to be investigated exhaustively and important questions remain unanswered. The research presented in the proceeding chapters aims to strengthen some

findings in this literature, while also addressing unanswered questions. First, it broadens knowledge of the role of bullying within the GST framework, exploring the impact of bullying in the particularly important context of school. The objective here is to understand the relationship between the experience of bullying victimization in school and school delinquency. Second, the analyses examine the mediating effects of self-efficacy. Self-efficacy is recognized as a coping resource and as such, I argue, should better enable juveniles to engage in the type of cognitive reinterpretations outlined by Agnew (1992) for reducing the negative impact of strain. In testing the role of self-efficacy in the strain-delinquency relationship, this research taps into this comparatively underexplored caveat to determine the role that specific prosocial coping mechanisms may play in the strain-deviance relationship. In addition, despite the popularity of GST for explaining delinquency, few explorations employ longitudinal data to look at minor deviance outcomes as adolescents' progress through school. An additional contribution of this research is that it joins a small number of other studies in exploring the long-term consequences of strain and access to conventional coping methods on subsequent deviance in later adolescence and young adulthood.

It is important to acknowledge that given the academic aim of this dissertation, the research presented in subsequent chapters is simply a first step. Early GST research exploring self-efficacy as having a significant moderating effect on the strain-delinquency relationship produced mixed results. To definitively argue the theoretical propositions I have outlined within this chapter, research must first establish a clear understanding of how self-efficacy influences the strain-delinquency relationship. An overarching goal is to provide a foundation for future research, which looks more closely at how self-efficacy influences the enactment of conventional coping strategies, the development of such coping resources and skills, and the long-term potential for these resources and skills to diminish the relationship between strain and delinquency.

Together, the ideas outlined here and the research presented in subsequent chapters adds to our understanding of the strain-deviance process. Chapter V reviews how this work may promote future research on the long-term impacts of bullying in school and the important role of conventional cognitive coping. It also directs attention to the potential of this (and consequent) research to guide policy and programming aimed at deviance prevention for adolescents.

# CHAPTER III
# THE EFFECTS OF BULLYING VICTIMIZATION AND NOXIOUS PEER RELATIONSHIPS ON DELINQUENCY AND THE ROLE OF SELF-EFFICACY

The aim of this research is twofold: it will examine the relationship between bullying victimization and delinquency, and the moderating role that self-efficacy plays in this relationship. This chapter will review the chief hypotheses addressed by the current study, as well as the results of a series of statistical analyses.

As Chapter II demonstrates, strain is often found to be a strong predictor of crime and delinquency (Agnew and White 1992; Patternoster and Mazerolle 1994; Aseltine et al. 2000; Piquero and Sealock 2000). Agnew outlines several types of strain that may be important when discussing crime and delinquency, and this research argues that the third form in his typology — the presentation of noxious stimuli — may be of particular importance in understanding delinquency in school. Specifically, this research will focus on bullying as one type of negative stimuli that occurs within a school setting, which may help to better understand students' delinquency in that setting. This study also will look at noxious peer relationships more broadly. Bullying is one element of noxious peer relationships.

In addition, GST suggests the relationship between strain and delinquency is potentially moderated by a number of factors. This research calls into question one such moderating mechanism — self-efficacy — that may operate within the strain-delinquency relationship. Self-efficacy may be one factor contributing to mixed findings in empirical work that looks at the link between strain and delinquency. It may influence the enactment of conventional coping mechanisms, moderating the strain-delinquency relationship (Agnew and White 1992; Patternoster and Mazerolle 1994). Despite Agnew's (1992) argument that self-efficacy may be an important asset for coping with strain in non-deviant ways, few GST studies examine this as a central focus. It is

probable that students who have high self-efficacy are better able to adapt to cognitively cope with strain and the resulting emotions of these situations.

### ***Overview of Key Strain Arguments***

One of the strengths of Robert Agnew's general strain theory is that it explains a broad array of life stressors that may increase the likelihood of criminal and deviant behavior. In his expansion on more classic, macro-level strain theories, Agnew (1995) argued that strain — the negative emotional response to stressors — can result from the presentation of noxious stimuli by others. As his work progressed, he more clearly outlined a three-fold typology of the types of strain (actual or anticipated) one might experience. Specifically, he argued all of the following could be classified as sources of strain: 1) failure to achieve positively valued goals; 2) removal of positive stimuli; and 3) the presentation of negatively-valued stimuli. This research is focused on the third form of strain, as it is argued juveniles may be especially subject to this type.

GST rests on the idea that strain (the negative affective state) results from negative relationships with others. For juveniles, peer relationships are of integral importance. This research explores peer relationships as a source of strain —specifically examining bullying victimization that occurs within peer relationships and more broadly at noxious peer relationships (of which bullying victimization is one element). When a person's peer relationships or interactions are negative or unpleasant, that individual is experiencing strain. As was argued in Chapter II, a student who is being bullied (either emotionally or physically) is experiencing the presentation of negatively-valued stimuli. Given the non-trivial number of students who report such noxious peer relationships in school, this research will focus on one potential negative outcome of this strain: school deviance.

Agnew (2001), referring to bullying as "peer abuse," proposed that this form of strain is likely consequential, because it satisfies the four conditions that increase the

significance, and therefore likelihood, of deviance. Bullying is often seen as 1) unjust; 2) high in magnitude (given the central importance of peer relations in the lives of adolescents); 3) disassociated from conventional social control (occurring away from adult authority); and 4) modeling deviant behavior for victims of bullying. Given this assertion, Agnew (2001) called attention to the need to explore bullying victimization as an important source of strain with relevant consequences in trying to better understand delinquency.

Further, individuals experiencing bullying victimization in school have few conventional means to remove this negative stimulus. For victims, mandated school attendance makes avoiding bullies more difficult. In dealing with strain, juveniles may attempt to escape or avoid negative stimuli that may occur through deviant means, such as skipping class. Another method for dealing with these stressors is through revenge seeking or retaliatory means, which also may take on deviant methods, such as fighting. In short, juveniles who are experiencing bullying victimization may demonstrate higher levels of delinquency given the primacy of peer relationships and lack of conventional methods to alleviate or remove strain in the school setting. A primary goal of this chapter is to explore the effects of victimization on school deviance. Bullying victimization is one element that influences the nature of relationships with peers; whether individuals positively or negatively value relationships with others. It will be examined independently and as a part of a more general measure of strain (noxious peer relationships) in this chapter's analyses.

### ***Summary of Self-Efficacy/Moderating Mechanisms***

In his formulation of GST, Agnew (1992) emphasized a general theory of crime and deviance designed to include insights from research in a variety of subfields centered on stress and coping. GST proposes the strain-delinquency relationship is not direct. Rather, it is a relationship mediated by negative affect and potentially moderated by a

number of coping mechanisms and individual resources. Research supports the theorized relationship between strain, negative affect and delinquency (Agnew 1992, 1995, 2001; Agnew and White 1992; Baron 2006, 2008; Hay and Evans 2006). Oftentimes delinquency becomes a mechanism for dealing with the negative affect (most notably anger) that results from experiencing strain-producing events when other modes for coping are not available or unutilized. Individual resources and coping mechanisms can be employed by the individual, either eliminating or removing the stressors directly or reducing or eliminating the negative affect produced by stressors (reducing the need to deal with those emotions through deviant or non-conventional modes).

As reviewed in Chapter II, individual self-efficacy may play a key role in the strain-delinquency relationship. Self-efficacy — one's belief about their ability to produce intended or desired effects — tends to be given only peripheral or minimal attention in the GST literature. Self-efficacy frequently is treated as a control variable in research on GST assumed to play some role in whether juveniles behave delinquently, yet not often given primacy in the research agenda. My research gives self-efficacy a more prominent role, hypothesizing that self-efficacy is not only negatively related to one's tendency toward delinquency, but that a strong self-efficacy is a tool that may allow adolescents to cognitively cope with strains they encounter.

Research on self-efficacy has shown it is linked to a variety of problem behaviors, including drug and alcohol use and negative sexual behavior. Aas et al. (1995) found that individuals with low self-efficacy were more likely to drink alcohol and conversely, Hays and Ellickson (1990) found that individuals with high self-efficacy were less likely to drink, smoke or use marijuana. Similarly, research shows self-efficacy is related to perceived ability of youths to abstain from sexual relationships (Zimmerman et al. 1995). In general, this research looks to self-efficacy as the respondents' ability to abstain from certain negative behaviors. Along these lines, this research will test the direct relationship

between self-efficacy and delinquency. Based on the existing self-efficacy literature, it is likely students with high self-efficacy will be less likely to engage in delinquency.

Beyond this direct relationship, the analyses reported in this chapter will test the idea that self-efficacy is a reflection of one's cognitive coping aptitude and the proposed moderating role that cognitive coping plays in the strain-delinquency relationship.[6] Cognitive coping is one of three theorized conventional coping mechanisms likely to influence the need and likelihood that individuals deal with strain and negative affect through deviant means. Youth with a high capacity to cognitively reinterpret a stressful situation can consider possible solutions or ways to lessen the strain they are experiencing or the negative emotions those strains elicit without resorting to deviance. In many ways, one's aptitude for cognitive coping or reinterpretation is a reflection of their general sense of self-efficacy, which is directly linked to decision-making (Ludwig and Pittman 1999). Attempts to minimize the importance of strain, a chief method of cognitive coping presented by Agnew (1992), are likely influenced by or a reflection of one's general self-efficacy or control. It is hypothesized that individuals with stronger self-efficacy embody a strong ability to cognitively cope with or reinterpret strains in a manner that minimizes their importance or reduces the emotions elicited by such strains. Agnew (1992) argues self-efficacy is one of many individual coping resources that will influence the selection of various conventional coping mechanisms. He suggests individuals high in self-efficacy are "more likely to feel that their strain can be alleviated by behavioral coping of a non-delinquent nature" (Agnew 1992:71). Beyond influencing the likelihood of employing positive behavioral coping measures, the current research focuses on the direct relationship between self-efficacy and the ability to cognitively cope with strain. This research argues that individuals reporting high self-efficacy possess the

[6] The data used in this chapter are cross-sectional and thus not well-suited to assess the potential mediating role of self-efficacy in the strain process leading to delinquency.

necessary individual resources to cognitively reinterpret strain, reducing the internal drive to respond through deviance. Specifically, it is proposed individuals who have low levels of self-efficacy do not have the aptitude to positively reinterpret strain-inducing situations or the affect they produce.

Albert Bandura (1994) finds people who believe they are highly efficacious often visualize scenarios with positive outcomes. Whereas, those who have low efficacy visualize negative results and focus on deleterious potential outcomes (Bandura 1994:73-74). Along these lines, people who have a high aptitude for cognitive coping, it is proposed, will be able to minimize the importance or impact of sources of strain and focus on more positive outcomes or lines of action. By reinterpreting strain, "the person is aided in ignoring that which is noxious by anchoring his attention to what he considers more worthwhile and rewarding aspects of experience" (Pearlin and Schooler 1978:6-7). The proposed research will focus on adolescents' potential to cognitively reinterpret situations, indicated by reported self-efficacy, as a relevant influence in the strain-delinquency relationship. Here self-efficacy is measured and used as an indicator of one's cognitive coping aptitude. While this work will not test the application of cognitive coping mechanisms, it will examine the moderating role of self-efficacy in the strain-deviance relationship. If hypotheses are supported, given the same level of reported strain, individuals with higher levels of self-efficacy will report less deviance, in part due to the individual's ability to reevaluate and minimize the importance of those strains.

## ***Summary of Hypotheses to Be Assessed***

In sum, this study will test three hypotheses:

- **Hypothesis 1**: School-based experiences of interpersonal strain (specifically bullying victimization) will be positively related to delinquent behaviors.

- **Hypothesis 2**: High levels of reported self-efficacy will be negatively related to delinquency.
- **Hypothesis 3**: The effect of strain on delinquency will be conditioned by self-efficacy. That is, when self-efficacy, which is theorized to help youths to cope with strain (in particular, bullying victimization and noxious peer relationships, more generally) is high, the effects of strain on self-efficacy will be greater than when self-efficacy is low.

## ***Data***

For analyses in this chapter, I utilized data from the base year of the Educational Longitudinal Study (ELS:02), which is a survey of a nationally-representative sample of high school sophomores.[7] The ELS:02 was administered during the spring term of the 2001-2002 school year by the Research Triangle Institute (RTI). The ELS is the latest in a series of school-based longitudinal studies conducted for the National Center for Education Statistics (NCES) for the United States Department of Education.

### ELS Sampling Method

The ELS series is a multilevel study. Information is collected from several sources to provide an accurate depiction of students' lives, as well as to provide background information about parents and teachers in daily contact with these students. Data are collected from students, their parents, school employees and the schools involved using a two-stage sampling selection method. A brief explanation of the sampling selection method is provided here (see NCES (2008) for more detail). First, a complete survey population consisting of 2002 spring semester sophomore students enrolled in the United States (public, Catholic, or private schools) was identified. A sampling frame of schools (intended to match the target population) was assembled. The

[7] The research presented within this chapter is a cross-sectional analysis. This decision was made given the lack of delinquency measures available in follow-up data.

data from school employees were collected from 750 schools, which were selected first. Then, a stratified systematic sampling technique was used to randomly select students within those schools. Surveys were administered to more than 15,000 students and their parents. The strata were based on race/ethnicity categories with minorities being oversampled such that all sub-populations included in the final data set had a sample size of more than 1,350 persons.

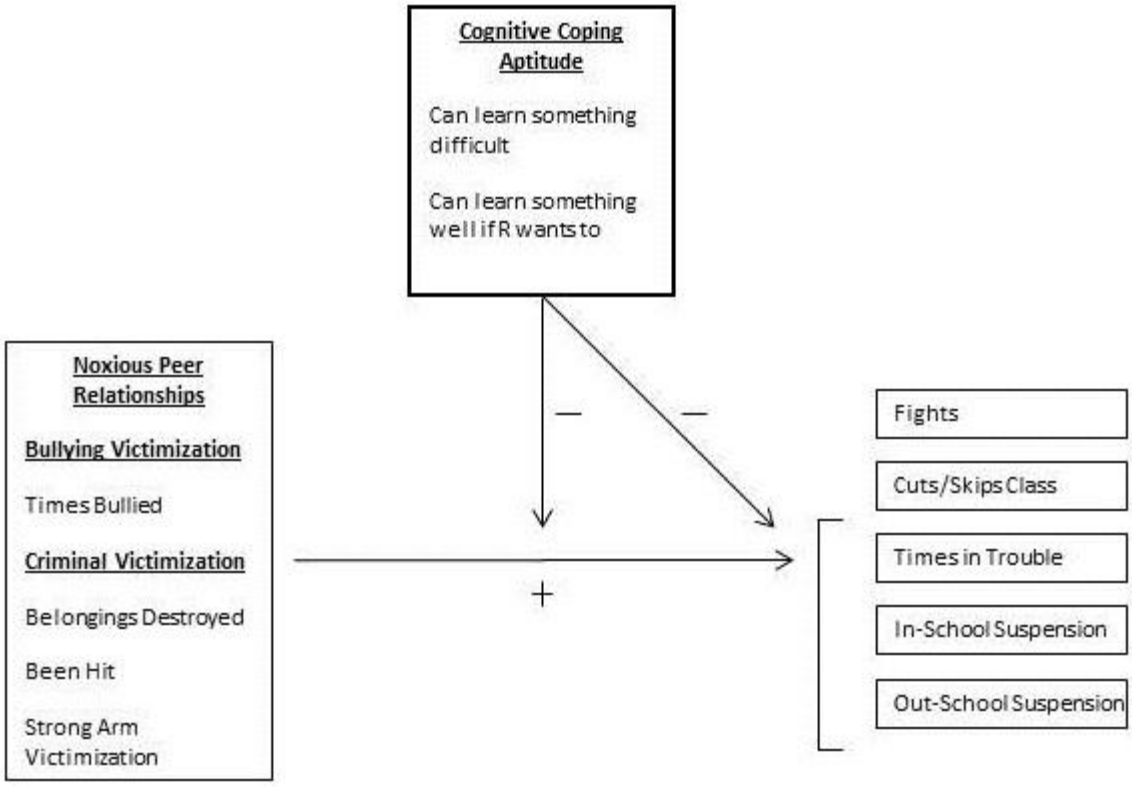


**Figure 3.1. Model Representation of Chapter III Analyses, Cross-Sectional Analysis of the Role of Conventional Coping on the Relationship Between Noxious Peer Relationships and Delinquency Using the Educational Longitudinal Study (ELS:02 Base Year).**

## ***Measures***

### Dependent Variables

The key outcome of interest for this research is school-based delinquency. Several items that gauge both the respondents' delinquency and the particular punishments respondents faced for presumed delinquent behaviors were available in the ELS:02 (see Appendix, Table A.1 for list of items included in this chapter's analyses).

#### ***Fighting***

The first outcome is self-reported fighting. ELS:02 respondents reported the number of times during the previous semester they "got into a physical fight at school," which is a common delinquent outcome explored in GST research (Agnew 1989; Lee and Cohen 2008). Responses to this item represent a range of occurrences (1 = never, 2 = once or twice and 3 = more than twice). A binary variable for fighting was created to differentiate between students who reported getting into a fight in school and those who did not (0 = no fighting behavior, 1 = some fighting behavior).

#### ***Cutting/Skipping Class***

A second frequency measure of delinquent behavior in the ELS:02 asked students to report the number of times (within the appropriate range provided by this ordinal measure) they had "cut or skipped class" during the first semester of the school year (1 = never, 2 = 1-2 times, 3 = 3-6 times, 4 = 7-9 times, or 5 = 10 or more times). This outcome measure of delinquency has been utilized in previous tests of GST (Agnew 1989; Agnew et al. 2002; Lee and Cohen 2008). This measure is the second outcome of interest.[8] [9]

[8] Factor analysis revealed fighting and skipping class are not unidimensional, therefore they will be explored only as independent outcomes in this study.

[9] A binary variable for skipping class was created to differentiate between students who reported skipping class at all and those who did not (0 = no skipping class, 1 = some skipping class). Analyses are done using the variable in categorical and binary form to confirm that results align.

***School Sanctions***

The ELS:02 also provides several measures of the school sanctions. One item that reflects the school's response to youths is a self-report of the number of times the respondent "got in trouble for not following school rules" during the first semester of the school year. Two additional items reflect school sanctions: 1) reports of how many times in the first semester of the school year the student was "put on in-school suspension"; and 2) reports of how many times in the first semester of the school year the student was "suspended or put on probation." These measures do not reflect an exact count of the number of incidents, but rather represent a range of the occurrence of such incidences (1 = never, 2 = 1-2 times, 3 = 3-6 times, 4 = 7-9 times, or 5 = 10 or more times). A principal components factor analysis revealed these measures of school sanctions cluster ($\alpha$=.714; see Appendix, Result A.1 for the results of this principal components analysis). Given this, a principal component factors procedure was applied to produce the composite measure of school sanctions. In the analyses that follow, I treat this variable as indicative of underlying problematic behavior, and thus treat school sanctions as a third measure of deviant or delinquent behavior in school, the third outcome of interest.

## Independent Variables

Of particular importance to this project is the role of interpersonal strain in school, principally bullying victimization by peers. Peer bullying is hypothesized to influence school delinquency and rule violation, as discussed above. The ELS:02 has a number of measures that capture *noxious peer relationships* (interpersonal strain) in school (see Appendix, Table A.1). These victimization items measure encounters that are considered stressors, expected to result in negative emotions and delinquency for individuals who lack legitimate coping resources (see Lee and Cohen 2008 for a similar approach).

***Bullying Victimization***

The ELS:02 has one direct measure of students experience with peer bullying (see Robers et al. 2010, Indicators of Bullying at School). Students were asked to reflect and report their exposure to the following during the first (fall) semester of the 2001-2002 school year: 1) "How many times has someone bullied or picked on you?" Given the limited number of response categories, a binary variable for bullying victimization was created to differentiate between students who reported any instance of bullying victimization and those who did not (0 = no bullying victimization, 1 = some bullying victimization).[10] This measure of bullying has been used in previous studies (Agnew et al. 2002; Lowe, May, and Elrod 2008) and reflects the general definition of peer bullying as any situation — physical or psychological — in which an individual is repeatedly abused or victimized by their peers (Bacchini, Esposito, and Affuso 2009).

***Criminal Victimization***

In addition to exploring the relationship between bullying and delinquency, these analyses explore the relationship between criminal victimization by peers and delinquency. Survey items ask students to report exposure to various forms of victimization during the first semester of the school year. Criminal victimization is measured using response to the following items: 1) "Someone purposefully damaged or destroyed my belongings"; 2) "Someone threatened to hurt me at school"; 3) "Someone hit me"; and 4) "Someone used strong-arm or forceful methods to get money or things from me." Responses to these items fall along three ordered categories (1 = never, 2 = once or twice, 3 = more than twice). Analysis revealed these indicators are somewhat correlated and for the purpose of this analysis, will be treated as indicative of a single construct ($\alpha$=.656). A principal components procedure was utilized (see Appendix,

[10] Analyses presented in this chapter study the outcome variable, bullying victimization, in binary form. Original responses to this item fall along three ordered categories (1 = never, 2 = once or twice, 3 = more than twice). This outcome was analyzed using this ordinal data as well (to assure results were consistent).

Result A.2 for the results of this principal components analysis); items were weighted appropriately and combined to create one composite variable: criminal victimization. Criminal victimization by peers is itself likely to be a strong source of strain that may influence levels of delinquency.

***All Noxious Peer Relationships***

It is possible criminal victimization is positively associated with bullying victimization, as youth who are bullied also may be suitable targets of crime, perhaps even by those who bully the youth. As such, bullying victimization and criminal victimization scales are analyzed both individually and as a composite. Correlation and factor analysis revealed that the bullying and criminal victimization items can be combined via principal components to create one factor ($\alpha$=.703; see Appendix, Result A.3 for the results of the principal components analysis), which I will refer to as *noxious peer relationships*. This is the third way of measuring a key predictor variable of interest for this chapters analyses.

***Composite Self-Efficacy***

A high level of self-efficacy is expected to influence the likelihood of delinquency both directly and indirectly by moderating the impact of strain on delinquency. The theoretical arguments regarding the importance of self-efficacy articulated focus on the concept of general self-efficacy (as opposed to subject or domain specific self-efficacy). But, given the school-based nature of the ELS:02, there are several subject related self-efficacy measures available. Using subject-specific measures for math and English self-efficacy, and those that are more general in nature, I created a composite measure of general self-efficacy that will be used in this chapter's analyses. The measure captures student's perceptions of their abilities to solve problems (both in a general sense and regarding specific school subjects) and adapt to or prevail in desired ways when faced with difficult situations.

Cognitive coping involves efforts to evaluate and reinterpret stressful situations and problem-solve in a socially-acceptable manner (Agnew 1995). I suggest one's general sense of control over their surroundings and situation — self-efficacy — is one indicative factor of their overall aptitude for conventional cognitive coping. Therefore, the relationship between strain and delinquency will be weaker for those who exhibit high composite self-efficacy. The composite self-efficacy measure ask students to evaluate their problem-solving abilities generally (not directly referencing a specific school subject) using two statements: 1) "I can learn something difficult if I really try" and 2) "I can learn something well if I want to" (see U.S. Department of Education, National Center for Education Statistics Report, 2003). Additionally, this composite includes items that reflect students' belief in the ability to complete or successfully work through math- and English-related tasks. A series of six questions evaluated efficacy attitudes specifically related to math-oriented tasks. Similarly, five measures of self-efficacy specifically examining efficacious attitudes toward English tasks were included in this composite. Responses to all self-efficacy items (both general and subject specific) were captured using a four-point Likert scale (1 = almost never, 2 = sometimes, 3 = often, 4 = almost always). Analyses revealed that the general self-efficacy measure and those that are subject specific are very highly correlated and unidimensional ($\alpha$=.902; see Appendix, Result A.4 for the results of this principal components analysis). Given this, I created a factor score using principle components factor analysis.[11]

[11] As part of a sensitivity analysis, I also constructed subject specific measures of self-efficacy and a measure general self-efficacy that did not include subject specific items. Subject specific variables reflect students' belief in the ability to complete or successfully work through math- and English-related tasks. A series of six questions evaluated efficacy attitudes specifically related to math oriented tasks (see Appendix, Table A.1 for complete list of items included). Analysis revealed that these items all fall along one dimension ($\alpha$=.864) and as such a principal components procedure was applied to create one indicator of students subject specific, math self-efficacy. Similarly, five measures of self-efficacy specifically examining efficacious attitudes toward English tasks were available. These measures were representative of a single construct ($\alpha$=.927) and a principal components procedure was applied to create a second subject specific, English self-efficacy variable. The measure of general self-efficacy was created using two items that (included in composite self-efficacy) asked students to evaluate their ability to problem solve and work

## Control Variables

### ***Demographic Controls***

Previous research finds that sex, race, socioeconomic status, and family composition influence both exposure to interpersonal strains and delinquency. As such, controls for these variables are included in the analyses. Gender is coded as binary variables (1 = female, 0 = male). A race/ethnicity composite measure is available within the ELS:02. This was created by compiling data across race and ethnicity items. For the purpose of these analyses, race/ethnicity categories were condensed and students were classified as White non-Hispanic, African American/Black non-Hispanic, Hispanic, or Other. White non-Hispanic is the race/ethnicity category omitted during empirical analyses allowing for comparisons in the delinquency of White students compared to each of the remaining three race/ethnicity categories. The ELS:02 compiled data from a number of items and sources (both student and parent surveys), and created an indicator of students' socioeconomic status This variable is included as a key demographic control in these analyses. Family composition is coded as a binary variable (1 = two parental figures in the home, 0 = fewer than two parental figures in the home). For this analysis, indication of any two guardian figures in the home (including mother and father, one parent and one guardian, or two guardians) is compared to all responses reflecting only one parent or guardian in the home.

### ***Other Attachment and Relationship Controls —***
### ***School Attachment, Parental Control, and Negative Peer Associations***

A potentially important control variable is students' commitment to school. It is likely that regardless of experiencing strain within school, students who enjoy school will

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through difficult tasks toward desired outcomes. Analyses revealed these indicators for a single factor ($\alpha$=.742). A principal components procedure was applied to create a single measure of general self-efficacy. Results of analyses testing subject specific self-efficacy (both math and English) and general self-efficacy parallel the findings presented throughout this chapter for composite self-efficacy.

be less likely to engage in risky or deviant behaviors within that setting. As such, a measure of how much respondents "like school" will be included with the expectation that this measure of school commitment will be related to lower levels of delinquency in school.

In addition to testing some key GST mechanisms, this analysis also includes a measure that is indicative of student's relationships with deviant others. Inclusion of these variables is intended to gauge exposure to delinquent friends. This is consistent with previous GST research that controlled for and tested the effects of other popular theories of deviance (see Agnew and White, 1992). Two items included in this measure asked respondents about the importance friends placed on good grades in school and on attending class regularly. Responses were captured using a three-point Likert scale (1 = not important, 2 = somewhat important, 3 = very important).[12] A third measure used to gauge students' associations with negative peers asked them to report the number of close friends who have dropped out of school. Responses were captured using four ordered response categories (1 = none of them, 2 = some of them, 3 = most of them, 4 = all of them). A principal components procedure was applied to create one composite measure of differential associations ($\alpha$=.566; see Appendix, Result A.5 for the results of this principal components analysis).

Further, measures indicative of the level of direct parental control student's experience are included in this analysis. These items ask the extent to which parents control time spent with friends, limit television time, assign chores to their juvenile and reward/punish poor grades, etc. Using a principal components procedures, five items were combined to create one composite measure of parental control ($\alpha$=.660; See Appendix, Result A.6 for the results of this principal components analysis). Each created

[12] Responses to these items were reverse coded so that a higher response reflects more deviant/negative attitudes of peers. For this composite measure, higher responses on the scale are reflective of associations with more deviant others.

measure will be included throughout the analyses procedure to control for these other pertinent theoretical explanations of delinquency and rule violation.

### ***Statistical Analysis***

This chapter's analyses employed the statistical package Stata, Version 11. The beginning sample size for this study is 15,362. The key outcomes of interest for these analyses are self-report delinquency and school sanctions. To preserve the integrity of the outcome variables of interest, respondents with missing delinquency data (fighting, skipping class, and measures used to create the school sanctions composite) were omitted from the analyses. This resulted in a sample size of 14,256 student respondents.

The ELS:02 has complete data on key demographic and other variables and I used respondents' sex, race, socioeconomic status, family composition and standardized math and English test scores to impute missing data on other covariates. Independent variables with missing data went through a series of five imputations. Compensation for design effects, and the fact that racial and ethnic groups were oversampled in ELS:02, was calculated by NCES. This weighting scheme was applied during the multiple imputation procedure. The imputation procedure allowed for a total number of 14,256 data points to be included in the final analysis (see Table 3.1 for descriptive statistics).

Males and females were represented about equally in this sample (49.54 and 50.46 percent, respectively). White non-Hispanics made up the majority of the sample (57.31 percent), African American non-Hispanics represented 13.06 percent of the sample, and Hispanics/Latinos were 14.30 percent of the sample. Of those students included in this analysis, the majority (76.66 percent) reported two guardian figures living in the home.

Following variable construction and the narrowing of the sample to be utilized in this chapter's analyses, a series of logistic and ordinary least squares regression models were run to address the core hypotheses presented for this chapter's research.

## ***Results***

### Bullying, Self-Efficacy, and Fighting

A series of logistic regression models were estimated to understand the influence that strain, in particular, bullying victimization and self-efficacy have on fighting behavior in school and the results are presented in Table 3.2.[13] These models predict reported fighting behavior, which has been treated to reflect a binary response differentiating those who report no fighting behavior and those who indicate engaging in any instance of fighting in school. Results from Model 1 indicate, for the most part, demographic controls are related to fighting behavior in the predicted ways. First, compared to males, females are significantly less likely to report any fighting behavior (b=-1.248, se=.057, p<.001). For this sample, racial and ethnic minority students, including Blacks and Hispanics, are significantly more likely to report fighting in school (b=.441, se=.074, p<.001; b=.207, se=.075, p<.001). However, there is not a significant difference between the reported fighting behavior of White (non-Hispanic) students and those who identify as other racial and ethnic minorities. Model 1 shows that, compared to individuals who have only one or fewer authority figures in the home, those with two authority figures in the home on average report less fighting behavior in school (b=-.127, se=.060, p<.05). Further, an increase in families' socioeconomic status was significantly related to a decrease in delinquency (b=-.316, se=.038, p<.001). Model 2 examines the relationships between other theoretically important variables and fighting behavior. Results indicate that both school attachment (b=-.438, se=.057, p<.001) negative/

[13] As noted in the preceding section, the survey item used to measure fighting behavior in school was a Likert scale that had only three potential responses and relatively few students used the third category. As such, a binary variable for fight was created (see variable descriptions) and the modeling procedure of logistic regression utilized. A series of ordinary least squares (OLS) regression models were also estimated to understand the influence that strain and self-efficacy have on fighting behavior if treated as a continuous variable as this is the modeling method reported for all other delinquency outcomes. Results of the OLS regression models mirror those presented in the body of this Chapter.

delinquent peers (b=.217, se=.033, p<.001) are associated with fighting behavior in the predicted manner.

Table 3.2, Model 3 shows results of the first hypothesis: bullying victimization is a strong predictor of fighting behavior (b=.629, se=.048, p<.001). This means that a one-standard deviation increase in bullying victimization is associated with a 40 percent increase in fighting behavior. Students in this sample reporting strain in the form of bullying victimization engage in fighting behaviors more so than their peers who do not report bullying victimization. Further, Model 4 indicates this significantly positive relationship remains when controlling for other theoretically important variables (b=.610, se=.049, p<.001). Model 5 tests the second key hypothesis: self-efficacy will have a direct and significant relationship with delinquency, in this test, fighting behavior. Results indicate individuals with higher reported self-efficacy are less likely to engage in fighting behavior in school (b=-.115, se=.037, p<.01). A one-standard deviation increase in self-efficacy is associated with an 11 percent decrease in reported fighting behavior. While the predicted direct effects are supported, the results presented in Model 6 show self-efficacy did not significantly moderate the strain-delinquency relationship as hypothesized (i.e., the interaction term was not significant).

**Noxious Peer Relationships, Self-Efficacy, and Fighting**

A second series of logistic regressions examined the impact of all noxious peer relationships as an alternative measure of interpersonal strain on self-reported fighting behavior and results are reported in Table 3.3. The dependent variable in these analyses is again the binary measure of fighting. Model 1 regressed fighting behavior on demographic control variables and results mirror the findings presented in the first series of analyses. Females are significantly much less likely to engage in fighting behavior (b=-1.248, se=.057, p<.001) than males and minorities, specifically African Americans (b=.441, se=.074, p<.001) and Hispanic/Latinos (b=.207, se=.075, p<.01) are

significantly more likely to engage in fighting behaviors than their white (non-Hispanic) peers. Further, those students who report two guardian figures in the home are less likely to engage in fighting (b=-.127, se=.060, p<.05). Being of a higher SES background has a significant, negative relationship with fighting behavior (b=-.316, se=.038, p<.001).

Table 3.3, Model 3 tests the direct relationship between experiencing noxious peer relationships and fighting behavior. Results indicate this form of strain has a strong, significantly positive impact on fighting behavior in school (b=.789, se=.029, p<.001). A one-standard deviation increase in reported strain, in the form of noxious peer relationships, is associated with a 120 percent increase in fighting behavior. In Table 3.3, Model 4, fighting behavior is regressed on all demographic control and theoretically important variables. Each measure that was significant in preceding models remains significantly related to delinquency, consistent with theoretical explanations and preceding models. Model 5 examines the relationship between self-efficacy and delinquency Results support a significant direct effect as predicted (b=-.095, se=.037, p<.01). That is, a one-standard deviation increase in self-efficacy is associated with more than a 9 percent decrease in fighting behavior. Hypotheses 3 suggests students who report high levels of self-efficacy, when faced with similar levels of strain as their low-self-efficacy peers, will be less likely to behave delinquently, because they are better equipped to deal with these strains and the resulting negative emotions through more conventional means.

The final model presented (Table 3.3, Model 6) tests this moderating mechanism. However, the interaction of noxious peer relationships and self-efficacy does not significantly reduce the likelihood that individuals will behave delinquently. The

hypothesis that self-efficacy moderates the relationship between experienced noxious peer relationships (strain) and delinquency is not supported.[14]

**Bullying, Self-Efficacy, and Skipping/Cutting Class**

A series of ordinary least squares (OLS) regression models were estimated to understand the influence strain and self-efficacy have on skipping/cutting class. The results are presented in Table 3.4.[15] This particular behavior is often seen as a very minor form of school deviance. The first model examines the relationship between the demographic control variables and skipping class. The findings in Model 1 somewhat support previous research regarding the influence of personal and familial characteristics on delinquency. There is no sex difference, consistent with other works on minor delinquency. Race does have significant impact on skipping/cutting class. Blacks and Latino students report skipping class more often than White non-Hispanic students (b=.093, se=.025, p<.001; b=.284, se=.024, p<.001). There is also a significant difference between the overall delinquency of White (non-Hispanic) students and those who identify

[14] A third series of logistic (and OLS) regression models specifically explored in the influence of criminal victimization by one's peers on respondents delinquency. Similar to the results from the preceding analyses, strain, particularly criminal victimization, is a very strong predictor of fighting behavior (b=.861, se=.032, p<.001). This relationship remains significant when controlling for other theoretically important predictors of delinquency (b=.840, se=.033, p<.001). School attachment, on average, significantly reduces the likelihood that individuals will engage in fighting behavior (b=-.311, se=.060, p<.001), while differential associations have a significantly positive impact on self-report delinquency (b=.153, se=.036, p<.001). When controlling for these relationships, individuals who experience criminal victimization on average are much more likely to also report some fighting behavior in school (see Appendix, Table A.2 for complete model series results). Results from Model 5 tests the direct effect of self-efficacy on fighting behavior; results indicate that that students who report high self-efficacy are less likely to engage in fighting behavior than their peers reporting lower levels of self-efficacy (b=-.094, se=.037, p<.01). Model 6 tests the proposed moderating role of self-efficacy in the strain delinquency relationship. Similar to the results that regress fighting behavior on bullying victimization and all noxious peer relationships, these results do not support the hypothesis proposed. That is, self-efficacy does not appear to moderate the relationship between strain (in this instance, criminal victimization by peers) and delinquency (specifically, fighting behavior in school).

[15] This measure of self-report cutting class behavior is a Likert scale with five potential responses. Given the number of response categories, it is treated as a continuous variable in following reported analyses. However, these models were also run using logistic regression, where this measure is treated as an ordered categorical variable. Results of these series of logistic models mirror those presented in the body of this chapter.

as other racial and ethnic minorities (b=.146, se=.022, p<.001). Model 1 shows that, compared to individuals who have only one or fewer authority figures in the home, those with two authority figures in the home on average have significantly lower levels of delinquency within the school setting home (b=-.096, se=.019, p<.001). Further, an increase in family socioeconomic status was significantly related to a decrease in delinquency (b=-.098, se=.011, p<.001).

The second model presented in Table 3.4 examines the effects of relevant theoretical controls on all delinquency outcomes. Each of the theoretical controls included in this analysis was significantly associated with skipping/cutting class in the theorized direction. First, as predicted, having a strong attachment to school has a strong, significant relation to skipping class. High levels of reported school attachment are associated with fewer instances of skipping/cutting class (b=-.286, se=.020, p<.001). Similarly, students reporting higher levels of direct parental control are less delinquent than peers experiencing lesser parental control (b=-.040, se=.012, p<.01). Lastly, as anticipated, associating with peers who themselves value and demonstrate deviant behavior is a significant predictor of one's own reported delinquent behavior (b=.141, se=.013, p<.001).

Of key importance in this model is the large impact that individuals' levels of experienced strain have on skipping class. Table 3.4, Model 3 examines the independent effects of bullying victimization on skipping class (b=.051, se=.021, p<.05). Results show adolescents experiencing more strain, in the form of bullying victimization, report cutting class more frequently than adolescents experiencing less bullying victimization. These findings support the chief hypotheses of this study (and a main premise of Agnew's general strain theory): an increase in levels of experienced bullying victimization (strain) is significantly related to increases in skipping/cutting class. In Model 4, skipping class is regressed on all demographic controls and theoretically important variables. Contrary to

predictions, once controlling for school attachment, associations with negative peers, and parental controls, the positive relationship between bullying victimization and cutting class becomes non-significant. Similarly, when predicting skipping/cutting class, self-efficacy does not show a significant impact, nor does the hypothesized moderating mechanism operate as predicted.

**Noxious Peer Relationships, Self-Efficacy, and Skipping/Cutting Class**

In addition to testing the relationship between bullying victimization and delinquency, it is proposed there is a strong correlation between bullying victimization and criminal victimization by one's peers. Together, these measures are indicative of students' experience with noxious peer relationships in school. Consistent with Agnew's (1992) predictions, it is theorized that experiencing noxious peer relationships (including bullying victimization) is strongly associated with increases in delinquency. Table 3.5, Model 3 presents the independent effects of noxious peer relationships on delinquency ($b=.143$, $se=.016$, $p<.001$). Model 4 includes all demographic and theoretical controls and results indicate the impact of noxious peer relationships on delinquency remain strongly significant ($b=.114$, $se=.014$, $p<.001$). Each theoretically important variable included in this model is significant in the predicted direction.

While these results align with predictions, self-efficacy is not related to cutting class in the predicted way. Model 5 demonstrates there is not a significant negative relationship between self-efficacy and skipping class, a relatively minor form of delinquency. Lastly, Table 3.5, Model 6 includes an interaction term of noxious peer relationships and self-efficacy to test the moderating role of self-efficacy in the strain-delinquency relationship. As with preceding results, findings presented in Model 6 do not align with theorized predictions. Self-efficacy does not significantly moderate the relationship between strain and delinquency. Experiencing noxious peer relationships is a risk factor for this type of delinquency — cutting class — while possessing high levels of

self-efficacy is not shown to significantly reduce the likelihood an individual will behave delinquently in school.[16]

**Bullying Victimization, Self-Efficacy, and School Sanctions**

As outlined in the variables section of this chapter, a composite measure accounting for school-response deviance was produced using principal component factor analysis. School sanctions, while not a direct indicator of delinquency, is used (with caution) to test the relationship between strain and rule violation or school deviance. A series of regression analyses explore the relationship between each victimization measure and school-response to deviance. Table 3.6 presents the results of school sanctions regressed on bullying victimization and self-efficacy measures. Results for Model 1 demonstrate key demographic controls influence schools sanctions in the proposed way. Females are much less likely to report high levels of school sanctions (b=-.312, se=.016, p<.001), while African-American (b=.204, se=.026, p<.001) and Hispanic (b=.101, se=.025, p<.001) students are much more likely to report high levels of school sanctions than their White peers. Students identified in other racial and ethnic minority categories report significantly fewer school sanctions than their White peers (b=-.071, se=.024, p<.001). Moreover, high reported SES (b=-.113, se=.012, p<.001) and two parental figures in the home (b=-.093, se=.020, p<.001) are related to significantly lower levels of school sanctions. Results from Model 2 demonstrate students who report high levels of

[16] A third series of ordinary least squares regression models were ran that regressed cutting class on criminal victimization by one's peers in school and self-efficacy. In many ways the results of these models mirror those reported above. Results support predictions made in hypothesis 1. Experiencing strain in the form of criminal victimization is significantly related to delinquency (b=.171, se=.014, p<.001) in school, specifically, skipping class. This relationship holds when controlling for other key theoretical variables (b=.140, se=.014, p<.001), which also significantly impact this form of delinquency in the expected manner. School attachment (b=-.234, se=.019, p<.001) and parental control (b=-.041, se=.012, p<.01) are negatively related to skipping class whereas differential associations (b=.128, se=.012, p<.001) are related to higher reports of skipping class. Results indicate that self-efficacy is not significantly related to the relatively minor type of delinquency, skipping class (these results mirror those presented in Tables 3.4 and 3.5). Further, results do not align with the predictions of hypothesis 3; self-efficacy does not seem to play a significant moderating role in the relationship between criminal victimization and skipping class (see Appendix, Table A.3 for complete results from this model series).

school attachment, on average, report lesser levels of experienced school sanctions (b=-.291, se=.021, p<.001), as do those students who report high levels of parental control (b=-.025, se=.012, p<.05), though to a lesser extent. And, as predicted, associating with others who are involved in deviance has a significant positive relationship with students' own experiences with school responses to deviance.

Bullying victimization has a significant positive association with respondents' experiences with school sanctions (b=.112, se=.023, p<.001), as noted in Table 3.6, Model 3. Model 4 shows this relationship remains when accounting for other theoretically-important predictors of delinquency (b=.091, se=.022, p<.001). Students who experience higher levels of bullying victimization are significantly more likely to receive school sanctions. Model 5 shows that after accounting for self-efficacy, the effects of having two parental figures in the household and parental control become non-significant. Self-efficacy itself has a significant negative relationship with school sanctions (b=-.051, se=.014, p<.01). This association remains significant in Model 6, although, once again, results reveal self-efficacy does not have a significant moderating effect on the bullying victimization-delinquency relationship.

**Noxious Peer Relationships, Self-Efficacy, and School Sanctions**

Table 3.7 presents results from a series of regression analyses in which the school sanctions variable was regressed on noxious peer relationships and respondents' self-efficacy. In many respects, the results mirror the findings of the analyses discussed above. Model 3 shows the independent impact of experiencing noxious peer relationships on experienced school sanctions (b=.217, se=.020, p<.001). Consistent with predictions, those students who report higher levels of noxious peer relations also report significantly higher levels of experienced school sanctions. Outcomes of Model 4 demonstrate that each theoretically pertinent variable significantly influences students' school sanctions in the anticipated manner. Model 5 shows a direct and significant negative effect of students

self-efficacy on school sanctions (b=-.045, se=.013, p<.01). Lastly, these significant relationships remain when testing the moderating mechanism (b=-.043, se=.012, p<.001), though results indicate that within this sample of students, self-efficacy does not moderate the relationship between strain, the experience of noxious peer relationships, and delinquency in school.[17]

## ***Discussion***

Through a series of works, Agnew (1985, 1989, 1992) offered a revitalization of strain theory by broadening its scope in several key ways. GST suggests that sources of strain beyond the failure to achieve desired goals are at times an important antecedent to delinquency. He outlined several factors that vary strains impact on delinquency including their duration, recency, and magnitude. And importantly, he recognized not all persons who experience strain will respond with deviance. He proposed several factors and adaptations to strain beyond delinquency. While this broadening of scope brought new life to strain theory research, empirical tests of all core elements are not plausible. As such, research must focus on elements of the grand theory and work in succession to produce a better overall understanding of the ways in which strain and individual factors interact to influence delinquency.

The analyses within this chapter are built upon a foundation of early empirical work and aim to test two predictions from general strain theory that have yet to be

[17] A third series of ordinary least squares regression models were ran that regressed school response to delinquency on criminal victimization by one's peers in school and self-efficacy. In many ways the results of these models mirror those reported above. Results support predictions made in hypothesis 1. Experiencing strain in the form of criminal victimization is significantly related to school responses to delinquency (b=.250, se=.021, p<.001) which are used as a proxy measure of school delinquency. This relationship holds when controlling for other key theoretical variables (b=.220, se=.021, p<.001), which also significantly impact this form of delinquency in the expected manner. School attachment (b=-.256, se=.020, p<.001) and parental control (b=-.027, se=.012, p<.05) are negatively related to skipping class whereas differential associations (b=.122, se=.015, p<.001) are related to higher reports of skipping class. Results indicate that self-efficacy is significantly related to school response to delinquency in the predicted way (b=-.045, se=.013, p<.01). Further, results do not align with the predictions of hypothesis 3; self-efficacy does not seem to play a significant moderating role in the relationship between criminal victimization and school response to delinquency (see Appendix, Table A.4 for complete results from this model series).

thoroughly examined. First, this work looked specifically at bullying victimization and its place within the strain framework. While bullying (both behaviors and victimization) has received an extensive amount of attention (across disciplines), few works have looked specifically at bullying victimization as a source of strain. This research utilized a very direct measure of bullying victimization, asking respondent's to report the number of times in the preceding semester they had been bullied by their peers in school. It is assumed those who reported bullying victimization viewed these particular interactions with their peers as negative or undesired. Testing the relationship between these interactions and delinquency, a significant relationship was found. When predicting self-report fighting behavior and school sanctions (presumably for deviance occurring within school), bullying victimization is a significant source of strain that increases the likelihood youths will behave delinquently. Further, when conceived more broadly as noxious peer relationships, this strain (exposure to negative stimuli) has a positive and significant impact on fighting behavior in school and school sanctions.

In terms of better understanding skipping class, the impact of bullying victimization was significant. However this relationship became insignificant when accounting for other key theoretical predictors of delinquency. So, while bullying victimization and noxious peer relationships operated in the anticipated direction, these findings were not significant. In terms of delinquency, skipping or cutting class is a very minor form of deviance that youths may demonstrate. I hypothesized a relationship between noxious peer relationships and skipping class under the assumption that victims of bullying (and more generally those students who experience negative peer relationships in school) might skip class to avoid these negative stimuli. A much larger percentage of students within this sample reported skipping class (28.33 percent) compared to fighting (12.89 percent). This speaks to the severity of the delinquency and acceptance of the behavior among high school students. Results indicate this relatively

minor form of deviance is more strongly impacted by negative peer associations and school attachment. Skipping class is a behavior that is less attributed to negative interactions with peers in school. Students whose friends feel it is not important to attend class or get good grades are more likely to participate in this deviance. Whereas, students who report high school attachment —they really enjoy school — are much less likely to cut class. Future research should further explore these dynamics to understand the impact of strain (in varying forms) on a wide range of delinquency, from very minor acts (like skipping class) to more serious offenses (the focus of most GST studies).

Overall, these findings align with Agnew's (2001) claims that understandings of youth deviance need to focus on peer abuse. Beyond a better understanding of what sources of strain are influential, these findings suggest peer abuse should be a focal interest of efforts to reduce delinquency. That is, programming and policy aimed at reducing school deviance should pay attention to the interpersonal relationships that are occurring in school and direct attention at ensuring these peer relationships are positive in nature.

Another key GST suggestion receiving limited attention is the idea that self-efficacy is one individual factor that influences the strain-delinquency relationship. Self-efficacy is an individual trait reflecting the amount of personal control individuals have over situations and to produce desired outcomes in those given situations. Research that tests the direct link between self-efficacy and delinquency suggests those individual who have higher self-efficacy have a lesser tendency toward delinquency and non-conventional behavior (Aas et al. 1995; Chung and Elias 1996; Ludwig and Pittman 1999). The research presented within this chapter adds support to this body of work. Self-efficacy consistently produced a positive and significant impact on school-based delinquency. This suggests programs and policies concerned with decreasing delinquency in school should focus intervention efforts not only on the relationships occurring within

that setting (in particular negative relationships), but also need to center on the individual. Developing and strengthening self-efficacy of youths may be one method for decreasing the amount of problem behaviors seen within schools.

The theoretical arguments outlined within this and preceding chapters suggest an important influence of self-efficacy beyond the expected and supported direct relationship between self-efficacy and delinquency. Agnew (1992) argues self-efficacy is likely an influential factor in the strain-delinquency relationship, because of its effect on whether juveniles opt to cope with strain through conventional behavioral means. He suggests that when faced with strain, those individuals with high self-efficacy will select conventional behavioral methods (such as seeking out positively-valued stimuli) to alleviate the strain or negative affect it elicits. Similarly, I argue self-efficacy will moderate the strain-delinquency relationship, because of its close link with conventional cognitive coping. Cognitive coping, in particular the practice of minimizing the impact or importance of strain inducing stimuli/relationships, is contingent on one's ability to stop, and in a purposeful manner, interpret the stressful situation and problem-solve in a socially-acceptable manner (Agnew 1995). Individuals who have high levels of self-efficacy, I argue, have a stronger ability to reflect on the strain with which they are presented and are able to reinterpret the strain so it is less significant/important. That is, they are better apt to conventionally cope with strain. For this reason, it was expected tests of the interaction between strain and self-efficacy would prove significant in this chapter's analyses.

Contrary to these suggestions and those outlined by Agnew (1992), I did not find any support for the hypothesized moderating relationship. In these cross-sectional analyses, the interaction between strain (all three forms tested) and self-efficacy did not significantly affect the impact of strain on delinquency. However, I do not think these results negate the theoretical arguments outlined. It is possible that strain and resulting

feelings of distress are managed by strategies that aren't directly examined here (compensatory success in school activities or athletics, for example). Further, it is plausible self-efficacy influences one's ability to engage in conventional coping, but, the ability and actual efforts to cognitively cope with strain are influenced by other things not accounted for in this research (for example, the actual value placed on the relationship in which peer abuse is occurring may influence whether youths attempt to reinterpret the peer abuse to reduce importance and negative affect). Additionally, it is important to note the general limitations associated with testing the ideas presented here using a cross-sectional methodology. This design is not ideal for testing time-ordered theoretical suggestions. While I can confidently conclude there is a significant relationship between experiencing strain and subsequent delinquency, confidently concluding the direction of that relationship is more difficult (and must be done based on theoretical, not directly tested, notions). A stronger test of the moderating impact of self-efficacy on the relationship between strain and delinquency would look at this relationship over time as the analyses in Chapter IV do. Nevertheless, finding support for the important antecedent strain variables and the direct effect of self-efficacy contributes to the current GST literature.

**Table 3.1.**
**Descriptive Statistics for All Variables Included in Chapter III Analyses (N=14,256)[a]**

| | Min | Max | Mean | Std. Dev. |
|---|---|---|---|---|
| **Dependent Variables** | | | | |
| **Self-Report Delinquency** | | | | |
| Involved in physical fight | 0 | 1 | 0.13 | 0.335 |
| Cut/skipped class | 1 | 5 | 1.48 | 0.933 |
| **School Sanctions** | -0.52 | 8.67 | 0 | 1 |
| Gotten into trouble in school | 1 | 5 | 1.63 | 0.913 |
| Put on in-school suspension | 1 | 5 | 1.59 | 0.517 |
| Suspended/received out of school probation | 1 | 5 | 1.1 | 0.412 |
| **Independent Variables** | | | | |
| Bullying Victimization | 1 | 3 | 1.25 | 0.544 |
| Noxious Peer Relationships | -0.68 | 7.45 | 0 | 1 |
| Criminal Victimization | -0.56 | 6.77 | 0 | 1 |
| All Self-Efficacy | -2.89 | 2.33 | 0 | 1 |
| **Control Variables** | | | | |
| Female | 0 | 1 | 0.5 | 0.5 |
| Race | 1 | 4 | 3.17 | 1.1 |
| Black Non-Hispanic | 0 | 1 | 0.13 | 0.34 |
| Hispanic/Latino | 0 | 1 | 0.14 | 0.35 |
| Other | 0 | 1 | 0.15 | 0.36 |
| SES | -2.11 | 1.82 | 0.04 | 0.74 |
| Two Adults in the Home | 0 | 1 | 0.77 | 0.42 |
| School Attachment | 1 | 3 | 2.13 | 0.58 |
| Parental Control | -2.56 | 1.86 | 0 | 1 |
| Negative Peers | -1.58 | 4.26 | 0 | 1 |

Source: Educational Longitudinal Study, 2002.

Notes:

[a] Descriptive statistics are reported for non-imputed variables. As such, the number of data points for independent and control variables varies.

[b] Responses to these items will be explored as individual outcome measures.

[c] Though each item is reported here, analyses is conducted using the school sanctions composite.

**Table 3.2.**

**Results From the Cross-Sectional Logistic Regression of Fighting Behavior[a] on Bullying Victimization and Composite Self-Efficacy**

| Independent Variables | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender | -1.248 | *** | -1.104 | *** | -1.221 | *** | -1.143 | *** | -1.132 | *** | -1.132 | *** |
| | (.057) | | (.067) | | (.067) | | (.068) | | (.068) | | (.068) | |
| African American | 0.441 | *** | 0.616 | *** | 0.629 | *** | 0.734 | *** | 0.744 | *** | 0.744 | *** |
| | (.074) | | (.089) | | (.089) | | (.090) | | (.091) | | (.091) | |
| Hispanic | 0.207 | ** | 0.291 | ** | 0.295 | ** | 0.355 | *** | 0.359 | *** | 0.359 | *** |
| | (.075) | | (.091) | | (.091) | | (.092) | | (.092) | | (.092) | |
| Other | -0.081 | | 0.161 | | 0.133 | | 0.168 | | 0.168 | | 0.169 | |
| | (.078) | | (.099) | | (.097) | | (.100) | | (.100) | | (.100) | |
| SES | -0.316 | *** | -0.240 | *** | -0.279 | *** | -0.238 | *** | -0.215 | *** | -0.215 | *** |
| | (.038) | | (.046) | | (.045) | | (.046) | | (.046) | | (.046) | |
| Two Adults In Home | -0.127 | * | -0.064 | | -0.065 | | -0.045 | | -0.042 | | -0.042 | |
| | (.060) | | (.073) | | (.073) | | (.074) | | (.074) | | (.074) | |
| School Attachment | | | -0.438 | *** | | | -0.425 | *** | -0.407 | *** | -0.406 | *** |
| | | | (.057) | | | | (.057) | | (.057) | | (.057) | |
| Parental Control | | | -0.023 | | | | -0.026 | | -0.022 | | -0.022 | |
| | | | (.033) | | | | (.034) | | (.034) | | (.034) | |
| Negative Peer Associations | | | 0.217 | *** | | | 0.207 | *** | 0.197 | *** | 0.197 | *** |
| | | | (.033) | | | | (.033) | | (.033) | | (.033) | |
| Bullying Victimization | | | | | 0.629 | *** | 0.610 | *** | 0.611 | *** | 0.615 | *** |
| | | | | | (.048) | | (.049) | | (.049) | | (.050) | |
| Composite Self-Efficacy[b] | | | | | | | | | -0.115 | ** | -0.145 | |
| | | | | | | | | | (.037) | | (.079) | |

**Table 3.2. Continued**

| | |
|---|---|
| Bully Victimization*All Self-Efficacy | -0.022 |
| | (.057) |

Source: Educational Longitudinal Study (ELS), 2002: Base Year (N=14,256). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the binary dependent variable Fight where students reporting any incidences of fighting behavior in school are 1.

[b] This independent variable of interest, Composite Self-Efficacy, is a combination of all self-efficacy items available (including general and subject specific self-efficacy items).

**Table 3.3.**

**Results From the Cross-Sectional Logistic Regression of Fighting Behavior[a] on Noxious Peer Relationships and Composite Self-Efficacy**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| Gender | -1.248 | *** | -1.104 | *** | -1.061 | *** | -1.009 | *** | -0.100 | *** | -1.132 | *** |
| | (.057) | | (.067) | | (.071) | | (.072) | | (.072) | | (.072) | |
| African American | 0.441 | *** | 0.616 | *** | 0.755 | *** | 0.838 | *** | 0.845 | *** | 0.744 | *** |
| | (.074) | | (.089) | | (.092) | | (.093) | | (.094) | | (.094) | |
| Hispanic | 0.207 | ** | 0.291 | ** | 0.357 | *** | 0.408 | *** | 0.411 | *** | 0.359 | *** |
| | (.075) | | (.091) | | (.099) | | (.099) | | (.100) | | (.100) | |
| Other | -0.081 | | 0.161 | | 0.063 | | 0.090 | | 0.089 | | 0.169 | |
| | (.078) | | (.099) | | (.107) | | (.110) | | (.110) | | (.110) | |
| SES | -0.316 | *** | -0.240 | *** | -0.306 | *** | -0.273 | *** | -0.254 | *** | -0.215 | *** |
| | (.038) | | (.046) | | (.049) | | (.049) | | (.050) | | (.050) | |
| Two Adults In Home | -0.127 | * | -0.064 | | -0.064 | | -0.045 | | -0.043 | | -0.042 | |
| | (.060) | | (.073) | | (.077) | | (.078) | | (.078) | | (.078) | |
| School Attachment | | | -0.438 | *** | | | -0.336 | *** | -0.321 | *** | -0.406 | *** |
| | | | (.057) | | | | (.059) | | (.059) | | (.059) | |
| Parental Control | | | -0.023 | | | | -0.029 | | -0.026 | | -0.022 | |
| | | | (.033) | | | | (.036) | | (.036) | | (.036) | |
| Negative Peer Associations | | | 0.217 | *** | | | 0.163 | *** | 0.155 | *** | 0.197 | *** |
| | | | (.033) | | | | (.035) | | (.036) | | (.036) | |
| Noxious Peer Relationships[b] | | | | | 0.789 | *** | 0.770 | *** | 0.768 | *** | 0.615 | *** |
| | | | | | (.029) | | (.030) | | (.030) | | (.030) | |
| Composite Self-Efficacy[c] | | | | | | | | | -0.095 | ** | -0.145 | ** |
| | | | | | | | | | (.037) | | (.038) | |

**Table 3.3. Continued**

| | |
|---|---|
| Bullying Victimization*All Self-Efficacy | -0.022 |
| | (.057) |
| Source: Educational Longitudinal Study (ELS), 2002: Base Year (N=14,256). | (p<.05*, p<.01**, p<.001***) |

Notes:

[a] Each model represents the binary dependent variable Fighting Behavior where students reporting any incidences of fighting behavior in school are 1.

[b] This independent variable of interest, Noxious Peer Relationships, is a composite measure of all reported noxious peer relationships (including self-report bullying and criminal victimization in school).

[c] This independent measure of interest, Composite Self-Efficacy, is a combination of all self-efficacy items available (including general and subject specific self-efficacy items).

**Table 3.4.**

**Results From the Cross-Sectional OLS Regression of Cutting Class[a] on Bullying Victimization and Composite Self-Efficacy**

| Independent Variables | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender | -0.022 | | 0.033 | | -0.036 | | 0.032 | | 0.034 | | 0.034 | |
| | (.015) | | (.021) | | (.021) | | (.021) | | (.021) | | (.021) | |
| African American | 0.093 | *** | 0.145 | *** | 0.088 | ** | 0.149 | *** | 0.150 | *** | 0.150 | *** |
| | (.025) | | (.032) | | (.032) | | (.032) | | (.032) | | (.032) | |
| Hispanic | 0.284 | *** | 0.334 | *** | 0.298 | *** | 0.336 | *** | 0.336 | *** | 0.336 | *** |
| | (.024) | | (.034) | | (.035) | | (.034) | | (.034) | | (.034) | |
| Other | 0.146 | *** | 0.150 | *** | 0.133 | *** | 0.150 | *** | 0.150 | *** | 0.150 | *** |
| | (.022) | | (.034) | | (.034) | | (.033) | | (.033) | | (.033) | |
| SES | -0.098 | *** | -0.051 | ** | -0.088 | *** | -0.050 | ** | -0.048 | ** | -0.048 | ** |
| | (.011) | | (.015) | | (.015) | | (.015) | | (.015) | | (.015) | |
| Two Adults In Home | -0.096 | *** | -0.096 | *** | -0.113 | *** | -0.095 | *** | -0.095 | *** | -0.095 | *** |
| | (.019) | | (.026) | | (.027) | | (.026) | | (.026) | | (.026) | |
| School Attachment | | | -0.286 | *** | | | -0.286 | *** | -0.283 | *** | -0.283 | *** |
| | | | (.020) | | | | (.019) | | (.020) | | (.020) | |
| Parental Control | | | -0.040 | ** | | | -0.040 | ** | -0.040 | ** | -0.040 | ** |
| | | | (.012) | | | | (.012) | | (.012) | | (.012) | |
| Negative Peer Associations | | | 0.141 | *** | | | 0.141 | *** | 0.139 | *** | 0.139 | *** |
| | | | (.013) | | | | (.013) | | (.013) | | (.013) | |
| Bully Victimization | | | | | 0.051 | * | 0.030 | | 0.030 | | 0.031 | |
| | | | | | (.021) | | (.014) | | (.020) | | (.020) | |
| Composite Self-Efficacy[b] | | | | | | | | | -0.013 | | -0.031 | |
| | | | | | | | | | (.013) | | (.013) | |

**Table 3.4. Continued**

| | | | | | | |
|---|---|---|---|---|---|---|
| Bully Victimization*All Self-Efficacy | | | | | | 0.015 |
| | | | | | | (.013) |
| Constant | 1.490 | 2.107 | 1.509 | 2.066 | 2.059 | 2.058 |
| Adjusted R2 | 0.026 | 0.085 | 0.024 | 0.085 | 0.085 | 0.085 |

Source: Educational Longitudinal Study (ELS), 2002: Base Year (N=14,256). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable Skipping/Cutting Class and responses are captured with five ordered categories, each representing a range of incidences the students reports skipping class.

[b] This independent variable of interest, Composite Self-Efficacy, is a combination measure all self-efficacy items available (including general and subject specific self-efficacy items).

**Table 3.5.**

**Results From the Cross-Sectional OLS Regression of Cutting Class[a] on Noxious Peer Relationships and Composite Self-Efficacy**

| Independent Variables | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender | -0.022 | | 0.033 | | 0.005 | | 0.060 | ** | 0.061 | ** | 0.061 | ** |
| | (.015) | | (.021) | | (.021) | | (.021) | | (.021) | | (.021) | |
| African American | 0.093 | *** | 0.145 | *** | 0.101 | ** | 0.158 | *** | 0.159 | *** | 0.159 | *** |
| | (.025) | | (.032) | | (.032) | | (.032) | | (.032) | | (.032) | |
| Hispanic | 0.284 | *** | 0.334 | *** | 0.306 | *** | 0.341 | *** | 0.342 | *** | 0.341 | *** |
| | (.024) | | (.034) | | (.034) | | (.034) | | (.034) | | (.034) | |
| Other | 0.146 | *** | 0.150 | *** | 0.124 | *** | 0.143 | *** | 0.143 | *** | 0.143 | *** |
| | (.022) | | (.034) | | (.034) | | (.033) | | (.033) | | (.033) | |
| SES | -0.098 | *** | -0.051 | ** | -0.083 | *** | -0.048 | ** | -0.046 | ** | -0.046 | ** |
| | (.011) | | (.015) | | (.015) | | (.015) | | (.015) | | (.015) | |
| Two Adults In Home | -0.096 | *** | -0.096 | *** | -0.109 | *** | -0.093 | *** | -0.092 | *** | -0.092 | *** |
| | (.019) | | (.026) | | (.027) | | (.026) | | (.026) | | (.026) | |
| School Attachment | | | -0.286 | *** | | | -0.270 | *** | -0.268 | *** | -0.268 | *** |
| | | | (.020) | | | | (.019) | | (.020) | | (.020) | |
| Parental Control | | | -0.040 | ** | | | -0.041 | ** | -0.041 | ** | -0.041 | ** |
| | | | (.012) | | | | (.012) | | (.012) | | (.012) | |
| Negative Peer Associations | | | 0.141 | *** | | | 0.131 | *** | 0.130 | *** | 0.130 | *** |
| | | | (.013) | | | | (.013) | | (.013) | | (.013) | |
| Noxious Peer Relationships[b] | | | | | 0.143 | *** | 0.114 | *** | 0.113 | *** | 0.114 | *** |
| | | | | | (.016) | | (.014) | | (.014) | | (.014) | |
| Composite Self-Efficacy[c] | | | | | | | | | -0.009 | | -0.009 | |
| | | | | | | | | | (.013) | | (.012) | |

**Table 3.5. Continued**

| | | | | | | |
|---|---|---|---|---|---|---|
| Peer Victimization*All Self-Efficacy | | | | | | -0.004 |
| | | | | | | (.013) |
| Constant | 1.490 | 2.107 | 1.544 | 2.052 | 2.047 | 2.047 |
| Adjusted R2 | 0.026 | 0.085 | 0.044 | 0.097 | 0.098 | 0.097 |

Source: Educational Longitudinal Study (ELS), 2002: Base Year (N=14,256). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable Skipping/Cutting Class and responses are captured with five ordered categories, each representing a range of incidences the students reports skipping class.

[b] This independent variable of interest, Noxious Peer Relationships, is a composite measure of all reported noxious peer relationships (including self-report bullying and criminal victimization in school).

[c] This independent variable of interest, Composite Self-Efficacy, is a combination of all self-efficacy items available (including general and subject specific self-efficacy items).

**Table 3.6.**

**Results From the Cross-Sectional OLS Regression of School Response to Delinquency[a] on Bullying Victimization and Composite Self-Efficacy**

| Independent Variables | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender | -0.312 | *** | -0.253 | *** | -0.323 | *** | -0.255 | *** | -0.249 | *** | -0.249 | *** |
| | (.016) | | (.020) | | (.020) | | (.020) | | (.020) | | (.020) | |
| African American | 0.204 | *** | 0.254 | *** | 0.207 | *** | 0.266 | *** | 0.269 | *** | 0.269 | *** |
| | (.026) | | (.033) | | (.033) | | (.033) | | (.033) | | (.033) | |
| Hispanic | 0.101 | *** | 0.133 | *** | 0.103 | ** | 0.140 | *** | 0.141 | *** | 0.142 | *** |
| | (.025) | | (.035) | | (.036) | | (.036) | | (.036) | | (.036) | |
| Other | -0.071 | *** | 0.033 | | 0.060 | | 0.036 | | 0.034 | | 0.034 | |
| | (.024) | | (.032) | | (.033) | | (.032) | | (.032) | | (.032) | |
| SES | -0.113 | *** | -0.060 | *** | -0.124 | *** | -0.089 | *** | -0.078 | *** | -0.078 | *** |
| | (.012) | | (.014) | | (.015) | | (.014) | | (.015) | | (.015) | |
| Two Adults In Home | -0.093 | *** | -0.077 | ** | -0.091 | *** | -0.075 | ** | -0.075 | ** | -0.075 | ** |
| | (.020) | | (.025) | | (.026) | | (.025) | | (.025) | | (.025) | |
| School Attachment | | | -0.291 | *** | | | -0.289 | *** | -0.279 | *** | -0.279 | *** |
| | | | (.021) | | | | (.021) | | (.021) | | (.021) | |
| Parental Control | | | -0.025 | * | | | -0.025 | * | -0.024 | | -0.024 | |
| | | | (.012) | | | | (.013) | | (.012) | | (.012) | |
| Negative Peer Associations | | | 0.142 | *** | | | 0.140 | *** | 0.135 | *** | 0.135 | *** |
| | | | (.012) | | | | (.015) | | (.015) | | (.015) | |
| Bullying Victimization | | | | | 0.112 | *** | 0.091 | *** | 0.091 | *** | 0.090 | *** |
| | | | | | (.023) | | (.022) | | (.022) | | (.022) | |
| Composite Self-Efficacy[b] | | | | | | | | | -0.051 | ** | -0.039 | ** |
| | | | | | | | | | (.014) | | (.032) | |

**Table 3.6. Continued**

| | | | | | | |
|---|---|---|---|---|---|---|
| Bullying Victimization*All Self-Efficacy | | | | | | -0.010 |
| | | | | | | (.026) |
| Constant | 0.204 | 0.746 | 0.057 | 0.622 | 0.597 | 0.598 |
| Adjusted R2 | 0.044 | 0.098 | 0.046 | 0.101 | 0.103 | 0.103 |

Source: Educational Longitudinal Study (ELS), 2002: Base Year (N=14,256). (p<.05*, p<.01**, p<.001***)
Notes:

[a] Each model represents the dependent variable School Response to Delinquency which is a composite measure of school response to delinquency items.

[b] This independent variable of interest, Composite Self-Efficacy, is a combination of all self-efficacy items available (including general and subject specific self-efficacy items).

**Table 3.7.**

**Results From the Cross-Sectional OLS Regression of School Response to Delinquency[a] on Noxious Peer Relationships and Composite Self-Efficacy**

| Independent Variables | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender | -0.312 | *** | -0.253 | *** | -0.261 | *** | -0.207 | *** | -0.202 | *** | -0.204 | *** |
| | (.016) | | (.020) | | (.019) | | (.019) | | (.019) | | (.019) | |
| African American | 0.204 | *** | 0.254 | *** | 0.223 | *** | 0.275 | *** | 0.278 | *** | 0.277 | *** |
| | (.026) | | (.033) | | (.033) | | (.033) | | (.033) | | (.033) | |
| Hispanic | 0.101 | *** | 0.133 | *** | 0.112 | ** | 0.145 | *** | 0.146 | *** | 0.148 | *** |
| | (.025) | | (.035) | | (.035) | | (.034) | | (.034) | | (.034) | |
| Other | -0.071 | *** | 0.033 | | 0.006 | | 0.023 | ** | 0.021 | | 0.021 | |
| | (.024) | | (.032) | | (.032) | | (.032) | | (.032) | | (.032) | |
| SES | -0.113 | *** | -0.06 | *** | -0.118 | *** | -0.086 | *** | -0.077 | *** | -0.077 | *** |
| | (.012) | | (.014) | | (.014) | | (.014) | | (.014) | | (.014) | |
| Two Adults In Home | -0.093 | *** | -0.077 | ** | -0.087 | ** | -0.072 | ** | -0.072 | ** | -0.072 | ** |
| | (.020) | | (.025) | | (.025) | | (.025) | | (.025) | | (.025) | |
| School Attachment | | | -0.291 | *** | | | -0.264 | *** | -0.255 | *** | -0.256 | *** |
| | | | (.021) | | | | (.020) | | (.020) | | (.020) | |
| Parental Control | | | -0.025 | * | | | -0.026 | * | -0.025 | * | -0.025 | * |
| | | | (.012) | | | | (.012) | | (.012) | | (.012) | |
| Negative Peer Associations | | | 0.142 | *** | | | 0.126 | *** | 0.121 | *** | 0.122 | *** |
| | | | (.012) | | | | (.015) | | (.013) | | (.016) | |
| Noxious Peer Relationships[b] | | | | | 0.217 | *** | 0.189 | *** | 0.187 | *** | 0.182 | *** |
| | | | | | (.020) | | (.019) | | (.019) | | (.019) | |
| Composite Self-Efficacy[c] | | | | | | | | | -0.045 | ** | -0.043 | ** |
| | | | | | | | | | (.013) | | (.012) | |

**Table 3.7. Continued**

| | | | | | | |
|---|---|---|---|---|---|---|
| Peer Victimization*All Self-Efficacy | | | | | | -0.032 |
| | | | | | | (.020) |
| Constant | 0.204 | 0.746 | 0.157 | 0.654 | 0.632 | 0.632 |
| Adjusted R2 | 0.044 | 0.098 | 0.087 | 0.131 | 0.133 | 0.134 |

Source: Educational Longitudinal Study (ELS), 2002: Base Year (N=14,256). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable School Response to Delinquency which is a composite measure of school response to delinquency items.

[b] This independent variable of interest, Noxious Peer Relationships, is a composite measure of all reported noxious peer relationships (including self-report bullying and criminal victimization in school).

[c] This independent variable of interest, Composite Self-Efficacy, is a combination of all self-efficacy items available (including general and subject specific self-efficacy items).

# CHAPTER IV
# THE EFFECT OF NOXIOUS PEER RELATIONSHIPS, GENERAL LIFE STRAIN, AND SELF-EFFICACY ON DELINQUENCY ACROSS TIME

The research in this chapter will build upon the foundation of the preceding study in several important ways. First, this research will investigate the impact peer strain has on one's own delinquency. Unlike Chapter III, however, the analyses in this chapter investigate the long-term effects of noxious peer relationships. Second, the analyses in this chapter will explore the association between general life strains and deviance over time, both in terms of moderating and mediating effects of self-efficacy in the process leading to delinquency. This chapter begins by reviewing the basis for the chief hypotheses addressed by the current study, discusses data and methods, and finally presents the results of a series of statistical analyses.

As outlined in preceding chapters, Agnew's strain theory encompasses many different sources of strain. The loss of something of value, the inability to attain positively-valued goals or stimuli and the presence of negative stimuli all are argued to influence individual deviance. The present research focuses specifically on the presentation of noxious stimuli in the form of noxious peer relationships. For a number of reasons (outlined in preceding chapters) this type of strain is likely to be particularly important for juveniles. Research suggests youths may be particularly vulnerable to negative peer relationships during junior high and high school (see Espelage and Swearer 2003), while simultaneously lacking coping experiences and the resources to deal with these strains in through conventional means (see Osgood et al. 1996). Using measures that mirror those employed in Chapter III, the analyses in this chapter will examine the effects of peer victimization during eighth grade and early high school on youths' delinquency during high school years. The analyses in this chapter also go beyond those in Chapter III by examining a more comprehensive measure of life strains and tracking their influences over time. It will test the claim of GST often supported in existing

research: that experiencing a variety of strains encompassed by the three-fold typology outlined by Agnew has a significant and positive impact on deviance.

Self-efficacy is one of a number of mechanisms argued to possibly impact the link between strain and delinquency. As Chapter II states, general self-efficacy is likely a strong indicator of whether young persons have the capacity to engage in prosocial coping mechanisms, especially conventional cognitive coping as outlined by Agnew (1992). Yet, it is often given limited attention or ignored altogether in empirical tests of GST. Producing a better understanding of the role of self-efficacy in the strain-delinquency relationship is a primary goal of the research in both Chapter III and Chapter IV. Chapter IV analyses will test these ideas.

## ***Review and Extension of Strain***

### ***Arguments — the Importance of General Strain***

Agnew (1992) provides a broadly conceptualized theoretical outline for the life events that may greatly influence crime and delinquency. There is particular focus directed on the role of negative relationships and the way in which these might drive adolescents toward delinquent adaptations. Relationships that include aversive interactions or failure to achieve valued relationships with peers are stress-inducing and sources of strain that fit within the GST rubric. A key aim of the research presented in Chapter III was to explore the relationship between negative interpersonal strain, in particular bullying victimization and criminal victimization by one's peers, and one's own deviance. Similarly, this research explores the impact negative interpersonal relationships may have on delinquency. Using similar measures of interpersonal strain — whether respondents have been/feel threatened by their peers and whether they have been criminally victimized (had something stolen) by their peers — the research presented in this chapter examines the relationship between these negative peer interactions in school and delinquency at a later time points. In focusing on these particular types of strain, it

will expand upon early longitudinal tests of strain theory. Longitudinal empirical examinations of bullying tend to focus on the long-term delinquency consequences for perpetrators (or in some instances, individuals who both bully and are the victim of bullying). Fewer works have looked at the long-term delinquency outcomes for victims.

The research presented in this chapter builds on the study presented in Chapter III, because it examines a larger collection of stressors (general life strains). This work will explore how stressful life events impact juvenile delinquency. A variety of life strains (that fit within the broad confines of Agnew's strain typology) have been shown to significantly impact delinquency across time (Agnew and White 1992; Paternoster and Mazerolle 1994). In particular, these sources of strain have shown to significantly impact deviance and substance abuse in teens over time. The later waves of data collected in this survey series (and utilized for the present research) allow a test of these general claims.

Additionally, the research that follows will analyze the impact of self-efficacy on the strain-delinquency relationship. Agnew (1992) noted strain is most likely to result in delinquency when an individual lacks conventional means to deal with stress. He argued that resources, such as self-efficacy, will promote the use of conventional coping and therefore lessen the likelihood strain will be dealt with through delinquent means. In many ways, this research will replicate the methods and tests of some of the first foundational works that empirically test this caveat of GST. Self-efficacy has received relatively little focal attention in GST literature, except for two early longitudinal tests of the interaction between strain and self-efficacy that produced mixed findings (Agnew and White 1992; Paternoster and Mazerolle 1994). Given the theoretical importance proposed by Agnew (1992) and the proposed link between self-efficacy and conventional cognitive coping (as outlined in Chapter II), analyses focused on the intervening role of self-efficacy in the strain-delinquency relationship over time are presented. A key aim of this chapter's study is to better understand the role of self-efficacy in the relationship between

general life strains and deviance, and whether self-efficacy tends to operate similarly when examining specific sources of strain (negative peer interactions) and more general life strains.

### ***The Role of Self-Efficacy in the Strain-Delinquency Relationship***

In a series of articles (Agnew 1985, 1989, 1992) aimed at encompassing and expanding the claims of a more classic criminological theory — Merton's anomie theory — Agnew draws on the work of scholars across academic domains. Using ideas from stress and coping literature, Agnew argued the relationships among strain, affect, and delinquency are contingent on a number of personal and social factors. Agnew (1992) suggests individuals who are faced with strain are more likely to respond through deviance when they lack access or the ability to apply certain prosocial coping mechanisms. Individuals may use emotional, behavioral, or cognitive coping adaptations as discussed in Chapter II. For example, seeking out positive stimuli or rewards to counteract negative affect is one method to cope with strain and resulting emotions. When strain is not dealt with in conventional emotional, behavioral, or cognitive ways, the individual may resort to deviant adaptations to cope. For example, individuals may retaliate against those with whom they have negative interactions to resolve problematic affect.

While GST posits a clear antecedent (strain) and intervening mechanism (negative affect, most notably strain), Agnew also suggests a wide variety of conditional factors that impact the interpretation of strain, the emotional reaction of individuals experiencing strain and the adaptations employed given these situations. One such factor identified by Agnew (1992) is self-efficacy. Self-efficacy refers to a person's perceived capacity to produce a desired performance or result**.** Self-efficacy is a factor that is influential in shaping behavior, resilience, and outcomes in a variety of life realms (Aas et al. 1995; Bandura 1997; Chung and Elias 1996; Pajares 1996; Schunk 1995; Zimmerman et al.

1992). Yet, the role of self-efficacy in the strain-deviance relationship is often ignored or given minimal focus by GST research. Agnew (1992) argues self-efficacy is an important factor determining whether individuals will cope with conventional behavioral means (as opposed to behaviorally coping through deviant means). The proposed association between self-efficacy (a coping resource) and conventional cognitive coping behavior is discussed throughout this dissertation. The research in this chapter further tests whether self-efficacy moderates or mediates the strain-delinquency relationship.

Self-efficacy research often utilizes domain specific measures of self-efficacy, for example measuring mathematics self-efficacy. This dissertation will measure self-efficacy as a general construct, looking at one's sense of efficacy broadly, not restricted to a particular line of action. The proposed influence of self-efficacy on the ability to engage in conventional cognitive coping is not limited to domain specific experiences of strain. Rather, it is proposed that generally, individuals with a heightened sense of self-efficacy will be better suited to engage in conventional coping when faced with strain.

General self-efficacy, as a global construct or individual factor, is one element that contributes to the likelihood individuals will engage in particular behaviors. It also influences the confidence with which they tackle life situations (see Shelton 1990, for example) and, by extension, confront or address life strains from a GST perspective. Self-efficacy is, as Agnew (1992) suggests, an individual coping resource individuals can draw upon when faced with strain, which may shape their specific response to strain. Individuals feeling they lack the ability to manipulate a given situation in a favorable manner are expected to be less likely to employ conventional cognitive coping practices, such as minimizing the importance of relationships within which negative interactions occur. A focus on the impact of general self-efficacy may prove to elaborate our understanding of why some individuals behave delinquently while others, oftentimes in similar life situations, do not. This research measures self-efficacy in an effort to test

whether this proposed aptitude to cognitively cope significantly influences the relationship between experienced strain and subsequent delinquency.

Agnew (1992) suggests, in some instances, strain does not result in delinquency, as individuals are able to effectively handle the source of the strain or the resulting negative affect. Specifically, he notes strain will less likely result in delinquency for individuals with high self-efficacy, a resource likely to promote conventional solutions. Very few studies have examined the claims presented by Agnew regarding conventional coping mechanisms and self-efficacy. Two early tests of GST did examine the interaction between strain and levels of self-efficacy as they relate to delinquency (Agnew and White 1992; Paternoster and Mazerolle 1994). However, the studies produced mixed results. In a cross-sectional analysis, Agnew and White (1992) reported strain had a significantly weaker influence on delinquency and drug use for youths with high levels of reported self-efficacy. Building from these suggestions, they conducted a longitudinal analysis of the proposed mechanisms. Contrary to expectations, they found strain over time did not impact drug use and that the effect of strain on delinquency was not significantly impacted by measures of delinquent associations and self-efficacy, as expected. Specifically, Agnew and White (1992) found in this longitudinal test that the hypothesized interaction of strain and self-efficacy was not significant. They cite these results as a likely limitation of their data and the length of time between surveys.

Motivated by this work, Paternoster and Mazerolle (1994) intended to replicate and expand upon this work to study a number of potentially intervening variables in the strain-delinquency relationship. Contrary to the theoretically-outlined expectation, their longitudinal analysis found the interaction of strain and self-efficacy to be significant in the opposite direction. Their findings suggest strain has a more pronounced effect on delinquency for individuals who have high levels of self-efficacy. That is, individuals with a higher sense of empowerment or capability are more likely to respond to strain

through deviance as opposed to engaging in conventional coping. This interaction, of the five interactions tested, was the only one to present with significance. Nevertheless, Patternoster and Mazerolle (1994) suggest readers not vest too much in to the finding, as it does not add any explained variance to the model. Given the lack of consistent findings and the relatively minimal research attention directed at self-efficacy as an indicator of coping ability within the GST literature, further research is warranted. The research described in this chapter uses self-efficacy measures similar to those utilized in these previous works. It also similarly tests the relationships between strain, self-efficacy, and delinquency over time using a data set not yet utilized for such examinations of strain theory concepts.

Understanding the impact of self-efficacy provides a unique avenue for the development of more influential bullying- and delinquency-focused programming. Several of the coping mechanisms Agnew (1992) proposes rely on external resources, for example, money or a strong network of significant others that may provide emotional support. However, conventional cognitive coping practices are arguably a resource or adaptation to strain that may be taught. In dealing with juvenile delinquents, oftentimes treatment and rehabilitation platforms adopt programming aimed at teaching these methods for dealing with anger- and frustration-triggering situations (Glick and Goldstein 1987; Goldstein, Glick, and Gibbs 1998; Hollin 1990a, 1990b). This research aims to better understand the link between self-efficacy and delinquency, which then possibly could inform future research and potential policy and programming suggestions centered on these principles. Consequently, this research is driven by the inherent value in better understanding what influences conventional cognitive coping and the ways this type of coping can be developed in youths.

The present research first is designed to understand the relationship between interpersonal strain, life strains more generally, and delinquency. It then will address

whether self-efficacy moderates the relationship between strain and delinquency, the influence posited by Agnew (1992) and tested in the early examinations reviewed (Agnew and White 1992; Paternoster and Mazerolle 1994). The present research will test the interactive effects of self-efficacy and strain across three points in time to determine whether the relationship between strain and delinquency is influenced by levels of self-efficacy. It is expected the impact of strain on delinquency will be diminished at higher levels of self-efficacy, because these youths will react to strain through more conventional means. Whereas, at lower levels of self-efficacy, the strain-delinquency relationship will be more pronounced, as these youths lack this coping resource, and are therefore more likely to react to strain through delinquent means. If self-efficacy is shown to have a moderating impact, as hypothesized, this research could provide suggestions for future work that look more closely at self-efficacy as an indicator of aptitude for cognitive coping, and the actual employment of cognitive coping strategies.

A focal argument of this dissertation is that the impact of strain on delinquency will vary or differ across levels of self-efficacy. That is, self-efficacy is a moderator affecting the strength of the strain-delinquency relationship. Having higher self-efficacy is a coping resource and influences the likelihood youths react to strain in a delinquent or prosocial manner. Additionally, because more than two waves or panel data are available, the present study will test the possible mediating role self-efficacy has on the strain-deviance relationship. A mediating or intervening variable is one that accounts for or explains an observed relationship between two other variables. If including self-efficacy at an intervening time point makes it such that the relationship between strain and delinquency is negated, it would suggest the relationship between strain and delinquency is mediated or explained by self-efficacy. That is, self-efficacy would play a significant role in governing the relationship between strain and delinquency. Presumably, levels of self-efficacy would be significantly affected or diminished when individuals are faced

with increased levels of strain. The apparent relationship between strain and delinquency would thus be explained by or a result of the effect of strain on self-efficacy.

This research will test a series of models in which theoretically-important variables are integrated at various time points. In doing so, it will be possible to examine whether 1) a relationship between strain experienced in eighth grade and subsequent delinquency emerges; and 2) whether the strength and/or direction of these relationships are impacted by one's self-efficacy. If significant relationships between strain and deviance are altered in a noteworthy way when accounting for self-efficacy as reported in tenth grade, then self-efficacy can be argued to mediate the relationship between strain and delinquency (more so than just moderate this relationship).

### ***Summary of Hypotheses to Be Assessed***

In sum, this study will test several hypotheses:

- **Hypothesis 1**: Respondents experiencing more sources of strain as eighth-graders will be more likely to engage in subsequent delinquency during high school.
- **Hypothesis 2**: Self-efficacy, as measured in eighth grade, will be directly related to subsequent delinquency, such that students with higher self-efficacy will report less frequent delinquency at subsequent time points.
- **Hypothesis 3**: The relationship between the experience of general strain and delinquency will be moderated by general self-efficacy. At the same level of experienced strain, those with high levels of self-efficacy will be less delinquent than those who indicate lower levels of self-efficacy.
- **Hypothesis 4**: The relationship between strain and subsequent delinquency may be mediated by self-efficacy. A significant relationship between strain and delinquency is the result of or explained by self-

efficacy, and therefore will be significantly altered when self-efficacy is included in the model.

## ***Data***

This research utilizes data from the National Educational Longitudinal Survey (NELS:88, 90, 92). The base year, NELS:88, was conducted during the spring term of the 1987-1988 school year using a nationally-representative sample of eighth-grade students. These data were designed to provide critical information about student experiences as they transitioned from middle school/junior high. The first and second follow-up surveys were administered when these students were, on average, sophomores and seniors in high school, respectively. While these surveys were designed to provide trend data that specifically examined school-related experiences and long-term educational and occupational accomplishments, they also capture a range of deviant behaviors.

### NELS Sampling Method

Similar to ELS procedures described in Chapter III, the NELS collected school and individual level data from several sources (administrators, students, parents and teachers). To obtain these data, the NELS:88 survey used a two-stage stratified, clustered sample design, first selecting schools and then selecting students within those schools. The first stratified random sampling of schools resulted in more than 1,734 schools selected, both private and public. Of these, 1,052 schools participated in the survey. The second stage of data collection involved the random selection of students within those participating schools. This procedure resulted in a participating sample of 24,599 eighth-grade students included for the base year (NELS:88), a nationally-representative sample of private and public eighth-grade students.

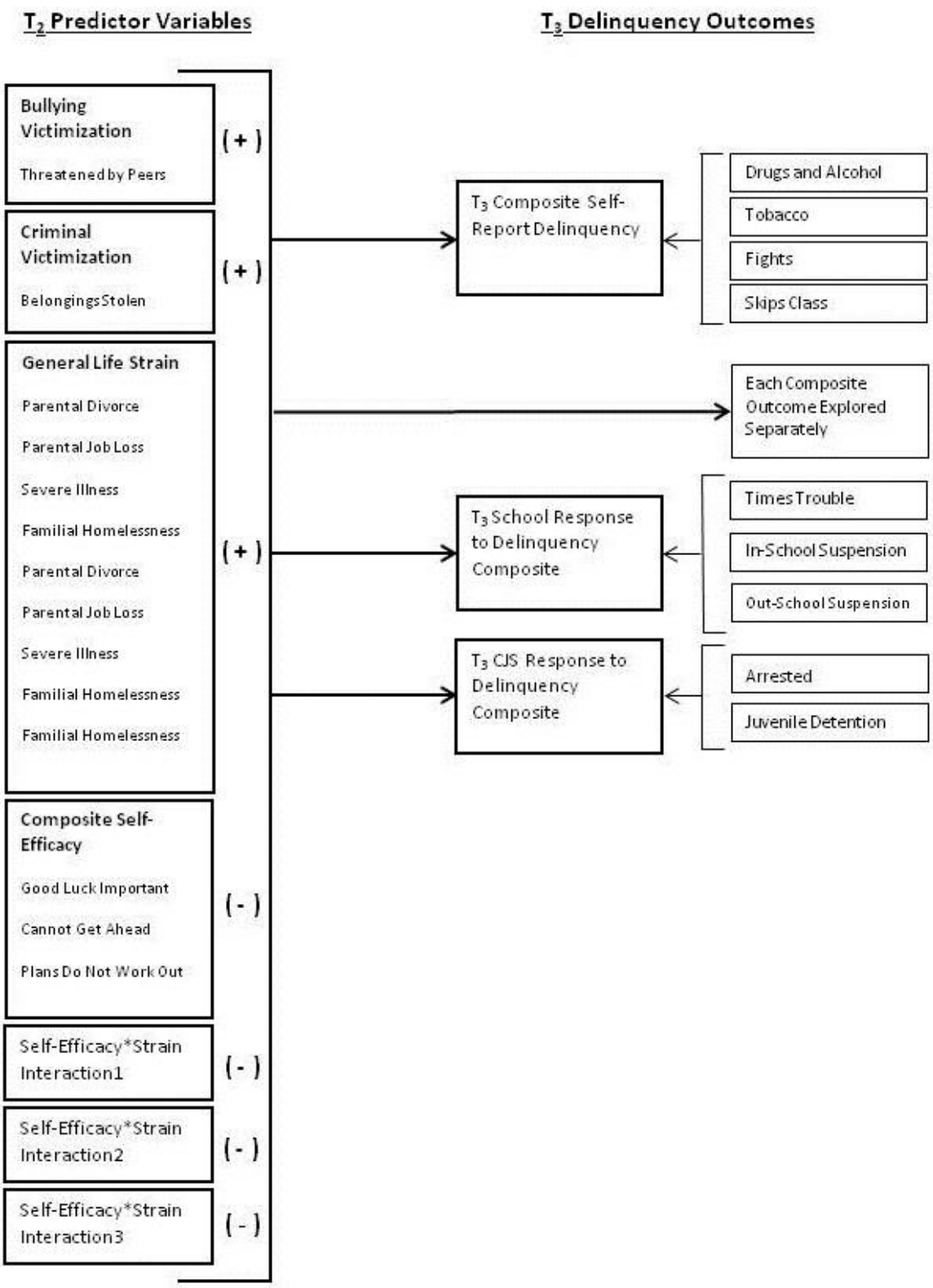


**Figure 4.1. Model Representation of Chapter IV Analyses, Longitudinal Analysis of the Role of Self-Efficacy on the Relationship Between Strain and Delinquency Using the National Educational Longitudinal Study (NELS:88, 90, 92).**

## ***Measures***

### Dependent Variable — Time 3 Composite Delinquency

The key outcome of interest in this research is composite delinquency. Several items that gauge respondents' delinquency were available in the NELS follow-up survey, NELS:92 (see Appendix, Table A.5 for precise question wording and response categories for dependent variables). I created a composite measure of delinquency using the items discussed below, and also estimated models that examined each specific behavioral domain separately.

#### ***Fighting***

The first item used in creating composite delinquency is self-reported fighting. NELS:92 respondents reported the number of times at school they "got into a physical fight," is a common delinquent outcome explored in GST research (Agnew 1989; Lee and Cohen 2008). Responses to this item represent a range of occurrences (0 = never, 1 = once or twice, 2 = more than twice).[18]

#### ***Cutting/Skipping Class***

A second measure of delinquent behavior in the NELS:92 is how often respondents reported they "cut or skip classes" in the first semester or term of the current school year, which also has been studied in previous tests of GST (Agnew 1989; Agnew et al. 2002; Lee and Cohen 2008). Responses to this item were collected along a six-point scale (0 = never, 1 = 1-2 times, 2 = 3-6 times, 3 = 7-9 times, 4 = 10-15 times, 5 = over 15

[18] In addition to the models reported in the body of this chapter, which estimate composite delinquency, I also estimate models with fighting as an individual outcome. Only a small portion of respondents reported fighting on more than two occasions (N=244) so for these models, I create a binary variable grouping individuals who have never engaged in fighting behavior in school and those who have (0 = no reported fighting behavior, 1 = some reported fighting behavior). This was then analyzed as an independent outcome. Results of the analyses for fighting are presented in the Appendix (see Result A.12, Table A.7).

times). This item is the second behavior included in the composite measure of delinquency.[19]

***Substance Use Behaviors***

The NELS:92 asks students to report a number of substance use behaviors. The first of these items included in these analyses asks students "how many cigarettes do you usually smoke in a day?" Potential responses to this item fall along a six-point scale (0 = does not smoke at all, 1 = less than one cigarette per day, 2 = 1-5 cigarettes per day, 3 = about half a pack per day, 4 = more than half a pack, but less than two packs, or 5 = two packs per day or more). Additional items ask students to report on how many occasions (if any) during the last twelve months they have done the following: 1) "had alcoholic beverages to drink"; 2) "used marijuana (grass, pot) or hashish (hash, hash oil)"; and 3) "used cocaine in any form (including crack)." Responses to each of these items were collected using a four-point scale. Each response represents a range of times respondents had participated in the specific behavior (0 = zero occasions, 1 = 1-2 occasions, 2 = 3-19 occasions, 3 = more than twenty occasions).[20]

In sum, I created a composite measure of delinquency that included fighting, cutting/skipping class, and alcohol, marijuana, and cocaine use. A principal components factor analysis revealed these measures of self-report delinquency cluster ($\alpha$=.655). I employed a principal components factor analysis to create a composite measure of self-

[19] In addition to the models reported in the body of this chapter, which estimate composite delinquency, I also estimate models with skipping class as an individual outcome. Results of the analyses for skipping class are presented in the Appendix (see Result A.12, Table A.8).

[20] In addition to the models reported in the body of this chapter, which estimate composite delinquency, I also estimate models using a composite measure of substance use behaviors as the outcome of interest. Analyses indicate that these four measures cluster ($\alpha$=.652; see Appendix, Result A.8 for the results of this principal components analysis). As such, a principal component's procedure was applied to create the outcome measure substance use. Results of the analyses for substance use behaviors are presented in the Appendix (see Result A.12, Table A.9).

report delinquency (see Appendix, Result A.7 for the results of this principal components analysis).[21]

## Key Independent Variables — Time 2

### ***Bullying Victimization***

Of particular importance to this dissertation is the role of interpersonal strain in school, principally bullying victimization by peers. Peer bullying is hypothesized to influence school delinquency and rule violation, as discussed in Chapter II. The NELS:92 offers one strong indicator of noxious peer relationships that was utilized in the corresponding analyses reported in Chapter III. This item asks respondents to report the

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[21] While self-report delinquency is the principle outcome of interest, additional measures indicative of level of deviance were included in the NELS:92. I constructed two additional composite measures (School Sanctions and Criminal Justice Sanctions) and analyses were conducted to explore the relationship between strain, self-efficacy and these outcomes, as well.

*School Sanctions/Response to Deviance.* The NELS:02 provides several measures of the school's response to deviance and rule violation (that parallel those included in the school sanctions outcome studied in Chapter III), which will be used to create a composite scale capturing official school response. One item that reflects the school's response to rule-violation is a self-report of the number of times the respondent "got in trouble for not following school rules" during the first semester or term of the school year. Two additional items reflect school response to deviance: 1) reports of how many times in the first semester of the school year the student was "put on in-school suspension" and 2) reports of how many times in the first semester of the school year the student was "suspended or put on probation." Responses to these items are captured using a six-point ordinal scale (0 = never, 1 = 1-2 times, 2 = 3-6 times, 3 = 7-9 times, 4 = 10-15 times, 5 = over 15 times). A principal components factor analysis revealed these measures of school response to deviance and rule-violation fall along one dimension ($\alpha$=.708). Given this, a principal component factors procedure was applied to produce the composite measure of school response to deviance (see Appendix, Result A.9 for the results of this principal components analysis). As with the preceding chapter, in the analyses that follow, I treat this variable as indicative of underlying problematic behavior, and thus treat school response to rule-violation as a third measure of deviant or delinquent behavior in school, the third outcome of interest. Results of analyses using this independent outcome, School Response to Delinquency are presented in the Appendix (see Result A.12, Table A.10).

*Criminal Justice System Sanctions/Response to Deviance.* The follow-up surveys conducted in the NELS series provide some indicators of more serious crime and delinquency over time. Self-reports of the number of times the respondent 1) "was arrested" and 2) "spent time in a juvenile home/detention center" during the first semester or term of the school year are included. Responses to these items are captured using a six-point ordinal scale (0 = never, 1 = 1-2 times, 2 = 3-6 times, 3 = 7-9 times, 4 = 10-15 times, 5 = over 15 times). These items are unidimensional ($\alpha$=.844) and therefore used to create the composite measure criminal justice system sanctions (see Appendix, Result A.10 for the results of this principal components analysis). Results of analyses using this independent outcome are presented in the Appendix (see Result A.12, Table A.11).

number of times (within the given ranges) someone "threatened to hurt them at school" during the first half of the current school year. Potential responses were collected using a three-point scale (0 = never, 1 = once or twice, 2 = more than twice) and were utilized to create a binary variable of bullying victimization (0 = no experiences of bullying victimization, 1 = some experiences of bullying victimization). This peer victimization is presumed to influence the affective state of respondents in a negative way and lead to higher reports of delinquency. My analyses indicate this measure of interpersonal strain does not strongly correlate with other measures of strain available. As such, it will be treated as an independent indicator of negative interpersonal strain.

***Criminal Victimization***

A second measure indicative of noxious peer relationships (that parallels one indicator of strain utilized for the analyses in Chapter III) is criminal victimization by peers. This item asks students to report the number of times (within the appropriate range) they "had something stolen" from them at school. Youths responded using a three-point scale (0 = never, 1 = once or twice, 3 = more than twice) and were used to create a binary variable for criminal victimization (0 = no instances of criminal victimization, 1 = one or some instances of criminal victimization). Analyses indicate this measure of interpersonal strain does not strongly correlate with the previously outlined measure of interpersonal strain (bully victimization). Thus, it will be treated as an independent indicator of negative interpersonal strain.

***General Life Strain***

This chapter's analyses expand on the preceding chapter's work and align with many empirical GST works in its examination of the relationship between general life stressors and delinquency. The NELS:92 collects information on a variety of general life stressors students have/have not experienced in the preceding two years (since completing the base-year survey). I use responses to these survey items (0 = have not

experienced the specific item strain, 1 = have experienced the specific item strain) to create a general strain scale indicative of the level of strain/amount of stressful life events respondents have encountered since completing the base-year survey. Items included ask about parental divorce, mother's/father's loss of job, respondents' experience of serious illness, and familial homelessness. In total, responses to nine items are included in this general strain scale (see Appendix, Table A.6 for precise question wording and response categories).

***General Self-Efficacy***

Several measures that are indicative of the youths' level of self-efficacy are available in the NELS:92. General self-efficacy refers to an individual's perceived capacity to perform a task or achieve a goal; the ability to produce a desired result. A number of items reflective of this individual resource are available in the NELS:92. Three items were combined by NELS researchers to create a single construct that assesses students' perceptions of control over life events ($\alpha$=.61). Items included in this composite are "In my life, good luck is more important than hard work for success"; "Every time I try to get ahead, something or somebody stops me"; and "My plans hardly ever work out, so planning only makes me unhappy" (see Appendix, Table A.6 for precise question wording and response categories). Potential responses were collected using a four-point Likert scale (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree). These items are indicative of the level of control or power students feel they have to manipulate general situations and promote desired life outcomes. They are indicative of respondents' perceptions of general problem-solving or adaptive capabilities; a reflection of the individuals' aptitude to cognitively reinterpret or cope with strain.

## Control Variables

***Demographic Controls***

Previous research finds that sex, race, and socioeconomic status influence both exposure to interpersonal strains and delinquency. As such, controls for these variables are included in the analyses. Gender is coded as dummy variables (1 = female, 0 = male). A composite race/ethnicity item is available in the NELS:88 data with five potential response categories (1 = Asian/Pacific Islander, 2 = Hispanic, 3 = Black non-Hispanic, White non-Hispanic, 5 = American Indian/Alaskan Native). For the purpose of this analyses, this item was recoded as a binary variable (0 = non-White, 1 = White non-Hispanic). From compiled data, an indicator of students' socioeconomic status is allotted and is included as a key demographic control in these analyses.

***Constructs From Other Theories —***

***School Attachment and Parental Control/Attachment***

A potentially important control variable included in this chapter's analyses is students' commitment to school (see Barnes et al. 2007; Hirschi 1969; Huebner and Betts 2002; Jenkins 1995, 1997; Wong 2005). One measure is used as an indicator of commitment to school. This item asks students to report the "number of hours spent on homework (all subjects) per week." Responses were collected using an eight-point ordinal scale (0 = none, 1 = .5-1.99 hours, 2 = 2-2.99 hours, 3 = 3-5.49 hours, 4 = 5.50-10.49 hours, 5 = 10.50-12.99 hours, 6 = 13.00-20.99 hours, 7 = 21 hours and up). While not a complete measure of students' commitment to school, the number of hours spent on schoolwork each week is likely indicative of their overall commitment to school. As such, it is included with the expectation that students who indicate high commitment to school will be less likely to report delinquent behaviors than those who report less time spent on school work.

Further, measures for parental control and attachment are included in this analyses. Research often includes measures of parental attachment as an element of social control likely to influence deviance (see Canter 1982; Eve 1978; Friedman and Rosenbaum 1988; Hindelang 1973; Hirschi 1969; Jensen and Brownfield 1983; LaGrange and White 1985; Rosenbaum 1987). Four items that indicate the level of direct control parents place on children are included in this composite measure. These items ask the extent to which parents control time spent with friends, limit television time, assign chores to their juvenile, and check the completion of schoolwork. Responses to these items are collected using a four-point Likert scale (1 = often, 2 = sometimes, 3 = rarely, 4 = never).[22] Also included in this composite measure are three items indicate to what extent students discuss school and class activities and course selection with their parents (see Appendix, Table A.6 for precise question wording and response categories). Responses to these items are collected using a three-point scale (0 = not at all, 1 = once or twice, 3 = three or more times). These seven items were combined via principal components (see Appendix, Result A.11 for the results of this principal components analysis) to create one factor ($\alpha$=.5884), a measure of low parental control. It is expected individuals who experience lower levels of parental control, on average, will report higher levels of delinquency.

Additionally, a control for prior delinquency will be included in these analyses. The eighth-grade survey included only two measures of delinquency: fighting and skipping class. A binary variable measuring fighting behavior in eighth grade was selected as a control for prior delinquency, as this is the more severe of the types of delinquency measured (0 = no fighting behavior reported, 1 = some fighting behavior reported). Delinquency tends to trend over time, and as such, it is expected individuals

[22] These items provide the base for the parental control composite. As such, this measure should be interpreted as a high number indicating a lack or low-degree of parental control.

who report high levels of delinquency in early adolescence also will report higher levels of subsequent delinquency.

## ***Statistical Analysis***

The current analysis employed the statistical package Stata, Version 11. The data utilized for this work included survey respondents who were included in all waves of the NELS data collection. As such, the beginning sample size for this study is 11,274. The key outcome of interest for these analyses is composite self-report delinquency (at Time 3). Respondents with missing delinquency data (Time 3: fighting, skipping class, and substance use behaviors) were omitted from the analyses. A total of 1,473 data points were omitted, because they were denoted as legitimate skips/not in wave for the necessary delinquency questions. An additional 1,673 cases were omitted due to non- or multiple-response. This resulted in a sample size of 8,127 student respondents.

The NELS:88 has near complete data on key demographic and other variables. I used respondents' sex, race, socioeconomic status, school type (public compared to non-public school), and standardized math and English test scores to impute missing data on other covariates.[23] Independent variables with missing data went through a series of five imputations. The imputation procedure allowed for a total number of 8,127 data points to be included in this chapter's analyses.

Males and females were represented about equally in this sample (45.77 percent and 54.23 percent, respectively). White non-Hispanics comprised the majority of the sample (72.94 percent), while those students classified as minority (non-White non-Hispanic) represented 27.06 percent of the sample. Of those students included in these

[23] To avoid the loss of additional cases having complete delinquency data, I forced imputation using whatever points were available for these variables. I did not delete cases that were missing values for these items.

analyses, the majority (82.85 percent) reported two guardian figures living in the home (see Table 4.1 for descriptive statistics).[24]

## ***Results***

### Strain, Self-Efficacy, and Self-Report Delinquency — Testing the Mediating and Moderating Mechanisms

A series of ordinary least squares (OLS) regression models were estimated to understand the influence strain (Time 2) and self-efficacy (Time 2) have on self-report delinquency in twelfth grade (Time 3). The results are presented in Table 4.2. These models predict composite self-report delinquency behavior using the outlined demographic and theoretical control variable collected at Time 1. Results from Model 1 indicate that, for the most part, demographic controls are related to fighting behavior in the predicted ways. First, compared to males, females are significantly less likely to report delinquent behavior (b=-.249, se=.022, p<.001). For this sample, white non-Hispanic students reported significantly more delinquency behaviors than their non-white non-Hispanic peers (b=.221, se=.025, p<.001). This finding does not align with typical delinquency research and is likely somewhat attributable to the small sample of minority students included in this study. An increase in families' socioeconomic status was significantly related to a decrease in reported delinquency (b=.034, se=.017, p<.05). Students' scores on school-administered standardized tests are significantly linked with long-term delinquency outcomes (b=-.009, se=.001, p<.001). Students who score higher on standardized tests in eighth grade (Time 1) are less likely to engage in delinquent behavior (Time 3). Results indicate there is no significant difference in the reported levels of delinquency for students attending private versus public school (b=-.001, se=.029, p>.05).

[24] This data was utilized when completing imputation procedures; it was excluded from analyses, because this data was not available across surveys.

Model 2 examines the relationships between other theoretically-important variables and self-report delinquency behavior. As expected, there is a significant positive relationship between delinquency at Time 1 and subsequent (Time 3) delinquency (b=.365, se=.032, p<.001). Results indicate both school attachment (b=-.038, se=.008, p<.001) and low parental attachment/control (b=.071, se=.011, p<.001) measured at Time 2 are associated with delinquency at Time 3 in the manner predicted.

Table 4.9, Model 3 illustrates results of tests of Hypothesis 1, examining the direct relationship between strain and delinquency. Bullying victimization (Time 2) is a strong predictor of subsequent delinquency (b=.196, se=.029, p<.001). Experiencing some threat by one's peers appears to be a significant source of strain that has implications for delinquency. Similarly, there is a significant and positive relationship between criminal victimization (reporting having one's things stolen from school) and subsequent deviance (b=.134, se=.023, p<.001). These longitudinal results mirror the cross-sectional findings presented in Chapter III. Additionally, in alignment with GST predictions and many scholarly studies, experiencing general life strains (between Time 1 and Time 2) shows a significant and positive relationship with subsequent self-report delinquency (b=.096, se=.016, p<.001). Further, Model 4 indicates these significantly positive relationships between bullying victimization, criminal victimization, and general life strains remain when controlling for other theoretically-important variables (b=.207, se=.029, p<.001; b=.141, se=.023, p<.001; b=.097, se=.016 p<.001, respectively).

Model 5 examines the ideas proposed in Hypothesis 2, that self-efficacy (Time 2) will have a direct and significant relationship with subsequent self-report delinquency. When controlling for key demographic and theoretical controls, as well as prior delinquency (Time 1), self-efficacy (Time 2) shows a significant negative relationship with subsequent self-report delinquency (b=-.133, se=.018, p<.001). That is, higher self-

efficacy reported at Time 2 is associated with significantly less self-report delinquency in later adolescence.

Model 6 presents the results of tests examining the proposed moderating influence of self-efficacy in the strain-delinquency relationship (Hypothesis 3). Results indicate self-efficacy does not act as a moderator in the relationship between bullying victimization (Time 2) and self-report (Time 3) delinquency (b=-.072, se=.041, p>.05). Self-efficacy does not appear to act as a moderator in the relationship between criminal victimization and general life strains and subsequent deviance (b=-.002, se=.034, p>.10; b-.019, se=.020, p>.10 respectively). Strain and self-efficacy independently affect delinquency, but these results suggest that the proposed buffering influence of self-efficacy does not occur for any of the measured forms of strain. That is, regardless of the type of strains experienced, self-efficacy does not appear to aid in reducing strain/negative affect, thereby diminishing the likelihood individuals will react to these factors in deviant ways.

These results suggest the relationship between strain and delinquency is not significantly influenced by general self-efficacy. Similarly, the findings do not suggest self-efficacy mediates this relationship. When comparing the results presented in Model 4 and Model 5, the inclusion of self-efficacy does not substantially alter the relationship between each of the three sources of strain (Time 2) and self-report delinquency (Time 3). When controlling for key demographic and theoretical elements, as well as prior delinquency, each source of strain and self-efficacy significantly influences subsequent deviance in the expected manner. And, the introduction of self-efficacy in this model does not appear to reduce the impact of strain on delinquency. Instead, this is indicated by the non-significant difference in the impact of strain when comparing Models 4 and 5. Thus, the relationship between strain and delinquency is not explained by the effect of strain on self-efficacy. The magnitude and significance of the direct effects of each

source of strain and delinquency are not altered in a meaningful way when including self-efficacy in the model.

**Moderator Model Sensitivity Analyses**

To elaborate on the analysis testing the moderating model presented above, an additional series of ordinary least squares (OLS) regression models were estimated as part of this chapter's sensitivity analyses. This was done to understand the influence that strain and self-efficacy in eighth grade (Time 1) have on self-report delinquency in twelfth grade (Time 3). The results are presented in Table 4.3. Model 3 examines the independent effects of each available source of strain on subsequent self-report delinquency. Results indicate strain experienced in eighth grade is a significant predictor of delinquency in twelfth grade. Bullying victimization (b=.078, se=.027, p<.01) and criminal victimization by one's peers (b=.046, se=.023, p<.05) measured in eighth grade are significantly related to increased delinquency in twelfth grade.

Additionally, these relationships are maintained (Model 4) when controlling for theoretically-influential factors. Bullying victimization (b=.071, se=.027, p<.01) and criminal victimization (b=.051, se=.023, p<.05) have significant positive relationships with delinquency**.** Further, Model 5 suggests that general self-efficacy measured with the base year survey, as expected, significantly impacts subsequent delinquency (b=-.071, se=.17, p<.001). Model 6 examines the interaction effects of strain and self-efficacy on subsequent delinquency. Results suggest youths with a stronger sense of self-efficacy are less likely to engage in subsequent delinquent behavior. This is indicative of the influence self-efficacy has on behavioral choices and outcomes over time. The results presented in Model 6 suggest the interaction of each source of strain and self-efficacy at Time 1 does not significantly influence Time 3 delinquency. The interaction effects of each bullying and criminal victimization and self-efficacy measured at Time 1 do not significantly

impact delinquency at Time 3 (b=.021, se=.037, p>.05; b=.039, se=.033, p>.05, respectively).

**Mediator Model Sensitivity Analyses**

Similarly, to elaborate on mediating model results presented previously, I also estimated a series of models to understand the influence that strain in eighth grade (Time 1) and self-efficacy (Time 2) have on self-report delinquency in twelfth grade (Time 3). The results are presented in Table 4.4. These analyses build upon the results presented previously indicating those youths who experience more strain in early adolescence — both bullying victimization and criminal victimization — report higher instances of delinquency in later adolescence. These findings support the chief hypotheses of this study (and a main premise of Agnew's general strain theory): an increase in levels of experienced strain is significantly related to increases in subsequent delinquency. This relationship remains when including theoretically-important predictor variables as controls within the model.

Model 5 presents the results of analyses that examine the direct effects of strain (Time 1), self-efficacy (measured at Time 2) and delinquency (Time 3). Results indicate both strain (each form) and self-efficacy are significantly related to later delinquency. Bullying victimization (b=.065, se=.027, p<.05) and criminal victimization (b=.051, se=.023, p<.05) at Time 1 remain significant predictors of twelfth-grade delinquency. Additionally, self-efficacy in tenth grade has a significant and negative relationship with subsequent delinquency (b=-.151, se=.018, p<.001). Self-efficacy has a significant, direct effect on subsequent delinquency. Tenth-graders who report having higher levels of this coping resource are less likely to engage in subsequent delinquency. But, a comparison across Models 4 and 5 shows there is no significant change in the relationship between strain and delinquency when self-efficacy (Time 2) is included.

## ***Conclusion***

This study contributes to the GST literature by testing the long-term consequences of peer bullying victimization and studying the minimally-examined role of self-efficacy in the strain-delinquency relationship. This chapter briefly reviewed the theoretical and empirical background that framed the formulation of research questions investigated, including a discussion of the potential value of understanding self-efficacy and cognitive coping in developing bullying and delinquency programming. It also discussed the procedures used to create variables from the longitudinal data set, as well as the statistical techniques employed in the empirical analyses. Lastly, the results of the research presented in this chapter are discussed in detail.

These results provide significant support for many of the hypotheses proposed and, in some ways, they help to clarify the role of self-efficacy in the strain-delinquency relationship. First, the results demonstrate strain in the form of negative peer relationships, peer victimization and general life strain have a significant impact on subsequent delinquency. In fact, the relationship between all forms of strain and subsequent delinquency was significant across all waves of data in the anticipated direction. Consistent with the second hypotheses proposed, this research found a significant positive relationship between self-efficacy and delinquency. Results suggest youths with high levels of self-efficacy, in general, will report fewer instances of delinquency in later adolescence. Given the literature reviewed that suggests self-efficacy plays a large role in behavior choices and positive behavioral outcomes (Chung and Elias 1996; Aas et al. 1995; Hays and Ellickson 1990; Ludwig and Pittman 1999), this result was expected.

A third outcome of interest — the role of self-efficacy in the strain-delinquency relationship — was presented in the results section above. What the results from these analyses suggest is that self-efficacy does not moderate the relationship between strain

and delinquency in the anticipated manner. The research suggests the relationship between strain and delinquency is not mediated by the presence of self-efficacy, a personal coping resource. Agnew (1992) suggests self-efficacy is likely to act as a coping resource or buffer, reducing the magnitude of the relationship between some forms of strain and delinquency. However, across measures of strain, there is no significant difference in the reported level of delinquency by level of self-efficacy. Having higher self-efficacy does not provide these youths with a personal coping resource that *ultimately* influences their choices of coping with the strain and negative emotions they are experiencing.

It is plausible that the expected moderating effect was not found because for some, a high sense of self-efficacy may lead to delinquent responses to strain. That is, for some, having a high sense of self-efficacy doesn't lead them to conventionally cope with strain, but rather to select delinquent adaptations to manipulate their circumstances. Perhaps the non-significant finding is the result of this dual directionality. It is conceivable that in some instances, youths with high self-efficacy attempt to manipulate their environment when faced with aversive stimuli, and do so through delinquent means. So, instead of the theorized effect of self-efficacy as buffering the impact of strain and therefore reducing delinquency, the opposite occurs in some instances. Though the findings of this dissertation work did not support the hypothesized moderating role of self-efficacy in the strain-delinquency relationship, the null findings may lend themselves to future adaptations of the theoretical underpinnings and further empirical tests.

Findings suggest strain and self-efficacy influence delinquency independent of one another and do little to clarify the opposing findings of early research, which examine the role of self-efficacy in the strain-delinquency relationship. Research focused on self-efficacy in the GST literature has not specifically looked at the relationship between this coping resource and engagement in conventional coping adaptations to

strain. Given the potential value of self-efficacy as a developable resource and cognitive coping as a teachable coping skill, future work to further clarify this understanding should be conducted.

**Table 4.1.**
**Descriptive Statistics for All Variables Included in Chapter IV Analyses (N=8,127)[a]**

| | Min | Max | Mean | Std. Dev. |
|---|---|---|---|---|
| **Dependent Variables[b]** | | | | |
| **Composite Self-Report Delinquency** | | | | |
| Involved in physical fight | 0 | 2 | 0.104 | 0.354 |
| Cut/Skipped Class | 0 | 5 | 0.947 | 1.281 |
| Tobacco Use | 0 | 5 | 0.516 | 1.128 |
| Alcohol Use | 0 | 3 | 1.474 | 1.029 |
| Marijuana Use | 0 | 3 | 0.309 | 0.743 |
| Cocaine Use | 0 | 3 | 0.032 | 0.247 |
| **School Response to Delinquency** | | | | |
| Gotten Into Trouble in School | 0 | 5 | 0.487 | 0.893 |
| Put on In-School Suspension | 0 | 5 | 0.094 | 0.409 |
| Suspended/Received Out-of-School Probation | 0 | 5 | 0.056 | 0.333 |
| **Justice System Response to Delinquency** | | | | |
| I Was Arrested | 0 | 5 | 0.037 | 0.274 |
| I Spent Time in a Juvenile Home/Detention Center | 0 | 5 | 0.015 | 0.215 |
| **Independent Variables[c]** | | | | |
| Bullying Victimization | 0 | 1 | 0.215 | 0.411 |
| Criminal Victimization | 0 | 1 | 0.439 | 0.496 |
| General Life Strain | 0 | 9 | 0.491 | 0.699 |
| Composite Self-Efficacy | -2.740 | 1.530 | 0.092 | 0.696 |
| **Control Variables[d]** | | | | |
| Female | 0 | 1 | 0.542 | 0.498 |
| White | 1 | 1 | 0.729 | 0.444 |
| SES | -2.226 | 2.304 | 0.005 | 0.763 |
| Standardized Test Scores | 32.400 | 75.810 | 53.340 | 9.916 |
| Attends Public School | 0 | 1 | 0.804 | 0.397 |
| Delinquency – Eighth Grade | 0 | 1 | 0.159 | 0.366 |
| School Attachment | 1 | 8 | 4.231 | 1.484 |

**Table 4.1. Continued**

| | | | | |
|---|---|---|---|---|
| Low Parental Control | -2.057 | 3.587 | 0 | 1 |

Source: National Educational Longitudinal Study (NELS), 1988: Base Year, 1990: First Follow-Up, 1992: Second Follow-Up (N=8,127 post-imputation).

Notes:

[a] Descriptive statistics are reported for non-imputed variables. As such, the number of data points for independent and control variables varies.

[b] The reported statistics are for data measured at Time 3.

[c] The reported statistics are for data measured at Time 2.

[d] The reported statistics are for data measured at Time 1.

**Table 4.2.**

**Results From the Longitudinal OLS Regression of Composite Delinquency[a] on Bullying Victimization, Criminal Victimization, General Life Strain, and Composite Self-Efficacy[b]**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| Female | -0.249 | *** | -0.172 | *** | -0.150 | *** | -0.147 | *** | -0.145 | *** | -0.146 | *** |
| | (.022) | | (.023) | | (.023) | | (.023) | | (.023) | | (.023) | |
| White | 0.221 | *** | 0.200 | *** | 0.215 | *** | 0.194 | *** | 0.190 | *** | 0.189 | *** |
| | (.025) | | (.025) | | (.025) | | (.025) | | (.025) | | (.025) | |
| SES | 0.034 | * | 0.050 | ** | 0.050 | ** | 0.059 | *** | 0.064 | *** | 0.064 | *** |
| | (.017) | | (.017) | | (.017) | | (.017) | | (.016) | | (.016) | |
| Standardized Test Results | -0.009 | *** | -0.007 | *** | -0.007 | *** | -0.006 | *** | -0.004 | ** | -0.004 | ** |
| | (.001) | | (.001) | | (.001) | | (.001) | | (.013) | | (.013) | |
| Public School | -0.001 | | -0.004 | | 0.008 | | -0.014 | | -0.018 | | -0.018 | |
| | (.029) | | (.029) | | (.029) | | (.029) | | (.028) | | (.028) | |
| Prior Delinquency | | | 0.365 | *** | 0.336 | *** | 0.326 | *** | 0.319 | | 0.320 | *** |
| | | | (.031) | | (.032) | | (.032) | | (.032) | | (.032) | |
| School Attachment | | | -0.038 | *** | | | -0.042 | *** | -0.039 | *** | -0.039 | *** |
| | | | (.008) | | | | (.008) | | (.008) | | (.008) | |
| Low Parental Control | | | 0.071 | *** | | | 0.074 | *** | 0.073 | *** | 0.073 | *** |
| | | | (.011) | | | | (.011) | | (.011) | | (.011) | |
| Bullying Victimization | | | | | 0.169 | *** | 0.172 | *** | 0.151 | *** | 0.148 | *** |
| | | | | | (.029) | | (.029) | | (.029) | | (.029) | |
| Criminal Victimization | | | | | 0.134 | *** | 0.141 | *** | 0.131 | *** | 0.131 | *** |
| | | | | | (.023) | | (.023) | | (.023) | | (.023) | |
| General Life Strain | | | | | 0.096 | *** | 0.097 | *** | 0.090 | ** | 0.092 | *** |
| | | | | | (.016) | | (.016) | | (.016) | | (.016) | |

**Table 4.2. Continued**

| | | | | |
|---|---|---|---|---|
| Composite Self-Efficacy | -0.133 | *** | -0.126 | *** |
| | (.018) | | (.025) | |
| Bully Victimization*Self-Efficacy | | | -0.072 | |
| | | | (.041) | |
| Criminal Victimization*Self-Efficacy | | | -0.002 | |
| | | | (.034) | |
| General Life Strain*Self-Efficacy | | | 0.019 | |
| | | | (.020) | |

Source: National Educational Longitudinal Study (NELS), 1988: Base Year, 1990: First Follow-Up, 1992: Second Follow-Up (N=8,127). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable Composite Self-Report Delinquency which is a composite measure of fighting, cutting/skipping class, and alcohol, marijuana, and cocaine use behaviors.

[b] The independent variables of interest in these analyses were measured at Time 2. The demographic and theoretical controls included in each model were measured at Time 1.

**Table 4.3.**

**Results From the Moderator Model Sensitivity Analyses: Longitudinal OLS Regression of Composite Delinquency[a] on Bullying Victimization, Criminal Victimization, and Composite Self-Efficacy[b]**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| Female | -0.249 | *** | -0.172 | *** | -0.166 | *** | -0.163 | *** | -0.165 | *** | -0.165 | *** |
| | (.022) | | (.023) | | (.023) | | (.023) | | (.023) | | (.023) | |
| White | 0.221 | *** | 0.200 | *** | 0.216 | *** | 0.196 | *** | 0.199 | *** | 0.199 | *** |
| | (.025) | | (.025) | | (.025) | | (.025) | | (.025) | | (.025) | |
| SES | 0.034 | * | 0.050 | ** | 0.041 | * | 0.050 | ** | 0.052 | ** | 0.053 | ** |
| | (.017) | | (.017) | | (.017) | | (.017) | | (.017) | | (.017) | |
| Standardized Test Results | -0.009 | *** | -0.007 | *** | -0.008 | *** | -0.006 | *** | -0.005 | *** | -0.005 | *** |
| | (.001) | | (.001) | | (.001) | | (.001) | | (.001) | | (.001) | |
| Public School | -0.001 | | -0.004 | | 0.000 | | -0.015 | | -0.016 | | -0.016 | |
| | (.029) | | (.029) | | (.029) | | (.029) | | (.029) | | (.029) | |
| Prior Delinquency | | | 0.365 | *** | 0.350 | *** | 0.339 | *** | 0.333 | *** | 0.333 | *** |
| | | | (.031) | | (.032) | | (.032) | | (.032) | | (.032) | |
| School Attachment | | | -0.038 | *** | | | -0.040 | *** | -0.037 | *** | -0.037 | *** |
| | | | (.008) | | | | (.008) | | (.008) | | (.008) | |
| Low Parental Control | | | 0.071 | *** | | | 0.073 | *** | 0.072 | *** | 0.072 | ** |
| | | | (.011) | | | | (.011) | | (.011) | | (.011) | |
| Bullying Victimization | | | | | 0.078 | *** | 0.081 | ** | 0.071 | ** | 0.072 | ** |
| | | | | | (.027) | | (.026) | | (.027) | | (.027) | |
| Criminal Victimization | | | | | 0.046 | * | 0.057 | * | 0.051 | * | 0.047 | * |
| | | | | | (.023) | | (.023) | | (.023) | | (.023) | |
| Composite Self-Efficacy | | | | | | | | | -0.071 | *** | -0.097 | *** |
| | | | | | | | | | (.017) | | (.024) | |

**Table 4.3 Continued**

| | |
|---|---|
| Bully Victimization*Self-Efficacy | 0.021 |
| | (.037) |
| Criminal Victimization*Self-Efficacy | 0.039 |
| | (.033) |

Source: National Educational Longitudinal Study (NELS), 1988: Base Year, 1990: First Follow-Up, 1992: Second Follow-Up (N=8,127). ($p<.05$*, $p<.01$**, $p<.001$***)

Notes:

[a] Each model represents the dependent variable Composite Self-Report Delinquency, measured at Time 3, which is a composite measure of fighting, cutting/skipping class, and alcohol, marijuana, and cocaine use behaviors.

[b] Each predictor variable included in these sensitivity analyses were measured at Time 1.

**Table 4.4.**

**Results From the Mediator Model Sensitivity Analyses: Longitudinal OLS Regression of Composite Delinquency[a] on Bullying Victimization, Criminal Victimization[b], and Composite Self-Efficacy[c]**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | |
| Female | -0.249 | *** | -0.172 | *** | -0.166 | *** | -0.163 | *** | -0.159 | *** |
| | (.022) | | (.023) | | (.023) | | (.023) | | (.023) | |
| White | 0.221 | *** | 0.200 | *** | 0.216 | *** | 0.196 | *** | 0.191 | *** |
| | (.025) | | (.025) | | (.025) | | (.025) | | (.025) | |
| SES | 0.034 | * | 0.050 | ** | 0.041 | ** | 0.050 | ** | 0.057 | ** |
| | (.017) | | (.017) | | (.017) | | (.017) | | (.017) | |
| Standardized Test Results | -0.009 | *** | -0.007 | *** | -0.008 | *** | -0.006 | *** | -0.004 | *** |
| | (.001) | | (.001) | | (.001) | | (.001) | | (.001) | |
| Public School | -0.001 | | -0.004 | | 0.000 | | -0.015 | | -0.019 | |
| | (.029) | | (.029) | | (.029) | | (.029) | | (.029) | |
| Prior Delinquency | | | 0.365 | *** | 0.350 | *** | 0.339 | *** | 0.330 | *** |
| | | | (.031) | | (.032) | | (.032) | | (.032) | |
| School Attachment | | | -0.038 | *** | | | -0.040 | *** | -0.037 | *** |
| | | | (.008) | | | | (.008) | | (.008) | |
| Low Parental Control | | | 0.071 | *** | | | 0.073 | *** | 0.072 | *** |
| | | | (.011) | | | | (.011) | | (.011) | |
| Bullying Victimization | | | | | 0.078 | ** | 0.081 | ** | 0.065 | * |
| | | | | | (.027) | | (.026) | | (.027) | |
| Criminal Victimization | | | | | 0.046 | * | 0.057 | * | 0.051 | * |
| | | | | | (.023) | | (.023) | | (.023) | |

**Table 4.4. Continued**

| | | |
|---|---|---|
| Composite Self-Efficacy | -0.151 | *** |
| | (.018) | |

Source: National Educational Longitudinal Study (NELS), 1988: Base Year, 1990: First Follow-Up, 1992: Second Follow-Up (N=8,127). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable Composite Self-Report Delinquency, measured at Time 3, which is a composite measure of fighting, cutting/skipping class, and alcohol, marijuana, and cocaine use behaviors.

[b] Each strain variable included in these sensitivity analyses are measured at Time 1.

[c] The variable Composite Self-Efficacy included in these sensitivity analyses is measured at Time 2.

# CHAPTER V
# DISCUSSION AND CONCLUSION

How does bullying victimization and strain more broadly influence delinquency and what role does self-efficacy play in this relationship? This dissertation project set out to address this question by examining several individual and composite sources of strain and delinquency outcomes utilizing two distinct methodologies. First, each study presented within this dissertation began by investigating the relationship between bullying victimization and a variety of available delinquency outcomes. Second, guided by previous works that suggest a link between self-efficacy and deleterious outcomes, each research project looked at the direct relationship between self-efficacy and delinquency outcomes. Finally, this dissertation project used both cross-sectional and longitudinal analyses to clarify/inform the role of self-efficacy in this strain-delinquency relationship. When taken together, these analyses led to the overall conclusion that experiencing strain is a significant risk factor associated with delinquency, and self-efficacy also significantly affects delinquency. Contrary to expectations, self-efficacy does not appear to moderate or mediate the relationship between strain and delinquency.

## ***Summary of Findings From the Studies Presented in Chapters III and IV***

When all of the analyses presented in the two empirical chapters are considered together, three notable findings emerge. First, consistent with previous findings, strain, in the form of the presentation of negative stimuli within a school setting does, on average, have a positive influence on students' level of delinquency. Second, there is a direct affect of self-efficacy on delinquency, such that increased levels of self-efficacy are associated with a decrease in delinquent behavior. Lastly, this research does not provide support for the claim that self-efficacy is a coping resource that influences the strain-delinquency relationship. Strain and self-efficacy influence delinquency independent of

one another; self-efficacy does not operate as a moderator or a mediator in the strain-delinquency relationship.

First, the research efforts presented within this dissertation yielded positive support across methods and measures regarding the significantly negative impact of strain on delinquency. A chief aim of this research was to look particularly at the effects of bullying victimization experienced in school on delinquency (both within school and more broadly). Results support Agnew's claim (2001) that peer hassles are indeed significant in their influence on juvenile delinquency. Understanding what impacts delinquency is an important first step in combatting the issue. Given the magnitude of instances of bullying victimization that American students report (see Espelage, Bosworth, and Simon 1999; Dake et al. 2003; Ericson 2001), these findings and previous empirical works suggest our increasing attention to bullying behaviors within school is warranted. Not only does bullying victimization have a negative emotional impact on students, but it also is linked to increases in negative or delinquent behaviors that can, in turn, negatively impact other persons.

The research presented in preceding chapters examined the impact of noxious peer relationships more generally. Results of these analyses similarly offer consistent support for GST. Criminal victimization, as expected, was a positive predictor of delinquency across all analyses. Similarly, when utilizing composite measures to explore noxious peer relationships more generally (accounting for both bullying and criminal victimization) these expected results remain. These findings suggest the importance of addressing noxious peer relationships occurring within a school setting, suggesting these experiences not only influence delinquency in school (and school sanctions), but also significantly predict delinquency outside of school. Additionally, Chapter IV examined the impact of general life strains on delinquency. These strains, many of which are beyond the control of those experiencing them, are strongly linked to subsequent

deviance. Taken together, these studies align with a body of GST literature. Life strains, when measured across Agnew's three-fold typology, as noxious peer relationships generally, or more precisely as peer bullying victimization, have shown a consistent and significant effect on delinquency.

Second, across research methodologies and measures, self-efficacy was a significant predictor of delinquency. These findings align with self-efficacy research demonstrating the important influence of self-efficacy beliefs on general lines of action and non-conventional or deviant behavior (Bandura 1997; Epel, Bandura, and Zimbardo 1999; Pajares 1996; Pintrich and De Groot 1990; Schunk 1995; Zimmerman, Bandura, and Martinez-Pons 1992). Self-efficacy research demonstrates a link between levels of efficacy and task choice, persistence, and academic achievement. Further, research suggests low levels of self-efficacy are associated with risky sexual behavior, drug use and delinquency (Aas et al. 1995; Hays and Ellickson 1990; Zimmerman et al. 1995). Paralleling these works, the research presented within this dissertation suggests a similar relationship between self-efficacy and a variety of deviance outcomes. The cross-sectional study presented in Chapter III found a significant direct effect of self-efficacy on more serious forms of delinquency. Low self-efficacy was associated with increased reports of fighting behavior, as well as receiving higher levels of school sanctions for rule violations school. The study reviewed in Chapter IV found a significant effect of self-efficacy on subsequent self-report delinquency.

A third aim of the research presented in this dissertation was to explore the proposed intervening influence of self-efficacy on the strain-delinquency relationship. Taken together, GST and self-efficacy research inform that self-efficacy beliefs should influence a person's emotional and behavioral responses to given situations. Self-efficacy shapes whether a person will attempt to cope with a situation. That is, despite the reality or belief that the person can cope effectively (expectations of the outcome) individuals

who lack self-efficacy will be less likely to engage in coping. That is, individuals will be much less likely to take action toward dealing with strain in a positive manner when lacking the belief they are capable. Further, it is argued, self-efficacy will strongly impact the likelihood individuals will engage in certain cognitive coping mechanisms. Agnew (1992) suggests when faced with strain, individuals who are able to think through potential responses to strain tend to reflect on the possible repercussions of their responses, and reinterpret the situation or interaction as less important in the grand scheme of things. These individuals will be less likely to respond with non-conventional methods.

The research presented within this dissertation examined the moderating (and mediating) influence of self-efficacy within the strain-delinquency relationship, but failed to yield support for the ideas outlined. The cross-sectional and longitudinal research presented in this dissertation suggests that while self-efficacy directly influences delinquency, it does not buffer the relationship between strain and delinquency. Further, this research suggests self-efficacy does not mediate or explain the relationship between strain and delinquency. While the proposed direction and significance of self-efficacy in GST is clear, empirical studies of strain, self-efficacy and delinquency have failed to produce conclusive evidence of the intervening nature of self-efficacy. The research presented in this dissertation offers evidence contrary to the outlined theoretical relationship.

Theoretically, this work argued self-efficacy is likely to influence whether individuals engage in conventional cognitive coping that alleviates strain and negative affect. Results failed to support these claims. The research presented in this dissertation supports the notion that strain and self-efficacy operate independently to affect delinquency. But what, if any, is the nature of the relationship between strain, self-efficacy, and delinquency?

Despite finding no support for the theoretical ideas outlined within this dissertation regarding the role of self-efficacy as a coping resource, the direct relationship between strain (in the form of bullying victimization and noxious peer relationships) and delinquency and the direct effect of self-efficacy on delinquency should inform future research, and ultimately could inform policy and programming. Future research should continue to explore the relationship between strain, self-efficacy and delinquency in an attempt to clarify its nature. A chief concern of this dissertation was to outline the theoretical relationship between self-efficacy and conventional cognitive coping adaptations to strain. Conventional cognitive coping is unique in that the ability to engage in these methods for coping is dependent on individual resources or attributes, not external resources or relationships. As such, the ability to engage in this type of coping is something that can be developed within the individual and (ideally) enacted despite exterior circumstances.

Future research should work to clarify the nature of the relationship between self-efficacy and cognitive coping. It is likely one's general sense of control (their self-efficacy) is indicative of their ability to cognitively cope. That is, people who feel they have control over situational outcomes are more apt and better able to successfully engage in reinterpretation of the situation itself and practice prosocial problem solving to deal with strain and negative affect. Doing so lessens the likelihood individuals will respond to strain with delinquency. Establishing a clear empirical relationship between self-efficacy and conventional cognitive coping would provide a framework for developing programming directed toward developing youth's sense of self-efficacy and social skills in a manner that could potentially reduce the deleterious effects of strain and delinquency in particular.

## ***Policy and Programming***

Explanation of what factors, both personal and social, lead individuals to either commit or abstain from deviant behavior is complex. Many factors co-occur and interact with one another to influence delinquency. A better understanding of the underlying processes that influence delinquency, especially among our nation's youth, could have significant effects on both policy and programming within state schools in a way that may positively impact juveniles and lessen the likelihood they will offend. The core objective of this research was to expand upon current tests of general strain theory and explore an unexamined caveat. This research analyzed whether self-efficacy, an indicator of cognitive coping ability, acts as a moderator in the demonstrated strain-delinquency relationship. Aligned with Agnew's (1992) propositions, a core hypothesis tested was that individuals who have a greater sense of self-efficacy, when faced with the same levels of strain, will less often exhibit delinquent behaviors. This suggested moderating mechanism was not supported. Nonetheless, the theoretical underpinnings provide a basis for future works that should examine the relationship between self-efficacy and cognitive coping within the strain paradigm more closely. It is argued this is because those who have higher self-efficacy are better able to engage in cognitive reinterpretation of strain and resulting negative emotions, and will therefore less often cope with strain in a delinquent way. Further, this research examined the direct relationship between strain and delinquency and self-efficacy and delinquency, finding a consistent significant relationship of each factor on delinquency, independent of one another.

Bullying victimization and noxious peer relationships, as suggested by this dissertation research, have the potential to affect delinquency. This is a pertinent element that should be considered when developing and implementing bullying intervention programs. Though beyond the scope of the current research, future works should aim to explore the nature of the relationship between self-efficacy, engagement in cognitive

coping, and delinquency. Self-efficacy has been linked to a variety of beneficial outcomes, and as Agnew (1992) suggests, may be one coping resource that promotes the use of conventional cognitive coping practices (see also Bandura 1989). Unlike other methods for dealing with strain, some cognitive adaptations to strain do not rely on external resources and relationships. It is a skill that could potentially be developed within all individuals. Given this, I suggest the benefits of developing both self-efficacy and cognitive coping as a part of delinquency reduction strategies. The research reviewed in the subsequent sections evidencing the benefits of bullying prevention efforts, self-efficacy and cognitive-behavioral coping skills development should inform policy and programming efforts aimed toward delinquency prevention and reducing the negative impacts of bullying victimization more generally. Specifically, I argue for policies intended to increase the use of school-based preventive interventions that seek to cultivate self-efficacy and teach and rehearse cognitive coping strategies to student bodies as a whole in an effort to reduce delinquency.

## Bullying Intervention Programs

School bullying has increasingly become a topic of concern for parents, educators, and scholars largely due to the serious short-term and long-term effects of bullying on children's physical and mental well-being (Ttofi and Farrington 2008). Additionally, there is a strong American interest in school violence and negative peer relationships (Ttofi and Farrington 2012).[25] As reviewed in Chapter II, a large body of

[25] As part of this dissertation project, I sought to understand current intervention techniques utilized to combat violence between youths and negative peer interactions more broadly. Research on interpersonal relationships tends to focus on skill-building and interactions in very young persons (typically elementary school children) (see Astor 1994). This information is not particularly informative when trying to understand what types of interventions are utilized with older adolescents. Further, while a lot of research looks at the causes and consequences of peer violence, research focusing on interventions are likely to discuss how school personnel and administrators should react to these behaviors (see Astor 1994; Sugai et al. 2000; Walker 1995). Again, this body of literature does not add value to the discussion within this chapter. Research centered on relational interventions for older youths focuses centrally on the issue of bullying; this section on school intervention thus reviews these studies.

literature aimed toward a better understanding of the prevalence and consequences of these behaviors exists. Informed by these works, many school-based intervention programs have been developed and applied in an attempt to reduce school bullying and positively influence the nature of peer relationships.

While not exhaustive, the nature and aim of many of these intervention programs will be reviewed briefly to demonstrate there is further room for implementation of policy and programming informed by the theoretical ideas and research within this dissertation. This brief review demonstrates there is currently a primary focus on the prevention of bullying behaviors or negative peer interactions. While delinquency is a core consequence of bullying victimization (and noxious peer relationships more generally), delinquency prevention, while a byproduct of these intervention efforts, is not often the focal aim of bullying intervention efforts in the United States. In the subsequent section, I will review some common elements of bullying interventions that have been shown to reduce bullying behaviors, and thus are likely to reduce subsequent delinquency. This chapter further aims to demonstrate the potential benefits of developing self-efficacy and cognitive coping skills. These resources and skills, it is argued, in conjunction with efforts to reduce incidences of bullying, have the potential to reduce delinquency. Development and application of such programs could prove beneficial for improving individual outcomes and the cohesiveness of the educational environment.

To date, a number of strategies and programs have been developed to reduce bullying in schools. School-based interventions vary in their focus — they can be proactive in nature, aimed at influencing peer support, or reactive in nature (Smith and Thompson 1991). Further, these interventions vary in that they may target bullies, victims, peers, teachers, school policy or school environment more generally (Ttofi and

Farrington 2011). Most bullying interventions aim to influence several of these targets simultaneously.

As with the literature on bullying victimization, bullying intervention efforts began abroad and have since spread to the United States. The first large-scale anti-bullying program was the Olweus Bullying Prevention Program implemented nationally in Norway in 1983. The OBPP is the most researched bullying prevention program. A large number of intervention programs that have been empirically evaluated are based or adapted from the OBPP (Olweus Bullying Prevention Program). Some key elements of the OBPP include whole school anti-bullying policy, classroom rules against bullying, school conferences or assemblies to inform students about bullying, improved supervision, disciplinary and non-punitive methods for dealing with bullying, and information and training for teachers and parents. Additionally, the OBPP promotes cooperative group work, which refers to "the cooperation among different professionals (usually among teachers and some other professional groups) in working with bullies and victims of bullying" (Olweus Bullying Prevention Program) and individualized work with identified bullies and victims. OBPP program goals include reducing existing bullying problems among students, preventing the development of new bullying problems, and of chief importance, given the academic aims of this research, achieving better peer relations at school.

Evaluations of the OBPP demonstrate several positive outcomes of program implementation. They include a large reduction in reported bullying victimization and bullying behaviors, significant reductions in general anti-social behavior in school (including some of the delinquency outcomes examined in this research: fighting and truancy), improved order and discipline in the classroom, increased positive social relationships, and significant improvements in the support offered to victims, as well as interventions utilized to reprimand bullying (Olweus Bullying Prevention Program). In

the United States, the OBPP has been adapted and implemented on a large scale. Other notable bullying prevention models and programs also have been developed and shown effective in the United States, including Bully Proof Your School (see Garrity 1997) and Steps to Respect (see Brown et al. 2011). These, too, focus on implementing change across many levels within the school and have had similar positive results.

In their extensive cross-national review of anti-bullying programs, Ttofi and Farrington (2011) examined over fifty intervention programs (in the United States and abroad) to better understand the effectiveness of program components. Their review of research employing a variety of methodologies found school-based anti-bullying programs are effective in reducing bullying and bullying victimization. Of these programs, almost half were modeled after or at least in part informed by the OBPP. They and other scholars who have conducted similar reviews conclude that a variety of program elements and intervention components were associated with a decrease in both bullying and victimization. To produce results, it is important to go beyond efforts to reach out to particular children (either those who bully or those who are victimized) employing a multilevel strategy that targets bullies, victims, bystanders, families, and communities (Atlas and Pepler 1998; Garrity 1997; Larson, Smith, and Furlong 2002; Skiba and Fontanini 2000; Whitted and Dupper 2005). Additionally, successful programs include elements that aim to change the culture of the school (Atlas and Pepler 1998; Garrity 1997; Skiba and Fontanini 2000). That is, one objective of successful programs is altering the view of bullying behaviors as acceptable.

The OBPP and similarly modeled programs are intended to address bullying within elementary and middle/junior high schools and, to date, have been introduced in thousands of United States schools. And, while the benefits of this and other prevention programming are clear, far fewer schools have adapted the program for older students. Those that have, however, have yielded promising results (Olweus Bullying Prevention

Program). The research within this dissertation demonstrating the repercussions of bullying amongst older juveniles suggests a need for interventions at this level. This, in addition to the promising results from models adapted for older individuals, suggests a need for expanding the implementation of bullying prevention efforts to older cohorts. Further, these platforms should expand upon their target behaviors; they should aim to influence peer relationships and interactions more broadly.

Many of the currently-employed programs in the mentioned reviews include some element of skill-building or problem-solving development within their multilevel programming. They attempt to teach students to be assertive or work to develop problem-solving skills to help in resolving negative interactions. But, often this skill-building is targeted toward recognized bullies and bully victims, not the student body as a whole (see DeRosier and Marcus 2010; Brown et al. 2011 as examples of research focused on the efficacy of these programs). Teaching and rehearsing coping skills, in addition to other program elements, may prove beneficial for a broader audience. Gottfredson and Gottfredson (2002) suggest the prevention practices would likely produce more efficacious results if integrated into broader school operations. Similarly, I suggest developing the skills to evaluate, reinterpret, and select a conventional line of action when faced with adverse peer interactions would be beneficial for all students. It could reduce the commonness of negative reactions to this peer strain. This element of skill-building within bullying prevention has the intended effect on bullying and school social climate. A more central focus on this cognitive coping skill development for all students, in conjunction with bullying prevention efforts, may further reduce deviance.

Strain theory suggests that for juveniles, negative peer relationships are a source of strain that is likely to lead to increased delinquency when conventional methods for dealing with those noxious relationships and resulting emotion are not available. Previous research and evidence presented in this dissertation suggest bullying victimization and

noxious peer interactions more generally are indeed significantly linked to increased delinquency. Delinquency spurred by repeated exposure to bullying, however, is not a central concept dealt with in the bullying prevention programs reviewed. Yet, review of the OBPP suggests prevention programming does have an impact on the overall occurrence of delinquent behaviors in school (Olweus Bullying Prevention Program).Whether this is the result of reducing bullying behaviors themselves or due to a reduction in bullying victimization, which in turn influences delinquency, is unclear. Future empirical work should aim to better understand this association. Works reviewed in a subsequent section highlight the benefits of specific coping skills development for reducing delinquency among juveniles (see Amendola and Oliver 2010). These ideas should be embraced in future developments and adaptations of intervention programming, as they may heighten the positive benefits of these programs. Delinquency prevention and bullying interventions may work in tandem to improve the harmony of American schools.

The succeeding sections review some existing evidence of the benefits of strengthening self-efficacy (particularly within the realm of academics) and teaching conventional cognitive coping strategies as a means to decrease delinquency. An additional area for potential expansion of the existing programs aimed at delinquency reduction (and a common method used in the bullying prevention efforts reviewed) is to work toward an initiative to develop self-efficacy for all students. In general, this focus on the development of internal resources, chiefly self-efficacy, was not a prominent element in the programs reviewed. Self-efficacy is beneficial in a number of ways, including a link with decreased delinquency, and is a resource that research suggests may be developed. Further, if strain research upholds the suggested link between efficacy and the employment of coping skills, then incorporating efforts to develop efficacy may bolster the impact of delinquency reduction programming. Strengthening self-efficacy, a

coping resource, may influence engagement in conventional coping skills that these interventions teach, producing even more advantageous results. The succeeding sections will review the positive impacts of self-efficacy, methods for developing self-efficacy, and the benefits of teaching conventional coping for reducing deviance. Bullying prevention programs in general have proven beneficial. I suggest expanding the platform of such programs to address noxious peer relationships and more focally work to reduce general deviance beyond bullying behaviors. Utilizing elements that have shown to work and expanding programming by including elements guided by the understandings presented in subsequent sections may prove even more valuable for reducing the negative impacts of bullying victimization and noxious peer relationships more generally.

**The Positive Impact of Self-Efficacy and Methods for Enhancement**

Self-efficacy is defined as beliefs about one's capability to learn or perform a particular behavior (Bandura 1986, 1997) or perceived ability to achieve a goal or an outcome. The construct of self-efficacy is a part of a greater theoretical approach known as social cognitive theory that suggests individual achievements are dependent on an interaction between individual characteristics, environmental conditions and behavioral choices. As reviewed in Chapter II, self-efficacy influences behavior in a number of ways. Self-efficacy is shown to impact task choice, the effort and persistence dedicated toward those tasks, and overall achievement outcomes (Bandura 1997; Schunk 1995). Self-efficacy research often focuses on the impact of this individual resource on academic outcomes and suggests that self-efficacy is associated with academic motivation, learning, and achievement outcomes (Bandura 1997; Pajares 1996; Schunk 1995; Zimmerman et al. 1992). Further, an individual's level of self-efficacy is related to the use of effective learning strategies (Pintrich and De Groot 1990). This finding lends support to the ideas outlined regarding the fit of self-efficacy within the strain paradigm. Based in part on this finding, as was hypothetically outlined, it is likely self-efficacy

influences the selection of effective problem-solving strategies, as well. Self-efficacy for successful problem solving — the belief that one can engage in prosocial problem solving to resolve noxious peer relationships and the resulting negative affect — will likely impact selection of coping strategies, as well as the persistence and effort put forth in utilizing those coping strategies.

The research reviewed clearly demonstrates the benefits of a strong sense of self-efficacy, especially within the academic realm. As with bullying prevention, a number of elements have been identified as influencing individual self-efficacy beliefs and importantly, research demonstrates efficacy can be impacted by the employment of particular teaching strategies (Fencl and Scheel 2005). Parents, peers, and schooling have all shown to impact the development and maintenance of self-efficacy levels. In their review of literature regarding the development and positive educational benefits of self-efficacy, Schunk and Pajares (2002) identify parents, peers, and educators or school practices as significantly impacting self-efficacy and consequently, educational outcomes. Parents act as a vicarious source of efficacy; those who teach children to conventionally cope with difficulties and model persistence strengthen the efficacy of their children. Parents who encourage children to tackle different activities and support their efforts produce more efficacious children (Bandura 1997).

As children spend more time outside of the home, peer relationships take on an important role in efficacy maintenance and development. As with parental relationships, modeling in peer relationships is important for improving self-efficacy. Specifically, self-efficacy and task motivation are increased when youths view similar others succeeding in a given task (Schunk 1987). Important behind these ideas of modeling are peer networks. Youths are a part of a large network of peers that is created and operates within the educational setting. While people tend to develop networks consisting of similar individuals, encouraging students to expand these networks would expose them to a

greater number of potential models for behavior that leads to successes. Network expansion efforts may benefit juveniles given that peers within the school setting are similar in many ways. Such efforts increase the potential for successful modeling (or positive interactions, social skills, tasks, etc.) by similar others.

Exposure to a given peer network shapes behavior. For example, Steinberg, Brown, and Dornbusch (1996) found students who begin high school with similar grades, but who become affiliated with academically-oriented crowds, achieve better during high school than do students who become affiliated with less-academically oriented crowds. Contact with others should similarly influence self-efficacy. Expanding the networks of juveniles to better ensure exposure to a broad range of persons and thus increasing the likelihood of seeing successful behaviors should positively impact network members' self-efficacy. Along these lines, Margolis and Mccabe (2006) suggest one strategy for developing self-efficacy (within the classroom) is to utilize peer models. Allow students to learn by watching a peer succeed at a given task. With regard to developing self-efficacy more generally, this points to the benefits of inclusion of all individuals (not just those recognized as being at risk for bullying/bullying victimization) in skills development. This allows youths the opportunity to succeed (in skills acquirement and practice), simultaneously broadening the net of potential models that lower self-efficacy students may draw upon.

Elements of the educational environment and instructive practices also have been shown influential for self-efficacy and associated outcomes. As students progress through school, academic self-efficacy tends to decline (Pintrich and Schunk 1996). This trend is attributed to a variety of school experiences, including increased competition, stress associated with transitioning through schools and greater competition. Regarding academic self-efficacy, classrooms that group individuals by ability and rely on social comparisons not only result in lower efficacy appraisals of individuals placed in lower

ability groups, but also poorer performance outcomes of these individuals (Pintrich and Schunk 1996). These ideas may more broadly inform the interventions suggested here. As previously noted, many bullying interventions provide specific programming to targeted individuals — those recognized as either a bully or a victim of bullies (see Knoff 1999). However, this efficacy research suggests it may be more beneficial to address all persons (not segregating) in efforts to increase efficacy and ultimately conventional cognitive coping. Grouping low self-efficacy individuals while attempting to teach and practice positive coping skills is likely to produce lessened results than including both high and low self-efficacy students in these sessions. Additionally, the general practice of social comparison in classrooms is shown to negatively impact efficacy and therefore should be avoided.

A variety of processes and instructional techniques has been shown beneficial for developing self-efficacy. These include providing specific short-term and attainable learning goals, positive social models, performance feedback, and performance-contingent rewards (Schunk 1995). These practices help students assess their capabilities and gauge their progress in learning, in turn motivating continued effort and improvement. Margolis and Mccabe (2006) similarly suggest three important methods for developing self-efficacy: enactive mastery, vicarious experiences, and verbal persuasion. Using these techniques in teaching, educators can address and strengthen students' beliefs in their academic abilities and enhance their engagement in learning tasks. Parents, teachers, and peers should aim to provide an encouraging environment when aiming for skill acquisition (for example, when teaching cognitive coping adaptation to strain or social skills to be utilized when faced with a bullying situation). Self-efficacy is enhanced when students perceive they are performing well or becoming more skillful and this process is not necessarily negated when students' progress slowly or fail to attain success. In this situation, the efficacy of students who believe they can improve performance by

putting forth a greater effort or applying a different strategy is not negatively affected (Schunk 1995). Encouraging perseverance and utilizing a variety of methods to attain goals (academic or otherwise), and providing students with a strategy that helps them succeed, can also raise self-efficacy. Additionally, regulating the achievements students are expected to achieve so they are specific, short-term, and challenging (yet attainable) has been shown to enhance students' self-efficacy (Schunk and Pajares, 2002). Providing students goals they can use to gauge their progress is also helpful. The perception of progress strengthens self-efficacy and acts as a catalyst for continued achievement (Schunk 1995). Further, as students work to attain skills (either academic, social, or cognitive), having them verbalize a specific plan for successful completion (Schunk and Pajares 2002), along with providing encouragement, frequent and focused performance feedback, and rewards will help to increase efficacy (see Margolis and Mccabe 2006).

Drawing from these works, some general suggestions for improving youth self-efficacy can be made. These suggestions can be incorporated into existing bullying prevention programming or considered when developing programming aimed at reducing negative peer relationships, the repercussions of these negative peer relationships, and antisocial behavior. Lessons that provide opportunities for mastery experiences or successes, as well as vicarious experiences, observing peers in successful situations should strengthen efficacy beliefs. Moreover, providing communication and feedback that are positive and supportive in nature, and fostering a healthy emotional environment (one that is positive in nature with low levels of stress and anxiety) together are likely to stimulate self-efficacy growth. In an effort to improve self-efficacy and thus reduce deviance, intervention programs and educators in general should draw on these understandings and implement some of the suggested techniques for efficacy improvement. While students enter school with varying levels of efficacy, utilizing the suggested methods to strengthen self-efficacy across all students would likely lead to

positive academic results and decreases in delinquency (given the supported direct relationship between self-efficacy and delinquency). In addition, based on the theoretical link between self-efficacy and conventional coping, such efforts could potentially lead to the adoption of stronger coping techniques in the face of strain (further reducing the likelihood of deviance).

A number of elements have been identified as influencing individual self-efficacy beliefs. Parents, peers, and schooling all have shown to impact the development and maintenance of self-efficacy levels. As noted, bullying interventions have proven most successful when they simultaneously include programming for each of these targets: parents, peers, educators, and the school more broadly. If future research should further support the theoretical claims outlined within this dissertation — that self-efficacy beliefs will influence engagement of cognitive coping resources — then it is suggested these programs be adapted to help develop these internal resources and more strongly focus on teaching conventional coping techniques to the entire student body.

The suggestions made within this section, including full student body inclusion and specific practices or methods to employ with program implementation, draw on self-efficacy research that addresses the ways in which self-efficacy can be improved or developed. A bulk of the literature noted here looks specifically at self-efficacy development and academic outcomes, which is a focus of a lot of self-efficacy research. In general, work in this realm has concluded that students who possess a stronger sense of self-efficacy work harder, persist longer when faced with difficulties, are more willing to tackle tasks, and in general, achieve at a higher level. These ideas are likely generalizable beyond the academic realm. It is argued these advantageous outcomes of self-efficacy also will be seen or benefit conventional cognitive coping efforts and ultimately aid in delinquency reduction. The succeeding section outlines existing delinquency-reduction programming, which teaches the types of skills/practices that Agnew (1992) suggests will

decrease the need to cope with strain through deviance. There is a focus on conventional cognitive coping skills development, as this is the form of conventional coping I argue is teachable, and therefore potentially available to all juveniles. Self-efficacy, a coping resource beneficial in its own right, is also likely to impact willingness, persistence, and achievement with regard to coping skills application. That is, self-efficacy as a resource is expected to impact engagement in the types of coping strategies that can be taught (as discussed in the following section), much like it has been shown to influence academic endeavors.

### ***Methods and Implications of Teaching Conventional Cognitive Coping Strategies Outlined by General Strain Theory***

The theoretical basis for testing the role of self-efficacy in the strain-delinquency relationship, as outlined in Chapter II of this dissertation, is the posited link between self-efficacy (a coping resource) and the engagement in some conventional cognitive coping strategies. A rationale behind the current research is that, of the theorized coping mechanisms, cognitive coping is the resource that may be applied most broadly. While self-efficacy did not significantly moderate the relationship between strain and delinquency, the positive benefits of self-efficacy and conventional cognitive coping for delinquency reduction are not negated. Existing work demonstrates teaching coping skills that focus on enhancing adolescents' ability to manage and reduce stress has a positive impact on delinquent outcomes (Beaver et al. 2008; Clarke et al. 1995; Gonzales et al. 2001; Kazdin and Weisz 1998).

While research focused on the potential benefits of conventional cognitive coping for delinquency reduction are minimal, the theoretical underpinnings demonstrating the benefits of these forms of coping have implications regarding possible ways to deal with the increasing levels of delinquency seen during adolescence. Agnew (1995) suggests there is a need to arm juveniles with an ability to positively cope on their own. As

theorized, an individual's ability to cognitively cope reflects his/her ability to think about a strainful situation and problem-solve or reinterpret the importance of that situation. This is a process that lessens the impact of or the negative emotions directly elicited by the situation, which thus lessens the need to cope in a negative manner.

Additionally, important in Agnew's theoretical explanation of cognitive coping is the idea of problem-solving. Teaching adolescents positive social and problem-solving skills would help shape their overall ability to cognitively cope with strainful situations. Dodge (1986) proposes a model of problem-solving that includes five necessary steps to effective problem-solving: 1) search for environmental cues; 2) interpret these cues; 3) think of possible responses to the situation; 4) think ahead of possible consequences of those responses; and 5) perform the chosen response. Current research suggests youths have difficulty at each of the five outlined steps necessary for effective problem-solving (Hollin 1990b; Agnew 1995). While minimal research has been conducted on the effectiveness of problem-solving programs, problem-solving training does exist and those works that review these programs suggest their value. MacKenzie and Hickman (2006) shows cognitive-behavioral therapy has been an effective tool for rehabilitating former offenders. The goal of such problem-solving programs is to break down the essential steps involved in generating effective and prosocial responses to problem-solving and teach youths how to efficiently work through them.

Further, some individually-based programs have focused on intervening at the point when youths become angry and frustrated by the strain they experience. They recognize the inability to deal with these emotions leads to the adoption of maladaptive behavioral techniques. However, to date, little research exists on the use and effectiveness of social skills training, problem-solving and anger control techniques (Agnew 1995) with general youth populations. Yet, the suggestions presented within this dissertation advise the skills taught through these types of programs could very well arm

adolescents with the appropriate tools to handle strainful situations and the emotions they illicit, and therefore may inform delinquency reduction strategies. This is a notion supported by the limited amount of research on these types of programs (Hollin 1990a, 1990b; Blackburn 1993).

Aggression Replacement Training, a program that focuses on social skills development and problem-solving, is utilized frequently in intervention efforts with juvenile delinquents. Research demonstrates this approach to addressing problem thinking and behavior patterns has been beneficial in producing positive behavior and reducing aggressive and delinquent behavior (Amendola and Oliver 2010:48). Research shows the skillstreaming exercises promoted by this type of programming can help juveniles in dealing with stress, anger, and group pressure (Barnoski 2004). Further, additional reviews of this work demonstrate significant reductions in aggression and future criminal behavior in juvenile delinquents who received Aggression Replacement Training when compared to youths who did not receive these interventions (Amendola and Oliver 2010; Mitchell 2009).

The suggestions made here also are informed by the literature on relapse avoidance in drug treatment (Avants, Warburton, and Margolin 2000; Gossop et al. 2002). Research in this realm suggests prosocial coping, specifically development of problem-solving skills, promotes higher chances of success and relapse avoidance for post-treatment drug users. In their study of adolescents, Anderson, Ramo, and Brown (2006) concluded coping ability is among the best predictors of post-treatment success. The suggestions made here regarding the benefits of teaching conventional cognitive coping skills align with the findings of these works and provide a framework for exploring the efficaciousness of conventional coping for weakening the strain-delinquency relationship for all adolescents. The positive potential of conventional coping is likely beneficial to adolescents outside of these recognized deviant sub-

populations. Incorporating self-efficacy development and the teaching and practice of conventional cognitive coping strategies may bolster the impact of bullying prevention efforts. In addition, these programs may work together with bullying prevention efforts to provide a stronger cumulative effect on delinquency reduction and the overall harmony of American schools.

In combination, what is known about the effectiveness of teaching cognitive coping skills in an effort to promote prosocial behaviors and findings of the current research provide a strong basis for future research. Studies should explore further the nature of the relationship between self-efficacy and the use of acquired cognitive coping mechanisms. Does self-efficacy act as a resource that makes engagement in conventional coping practices, such as cognitive reinterpretation of noxious peer relationships (strain), more likely? Does a strong sense of self-efficacy paired with an arsenal of cognitive coping skills diminish the association between strain and delinquency? These avenues for future research can inform the development and implementation of programs aimed at reducing the harmful effects of negative peer interactions, an initiative that builds upon many of the bullying interventions currently utilized in the United States. This knowledge may help us to better arm our youth with the tools necessary to overcome life strains. It also may influence individuals' life paths and make a difference in whether an individual commits or abstains from delinquent or criminal behavior.

### ***Limitations and Future Research***

It is important to recognize the research presented in this dissertation is not without its limitations. First, because of the grand nature of GST, this work has aimed to test one caveat, while ignoring other key assumptions of the theory. It does not specifically test the core concept that strain elicits an emotion, which then leads to a behavior. Rather, it is assumed this is the case based on several existing works that support this link. Further, while Chapter II emphasized the theoretical relationship

between self-efficacy and engaging in conventional cognitive coping, this relationship was not directly explored. Each of these limitations is integrated into and informs the suggestions for future research discussed below.

Further, there are recognized disadvantages to the use of cross-sectional analysis (as was used for the study presented in Chapter III) to understand causation. This type of analysis can only suggest causality as it cannot account for time ordering of theoretical elements. While the research presented in Chapter IV attempted to remedy this issue, testing the hypothesized relationships using longitudinal methods, the time span for testing these relationships afforded by the National Educational Longitudinal Survey may not be ideal. A two-year time span lapsed between each survey that was administered, It may be the strength of the relationships indicated in these analyses might be altered if these surveys were administered each school year.

Along these lines, I must recognize additional limitations associated with secondary data analysis. Chiefly, this research was limited by the data afforded in these previously existing surveys. Specifically, this research was limited to use of the measures for key variables — noxious peer relationships, bullying victimization, self-efficacy and delinquency — included in these surveys that were developed with an aim broader than that of this dissertation work. Future research should aim to test the core ideas presented throughout this dissertation utilizing more exhaustive measures; for example, utilizing a wider range of bullying measures and testing a more extensive range of delinquency outcomes.

Research suggests efforts in American schools to reduce bullying and the ramifications of such behaviors are indeed working (see Ttofi and Farrington 2011). While a bulk of the programs implemented are multilevel in nature and include several elements working together to promote a prosocial educational environment, there are some additional avenues to explore that may further their usefulness. The ideas outlined

within this section and presented throughout this dissertation promote several future research endeavors. Ideally, future study would include emotion data along with cognitive coping data to enable researchers to more accurately detail the processes that are occurring. That is, to more completely test the propositions of general strain theory, the current test should be expanded first by including the strain/emotion piece of the puzzle. Additionally, future tests should employ longitudinal data, which would allow for the inclusion of a control measure of criminality prior to the introduction of negative stimuli. A stronger argument of the causal direction in the strain-delinquency relationship would result. Furthermore, findings regarding strainful events that influence delinquency should be expanded to investigate the influence of strain outside the school setting.

Examining general strain theory completely requires tests of each of its many individual propositions, as well as assessments of the more complete picture of the process. In particular, by further investigating the alternatives to delinquent coping, our understanding of the progression of delinquent behaviors becomes clearer, which, in turn, can aid in the development and implementation of programs to address violence and delinquency in schools. If further research supports the findings and suggestions here — specifically that self-efficacy acts as a moderator in the strain-delinquency relationship due to its influence on the use of conventional cognitive coping — and if research indicates that such skills can be taught and have an effect on delinquency, then exploration of means to teach this coping mechanisms on a large scale could be fruitful.

## ***Conclusion***

In sum, the research presented in this dissertation shows strong support for the core claims of GST, demonstrating strain measured in a number of ways is related to delinquency. Further, in alignment with self-efficacy research, it has shown self-efficacy is associated with delinquent behaviors. While the research presented in Chapters III and IV demonstrates that strain and self-efficacy operate independent of one another to

significantly influence delinquency, this work did not support the proposition that the relationship between bullying victimization and delinquency is moderated by self-efficacy. Despite this finding, this dissertation provides a theoretical foundation for further works that may test the theoretical claims regarding the link between self-efficacy (a coping resource) and the ability to engage/actual employment of conventional cognitive coping methods. These results have several implications for future research, as well, and the potential to inform policy and programming aimed at reducing the adverse effects of strain, and delinquency reduction specifically. In all, these results demonstrated the importance of strain and self-efficacy in understanding juvenile delinquency.

# APPENDIX

# TABLE A.1.

## Chapter III, List of Variables With Precise Question Wording and Response Sets

| Variable Label | Precise Survey Questioning: In the first semester or term of this school year, how many times did any of the following happen? | Response Sets | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| **Self-Report Delinquency**[a] | | | | | | |
| Fights | I got into a physical fight at school | Never | Once or Twice | More than Twice | | |
| Skips Class | I cut or skipped classes | Never | 1-2 Times | 3-6 Times | 7-9 Times | 10 or More Times |
| **Composite School Sanctions** | | | | | | |
| Times in Trouble | I got in trouble for not following school rules | Never | 1-2 Times | 3-6 Times | 7-9 Times | 10 or More Times |
| In-School Suspension | I was put on in-school suspension | Never | 1-2 Times | 3-6 Times | 7-9 Times | 10 or More Times |
| Out-School Suspension | I was suspended or put on probation | Never | 1-2 Times | 3-6 Times | 7-9 Times | 10 or More Times |
| **All Noxious Peer Relationships** | | | | | | |
| **Bullying Victimization** | | | | | | |
| Bullied | Someone bullied or picked on me | Never | Once or Twice | More than Twice | | |
| **Criminal Victimization** | | | | | | |
| Threaten | Someone threatened to hurt me at school | Never | Once or Twice | More than Twice | | |
| Belongings Destroyed | Someone purposely damaged or destroyed my belongings | Never | Once or Twice | More than Twice | | |
| Been Hit | Someone hit me | Never | Once or Twice | More than Twice | | |
| Strong Arm Victim | Someone used strong-arm or forceful methods to get money or things from me | Never | Once or Twice | More than Twice | | |
| | **Precise Survey Questioning: How often do these things apply to you?** | | | | | |

## Table A.1. Continued

| Composite Self-Efficacy | | | | | |
|---|---|---|---|---|---|
| **General Self-Efficacy** | | | | | |
| Learn Something Hard | When I sit myself down to learn something really hard, I can learn it | Almost Never | Sometimes | Often | Almost Always |
| Learn Something Well | If I want to learn something well, I can | Almost Never | Sometimes | Often | Almost Always |
| **Subject Specific Self-Efficacy – Math** | | | | | |
| Innate Math Ability | Most people can learn to be good at math[b] | Strongly Agree | Agree | Disagree | Strongly Disagree |
| Math Tests | I'm confident that I can do an excellent job on my math tests | Almost Never | Sometimes | Often | Almost Always |
| Understand Difficult Math Texts | I'm certain I can understand the most difficult material presented in math texts presented in math texts | Almost Never | Sometimes | Often | Almost Always |
| Understand Complex Math Material | I'm confident I can understand the most complex material presented by my math teacher presented by my math teacher | Almost Never | Sometimes | Often | Almost Always |
| Math Assignments | I'm confident I can do an excellent job on my math assignments | Almost Never | Sometimes | Often | Almost Always |
| Master Math Skills | I'm certain I can master the skills being taught in my math class | Almost Never | Sometimes | Often | Almost Always |
| **Subject Specific Self-Efficacy – English** | | | | | |
| Understand Difficult English Material | I'm certain I can understand the most difficult material presented in English | Almost Never | Sometimes | Often | Almost Always |
| Understand Complex English Material | I'm confident I can understand the most complex material presented by my English teacher | Almost Never | Sometimes | Often | Almost Always |
| English Tests | I'm confident I can do an excellent job on my English tests | Almost Never | Sometimes | Often | Almost Always |
| English Assignments | I'm confident I can do an excellent job on my English assignments | Almost Never | Sometimes | Often | Almost Always |

## Table A.1. Continued

| | | | | | |
|---|---|---|---|---|---|
| Master English Skills | I'm certain I can master the skills being taught in my English class | Almost Never | Sometimes | Often | Almost Always |
| **School Attachment** | | | | | |
| Likes School | How much do you like school? | Not at All | Somewhat | A Great Deal | |
| | **Precise Survey Questioning: How often do your parents do the following?** | | | | |
| **Parental Control** | | | | | |
| Reward Good Grades | Give you privileges as a reward for good grades | Never | Rarely | Sometimes | Often |
| Punish Poor Grades | Limit privileges because of poor grades | Never | Rarely | Sometimes | Often |
| Assigns Chores | Require you to do work or chores | Never | Rarely | Sometimes | Often |
| Limit TV Time | Limit the amount of time watching TV/playing video games | Never | Rarely | Sometimes | Often |
| Limit Time with Friends | Limit the amount of time going out with friends on school nights | Never | Rarely | Sometimes | Often |
| | **Precise Survey Questioning: Among your close friends, how important is it to them that they …** | | | | |
| **Negative Peer Associations** | | | | | |
| Attend Class[c] | Attend classes regularly | Not Important | Somewhat Imp. | Very Important | |
| Get Good Grades[c] | Get good grades | Not Important | Somewhat Imp. | Very Important | |
| Drop Out | Altogether, how many of your close friends have dropped out of school before graduating? | None of Them | Some of Them | Most of Them | All of Them |

Source: Educational Longitudinal Study, 2002.

Notes:

[a] These outcomes are studied individually (not as a composite measure).

[b] The base question for this item is worded "How much do you agree or disagree with the following statement?"

[c] This item was reverse coded and used to create a composite measure of negative peer associations.

**Result A.1.**

**Chapter III, Results From the Principal Components Factor Analysis of School Response to Delinquency Variables (N=14,256)**

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.20532 | 1.33354 | 1.3783 | 1.3783 |
| Factor2 | -0.12822 | 0.07435 | -0.1466 | 1.2316 |
| Factor3 | -0.20257 | . | -0.2316 | 1.0000 |

**Result A.2.**

**Chapter III, Results From the Principal Components Factor Analysis of Criminal Victimization Variables (N=14,101)**

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.20597 | 1.22105 | 1.4309 | 1.4309 |
| Factor2 | -0.01508 | 0.13064 | -0.0179 | 1.4130 |
| Factor3 | -0.14572 | 0.05664 | -0.1729 | 1.2401 |
| Factor4 | -0.20236 | . | -0.2401 | 1.0000 |

**Result A.3.**

**Chapter III, Results From the Principal Components Factor Analysis of Noxious Peer Relationship Variables (N=14,076)**

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.54616 | 1.54194 | 1.3453 | 1.3453 |
| Factor2 | 0.00422 | 0.07426 | 0.0037 | 1.3490 |
| Factor3 | -0.07004 | 0.06673 | -0.0609 | 1.2881 |
| Factor4 | -0.13677 | 0.05752 | -0.1190 | 1.1691 |
| Factor5 | -0.19429 | . | -0.1691 | 1.0000 |

**Result A.4.**

**Chapter III, Results From the Principal Components Factor Analysis of Composite Self-Efficacy Variables (N=9,823)**

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 5.98586 | 3.76920 | 0.7391 | 0.7391 |
| Factor2 | 2.21666 | 1.91236 | 0.2737 | 1.0127 |
| Factor3 | 0.30429 | 0.17095 | 0.0376 | 1.0503 |
| Factor4 | 0.13334 | 0.09072 | 0.0165 | 1.0668 |
| Factor5 | 0.04262 | 0.04345 | 0.0053 | 1.0720 |
| Factor6 | -0.00083 | 0.02801 | -0.0001 | 1.0719 |
| Factor7 | -0.02884 | 0.01865 | -0.0036 | 1.0684 |
| Factor8 | -0.04749 | 0.01999 | -0.0059 | 1.0625 |
| Factor9 | -0.06748 | 0.01727 | -0.0083 | 1.0542 |
| Factor10 | -0.08475 | 0.00666 | -0.0105 | 1.0437 |
| Factor11 | -0.09141 | 0.03149 | -0.0113 | 1.0324 |
| Factor12 | -0.12290 | 0.01691 | -0.0152 | 1.0173 |
| Factor13 | -0.13981 | . | -0.0173 | 1.0000 |

**Result A.5.**

**Chapter III, Results From the Principal Components Factor Analysis of Control Variables, Negative Peer Influence (N=9,690)**

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 0.91653 | 0.89668 | 1.4023 | 1.4023 |
| Factor2 | 0.01985 | 0.05301 | 0.0304 | 1.4327 |
| Factor3 | -0.03316 | 0.21647 | -0.0507 | 1.3820 |
| Factor4 | -0.24963 | . | -0.3820 | 1.0000 |

## Table A.2.

## Results From the Cross-Sectional Logistic Regression of Fight Behavior[a] on Criminal Victimization and Composite Self-Efficacy

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| Gender | -1.248 | *** | -1.104 | *** | -0.969 | *** | -0.923 | *** | -0.913 | *** | -0.911 | *** |
| | (.057) | | (.067) | | (.072) | | (.073) | | (.073) | | (.073) | |
| African American | 0.441 | *** | 0.616 | *** | 0.708 | *** | 0.788 | *** | 0.796 | *** | 0.797 | *** |
| | (.074) | | (.089) | | (.093) | | (.094) | | (.094) | | (.094) | |
| Hispanic | 0.207 | ** | 0.291 | ** | 0.341 | ** | 0.389 | *** | 0.393 | *** | 0.391 | *** |
| | (.075) | | (.091) | | (.100) | | (.101) | | (.101) | | (.101) | |
| Other | -0.081 | | 0.161 | | 0.022 | | 0.051 | | 0.050 | | 0.050 | |
| | (.078) | | (.099) | | (.111) | | (.114) | | (.114) | | (.114) | |
| SES | -0.316 | *** | -0.240 | *** | -0.328 | *** | -0.296 | *** | -0.277 | *** | -0.276 | *** |
| | (.038) | | (.046) | | (.049) | | (.051) | | (.051) | | (.051) | |
| Two Adults In Home | -0.127 | * | -0.064 | | -0.073 | | -0.055 | | -0.053 | | -0.053 | |
| | (.060) | | (.073) | | (.078) | | (.079) | | (.079) | | (.079) | |
| School Attachment | | | -0.438 | *** | | | -0.311 | *** | -0.296 | *** | -0.295 | *** |
| | | | (.057) | | | | (.060) | | (.060) | | (.060) | |
| Parental Control | | | -0.023 | | | | -0.032 | | -0.029 | | -0.029 | |
| | | | (.033) | | | | (.036) | | (.036) | | (.036) | |
| Negative Peer Associations | | | 0.217 | *** | | | 0.153 | *** | 0.145 | *** | 0.144 | *** |
| | | | (.033) | | | | (.036) | | (.037) | | (.037) | |
| Criminal Victimization[b] | | | | | 0.861 | *** | 0.840 | *** | 0.838 | *** | 0.844 | *** |
| | | | | | (.032) | | (.033) | | (.033) | | (.033) | |
| Composite Self-Efficacy[c] | | | | | | | | | -0.094 | ** | -0.109 | ** |
| | | | | | | | | | (.037) | | (.037) | |

**Table A.2. Continued**

| | |
|---|---|
| Criminal Victimization*All Self-Efficacy | -0.030 |
| | (.033) |

Source: Educational Longitudinal Study (ELS), 2002: Base Year (N=14,256). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the binary dependent variable Fight where students reporting any incidences of fighting behavior in school are 1.

[b] This independent variable of interest, Criminal Victimization, is a composite measure of available criminal victimization items.

[c] This independent variable of interest, Composite Self-Efficacy, is a combination of all self-efficacy items available (including general and subject specific self-efficacy items).

**Table A.3.**

**Results From the Cross-Sectional OLS Regression of Cutting Class[a] on Criminal Victimization and Composite Self-Efficacy**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| Gender | -0.022 | | 0.033 | | 0.025 | | 0.076 | *** | 0.077 | *** | 0.077 | *** |
| | (.015) | | (.021) | | (.021) | | (.020) | | (.020) | | (.020) | |
| African American | 0.093 | *** | 0.145 | *** | 0.094 | ** | 0.152 | *** | 0.152 | *** | 0.152 | *** |
| | (.025) | | (.032) | | (.032) | | (.032) | | (.032) | | (.032) | |
| Hispanic | 0.284 | *** | 0.334 | *** | 0.302 | *** | 0.338 | *** | 0.338 | *** | 0.338 | *** |
| | (.024) | | (.034) | | (.034) | | (.034) | | (.034) | | (.034) | |
| Other | 0.146 | *** | 0.150 | *** | 0.119 | *** | 0.138 | *** | 0.138 | *** | 0.138 | *** |
| | (.022) | | (.034) | | (.034) | | (.034) | | (.033) | | (.033) | |
| SES | -0.098 | *** | -0.051 | ** | -0.084 | *** | -0.050 | ** | -0.048 | ** | -0.048 | ** |
| | (.011) | | (.015) | | (.015) | | (.015) | | (.015) | | (.015) | |
| Two Adults In Home | -0.096 | *** | -0.096 | *** | -0.110 | *** | -0.093 | *** | -0.093 | *** | -0.093 | *** |
| | (.019) | | (.026) | | (.027) | | (.026) | | (.026) | | (.026) | |
| School Attachment | | | -0.286 | *** | | | -0.234 | *** | -0.262 | *** | -0.262 | *** |
| | | | (.020) | | | | (.019) | | (.019) | | (.019) | |
| Parental Control | | | -0.040 | ** | | | -0.041 | ** | -0.041 | ** | -0.041 | ** |
| | | | (.012) | | | | (.012) | | (.012) | | (.012) | |
| Negative Peer Associations | | | 0.141 | *** | | | 0.128 | *** | 0.128 | *** | 0.128 | *** |
| | | | (.013) | | | | (.012) | | (.013) | | (.013) | |
| Criminal Victimization[b] | | | | | 0.171 | *** | 0.140 | *** | 0.140 | *** | 0.140 | *** |
| | | | | | (.014) | | (.014) | | (.014) | | (.014) | |
| Composite Self-Efficacy[c] | | | | | | | | | -0.008 | | -0.009 | |
| | | | | | | | | | (.012) | | (.012) | |

**Table A.3. Continued**

| | | | | | | |
|---|---|---|---|---|---|---|
| Criminal Victimization*All Self-Efficacy | | | | | | 0.000 |
| | | | | | | (.013) |
| Constant | 1.490 | 2.107 | 1.536 | 2.033 | 2.029 | 2.029 |
| Adjusted R2 | 0.026 | 0.085 | 0.053 | 0.104 | 0.104 | 0.104 |

Source: Educational Longitudinal Study (ELS), 2002: Base Year (N=14,256). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable Skipping/Cutting Class and responses are captured with five ordered categories, each representing a range of incidences the students reports skipping class.

[b] This independent variable of interest, Criminal Victimization, is a composite measure of available criminal victimization items.

[c] This independent variable of interest, Composite Self-Efficacy, is a combination of all self-efficacy items available (including general and subject specific self-efficacy items).

## Table A.4.

## Results From the Cross-Sectional OLS Regression of School Response Delinquency[a] on Criminal Victimization and Composite Self-Efficacy

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| Gender | -0.312 | *** | -0.253 | *** | -0.234 | *** | -0.185 | *** | -0.180 | *** | -0.18 | *** |
| | (.016) | | (.020) | | (.019) | | (.019) | | (.019) | | (.019) | |
| African American | 0.204 | *** | 0.254 | *** | 0.211 | *** | 0.264 | *** | 0.267 | *** | 0.266 | *** |
| | (.026) | | (.033) | | (.033) | | (.033) | | (.033) | | (.033) | |
| Hispanic | 0.101 | *** | 0.133 | *** | 0.106 | ** | 0.14 | *** | 0.141 | *** | 0.142 | *** |
| | (.025) | | (.035) | | (.034) | | (.034) | | (.034) | | (.034) | |
| Other | -0.071 | *** | 0.033 | | -0.002 | | 0.016 | | -0.044 | | -0.014 | |
| | (.024) | | (.032) | | (.032) | | (.032) | | (.032) | | (.032) | |
| SES | -0.113 | *** | -0.06 | *** | -0.119 | *** | -0.088 | *** | -0.079 | *** | -0.079 | *** |
| | (.012) | | (.014) | | (.014) | | (.014) | | (.014) | | (.014) | |
| Two Adults In Home | -0.093 | *** | -0.077 | ** | -0.088 | ** | -0.073 | *** | -0.072 | *** | -0.073 | *** |
| | (.020) | | (.025) | | (.025) | | (.024) | | (.024) | | (.024) | |
| School Attachment | | | -0.291 | *** | | | -0.256 | *** | -0.248 | *** | -0.248 | *** |
| | | | (.021) | | | | (.020) | | (.020) | | (.020) | |
| Parental Control | | | -0.025 | * | | | -0.027 | *** | -0.026 | * | -0.025 | * |
| | | | (.012) | | | | (.012) | | (.012) | | (.012) | |
| Negative Peer Associations | | | 0.142 | *** | | | 0.122 | *** | 0.117 | *** | 0.118 | *** |
| | | | (.012) | | | | (.015) | | (.015) | | (.016) | |
| Criminal Victimization[b] | | | | | 0.250 | *** | 0.220 | *** | 0.219 | *** | 0.211 | *** |
| | | | | | (.021) | | (.021) | | (.021) | | (.020) | |
| Composite Self-Efficacy[c] | | | | | | | | | -0.045 | ** | -0.042 | ** |
| | | | | | | | | | (.013) | | (.012) | |

**Table A.4. Continued**

| | | | | | | |
|---|---|---|---|---|---|---|
| Criminal Victimization*All Self-Efficacy | | | | | | -0.040 |
| | | | | | | (.020) |
| Constant | 0.204 | 0.746 | 0.146 | 0.629 | 0.607 | 0.607 |
| Adjusted R2 | 0.044 | 0.098 | 0.101 | 0.143 | 0.145 | 0.147 |

Source: Educational Longitudinal Study (ELS), 2002: Base Year (N=14,256). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable School Response to Delinquency which is a composite measure of school response to delinquency items.

[b] This independent variable of interest, Criminal Victimization, is a composite measure of available criminal victimization items.

[c] This independent variable of interest, Composite Self-Efficacy, is a combination of all self-efficacy items available (including general and subject specific self-efficacy items).

## Table A.5.

## Chapter IV, List of Key Dependent Variables — Each $T_3$ Dependent Variable Analyzed Separately and as Part of the Designated Composite Measures

| Variable Label | Precise Survey Questioning: How many times did the following things happen to you in the first semester or term of the current school year?[a] | Response Sets | | | | | |
|---|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 | 5 |
| **Composite Self-Report Delinquency[bc]** | | | | | | | |
| Smokes | How many cigarettes do you usually smoke in a day? | Don't smoke at all | Less than 1 (Cig.) | 1-5 Cigs. | ~1/2 Pack | Between 1/2 and 2 (Packs) | Two or More (Packs) |
| Drinks Alcohol | On how many occasions (if any) in the past 12 months have you had alcoholic beverages to drink? | 0 Occasions | 1-2 Occasions | 3-19 Occasions | 20+ Occasions | | |
| Uses Marijuana | On how many occasions (if any) in the past 12 months have you used marijuana (grass, pot) or hashish (hash, hash oil)? | 0 Occasions | 1-2 Occasions | 3-19 Occasions | 20+ Occasions | | |
| Uses Cocaine | On how many occasions (if any) in the past 12 months have you used cocaine in any form (including crack)? | 0 Occasions | 1-2 Occasions | 3-19 Occasions | 20+ Occasions | | |
| Fights | I got into a physical fight at school | Never | Once or Twice | > than Twice | | | |
| Skips Class | I cut or skipped classes | Never | 1-2 Times | 3-6 Times | 7-9 Times | 10-15 Times | Over 15 Times |
| **School Response to Delinquency** | | | | | | | |
| Times in Trouble | I got in trouble for not following school rules | Never | 1-2 Times | 3-6 Times | 7-9 Times | 10-15 Times | Over 15 Times |
| In-School Suspension | I was put on in-school suspension | Never | 1-2 Times | 3-6 Times | 7-9 Times | 10-15 Times | Over 15 Times |

## Table A.5. Continued

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Out-School Suspension | I was suspended or put on probation from school | Never | 1-2 Times | 3-6 Times | 7-9 Times | 10-15 Times | Over 15 Times |
| **Justice System Response to Delinquency** | | | | | | | |
| Arrested | I was arrested | Never | 1-2 Times | 3-6 Times | 7-9 Times | 10-15 Times | Over 15 Times |
| Juvenile Detention | I spent time in a juvenile home/detention center | Never | 1-2 Times | 3-6 Times | 7-9 Times | 10-15 Times | Over 15 Times |

Source: National Educational Longitudinal Study of 1988, Second Follow-Up (1992) Student Questionnaire.

Notes:

[a] This is the base question for all items ***except*** those listed as part of the Self-Report Delinquency Composite.

[b] Questions included in this Delinquency Composite that are focused on substance use are written in their entirety here (no base question included).

[c] Each variable included in this composite measure was also analyzed as an independent outcome of interest.

## Table A.6.

## Chapter IV, Analyses: Key Independent, Moderating, and Control Variables — Precise Question Wording and Response Sets

| Variable Label | | Response Sets | | | | | |
|---|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 | 5 |
| **Strain Measures**[a] | | | | | | | |
| Bully Victimization | Someone threatened to hurt me at school | Never | Once or Twice | More than Twice | | | |
| Criminal Victimization | I had something stolen from me at school | Never | Once or Twice | More than Twice | | | |
| **General Strain Scale**[b] | | | | | | | |
| Parent's Divorce | My parents got divorced or separated | Does Not Apply | Applies | | | | |
| Mother Lost Job | My mother lost her job | Does Not Apply | Applies | | | | |
| Father Lost Job | My father lost his job | Does Not Apply | Applies | | | | |
| Serious Illness | I became seriously ill or disabled | Does Not Apply | Applies | | | | |
| Mother Died | My mother died | Does Not Apply | Applies | | | | |
| Father Died | My father died | Does Not Apply | Applies | | | | |
| Close Relative Died | A close relative died | Does Not Apply | Applies | | | | |
| Sibling Dropped Out | One of my brothers or sisters dropped out of school | Does Not Apply | Applies | | | | |
| Family Welfare | My family went on welfare | Does Not Apply | Applies | | | | |
| Familial Homelessness | My family was homeless for a period of time | Does Not Apply | Applies | | | | |
| **Composite Self-Efficacy**[c] | | | | | | | |
| Luck is Important | In my life, good luck is more important than hard work for success | | Strongly Agree | Agree | Disagree | Strongly Disagree | |

## Table A.6. Continued

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cannot Get Ahead | Every time I try to get ahead, something or somebody stops me | | Strongly Agree | Agree | Disagree | Strongly Disagree | |
| Plans Do Not Work Out | My plans hardly ever work out, so planning only makes me unhappy | | Strongly Agree | Agree | Disagree | Strongly Disagree | |
| **Prior Delinquency**[d] | | | | | | | |
| Fighting Behavior - Eighth Grade | I got into a physical fight with another student | Never | Once or Twice | More than Twice | | | |
| **School Attachment** | | | | | | | |
| School Attachment | About how much time do you spend on homework each week? | None | Less than 1 Hour | 1 Hour | 2 Hours | 3 Hours | 4-6 Hours[e] |
| **Low Parental Control**[f] | | | | | | | |
| Limit Time with Friends | Limit the amount of time for going out with friends on school nights | | Often | Sometimes | Rarely | Never | |
| Limit Television Time | Limit the amount of time you can spend watching TV | | Often | Sometimes | Rarely | Never | |
| Assign Chores | Require you to do chores around the home | | Often | Sometimes | Rarely | Never | Two or More (Packs) |
| Check Homework Completion | Check on whether you have done your homework | | Often | Sometimes | Rarely | Never | |
| Discuss Courses | Selecting courses or programs at school | Not at all | Once or Twice | Three or More Times | | | |
| Discuss School Activities | School activities or events of particular interest to you | Not at all | Once or Twice | Three or More Times | | | |

**Table A.6. Continued**

| | | | | |
|---|---|---|---|---|
| Discuss Class Content | Things you've studied in class | Not at all | Once or Twice | Three or More Times |

Source: National Educational Longitudinal Study (NELS), 1988: Base Year, 1990: First Follow-Up.
Notes:

[a] The base question for the first two strain items is as follows: "In the first half of the current school year, how many time did any of the following things happen to you at school?"

[b] The base question for each item included in the General Strain Scale is as follows: "Lots of things happen in families that may affect young people. In the last 2 years, have any of the following happened to your family?"

[c] The base question for each of these items is as follows: "How do you feel about each of the following statements?"

[d] The base question for each of these items is as follows: "During the first semester of the current school year, has any of the following things happened to you?"

[e] This item has to additional response categories not reported in this table (6 = 7-9 Hours, 7 = 10 or More).

[f] The base question for each of these items is as follows: "How often do your parents of guardians do the following?" or "Since the beginning of the school year, how often have you discussed the following with either or bother of your parents or guardians?"

**Result A.7.**

**Chapter IV, Results From the Principal Components Factor Analysis of Self-Report Delinquency Variables (N=8,127)**

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.49550 | 1.43541 | 1.3086 | 1.3086 |
| Factor2 | 0.06009 | 0.02117 | 0.0526 | 1.3612 |
| Factor3 | 0.03892 | 0.12235 | 0.0341 | 1.3952 |
| Factor4 | -0.08342 | 0.05875 | -0.0730 | 1.3222 |
| Factor5 | -0.14217 | 0.08391 | -0.1244 | 1.1978 |
| Factor6 | -0.22608 | . | -0.1978 | 1.0000 |

**Result A.8.**

**Chapter IV, Results From the Principal Components Factor Analysis of Substance Use Variables (N=8,127)**

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.21727 | 1.19512 | 1.3743 | 1.3743 |
| Factor2 | 0.02215 | 0.14388 | 0.0250 | 1.3993 |
| Factor3 | -0.12173 | 0.11022 | -0.1374 | 1.2619 |
| Factor4 | -0.23196 | . | -0.2619 | 1.0000 |

**Result A.9.**

**Chapter IV, Results From the Principal Components Factor Analysis of School Response to Delinquency Variables (N=8,127)**

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.18666 | 1.31652 | 1.3877 | 1.3877 |
| Factor2 | -0.12986 | 0.07182 | -0.1519 | 1.2359 |
| Factor3 | -0.20168 | . | -0.2359 | 1.0000 |

**Result A.10.**

**Chapter IV, Results From the Principal Components Factor Analysis of Criminal Justice Response to Delinquency Variables (N=8,127)**

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.26116 | 1.45859 | 1.1856 | 1.1856 |
| Factor2 | -0.19742 | . | -0.1856 | 1.0000 |

**Result A.11.**

**Chapter IV, Results From the Principal Components Factor Analysis of Control Variables, Low Parental Control (N=7,964)**

| Factor | Eigenvalue | Difference | Proportion | Cumulative |
|---|---|---|---|---|
| Factor1 | 1.17656 | 0.79585 | 1.2628 | 1.2628 |
| Factor2 | 0.38071 | 0.42476 | 0.4086 | 1.6714 |
| Factor3 | -0.04405 | 0.05123 | -0.0473 | 1.6241 |
| Factor4 | -0.09528 | 0.03169 | -0.1023 | 1.5219 |
| Factor5 | -0.12697 | 0.02792 | -0.1363 | 1.3856 |
| Factor6 | -0.15490 | 0.04946 | -0.1662 | 1.2193 |
| Factor7 | -0.20436 | . | -0.2193 | 1.0000 |

**Result A.12.**

**Interpretation of Chapter IV Additional Analyses**

In addition to the models reported in the body of Chapter IV, which estimate composite delinquency, I also estimate models for a variety of outcomes including fighting behavior, skipping school, composite substance use behaviors, composite school response to delinquency, and composite criminal justice response to delinquency. The results of these analyses are presented in Tables A.7, A.8, A.9, A.10, and A.11 (respectively) below.

A few significant and consistent results emerge across these analyses. First, as expected, female youths report significantly lower levels of delinquency across each of these measures. Further, in most of these models, students with higher standardized tests scores report less delinquency, there are significant variations in delinquency across race (although race is not a significant indicator of school response to delinquency) and the influence of SES is dependent upon the outcome measure. With the exception of criminal justice response to delinquency, the theoretical controls (previous delinquency, school attachment and low parental control) significantly influence each form of delinquency in the anticipated way. When predicting criminal justice response to delinquency, only the control for prior delinquency is significant. Bullying victimization significantly predicts each form of delinquency and for the most part, a significant and positive relationship between criminal victimization, general life strain, and delinquency emerges. Criminal victimization is not significantly related to fighting behavior and general life strain is not a significant predictor of criminal justice response to delinquency. Individuals with high self-efficacy report significantly fewer instances of delinquency for all delinquency outcomes except criminal justice response to delinquency. And, similar to the findings presented in Chapter IV, only one interaction tested emerges as significant — self-efficacy moderates the relationship between bullying victimization and fighting behaviors, substance use behaviors, school response to delinquency and criminal justice response to delinquency. While this result was unexpected, it suggests that the coping resource self-efficacy can weaken the relationship between some forms of strain and delinquency.

**Table A.7.**

**Results From the Longitudinal OLS Regression of Fighting Behavior[a] on Bullying Victimization, Criminal Victimization, General Life Strain, and Composite Self-Efficacy[b]**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| Female | -0.096 | *** | -0.069 | *** | -0.065 | *** | -0.064 | *** | -0.064 | *** | -0.064 | *** |
| | (.006) | | (.006) | | (.006) | | (.006) | | (.006) | | (.006) | |
| White | -0.018 | * | -0.020 | ** | -0.021 | * | -0.022 | ** | -0.022 | ** | -0.023 | ** |
| | (.007) | | (.007) | | (.007) | | (.007) | | (.007) | | (.007) | |
| SES | -0.008 | * | -0.005 | | -0.004 | | -0.003 | | -0.003 | | -0.003 | |
| | (.005) | | (.005) | | (.005) | | (.005) | | (.005) | | (.005) | |
| Standardized Test Results | -0.003 | *** | -0.003 | *** | -0.003 | *** | -0.003 | *** | -0.003 | *** | -0.003 | *** |
| | (.000) | | (.000) | | (.000) | | (.000) | | (.000) | | (.000) | |
| Public School | -0.013 | | -0.011 | | -0.011 | | -0.013 | | -0.014 | * | -0.014 | * |
| | (.008) | | (.008) | | (.008) | | (.008) | | (.008) | | (.008) | |
| Previous Delinquency | | | 0.133 | *** | 0.126 | *** | 0.126 | *** | 0.125 | *** | 0.125 | *** |
| | | | (.009) | | (.009) | | (.009) | | (.009) | | (.009) | |
| School Attachment | | | -0.004 | * | | | -0.004 | * | -0.004 | * | -0.004 | *** |
| | | | (.002) | | | | (.002) | | (.002) | | (.002) | |
| Low Parental Control | | | 0.003 | *** | | | 0.003 | | -0.003 | | -0.003 | |
| | | | (.003) | | | | (.003) | | (.003) | | (.003) | |
| Bullying Victimization | | | | | 0.044 | *** | 0.044 | *** | 0.041 | *** | 0.040 | *** |
| | | | | | (.008) | | (.008) | | (.008) | | (.008) | |
| Criminal Victimization | | | | | 0.011 | | 0.012 | * | 0.011 | | 0.001 | |
| | | | | | (.007) | | (.007) | | (.007) | | (.007) | |
| General Life Strain | | | | | 0.013 | ** | 0.013 | ** | 0.012 | * | 0.012 | * |
| | | | | | (.005) | | (.005) | | (.005) | | (.005) | |

**Table A-7. Continued**

| | | | | |
|---|---|---|---|---|
| Composite Self-Efficacy | -0.017 | *** | -0.015 | |
| | (.005) | | (.007) | |
| Bully Victimization*Self-Efficacy | | | -0.035 | ** |
| | | | (.011) | |
| Criminal Victimization*Self-Efficacy | | | 0.008 | |
| | | | (.009) | |
| General Life Strain*Self-Efficacy | | | 0.004 | |
| | | | (.006) | |

Source: National Educational Longitudinal Study (NELS), 1988: Base Year, 1990: First Follow-Up, 1992: Second Follow-Up (N=8,127). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable Composite Self-Report Delinquency, which is a composite measure of fighting, cutting/skipping class, and alcohol, marijuana, and cocaine use behaviors.

[b] The independent variables of interest noted here are measured at Time 2. The demographic and theoretical controls included in each model were measured at Time 1.

**Table A.8.**

**Results From the Longitudinal OLS Regression of Skipping Class[a] on Bullying Victimization, Criminal Victimization, General Life Strain, and Composite Self-Efficacy[b]**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| Female | -0.187 | *** | -0.110 | *** | -0.095 | ** | -0.091 | ** | -0.088 | ** | -0.089 | ** |
| | (.028) | | (.029) | | (.029) | | (.029) | | (.029) | | (.029) | |
| White | -0.232 | *** | -0.252 | *** | -0.232 | *** | -0.251 | *** | -0.254 | *** | -0.254 | *** |
| | (.033) | | (.032) | | (.032) | | (.032) | | (.032) | | (.032) | |
| SES | 0.054 | * | 0.070 | ** | 0.068 | ** | 0.077 | *** | 0.081 | *** | 0.081 | *** |
| | (.022) | | (.022) | | (.022) | | (.022) | | (.021) | | (.021) | |
| Standardized Test Results | -0.005 | *** | -0.003 | | -0.003 | * | -0.002 | | -0.001 | | -0.001 | |
| | (.002) | | (.002) | | (.002) | | (.002) | | (.002) | | (.002) | |
| Public School | 0.161 | *** | 0.157 | *** | 0.170 | *** | 0.154 | *** | 0.150 | *** | 0.150 | *** |
| | (.037) | | (.037) | | (.037) | | (.037) | | (.037) | | (.037) | |
| Previous Delinquency | | | 0.359 | *** | 0.340 | *** | 0.330 | *** | 0.324 | *** | 0.323 | *** |
| | | | (.041) | | (.042) | | (.041) | | (.042) | | (.041) | |
| School Attachment | | | -0.041 | *** | | | -0.044 | *** | -0.041 | *** | -0.041 | *** |
| | | | (.010) | | | | (.010) | | (.010) | | (.010) | |
| Low Parental Control | | | 0.064 | *** | | | 0.066 | *** | 0.065 | *** | 0.066 | *** |
| | | | (.014) | | | | (.014) | | (.014) | | (.014) | |
| Bullying Victimization | | | | | 0.064 | * | 0.068 | * | 0.050 | | 0.049 | |
| | | | | | (.038) | | (.038) | | (.038) | | (.039) | |
| Criminal Victimization | | | | | 0.172 | *** | 0.179 | *** | 0.171 | *** | 0.174 | *** |
| | | | | | (.029) | | (.029) | | (.029) | | (.030) | |
| General Life Strain | | | | | 0.082 | *** | 0.085 | *** | 0.079 | *** | 0.078 | *** |
| | | | | | (.021) | | (.021) | | (.021) | | (.021) | |

**Table A.8. Continued**

| | | | | |
|---|---|---|---|---|
| Composite Self-Efficacy | -0.112 | *** | -0.089 | ** |
| | (.022) | | (.031) | |
| Bully Victimization*Self-Efficacy | | | 0.001 | |
| | | | (.053) | |
| Criminal Victimization*Self-Efficacy | | | -0.034 | |
| | | | (.044) | |
| General Life Strain*Self-Efficacy | | | -0.015 | |
| | | | (.026) | |

Source: National Educational Longitudinal Study (NELS), 1988: Base Year, 1990: First Follow-Up, 1992: Second Follow-Up (N=8,127). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable Skipping Class, which is indicated by a range of the number times that students report skipping class.

[b] The independent variables of interest noted here are measured at Time 2. The demographic and theoretical controls included in each model were measured at Time 1.

**Table A.9.**

**Results From the Longitudinal OLS Regression of Substance Use Behaviors[a] on Bullying Victimization, Criminal Victimization, General Life Strain, and Composite Self-Efficacy[b]**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| Female | -0.188 | *** | -0.133 | *** | -0.114 | *** | -0.111 | *** | -0.109 | *** | -0.109 | *** |
| | (.022) | | (.023) | | (.023) | | (.023) | | (.023) | | (.023) | |
| White | 0.330 | *** | 0.310 | *** | 0.324 | *** | 0.305 | *** | 0.301 | *** | 0.300 | *** |
| | (.025) | | (.025) | | (.025) | | (.025) | | (.025) | | (.025) | |
| SES | 0.032 | * | 0.046 | ** | 0.045 | ** | 0.054 | ** | 0.058 | *** | 0.058 | *** |
| | (.017) | | (.017) | | (.017) | | (.017) | | (.017) | | (.017) | |
| Standardized Test Results | -0.007 | *** | -0.005 | *** | -0.006 | *** | -0.005 | *** | -0.003 | * | -0.003 | * |
| | (.001) | | (.001) | | (.001) | | (.001) | | (.001) | | (.001) | |
| Public School | -0.034 | | -0.039 | | -0.036 | | -0.049 | * | -0.052 | * | -0.053 | * |
| | (.029) | | (.029) | | (.029) | | (.029) | | (.029) | | (.029) | |
| Previous Delinquency | | | 0.258 | *** | 0.232 | *** | 0.223 | *** | 0.216 | *** | 0.217 | *** |
| | | | (.031) | | (.032) | | (.032) | | (.032) | | (.032) | |
| School Attachment | | | -0.035 | *** | | | -0.037 | *** | -0.035 | *** | -0.034 | *** |
| | | | (.008) | | | | (.008) | | (.008) | | (.008) | |
| Low Parental Control | | | 0.068 | *** | | | 0.070 | *** | 0.069 | *** | 0.069 | *** |
| | | | (.011) | | | | (.011) | | (.012) | | (.012) | |
| Bullying Victimization | | | | | 0.161 | *** | 0.165 | *** | 0.145 | *** | 0.143 | *** |
| | | | | | (.029) | | (.029) | | (.029) | | (.029) | |
| Criminal Victimization | | | | | 0.106 | *** | 0.112 | *** | 0.104 | *** | 0.103 | *** |
| | | | | | (.023) | | (.023) | | (.023) | | (.023) | |
| General Life Strain | | | | | 0.087 | *** | 0.087 | *** | 0.081 | *** | 0.083 | *** |
| | | | | | (.016) | | (.016) | | (.016) | | (.017) | |

**Table A.9. Continued**

| | | | | |
|---|---|---|---|---|
| Composite Self-Efficacy | -0.122 | *** | -0.122 | *** |
| | (.018) | | (.025) | |
| Bully Victimization*Self-Efficacy | | | -0.064 | ** |
| | | | (.041) | |
| Criminal Victimization*Self-Efficacy | | | 0.004 | |
| | | | (.032) | |
| General Life Strain*Self-Efficacy | | | 0.022 | |
| | | | (.020) | |

Source: National Educational Longitudinal Study (NELS), 1988: Base Year, 1990: First Follow-Up, 1992: Second Follow-Up (N=8,127). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable Substance Use Behaviors, which is a composite measure of tobacco, alcohol, marijuana, and cocaine use behaviors.

[b] The independent variables of interest noted here are measured at Time 2. The demographic and theoretical controls included in each model were measured at Time 1.

**Table A.10.**

**Results From the Longitudinal OLS Regression of School Response to Delinquency[a] on Bullying Victimization, Criminal Victimization, General Life Strain, and Composite Self-Efficacy[b]**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| Female | -0.356 | *** | -0.294 | *** | -0.279 | *** | -0.276 | *** | -0.274 | *** | -0.275 | *** |
| | (.022) | | (.023) | | (.023) | | (.023) | | (.023) | | (.023) | |
| White | 0.033 | | 0.024 | | 0.027 | | 0.019 | | 0.016 | | 0.015 | |
| | (.025) | | (.025) | | (.025) | | (.025) | | (.025) | | (.025) | |
| SES | -0.022 | | -0.012 | | -0.012 | | -0.007 | | -0.004 | | -0.005 | |
| | (.017) | | (.017) | | (.017) | | (.017) | | (.017) | | (.017) | |
| Standardized Test Results | -0.013 | *** | -0.011 | *** | -0.012 | *** | -0.011 | *** | -0.010 | *** | -0.010 | *** |
| | (.001) | | (.001) | | (.001) | | (.001) | | (.001) | | (.001) | |
| Public School | -0.025 | | -0.025 | | -0.023 | | -0.032 | | -0.035 | | -0.035 | |
| | (.029) | | (.029) | | (.028) | | (.029) | | (.029) | | (.029) | |
| Previous Delinquency | | | 0.293 | *** | 0.271 | *** | 0.266 | *** | 0.261 | *** | 0.261 | *** |
| | | | (.032) | | (.032) | | (.032) | | (.033) | | (.033) | |
| School Attachment | | | -0.023 | ** | | | -0.025 | ** | -0.023 | ** | -0.023 | ** |
| | | | (.009) | | | | (.008) | | (.008) | | (.008) | |
| Low Parental Control | | | 0.024 | * | | | 0.025 | * | 0.025 | * | 0.024 | * |
| | | | (.011) | | | | (.011) | | (.011) | | (.011) | |
| Bullying Victimization | | | | | 0.131 | *** | 0.133 | *** | 0.118 | *** | 0.116 | *** |
| | | | | | (.028) | | (.028) | | (.028) | | (.028) | |
| Criminal Victimization | | | | | 0.081 | ** | 0.084 | *** | 0.078 | ** | 0.078 | ** |
| | | | | | (.024) | | (.024) | | (.024) | | (.024) | |
| General Life Strain | | | | | 0.048 | ** | 0.048 | ** | 0.043 | ** | 0.042 | ** |
| | | | | | (.016) | | (.016) | | (.016) | | (.016) | |

**Table A.10. Continued**

| | | | | |
|---|---|---|---|---|
| Composite Self-Efficacy | -0.090 | *** | -0.059 | * |
| | (.017) | | (.024) | |
| Bully Victimization*Self-Efficacy | | | -0.081 | * |
| | | | (.043) | |
| Criminal Victimization*Self-Efficacy | | | -0.006 | |
| | | | (.033) | |
| General Life Strain*Self-Efficacy | | | -0.019 | |
| | | | (.020) | |

Source: National Educational Longitudinal Study (NELS), 1988: Base Year, 1990: First Follow-Up, 1992: Second Follow-Up (N=8,127). (p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable School Response to Delinquency, which is a composite measure of all school response to delinquency items.

[b] The independent variables of interest noted here are measured at Time 2. The demographic and theoretical controls included in each model were measured at Time 1.

**Table A.11.**

**Results From the Longitudinal OLS Regression of Criminal Justice System Response to Delinquency[a] on Bullying Victimization, Criminal Victimization, General Life Strain, and Composite Self-Efficacy[b]**

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Independent Variables** | | | | | | | | | | | | |
| Female | -0.164 | *** | -0.146 | *** | -0.136 | *** | -0.137 | *** | -0.137 | *** | -0.137 | *** |
| | (.022) | | (.023) | | (.023) | | (.023) | | (.023) | | (.023) | |
| White | 0.057 | * | 0.054 | * | 0.056 | * | 0.053 | * | 0.052 | * | 0.052 | * |
| | (.026) | | (.026) | | (.026) | | (.026) | | (.026) | | (.026) | |
| SES | -0.017 | | -0.015 | | -0.013 | | -0.013 | | -0.013 | | -0.013 | |
| | (.017) | | (.017) | | (.017) | | (.017) | | (.017) | | (.017) | |
| Standardized Test Results | -0.004 | ** | -0.003 | * | -0.003 | * | -0.003 | * | -0.003 | * | -0.003 | * |
| | (.001) | | (.001) | | (.001) | | (.001) | | (.001) | | (.001) | |
| Public School | 0.000 | | 0.006 | | 0.001 | | 0.004 | | 0.003 | | 0.003 | |
| | (.029) | | (.029) | | (.029) | | (.029) | | (.029) | | (.029) | |
| Previous Delinquency | | | 0.095 | * | 0.082 | * | 0.082 | * | 0.081 | * | 0.081 | * |
| | | | (.034) | | (.035) | | (.035) | | (.035) | | (.035) | |
| School Attachment | | | 0.007 | | | | 0.005 | | 0.006 | | 0.006 | |
| | | | (.008) | | | | (.008) | | (.008) | | (.008) | |
| Low Parental Control | | | 0.015 | | | | 0.016 | | 0.016 | | 0.016 | |
| | | | (.011) | | | | (.011) | | (.011) | | (.011) | |
| Bullying Victimization | | | | | 0.051 | * | 0.051 | * | 0.048 | * | 0.046 | |
| | | | | | (.028) | | (.028) | | (.028) | | (.028) | |
| Criminal Victimization | | | | | 0.063 | ** | 0.063 | ** | 0.061 | ** | 0.064 | ** |
| | | | | | (.023) | | (.023) | | (.023) | | (.023) | |
| General Life Strain | | | | | 0.024 | | 0.024 | | 0.023 | | 0.024 | |
| | | | | | (.016) | | (.016) | | (.016) | | (.016) | |

**Table A.11. Continued**

| | | | |
|---|---|---|---|
| Composite Self-Efficacy | -0.021 | -0.013 | |
| | (.017) | (.017) | |
| Bully Victimization*Self-Efficacy | | -0.009 | * |
| | | (.045) | |
| Criminal Victimization*Self-Efficacy | | -0.032 | |
| | | (.033) | |
| General Life Strain*Self-Efficacy | | 0.016 | |
| | | (.020) | |

Source: National Educational Longitudinal Study (NELS), 1988: Base Year, 1990: First Follow-Up, 1992: Second Follow-Up (N=8,127).

(p<.05*, p<.01**, p<.001***)

Notes:

[a] Each model represents the dependent variable Criminal Justice System Response to Delinquency, which is a composite measure of justice system response to delinquency items.

[b] The independent variables of interest noted here are measured at Time 2. The demographic and theoretical controls included in each model were measured at Time 1.

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