

**Delinquent Associations: The Interactive Effects
of Peer Relationships on Delinquency**

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ABSTRACT

Peer relationships have been a central tenet of most delinquency theories. Arguments derived from these theories assert that delinquency develops most frequently within a group context, however, there is less agreement concerning the types and attributes of the relationships delinquents have with their peers.

This study explores the associations between delinquency and various aspects of peer relationships using Sutherland's differential association theory. The purpose of the study is: (1) to explore the delinquent activities of peers, and (2) to examine the interactive effects of delinquent peers on delinquency. Regression analyses with data from the National Youth Survey suggest that the prediction of serious delinquency is dominated by the interactive effects of peer variables and that peer relations differ across various age groups.

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CHAPTER 1: INTRODUCTION

Peer relationships have been at the focal point of many theories of delinquency (e.g., see Sutherland, 1955; Cloward and Ohlin, 1960; Hirschi 1969; Akers et al., 1979; Baron and Tindall, 1993; Sampson and Laub, 1993) and there is a general consensus that delinquency frequently develops in a group context. Therefore, studies of delinquency usually include a measure of exposure to delinquent peers. Research consistently reveals that individuals with such associations are likely to be delinquent themselves (e.g., Hirschi, 1969; Jensen, 1972; Akers et al., 1979; Elliott et al., 1985; Tittle et al., 1986; Matsueda and Heimer, 1987).

Nonetheless, approaches to peer relationships have been theoretically unsophisticated. Although peer relationships are central to several theories of delinquency, there has been an inconsistency in the use of various measures, and the measures are often not directly connected to theory. As Giordano and colleagues (1986:1173) note, "there has been a kind of cavalier and interchangeable use of potentially very different friendship processes." For example, psychological investigations often identify similar aspects of peer relations with a variety of sociometric scales (e.g., popularity, peer approval, and peer acceptance) and sociologists frequently use Hirschi's (1969) concept of "attachment to peers," but define it as diversely as "loyalty," "cohesion," and "dependence on peers" (Giordano et al., 1986:1173).

Research is further compromised by a narrow approach to exploring peer relationships. Typically, investigators of peer relationships simply measure the frequency of peers' delinquency or the number of delinquent friends. No attempt is made to investigate other

dimensions of peer relationships (Agnew, 1991). Thus, there has been little investigation of the types and attributes of relationships that youth have with their delinquent peers.

Agnew (1991) notes that this oversight is surprising for several reasons. First, two of the most important theories of delinquency, social learning and differential association theory, suggest that the effect of delinquent peers is conditioned by several dimensions of peer relationships. Second, knowledge of various aspects of peer relationships has grown in recent years and several studies have explored various dimensions of peer relationships. For example, research has examined influence and attachment, factors that may condition the effects of peer delinquency (e.g. Linden and Hackler, 1973, Giordano et al., 1986). Third, research on the family emphasizes the significance of investigating the different dimensions of peer relationships. Studies indicate that the family's impact on delinquency is conditioned by many dimensions of interaction, such as level of control and level of affection; a similar pattern may occur for delinquent peer groups (Agnew, 1991). Finally, in addition to its academic contributions, research that pursues peer interactions may have important policy implications. As Agnew (1991:48) notes, "examining the factors that condition the impact of delinquent peers on delinquency may greatly improve our ability to explain and control delinquency." Thus, there are several theoretical and empirical reasons for investigating more thoroughly the relationships between various aspects of peer relationships and delinquency.

I. Purpose of the Study

The present study is informed by differential association theory and explores the associations between delinquency and various aspects of peer relationships. This theory is appealing because it emphasizes the importance of peers in the development and culture of youth. The theory's foremost proposition is that an individual becomes delinquent due to an excess of definitions favorable to violating the law relative to unfavorable definitions (Sutherland, 1955). As such, delinquent definitions are learned through close social relations among peers. Differential association theory predicts that exposure to deviant definitions via delinquent peers is conditioned by several aspects of peer relationships, specifically: frequency, duration, priority, and intensity (Agnew, 1991). However, most empirical studies have neglected the interactive effects of these variables (see Short, 1958; Voss, 1964; Elliott et al., 1985).

This research examines the associations between delinquency and the interactions between peer delinquency and various aspects of peer relationships. These dimensions include attachment to peers, time spent with peers and peer pressure for deviance. This analysis is important as it will help specify the conditions under which dimensions of delinquent peer associations affect delinquency, and as such, considerably improve the prediction of delinquency.

Additionally, this research fills a void in the literature by examining the interactive effects of peer variables on delinquency. As noted previously, these effects have been neglected, which is surprising considering how important peer groups are to involvement in

crime (e.g. Jensen, 1972; Akers et al., 1979; Elliott et al., 1985; Tittle et al., 1986; Matsueda and Heimer, 1987; Warr and Stafford, 1991). Thus this study broadens delinquent research's approach in exploring peer relationships.

This study also examines the issue of age differentiation. The life course perspective suggests that the social meanings of age are important, particularly as transitions produce turning points in the life course (Elder, 1975). For example, adolescence is viewed as a process that is constantly changing. These insights suggest that peer relationships may also differ and have different meanings as adolescents age.

This thesis is divided into five chapters. Chapter Two provides an overview of Sutherland's (1955) differential association theory and several theoretical issues related to the present study. Included are revisions to Sutherland's theory, as well as recent developments in the life course perspective. The latter suggest that theoretically predicted relations (e.g. attitudes that influence delinquency) differ for various age groups. Chapter Three provides a review of related studies, beginning with two tests of Sutherland's theory followed by four studies that explore various aspects of peer relationships. Subsequently, these studies are critically assessed and the objectives of this study are established.

Chapter Four describes the research design, including the data set, concepts of interest and the methods of analysis. The data for this study are derived from the National Youth Survey, a longitudinal study of delinquent behavior and drug use; these data are well suited to this study because they contain a variety of questions relating to peers' attitudes and behaviors.

Chapter Five presents the results of the study. Here, multiple regression analyses are used to

examine the interactive effects of peer relationships on delinquency as well as differences across the life course. In the final chapter the implications of the results are discussed with suggestions for future research.

CHAPTER 2: THEORETICAL PERSPECTIVES AND ISSUES

In 1939 Edwin Sutherland made explicit the first statement of his theory of differential association in the third edition of Principles of Criminology. By 1947, Sutherland had substantially revised the theory in the form of nine propositions, based on three interrelated concepts: normative conflict, differential association and differential social association (Matsueda, 1988). Prior to this, the dominant account of crime was the multiple-factor approach, viewing criminal behavior as being determined by concrete conditions such as minority status and social class. However, Sutherland maintained that the multiple-factor approach produced a list of unorganized elements dealing with crime, and thus failed to contribute to the scientific understanding of criminal behavior (Matsueda, 1988).

Sutherland maintained that a group of interrelated propositions that explained all of the observed correlates of crime was required. In an unpublished document on the development of differential association theory, Sutherland stated that "it seemed to [him] that learning, interaction, and communication were the processes around which a theory of criminal behavior should be developed" (in Cohen et al., 1956:19). In generating the theory, Sutherland discerned that many modern societies demonstrate normative conflict expressed by opposing cultural messages (Tittle et al., 1986). Conflict over norms, values and interests results in discordant cultural patterns and definitions. As Matsueda (1988:280) states:

Some groups define a given law as a rule to be followed under all circumstances; others define that law as a rule to be violated under certain circumstances; still others may define the law as a rule to be violated under virtually all circumstances.

Thus, high rates of crime are a result of normative conflict.

The nine propositions of differential association theory outline the process by which normative conflict produces, at the individual level, individual acts of crime, and at the societal level, rates of crime (Matsueda, 1988). They are, as follows:

1. Criminal behavior is learned.
2. Criminal behavior is learned in interaction with other persons in a process of communication.
3. The principal part of the learning of criminal behavior occurs within intimate personal groups.
4. When criminal behavior is learned, the learning includes (a) techniques of committing the crime, which are sometimes very complicated, sometimes very simple; (b) the specific direction of motives, drives, rationalizations, and attitudes.
5. The specific direction of motives and drives is learned from definitions of the legal codes as favorable or unfavorable.
6. A person becomes delinquent because of an excess of definitions favorable to violation of law over definitions unfavorable to violation of law.
7. Differential associations may vary in frequency, duration, priority, and intensity.
8. The process of learning criminal behavior by associations with criminal and anticriminal patterns involves all of the mechanisms that are involved in any other learning.
9. While criminal behavior is an expression of general needs and values, it is not explained by those needs and values, since noncriminal behavior is an expression of the same needs and values.

(Sutherland, 1955:77-79)

Belonging to different social organizations provides the associations from which various forms of behavior can be learned. The term "differential association" intimates that individuals as well as groups are introduced to divergent associations with people who vary in the significance they assign to respect for the law or compliant behavior (Williams and McShane, 1994). "Individuals, then, will lean toward or away from crime according to the

cultural standards of their associates, especially those with whom they spend frequent and long periods of time" (Williams and McShane, 1994:77). As soon as particular definitions exist, an individual is apt to be more vulnerable to behavioral definitions that are similar. As such, an individual with an excess of definitions favorable to crime violation will be open to new criminal definitions (Williams and McShane, 1994). Likewise, an individual will be less receptive to law-abiding definitions. As time passes and individuals interact within various groups, their definitions will change regarding any behavior. Williams and McShane note that

Areas that are highly organized will have stable patterns of associations and offer consistent definitions to their residents. Areas that are unorganized will have high mobility and a mixture of cultural groups, resulting in inconsistent definitions and a greater likelihood that the ratio of criminal to anticriminal definitions will change frequently. (Williams and McShane, 1994:77)

As Matsueda notes, the process of differential association explains how normative conflict generates individual criminal acts: "Given the existence of normative conflict, individuals are surrounded both by persons who define the law favorably and by persons who define the law unfavorably" (Matsueda, 1988:281). Sutherland (1955) emphasized that a relationship must exist, that the transfer of values or skills cannot be achieved by watching television or reading books: "the techniques may be thought of as the "hows," or the content of an act, the definitions as the "whys," or the reasons for doing it" (Williams and McShane, 1994:76). Criminal behavior is learned through the transmission of techniques, skills, motives, drives, rationalizations, and attitudes through interactions with deviants. When an individual learns an excess of definitions favorable to violating the law--over definitions unfavorable to

violating the law--the result is criminal behavior. Thus, at the individual level, criminal behavior results from frequent, long, intimate and intense associations with an excess of definitions favorable to violating the law (Tittle et al., 1986). At the societal level, social organization establishes crime rates by instigating the probability that members will be in contact with competing definitions of criminal behavior (Matsueda, 1988).

THEORETICAL ISSUES

I. Revisions to Differential Association Theory

Several criminologists have sought to revise differential association theory, drawing from various theoretical principles of social psychology. Matsueda (1988) outlines three lines of revision: symbolic interaction, operant conditioning and social learning, and the origins of subcultural delinquency.

Cressey (1954) applied symbolic interaction and introduced the concepts of role-taking and motivation to connect social roles to learned definitions of law violation (Matsueda, 1988).

By applying the concept of the self, Glaser (1956) derived his hypothesis of **differential identification**. However, Matsueda (1988:287) notes that additional development is needed to establish "a more explicit conceptualization of the important elements of role-taking and cognitive processes...[in order that] operational measures can be located, and hypotheses derived and tested."

The second line of revision to differential association theory involves applying Skinner's principles of **operant conditioning** and Bandura's principles of **social learning**

(Matsueda, 1988). For example, Akers' (1985) theory postulates that crime is learned initially by direct imitation; "the subsequent likelihood of sustaining criminal behavior is determined by differential reinforcement, the relative rewards and punishments following the act" (Matsueda, 1988:287). While operational indicators have been specified for many of these concepts, Matsueda (1988) argues that future theoretical work must identify the primary reinforcers for deviant definitions in order to link them to social organization and social structure. Furthermore, a situational model of role-taking and cognition needs to be specified, using the principles of social learning.

The last line of revision involves the work of Cohen (1955) and Cloward and Ohlin (1960) on the origins of subcultural delinquency. Subcultural theorists concentrating on the social nature of delinquency maintain that most delinquent behavior arises within a group or gang setting and that it is predominately a lower-class, male phenomenon. This work is important as it tries to identify the explicit content of differential social organization and attempts to elucidate the origins of definitions favorable to subcultural delinquency (Matsueda, 1988). However, empirical research has minimized this work by confounding levels of analysis (for example, the reduction of social structural concepts to individual-level characteristics).

II. Social Control Theory

The emphasis on peer relations is not unique to differential association theory, as other perspectives have explored its importance. Within the crime and delinquency literature, there

has been much debate between Sutherland's (1955) differential association theory and Hirschi's (1969) social control theory. In 1969, Hirschi claimed to have confirmed his control theory over differential association theory, finding Sutherland's theory empirically questionable.

Travis Hirschi's (1969) social control theory is based on the assumption that individuals are inherently anti-social and naturally able to commit criminal acts. As such, the theory focuses on explaining conformity. The theory begins with the idea that "delinquent acts result when an individual's bond to society is weak or broken" (Hirschi, 1969:16). This bond consists of four elements: - attachment, commitment, involvement, and belief.

Collectively, these elements of the social bond explain the social control of delinquency (Hirschi, 1969). Attachment refers to close affective ties toward parents, school, and peers. Commitment represents the investments built up in terms of conformity to conventional society. Involvement refers to participation in conventional and legitimate activities. Lastly, belief constitutes the acceptance or respect for the moral validity of society's rules (Hirschi, 1969).

Hirschi's (1969) theory predicts that individuals with stronger levels of attachment, commitment, involvement, and belief are less likely to deviate from society's norms. Those with weaker bonds are more prone to violate the law. Additionally, these elements are highly intercorrelated; Hirschi (1969) maintains that the weakening of one will likely coincide with the weakening of another.

Hirschi's (1969) research found general support for the theory of social control. With the exception of involvement, the results indicated that the weaker the bonds, the higher the

probability of delinquency. However, delinquency was found to be most strongly related to association with delinquent peers, a finding not predicted by the theory. Correspondingly, later research has observed that "attachment to peers leads to conformity only when the peers are themselves conventional" (Akers, 1994:119). Contrary to Hirschi's hypothesis, individuals who are highly attached to delinquent peers are themselves prone to be delinquent (Linden and Hackler, 1973; Elliott et al., 1985).

Thus, while social control theory has received some verification/support (see Hindelang, 1973; Johnson, 1979; Wiatrowski et al., 1981), the magnitude of the relationships between social bonding and deviant behavior has ranged from moderate to low (Akers, 1994). Additionally, the results of some longitudinal studies reveal that there is a reciprocal effect on the connection between the social bond and delinquency (see Agnew, 1985; Liska and Reed, 1985): "That is, when juveniles are surveyed over several points in time, it has been found that delinquency can weaken the social bond, and vice versa, and that a weak social bond may explain initial instances of delinquency but not continued occurrences" (Shoemaker, 1990:200).

III. Life Course Perspective

A final theoretical issue is the recent development in the life course material. The life course perspective sees human development, socialization, and adaptations as life long processes within an inter-age schema. Age differentiation "is expressed in the sequence of roles and events, social transitions, and turning points that depict the life course" (Elder,

1975:167). As a concept, the life course refers to age-graded transitions that are embedded in social institutions and subject to historical change (Elder, 1992).

Within the crime and delinquency literature, there has been a heated debate over the relation between age and crime (see Hirschi and Gottfredson, 1983; Greenberg, 1985; Steffensmeier et al., 1989; Gottfredson and Hirschi, 1990). At the forefront of this debate is Hirschi and Gottfredson (1983:554), who maintain that "the age distribution of crime cannot be accounted for by any variable or combination of variables currently available to criminology." However, Mark Warr (1993) asserts that Gottfredson and Hirschi are too willing to reject sociological explanations of the age-crime relation. And yet, "it is nonetheless true that sociologists have done an inadequate job of providing affirmative evidence for their arguments" (Warr, 1993:18). Traditional theories have not been sensitive to the possibility that relations among adolescents may differ for various age groups. The perceptions of the life course perspective on age differentiations provides important and useful information that can broaden the investigation of the age-crime relation.

Elder (1975) maintains that insights on age differentiation in the life course are informed by two theoretical perspectives: the socio-cultural and the cohort-historical. The socio-cultural perspective highlights the social meaning of age and its contextual varieties. "Birth, puberty, and death are biological facts in the life course, but their meanings in society are social facts or constructions, as seen in the variable formation of age categories, grades, and classes across societies" (Elder, 1975:167). In comparison, the cohort-historical perspective uses age and data as biological facts and social indicators. "Chronological age serves as a

rough index of life stage and ageing, while birth year or entry into a given system (e.g. age at first marriage, high school graduation) locates the individual in historical context as a member of a particular cohort" (Elder, 1975:168).

The social meanings of age are relevant to the present study as transitions may produce **turning points** or a **change** in the life course. As Elder states, "age grades are defined by norms that constitute a basis for self-definition and specify appropriate behavior, roles, and time schedules" (1975:168). Thus, in exploring the associations between delinquency and various dimensions of peer relationships, age distinctions will be examined.

IV. Summary

Social scientists generally agree that both delinquent peers and delinquent beliefs are strongly correlated with delinquent behavior, thereby providing a dependable social environment for most delinquents (Thornberry et al., 1992). However, they differ considerably in terms of how these variables are interrelated causally and/or theoretically.

Sutherland's (1955) differential association theory grants causal priority to associations with delinquent peers. Relationships with peers produces an environment for learning beliefs and behaviors; thus, youths who associate with delinquent peers are likely to be delinquent in beliefs and actions. Hirschi's (1969) social control theory reverses the causal relationships between these variables. Maintaining that "birds of a feather flock together," this theory asserts that delinquent adolescents seek each other out for friendship. Delinquency is a result of

weakened social controls; and once displayed, one of its effects is to increase affiliations with delinquent peers.

The present study concurs with differential association theory: criminal behavior is learned behavior, and that the source of crime and delinquency is located in the close social networks of adolescents. However, both differential association theory and social control theory predict that peers are important factors for delinquent behavior. Thus, they provide a theoretically substantive basis for further exploring the roles of peers. The next chapter reviews the literature and examines empirical support for Sutherland's (1955) theory, as well as recent studies that explore peer relationships.

CHAPTER 3: RECENT RESEARCH

As the previous chapter indicates, peer relationships have been central to many theories of delinquency. Differential association, social learning, subcultural delinquency and social control theories have, to some extent predicted an effect of delinquent peers. However, Agnew (1991) maintains that empirical research on delinquent peers has been relatively simplistic. This chapter reviews several studies, beginning with an important test of differential association theory and social control theory. A second study that affirms the importance of Sutherland's (1955) theory is also summarized. Subsequently, four recent articles are reviewed that examine various dimensions of peer relationships. The chapter concludes with a critical assessment of these studies.

One of the most important examinations of differential association and control theories is Ross Matsueda's (1982) analysis of the Richmond Youth Project delinquency data used by Hirschi (1969) and Jensen (1972). Matsueda (1988) notes that recent developments in statistical techniques and survey instruments enhance ability to operationalize key theoretical elements. Matsueda (1982) maintains that these theories can be empirically tested, by translating certain causal relations into a structural equation model and by formulating a measurement model that treats certain concepts as unobservable variables with multiple indicators.

Matsueda (1982) tested the two theories by examining the impact of four intervening variables on delinquency: (1) parental supervision (whether the parents knew where the respondents were when they were out and with whom), (2) peer attachment (whether the

respondents wanted to be like their best friends and if they respected their best friend's opinions), (3) respondents' definitions (i.e. beliefs) of eight activities, and (4) whether any of the respondents' friends have been picked up by the police. Additionally, the influence of four exogenous variables was also considered: age, socio-economic status, whether both biological parents were together, and whether the respondent perceived trouble in his neighbourhood. The sample collected in 1965, consists of 1140 non-black males and Matsueda (1982) employs LISREL (Linear Structural Equation Modelling) to estimate the model's parameters.

The results of Matsueda's study indicate that increasing the number of definitions favourable to law violation relative to unfavourable definitions increases delinquent behaviour, accounting for over half of the variance in delinquency (1982). Furthermore, "the process of learning definitions favorable and unfavorable to delinquency is the intervening mechanism explaining the influence on delinquency of age, broken homes, socio-economic status, neighborhood trouble, and parental and peer processes" (Matsueda, 1982:286). Thus, Matsueda (1982) concludes that of the two theories, differential association and social control, the former better explains the process by which delinquent peers influence delinquency in others.

Another empirical assessment of Sutherland's theory is a study by Jackson, Tittle, and Burke (1986). In comparison to Matsueda (1982), these authors put forth quite a different theoretical model of the differential association process, using simultaneous equation models to assess the dynamic nature of the theory. The authors (1986) estimate their model for future involvement in six crimes and two non-criminal deviant acts. Four issues are empirically

assessed: the causal structure of the differential association process, the mediation of variables between excess association and crime, the issue of crime specificity, and the range of acts the theory explains (Jackson et al., 1986).

The authors (1986) examine the effects of five variables on future criminal/deviant behavior: excess association with definitions favorable to crime/deviance; attitudes and rationalizations favorable to crime/deviance; perceptions that crime/deviance is normally acceptable; fear of legal sanctions; and motives and drives to commit crime/deviance (Jackson et al., 1986). The authors (1986) use data from interviews of an area probability sample of the populations of Oregon, Iowa and New Jersey, and employ two-stages least squares regression to obtain estimates of the causal effects.

The findings indicate support for Sutherland's proposition that excess association with definitions favorable to crime/deviance tends to increase crime/deviance, however, this effect is indirect and is mediated specifically through motivation (Jackson et al., 1986). A second finding indicates that "the same process of crime/deviance causation through differential association holds for a range of different crimes and for two non-criminal deviant offenses" (Jackson et al., 1986:352). Thus, the authors (1986) conclude that in general Sutherland's assumption about the important influence of association with definitions that are favorable to law violation in generating criminal behavior is correct. However, the results suggest that excess association affects criminal behavior "not by teaching attitudes or rationalizations congruent with deviant acts" (Jackson et al., 1986:354), but by raising criminal motivation.

I. Peer Relationships

Agnew (1991) argues that recent research points to three potential effects of delinquent peers. First, as differential association predicts, contact with delinquent peers may lead the individual to internalize definitions that are favorable to delinquency. Second, social learning theory suggests that such peers may, in certain settings, differentially sustain delinquency. The extent to which peers sustain delinquency depends on the amount of reinforcement, its frequency, and its ratio to conforming behavior (Agnew, 1991). Third, delinquent peers may display delinquent behavior, which others copy. Agnew (1991) argues further that three dimensions condition these effects of delinquent friends. The first dimension is the youth's attachment to the delinquent peer group.

Delinquent peers are likely to have a greater effect on delinquency when attachment is high because such peers (1) will have more sanctioning power over the adolescent..., (2) will be more attractive as role models, and (3) will be more effective as socializing agents (Agnew, 1991:54).

The second dimension is the extent of contact between an individual and delinquent peers, in particular the amount of time they spend together: "The greater the contact, the more likely peers will (1) be able to monitor and sanction behavior, (2) function as delinquent models, and (3) transmit delinquent values" (Agnew, 1991:54). The third aspect concerns the extent to which peers display delinquent patterns; that is, the degree to which they display definitions that are favorable to delinquency, model delinquent behavior, and differentially sustain delinquency (Agnew, 1991).

However, Giordano and colleagues (1986) maintain that there has been little investigation into the **quality** of peer relationships. To address this issue, the authors (Giordano et al., 1986:1170) identify several dimensions of friendship "that allow examination of adolescents' perceptions of the rewards and vicissitudes of their relationships and the patterns of interaction and influence that characterize them." By doing so, the authors (1986) aim to assess the characteristics of the friendships of youth who vary in the degree of their involvement in delinquent behavior. The rewards examined comprise of intrinsic and extrinsic rewards, and identity support. Patterns of interaction and influence are measured by time, stability and peer pressure, whereas vicissitudes of friendship consist of conflict, imbalance and loyalty (Giordano et al., 1986). Using data from interviews of 942 youth, the authors (1986) employ analyses of variance to examine friendship patterns.

The results indicate that despite very different levels of involvement in delinquency, youth are quite similar in the ways in which they perceive of their relations with others (Giordano et al., 1986). In contrast to Hirschi's (1969:141) assertion that the friendships of delinquents are "cold and brittle," Giordano and colleagues (1986:1192) maintain "that when adolescent friendships are relatively warm and intimate and provide some combination of intrinsic, extrinsic, and identity support functions for the participants, actors are likely to exert considerable influence upon each other." The findings are consistent though with control theory's assertion that individuals may at the outset bring certain delinquent values to the group. However, the authors (1986) suggest that certain processes such as mutual

reinforcement and influence, continue to work once friendship relations have been formed, and that these processes strengthen delinquent patterns above initial values.

Thornberry and colleagues (1994) take a different perspective in examining the interrelations between delinquent peers, delinquent beliefs and delinquent behavior. The authors (1994) contend that uni-directional models such as differential association theory and control theory are inadequate for explaining delinquency. Alternatively, they propose an interactional perspective which views peer associations and delinquent behavior as interrelated over the life course with the ability to have bi-directional causal influences on each other (Thornberry et al., 1994). Thus, whereas differential association theory gives causal priority to peer associations and control theory gives priority to delinquent behavior, an interactional perspective grants each concept a significant causal role with respect to the other (Thornberry et al., 1994).

Thus, interactional theory maintains that youths who associate with delinquent peers are prone to commit delinquent acts, and that those who commit such acts are prone to maintain their associations with delinquent peers. "That is, these variables reinforce each other to create a behavioral trajectory toward increasing levels of delinquency and greater entrenchment in delinquent peer networks" (Thornberry et al., 1994:51). As such, the role of delinquent beliefs varies developmentally, and is believed to be reciprocally related to delinquent peers and behavior by middle adolescence (Thornberry et al., 1994). The data for this study are drawn from the Rochester Youth Development Study, a multiwave panel study

designed to oversample youths at high risk, and the authors (1994) employ LISREL to estimate equations for their model.

Results support the underlying hypothesis of the interactional model -that "associating with delinquent peers leads to increases in delinquency via the reinforcing environment provided by the peer network" (Thornberry et al., 1994:74). Participating in delinquency, in turn, results in increases in associations with delinquent peers. It is hypothesized that the role of delinquent beliefs varies developmentally, and the results indicate that delinquent beliefs exert lagged effects on behavior and peers, which in turn tends to consolidate the delinquent belief structure (Thornberry et al., 1994). Based on these results, the authors (1994) conclude that delinquent behavior is constituent of a dynamic social process instead of a consequence of that process.

Another important study is Warr and Stafford's (1991) assessment of the influence of peers delinquent attitudes and behaviors as predicted by differential association theory. They (1991:852) maintain that Sutherland's theory is questionable on two grounds: "First, the theory assumes that favorable attitudes toward delinquency are a necessary condition for delinquent behavior. Yet the link between attitudes and behavior is notoriously tenuous." Second, the relationship between associations with delinquent peers and delinquent behavior does not provide direct evidence for the theory. Such evidence does not specify "the mechanism through which delinquency is socially transmitted" (Warr and Stafford, 1991:852). The authors examine social learning theory, that stresses the behavior of peers in the transmission of delinquency, and state that "the contrast between Sutherland's theory and other theories

ultimately comes down to this question: Is delinquency a consequence of what peers think, or what they do?" (Warr and Stafford, 1991:853).

To investigate this question, the authors (1991) employ cross-sectional and longitudinal models for a sample drawn from the National Youth Survey (U.S.A.). Their findings indicate that friends' attitudes affects respondents' behavior for three offenses, and that this effect is mediated almost completely by respondents' own attitudes. However, behavior of friends also exerts a strong effect on respondent's behavior. Thus, Warr and Stafford's findings suggest that Sutherland's differential association theory is fundamentally incomplete: "Quite apart from attitudes of adolescents and those of their friends, the behavior of friends has a strong, independent effect on adolescents" (Warr and Stafford, 1991:862).

A related theoretical consideration is the interactive effects of peer relationships on delinquency. Agnew (1991) notes that most research on delinquent peers has been overly simplistic, ignoring several dimensions of peer relationships that condition the effect of peer delinquency. He argues that, "[i]n short, the impact of delinquent peers depends on the extent to which (1) the adolescent feels emotionally close to peers, (2) the amount of contact the adolescent has with peers, and (3) the extent to which peers display delinquent patterns (1991:55)." Agnew (1991) analyzes data from the National Youth Survey (U.S.A.) to assess the ways in which various dimensions of peer relationships condition the effects of peer delinquency on crime. Data are from the first wave of the survey, conducted in 1977 and consists of 1,725 youths aged 11 to 17. He creates interaction terms between two measures of delinquent friends (minor and serious) and four dimensions of peer relationships: peer

attachment, time with friends, peer approval for delinquency, and peer pressure for deviance.

He then regresses these variables on minor and serious delinquency.

The results indicate that the impact of serious delinquent friends on an individual's delinquency is substantially conditioned by measures of peer relationships: "When the peer... [relationship] variables are at their mean or lower levels, Delinquent Friends (Serious) has no effect or in some cases a negative effect on delinquency. When these variables are at high levels, Delinquent Friends (Serious) has a strong positive effect on delinquency (sic)" (Agnew, 1991:68). However, the effect of minor delinquent friends is, for the most part, unaffected by characteristics of peer associations. Agnew (1991) maintains that these results are important as they help stipulate the conditions under which peer variables affect delinquency; and as such, they strongly improve the prediction of delinquency.

II. Assessment

The studies reviewed in this chapter raise several important issues for the present study. First, studies by Matsueda (1982) and Jackson and colleagues (1986) have difficulty in operationalizing Sutherland's main principle of differential association theory: when an individual learns an excess of definitions favorable to law violation over definitions unfavorable to law violation, the result is criminal behavior. Matsueda's (1982) indicators used to measure definitions are problematic as they do not assess a distinct set of criminal beliefs. Examples include "To get ahead, you have to do some things which are not right" and "Suckers deserve to be taken advantage of" (Matsueda, 1982:837-8). With respect to Jackson

et al.'s (1986) study, the authors estimate excess association with definitions favorable to crime/deviance by summing responses to three component items for each of the offenses. For example, "How many people do you know personally who ever got in trouble because they did (each of) the things we have been talking about?" (Jackson et al., 1986:341). However, this is inadequate as it does not provide a **ratio** of definitions favorable over unfavorable definitions to law violation.

As such, differential association theory needs to be incorporated with other elements to adequately explain delinquency. For example, Giordano et al.'s (1986) study suggests that there is a process of mutual reinforcement and influence that strengthens delinquent patterns. This is supported by Thornberry et al.'s (1994) contention that by middle adolescence, delinquent beliefs are reciprocally related to delinquent peers, peer reactions and delinquent behavior. However, Thornberry et al.'s (1994) longitudinal study is problematic as their analysis spans only one and a half years. While the present analysis does not directly assess these issues, comparisons will be made to Agnew's (1991) study of the first wave of the National Youth Survey.

Second, theoretical models need to incorporate peer behavior as well as peer attitudes. Much of the literature and research pertaining to differential association tends to omit or pass over the effects of peer behavior. However, is this a flaw in Sutherland's argument or a misreading of it? I argue the latter --research has concentrated on specific parts of Sutherland's theory, notably proposition 6, that "a person becomes delinquent because of an excess of definitions favorable to violation of law over definitions unfavorable to violation of law"

(Sutherland, 1955:77). Most research has neglected the crucial importance of propositions one and two, that criminal behavior is learned and that learning such behavior occurs through interactions with deviant peers. Furthermore, such learning includes the "techniques of committing the crime" (Sutherland, 1955:78). Implicit in these statements is the fact that criminal behavior is learned through the transmission of techniques by interacting with others.

Such techniques are learned by observing one's peers. Thus, peer behavior is an important factor in the process of communication through which criminal behavior is learned. Following Warr and Stafford (1991), the present study clearly distinguishes peer behavior from peer attitudes. This is easily attainable as the design of the National Youth Survey clearly separates attitudes from behavior.

Third, some of these studies view delinquency as a generality or analyze only a few offenses. For example, Warr and Stafford (1991) analyze three offenses: using marijuana, stealing something worth less than \$5, and cheating on school test. These are minor offenses and do not reflect the spectrum of deviant acts committed by adolescents. Thus, the present study analyzes several offenses that range from minor to serious. For example, selected measures of delinquency include offense-specific variables such as felony assault, robbery, felony theft, damaged property as well as variables reflecting drug use.

Fourth, the studies reviewed suggest that delinquent peer groups are very complex in nature. Agnew (1991) divides delinquent peers into two types based on the seriousness of offenses (i.e., minor and serious). However, these divisions are based on a limited set of variables (e.g., they do not include measures of peer's drug use) and they do not necessarily

reflect theoretical categories. Thus, the present study explores the delinquent activities of peers and attempts to create more substantively meaningful classifications.

Fifth, although Agnew's (1991) study displays a wide range of measures of delinquency and peer relationships, he focuses exclusively on two-variable, linear interactions.

Agnew (1991) notes that these may not be the only types of interactions. Thus, the present study examines higher-order, four-way interactions. For example, the interactive effects of peer attachment, time spent with friends, peer approval for delinquency and peers' deviant behavior are analyzed.

In summary, this study employs differential association theory in conjunction with recent research on peer groups to examine the associations between delinquency and various dimensions of peer relationships. Building on Agnew's (1991) study, the present analysis explores the delinquent activities of peers and examines the interactive effects of delinquent peers on delinquency. Furthermore, this study explores the issue of age differentiation, that is, that peer relationships may differ for various age groups. The life course perspective suggests that transitions may produce turning points, and as adolescence is a process of constant changes, peer relations may have different meanings for particular points in adolescence (Sampson and Laub, 1993).

By examining the various aspects of peer relationships, conditions under which dimensions of delinquent peer associations affect delinquency can be specified and improve the prediction of delinquency. Additionally, the present study contributes to delinquent research by examining the interactive effects of peer variables on delinquency. In the

following chapter, the research design is presented, including the data set, concepts of interest, variable measures and descriptive analyses. This will provide a foundation for the multiple regression analyses that are estimated in Chapter 5.

CHAPTER 4: DATA, MEASUREMENT AND DESCRIPTIVE OVERVIEW

This chapter details the methodological framework for this study and specifies the procedures to be used in empirically analyzing dimensions of peer relationships and their effects on delinquency. I begin with a short description and assessment of secondary survey analysis. Following this, the data set, concepts of interest and measurement of the variables are discussed. A summary of the factor analysis used to determine the dimensions of peer relationships is then presented. The chapter concludes with a descriptive analysis of the variables.

I. Secondary Survey Analysis

Traditionally, social scientists have collected primary data. However, current economic constraints make it increasingly difficult to do so, and consequently many researchers now analyze secondary data (Kiecolt and Nathan, 1985).

The main advantage of secondary analysis of survey data is their reduced costs (Singleton et al., 1988). It takes a considerable amount of money to design a study, train the interviewers, and distribute the survey to participants. Furthermore, public data sets are usually collected by groups with more resources than an individual and thus are able to obtain a larger sample than a single researcher could hope to obtain. Secondary researchers also save a considerable amount of time usually allocated to research design and data collection, thereby allowing them more time for data analysis. Additionally, the availability of public data sets

allows researchers to build on previous analyses and encourages researchers to be more thorough (Kiecolt and Nathan, 1985).

There are, however, several limitations to secondary survey analysis. One problem is that errors in the original surveys are frequently not so apparent, and it is not possible to distinguish between interviewing, coding and keypunching errors. As Kiecolt and Nathan (1985:13) note, "trivial sources of error, such as that from sampling design, may be magnified when a survey is put to other than its original use." A second limitation is that surveys may not include relevant variables or may contain too few indicators of a concept for reliable measurement (Kiecolt and Nathan, 1985). A third concern is the information may be outdated.

Notwithstanding these concerns, secondary analysis of survey data is a worthwhile endeavour. Although the data set used in this research project is open to the limitations discussed above, the extent of these problems is minimal: (1) The National Youth Survey (U.S.A.) is a longitudinal study, allowing for comparisons to be made across waves, (2) its measures draw heavily on differential association theory (see Elliott et al., 1985; Agnew, 1991), (3) it includes multiple indicators for most concepts, thereby improving measurement precision, and (4) it is fairly recent (1984) and therefore may provide findings relevant to current social policies. Thus, these data provide a creative opportunity to extend our knowledge of the effects of peers on deviant behavior. As Kiecolt and Nathan (1985:12) note: "ideas...often emerge from interaction between a researcher's substantive interests and his or her intimate knowledge of information contained in data files."

II. Data Set

The data used in this study are from the sixth wave of the National Youth Survey conducted in the United States, a longitudinal study of delinquent behavior and drug use (Elliott, et al., 1985, Elliott, 1992). Conducted by the Behavioral Research Institute in Boulder, Colorado, this survey used a multi-stage, self-weighting cluster sampling strategy to design a probability sample of households in the continental United States. A multi-stage cluster sample design involves dividing the population into natural groupings or areas ('clusters'), and randomly sampling these clusters in stages. Conducted in 1977, the first wave of the sample consisted of 1,725 youths aged 11 to 17, and appears representative of the age, sex, and race of the United States youth population as established by the U.S. Census Bureau (Elliott, et al., 1989).

The sixth wave of the National Youth Survey was conducted in 1984 and focuses on behaviors and events that occurred in 1983. Respondents, aged 17 to 26, were interviewed in confidential, face-to-face interviews. Respondents were asked about their attitudes, beliefs, and perceptions of particular types of behavior, as well as the causes and consequences of involvement in them (Elliott, 1992). Additionally, respondents were questioned about their involvement in various illegal and deviant activities, attitudes toward deviance, and basic demographic variables (see Elliott et al., 1985 for details).

Several characteristics of the National Youth Survey make it well suited to the purpose of this study. First, it contains a variety of questions relating to peers' attitudes and behaviors.

Second, the survey includes multiple indicators of several variables central to differential

association theory. Third, the large sample size ($N=1,725$) minimizes random error. Fourth, it is a probability sample, allowing for the use of inferential statistics.

Concepts of Interest

To explore the associations between delinquency and various aspects of peer relationships, concepts need to be developed and clarified. The theoretical and delinquency literature discussed previously are central to this process. For example, differential association theory maintains that criminal behavior is learned through the transmission of techniques by interacting with others. Thus, **peer behavior** must be distinguished from **peer attitudes**. In addition, in order for comparisons to be made, key variables in Agnew's (1991) study must be used in the analysis. However, in extending from previous studies, several other concepts need to be included. For example, some of the studies reviewed analyzed only minor offenses that did not reflect the spectrum of deviant acts committed by youths. Thus, a variety of offenses are included in this examination of respondents' delinquent behaviors.

This study uses 59 of the 1,613 variables available in the National Youth Survey data set. Four main concepts related to peer relationships were selected and organized in terms of peer attachment, delinquent attitudes, and delinquent behaviors (the number of indicators are in parentheses). Measures of respondents' behaviors and several control variables were also used (see Appendix A for variable codes). The following list summarizes the concepts:

Attachment to peers:

1. Peer attachment (9): extent to which they fit in well with and feel close to their friends

2. Time spent with friends (4): extent to which they spend time with their peers

Peer attitudes:

1. Peer approval for delinquency (8): extent to which their peers would approve of each set of behaviors if the respondent engaged in them
2. Peer pressure for deviance (4): level of agreement with a series of statements reflecting the normlessness variant of alienation

Peer behaviors:

1. Exposure to delinquent peers (10): how many of their close friends have engaged in each set of deviant behaviors in the past year

Respondent behaviors:

1. Self-reported delinquency (24): frequency with which respondent engaged in each of a variety of behaviors during the previous year

Control measures:

1. Demographic variables: age, sex, and ethnicity

IV. Measurement of Variables

Peer and delinquent measures were created in several steps. First, 35 items related to peer relationships were selected from the survey. Nine of the items are concerned with peer attachment, four assess peer contact, ten focus on exposure to delinquent peers, eight measure peer approval for delinquency, and four deal with peer pressure for deviance.

Seven additive measures of delinquency and drug use were also included. Following Elliott and Huizinga (1983), six of these measures are offense-specific: felony assault, minor

assault, felony theft, minor theft, vandalism and drug use. The seventh measure represents illegal services (e.g. selling drugs). All measures combine at least three offenses and incidence estimates were calculated by summing the reported frequencies of the individual items.

Following Agnew (1991), measures of peer relationships and delinquency were factor analyzed using maximum likelihood analysis with an oblique method of rotation. Oblique rotation is used as it is probable that certain factors (e.g., peer's and respondent's delinquency) will be correlated (Agnew, 1991). Factor analysis is used here to reveal patterns of interrelationships among variables and to determine the dimensions of peer relationships in order to create scales for regression analyses. The peer items are factored with the delinquency items because, as Gottfredson and Hirschi (1987) note, there is considerable overlap between measures of respondent's delinquency and peer's delinquency. Agnew (1991:56) argues that "by factor analyzing these items together, one can determine whether the measures of peer delinquency are empirically distinct from the measures of the respondent's own delinquency."

V. Factor Analysis

The factor analysis reduced the data to ten factors, eight dealing with peer relationships and two dealing with delinquency. Two factors related to peer relationships were dropped because they had eigenvalues of less than 1. According to the Kaiser criterion, only factors with eigenvalues greater than one should be retained (see Kim and Mueller, 1978b). Furthermore, only items that loaded at least 0.4 on one factor and less than 0.2 on others were considered as indicators of that factor (Kim and Mueller, 1978a, 1978b).

Table 1 details the peer relationship factors as they emerged in the analysis and the item factor loadings. The first factor, Factor A, represents Peer Approval for Delinquency. High scores on this scale indicate that respondents believe that their friends would approve if they were to engage in various delinquent acts, such as hitting someone or stealing over \$50.

Factor B reflects Time Spent with Friends. High scorers on this scale state that they spend a lot of afternoons and evenings with their friends. Factor C represents one of two factors relating to Exposure to Delinquent Peers. High scorers on this item admit that most of their friends use marijuana. Factor D represents the other factor relating to Exposure to Delinquent Peers. High scorers on this item reveal that most of their friends break into vehicles or buildings to steal something. After eliminating items that loaded less than 0.4 on one factor or more than 0.2 on all other factors, only one item remained in each of factor C and D. Therefore, subsequent analyses uses these items as two single variables that represent different elements of exposure to delinquent peers.

Factor E reflects Peer Attachment, where high scorers state that they receive a lot of warmth and support from their friends, and that they are very loyal to one another. Factor F represents Peer Pressure for Deviance. High scorers on this scale believe that it is necessary to engage in deviant acts to maintain friends.

The delinquent measures loaded on two separate factors. As Table 1 indicates, these measures are divided by their level of seriousness, and reflect a division between offenses against property and offenses against people. Factor G represents Minor Delinquency,

comprising of felony theft and vandalism. Factor H reflects Serious Delinquency, comprising of felony assault, illegal services and drug use.

Peer approval for delinquency was the first factor to emerge in the present analysis. Other measures such as attachment to peers and peer pressure for delinquency did not load high in the factor analysis and exposure to delinquent peers was minimal given the interdependence of these items and the dependent variables. The present analysis suggests that Peer Approval for Delinquency is the best measure of peer effects and that it reinforces delinquency through social approval.

These results of the delinquent measures differ considerably from those of Agnew (1991). In his analysis, the number of minor and serious delinquent friends were the first two factors to emerge, factors that Agnew argues represent "the traditional measure of peer delinquency included in most empirical studies of the causes of delinquency" (1991:58). Agnew (1991) argues further that these measures represent the best predictors of delinquency; however, the present analysis does not substantiate this claim.

Table 1: Factor Analysis

PEER RELATIONSHIPS	loadings
A. Peer Approval for Delinquency (How would your close friends react if you...)	
1) stole over \$50	(.72)
2) hit someone	(.63)
3) pressured someone sexually	(.53)
4) broke into a car/building to steal	(.84)
B. Time Spent with Friends	
1) How many weekday afternoons do you spend with friends?	(.74)
2) How many weekday evenings do you spend with friends?	(.85)
3) How many hours per week do you spend with friends?	(.63)
C. Exposure to Delinquent Peers	
1) How many of your friends have used marijuana?	
D. Exposure to Delinquent Peers	
1) How many of your friends have broken into a car or building to steal something?	
E. Peer Attachment	
1) How much warmth and affection have you received from friends?	(.67)
2) How much support and encouragement have you received from friends?	(.58)
3) How much loyalty have you and your friends had for one another?	(.74)
F. Peer Pressure for Deviance (How much do you agree or disagree with these statements...)	
1) You have to be willing to break some rules if you want to be popular with your friends	(.62)
2) It's okay to lie to keep your friends out of trouble	(.58)
3) It may be necessary to break some of your parent's rules in order to keep some of your friends	(.74)
DELINQUENCY	
G. Minor Delinquency	
1) felony theft: stole vehicle, stole over \$50, broke into a car or building, bought stolen goods	(.59)
2) vandalism: damage family property, school property, or other property	(1.04)
H. Serious Delinquency	
1) felony assault: aggravated assault, sexual assault, gang fights	(.68)
2) illegal services: prostitution, sold marijuana, sold hard drugs	(.95)
3) drug use: use of hallucinogens, amphetamines, barbiturates, heroin, cocaine	(.72)

One possible explanation for this difference is that as noted by life course researchers, as individuals age, peer relationships change, as does their influence. For example, age of respondents in the present analysis ranges from 17-26, a time period in which the lives of individuals take different paths, such as post- secondary education or employment. In contrast, the age of respondents in Agnew's (1991) study ranged from 11-17, a period in time that is marked by cohesion within peer groups (Thornberry et al., 1992). Thus, for Agnew's (1991) study, it seems likely that delinquent friends represents the strongest predictor of delinquency, whereas peer approval for delinquency represents the strongest measure of peer effects for the present analysis. As such, this measure will be employed as the main variable for subsequent interaction analyses.

Most items measuring exposure to delinquent peers either loaded on one of the dependent variables or there was no clear distinction between peer groups. For example, friends that stole over \$50 and friends that sold hard drugs each loaded (at .21) on the dependent variable Serious Delinquency. These items are problematic as they do not clearly allow for distinctions between the dependent and independent variables. As such, items of peer delinquency that were not empirically distinct from the measures of respondent's delinquency were rejected from the analysis. Additionally, items measuring friends that stole under \$5 and friends that used prescription drugs loaded on two separate factors, and were also dropped from the analysis because items that load on different factors reflect instability of the measures (Kim and Mueller, 1978a, 1978b).

However, two items measuring exposure to delinquent peers did load independently of other measures. Friends that used marijuana and friends that broke into cars or buildings loaded heavily (.76 and .75, respectively) on two separate factors. Thus these are used as measures of delinquent friends; however, unlike Agnew (1991), there is no clear differentiation of minor and serious delinquent friends. The factor results suggest that compared to youth in Agnew's study, the respondents surveyed in this study have different types of peer groups and these groups engage in different delinquent behaviours. Possibly this is again a result of age: respondents are exposed to a variety of delinquent peers, but may only sustain relationships with them when other factors are also present (i.e. interactive effects), such as peer attachment or peer pressure. This will be explored in Chapter 5 through several regression analyses.

VI. Descriptive Statistics

The sixth wave of the National Youth Survey consists of individuals who are on average, 21 years of age, predominately Anglo-Saxon, with a slightly greater proportion of males (see Table 2 for descriptive statistics). The mean measures for peer approval reveal that on average, friends would disapprove if respondents engaged in delinquent behavior (see Appendix A for variable codes). Respondents report that on average, they spend 20 hours a week with friends, including at least two weekday afternoons and evenings. Not surprisingly, the average respondent reported strong attachments to friends: respondents indicate receiving a considerable amount of warmth and support from friends, as well as loyalty for one another.

With respect to exposure to delinquent peers, mean scores indicate that on average only a few of the respondents' friends use marijuana, and almost none of their friends have broken into a car or building. Respondents also indicate that on average, there is little peer pressure to engage in deviant acts to maintain friendships.

The descriptive statistics for the self-reported delinquency measures reveal that on the most part, respondents do not engage in delinquent behavior. However, the standard deviations of some of the measures, for example breaking into a car or building ($X=.26$, $SD=2.84$, $R=0-100$) and damaging other property ($X=.14$, $SD=1.76$, $R=0-60$) reflect noticeable variability. In addition, respondents' reported trafficking and use of drugs is substantial. For example, selling marijuana has a mean of 2.91 with a standard deviation of 29.36 and amphetamine use has a mean of 4.31 with a standard deviation of 27.47. These results suggest that although most respondents do not sell or use drugs, those that do, do so with great frequency.

Table 3 reports the frequency of respondents who have engaged in minor and serious delinquent behaviour by age. In general, respondents between the ages of 18 to 20 engage in more delinquent acts. With respect to minor delinquency, two activities stand out: buying stolen goods and damaging other property. Across all ages the frequency of these activities is greater than any other items. With reference to serious delinquency, of interest is the reported trafficking and use of drugs. Respondents use of amphetamines and cocaine is considerable and over 100 respondents have sold marijuana.

Table 2: Descriptive Statistics (N=1,295)

Variables	Mean	Std Dev	Range
Peer Approval			
To Steal Over \$50	1.75	.75	1-5
To Hit Someone	1.86	.72	1-5
To Pressure Someone Sexually	1.78	.71	1-5
To Break Into Car/Building	1.68	.67	1-5
Time Spent With Friends			
Weekday Afternoons	2.62	1.70	0-5
Weekday Evenings	2.62	1.52	0-5
Hours Per Week	20.17	18.09	0-99
Exposure to Delinquent Peers			
Friends Use of Marijuana	2.46	1.30	1-5
Friends Break Into Car/Building	1.11	.41	1-5
Peer Attachment			
Warmth/Affection From Friends	3.79	.86	1-5
Support/Encouragement From Friends	4.02	.82	1-5
Loyalty For One Another	4.25	.76	1-5
Peer Pressure			
To Be Popular, Break Rules	2.06	.87	1-5
Lying Ok To Keep Friends Out of Trouble	2.19	.86	1-5
Break Parents Rules To Keep Friends	2.25	.97	1-5
Felony Theft			
Stole Vehicle	.01	.39	0-15
Stole Over \$50	.10	1.72	0-50
Broke Into Car/Building	.26	2.84	0-100
Bought Stolen Goods	.07	.89	0-25
Vandalism			
Damaged Family Property	.07	1.33	0-50
Damaged School Property	.03	.24	0-3
Damaged Other Property	.14	1.76	0-60
Felony Assault			
Aggravated Assault	.08	.40	0-6
Sexual Assault	.01	.17	0-4
Gang Fights	.06	.62	0-15
Illegal Services			
Prostitution	.03	.44	0-11
Sold Marijuana	2.91	29.36	0-700
Sold Hard Drugs	.94	20.65	0-700
Drug Use			
Hallucinogens	.51	5.02	0-140
Amphetamines	4.31	27.47	0-365
Barbiturates	.77	10.23	0-300
Heroin	.24	7.91	0-300
Cocaine	2.42	25.26	0-700

TABLE 3: Frequency of Respondents Who Have Engaged in Minor and Serious Delinquency by Age

	Age						
Minor Delinquency	18	19	20	21	22	23	24
stole car	1	2	2	0	0	0	0
stole over \$50	4	3	7	6	3	4	1
bought stolen goods	21	16	15	16	14	9	6
broke into car/building	8	6	9	4	2	2	1
damaged family property	7	9	5	4	2	3	1
damaged school property	15	7	6	3	1	0	0
damaged other property	15	12	12	6	3	9	0

Serious Delinquency	18	19	20	21	22	23	24
aggravated assault	11	11	16	8	11	8	5
sexual assault	0	1	2	2	1	3	1
gang fights	12	6	11	6	3	2	3
prostitution	1	0	1	2	3	0	1
sold marijuana	22	18	18	21	13	13	10
sold hard drugs	2	4	5	5	7	4	2
hallucinogens	19	13	17	15	12	13	5
amphetamines	28	32	38	28	17	27	14
barbiturates	4	8	5	5	8	4	3
heroin	0	1	2	1	1	1	0
cocaine	21	31	34	33	34	32	29

Tables 4-8 present cross-tabulation tables of the five peer relationship measures by age. As the life course material suggests, the social meanings of age are important as transitions may generate turning points in the life course (Elder, 1975). Peer relationships may differ for various age groups as adolescence is a process that is constantly changing. As such, age is controlled in the following analyses to determine if any age distinctions are present.

In Table 4, at least 79% of all respondents either strongly disapprove or disapprove that their peers would approve if they engaged in any of the four delinquent items (steal over \$50, hit someone, pressure someone sexually, or break into a car/building). Note, however, that respondents aged 18-20 report higher approval from peers if they engaged in any of the delinquent items.

Table 5 reflects exposure to delinquent peers and reveals that approximately 22% of the respondents report that most or all of their friends use marijuana. Furthermore, the number reported for some friends who use marijuana increases with age. However, over 96% of all respondents reported that none or very few of their friends have broken into a car or building.

TABLE 4: Age of Respondents by Peer Approval for Delinquency (N(%))

	STEAL OVER \$50	strongly disapprove or disapprove	neither	strongly approve or approve
A g e	18	201 (88.5)	20 (8.8)	6 (2.6)
	19	207 (90.0)	17 (7.0)	7 (3.1)
	20	199 (83.6)	31 (13.0)	8 (3.4)
	21	193 (88.5)	19 (8.7)	6 (2.8)
	22	181 (87.4)	23 (11.1)	3 (1.4)
	23	179 (86.1)	23 (11.1)	6 (2.9)
	24	141 (87.0)	18 (11.1)	3 (1.9)

	HIT SOMEONE	strongly disapprove or disapprove	neither	strongly approve or approve
A g e	18	181 (79.7)	39 (17.2)	7 (3.0)
	19	194 (84.4)	29 (12.6)	7 (3.1)
	20	196 (82.4)	39 (16.4)	3 (1.3)
	21	181 (83.0)	34 (15.6)	3 (1.4)
	22	180 (87.0)	26 (12.6)	1 (0.5)
	23	181 (87.0)	26 (12.5)	1 (0.5)
	24	143 (88.3)	17 (10.5)	2 (1.2)

TABLE 4: cont'd

	PRESSURE SOMEONE SEXUALLY	strongly disapprove or disapprove	neither	strongly approve or approve
A g e	18	189 (83.3)	34 (15.0)	4 (1.8)
	19	192 (83.9)	32 (14.0)	5 (2.1)
	20	210 (88.6)	22 (9.3)	5 (2.1)
	21	191 (87.7)	26 (11.9)	1 (0.5)
	22	180 (87.0)	26 (12.6)	1 (0.5)
	23	183 (88.0)	22 (10.6)	3 (1.5)
	24	143 (88.8)	17 (10.6)	1 (0.6)

	BREAK INTO CAR OR BUILDING	strongly disapprove or disapprove	neither	strongly approve or approve
A g e	18	205 (90.3)	15 (6.6)	7 (3.1)
	19	215 (93.4)	11 (4.8)	4 (1.7)
	20	215 (90.3)	18 (7.6)	5 (2.1)
	21	199 (91.3)	17 (7.8)	2 (0.9)
	22	191 (91.8)	14 (6.7)	3 (1.4)
	23	195 (93.7)	10 (4.8)	3 (1.4)
	24	155 (95.7)	5 (3.1)	2 (1.2)

TABLE 5: Age of Respondents by Exposure to Delinquent Peers (N(%))

	FRIENDS USE MARIJUANA	none or very few		some		most or all	
A g e	18	132	(59.0)	45	(20.1)	47	(21.0)
	19	125	(55.6)	49	(21.8)	51	(22.7)
	20	129	(54.2)	56	(23.5)	53	(22.2)
	21	109	(50.9)	54	(25.2)	51	(23.9)
	22	106	(52.2)	49	(24.1)	48	(23.7)
	23	103	(51.2)	52	(25.9)	46	(22.9)
	24	82	(51.5)	44	(27.7)	33	(20.8)

	FRIENDS BREAK INTO CAR/BLDG	none or very few		some		most or all	
A g e	18	216	(96.5)	6	(2.7)	2	(0.9)
	19	221	(97.4)	4	(1.8)	2	(0.8)
	20	230	(97.1)	6	(2.5)	1	(0.4)
	21	212	(99.0)	1	(0.5)	1	(0.5)
	22	201	(99.0)	2	(1.0)	-----	
	23	198	(98.1)	4	(2.0)	-----	
	24	158	(98.8)	1	(0.6)	1	(0.6)

TABLE 6: Age of Respondents by Peer Pressure for Delinquency (N(%))

	To be popular, must break rules	strongly disagree or disagree	neither	strongly agree or agree
A g e	18	182 (79.4)	26 (11.4)	21 (9.2)
	19	188 (81.8)	18 (7.8)	24 (10.4)
	20	185 (77.4)	28 (11.7)	26 (10.9)
	21	178 (82.0)	26 (12.0)	13 (6.0)
	22	159 (76.1)	27 (12.9)	23 (11.0)
	23	165 (79.4)	21 (10.1)	22 (10.6)
	24	138 (85.2)	11 (6.8)	13 (8.0)

	Lying OK if it keeps friends out of trouble	strongly disagree or disagree	neither	strongly agree or agree
A g e	18	151 (66.0)	49 (21.4)	29 (12.7)
	19	159 (69.2)	49 (21.3)	22 (9.6)
	20	175 (73.2)	37 (15.5)	27 (11.3)
	21	161 (73.8)	43 (19.7)	14 (6.4)
	22	142 (68.0)	48 (23.0)	19 (9.1)
	23	144 (69.2)	49 (23.6)	15 (7.2)
	24	123 (76.0)	31 (19.1)	8 (4.9)

TABLE 6: cont'd

	Break parents rules to keep friends	strongly disagree or disagree	neither	strongly agree or agree
A g e	18	162 (70.8)	32 (14.0)	35 (15.3)
	19	164 (71.3)	30 (13.0)	36 (15.6)
	20	159 (66.5)	46 (19.2)	34 (14.2)
	21	156 (71.9)	30 (13.8)	31 (14.3)
	22	148 (70.4)	26 (12.4)	36 (17.2)
	23	147 (70.7)	27 (13.0)	34 (16.4)
	24	114 (77.1)	20 (12.4)	27 (16.8)

TABLE 7: Age of Respondents by Time Spent With Friends (N(%))

	WEEKDAY AFTERNOONS	0	1-2	3-4	5
A g e	18	16 (7.7)	55 (26.6)	93 (44.9)	43 (20.8)
	19	22 (10.7)	53 (25.8)	78 (37.9)	53 (25.7)
	20	28 (13.5)	61 (29.3)	65 (31.2)	54 (26.0)
	21	26 (13.8)	68 (36.0)	53 (28.1)	42 (22.2)
	22	34 (18.4)	73 (39.5)	39 (21.1)	39 (21.1)
	23	32 (17.8)	71 (39.5)	47 (26.1)	30 (16.7)
	24	26 (19.0)	63 (45.9)	32 (23.4)	16 (11.7)

	WEEKDAY EVENINGS	0	1-2	3-4	5
A g e	18	16 (7.7)	79 (38.2)	81 (39.1)	31 (15.0)
	19	14 (6.8)	58 (28.1)	94 (45.6)	40 (19.4)
	20	18 (8.7)	74 (35.6)	82 (39.5)	34 (16.3)
	21	14 (7.4)	77 (40.5)	66 (34.7)	33 (17.4)
	22	14 (7.6)	90 (48.9)	53 (28.8)	27 (14.7)
	23	12 (6.7)	84 (46.9)	57 (31.9)	26 (14.5)
	24	18 (13.1)	70 (51.1)	37 (27.0)	12 (8.8)

TABLE 8: Age of Respondents by Peer Attachment (N(%))

	WARMTH AND AFFECTION	very little or not too much	some	quite a bit or a great deal
A g e	18	18 (8.7)	56 (27.1)	133 (64.3)
	19	16 (7.8)	51 (24.8)	139 (67.5)
	20	10 (4.8)	53 (25.5)	145 (69.7)
	21	13 (6.8)	48 (25.3)	129 (67.9)
	22	5 (2.7)	48 (26.2)	130 (71.1)
	23	12 (6.6)	49 (27.1)	120 (66.3)
	24	8 (5.8)	44 (32.1)	85 (62.1)

	SUPPORT AND ENCOURAG EMENT	very little or not too much	some	quite a bit or a great deal
A g e	18	7 (3.4)	39 (18.8)	161 (77.8)
	19	9 (4.4)	32 (15.5)	165 (80.1)
	20	6 (2.9)	31 (14.9)	171 (82.3)
	21	8 (4.2)	39 (20.5)	143 (75.3)
	22	4 (2.1)	28 (15.3)	151 (82.6)
	23	4 (2.2)	42 (23.2)	135 (74.6)
	24	8 (5.8)	29 (21.2)	100 (73.0)

TABLE 8: cont'd

	LOYALTY FOR ONE ANOTHER	very little or not too much	some	quite a bit or a great deal
A g e	18	3 (1.5)	18 (8.7)	186 (89.9)
	19	8 (3.9)	15 (7.3)	183 (88.8)
	20	8 (3.8)	18 (8.7)	182 (87.5)
	21	5 (2.6)	17 (8.9)	168 (88.4)
	22	2 (1.1)	20 (10.9)	161 (88.0)
	23	1 (0.6)	17 (9.4)	163 (90.0)
	24	7 (5.1)	9 (8.0)	119 (86.9)

Table 6 reports peer pressure for delinquency by age. On average, respondents report that they do not feel much peer pressure to commit deviant acts as a requirement of their friendships. At least 66% of all respondents either strongly disagree or disagree to the three statements reflecting peer pressure. In addition, peer pressure seems to decrease with age, with the exception of breaking parents rules to keep friends, which slightly increases with age.

Table 7 reports the amount of time spent with friends. On average, respondents aged 18-20 spend more time with friends than those between the ages of 21 to 24. At least 55% of the respondents aged 18-20 indicated spending 3-5 weekday afternoons or evenings with friends. In contrast, respondents between the ages of 21 to 24 reported spending on the most part only 1-2 afternoons or evenings with friends.

Table 8 reveals that on average, respondents report receiving at least some, if not quite a bit or a great deal of warmth/affection and support/encouragement from friends. Furthermore, over 87% of all respondents indicated receiving either quite a bit or a great deal of loyalty from friends. This suggests that regardless of involvement in delinquency, respondents maintain warm and intimate friendship relations.

In general, responses from respondents did not vary with age. However, when they did, there was a clear distinction between them. Respondents between the ages of 18 to 20 differed in their perceptions and actions from those aged 21-24 with respect to peer approval for delinquency, time spent with friends and self-reported delinquent behavior. Respondents aged 18-20 on average engage in more delinquent acts, spend more weekday afternoons with friends, and report higher approval from peers if they engaged in any of the four delinquent

items. However, chi-square statistics for the crosstabulation tables revealed no statistical significance for these differences, with the exception of weekday afternoons and evenings spent with friends ($p < .001$).

Overall, respondents do not engage in delinquent behavior. However, the results suggest that those that do, are conditioned by peer dimensions that may vary in their effect on delinquency. Additionally, the results suggest that these peer dimensions vary with age. The next chapter will explore these ideas, by examining the interactive effects of peer relationships on delinquency using multiple regression analyses.

CHAPTER 5: MULTIVARIATE RESULTS

Up to this point, the relationship between delinquency and the dimensions of peer relationships have been examined using cross-tabulation tables. This has provided an indication of the associations between the various dimensions of peer relationships. Building on these results, scales were created in order to estimate three multiple regressions.

The factor results were used to create scales and items were summed to make additive scales. For example, felony theft and vandalism were summed to create the dependent variable Minor Delinquency. Three series of regressions were then estimated. The first series describes the main effects of peer relationship scales on minor and serious delinquency. The second series introduces higher-order interactive effects among these variables. The third series adds several control variables to test the robustness of significant effects.

Prior to the regression analyses, collinearity diagnostics, including tolerance scores, variance inflation factor scores and condition indices were examined. Tolerance scores for all variables were high (the lowest is .676), and the square root of the largest variance inflation factor score was 1.22. According to Fox (1991), only square root variance inflation factor scores of 2 or larger suggest collinearity. Additionally, the condition index revealed that no two variables loaded high on any of the components. Thus, the various peer relationship variables are not collinear.

However, Jaccard et al. (1990:30) note that "multiplicative terms usually exhibit strong correlations with the component parts (X_1 and X_2), introducing 'inflated' standard errors for the regression coefficients." As a means of addressing this problem, Jaccard et al. (1990) suggest

centering the independent variables prior to forming the interaction terms. Centered scores are deviational scores, computed by subtracting the mean from each score of the variable. Jaccard et al. (1990:31) state that "such a transformation will tend to yield low correlations between the product term and the component parts of the term." The independent variables in the analysis were centered. The strongest correlation between the interactions and their component parts is .303, thus suggesting that the centered interaction terms are not collinear with their constituted parts (Jaccard et al., 1990).

For the multiple regression analyses, six peer variables are regressed on the dependent measures of minor and serious delinquency. According to Equation 1 in Table 9, only one of the peer variables has a significant effect on Minor Delinquency. Specifically, Minor Delinquency rises with each increase in the number of friends who have broken into vehicles or buildings to steal something ($\beta=.150$, $p<.001$). None of the remaining effects are statistically significant ($p>.05$ level). Note that the R^2 is not sizeable ($R^2=.037$), indicating that the equation explains only 3.7% of the variance.

Adding the five interaction terms to Equation 1 does not significantly increase the amount of explained variance in Minor Delinquency. Hierarchical F tests are computed by the following equation: $F = (R^2_2 - R^2_1) / (k_2 - k_1) / ((1 - R^2_2) / (N - k_2 - 1))$. A hierarchical F test (at $p<.05$) reveals no statistically significant increase in the explanatory power of the model, nor are the interaction effects statistically significant (see Equation 2). This result indicates that for Minor Delinquency, the addition of the interaction terms does not substantially improve the prediction of delinquency.

TABLE 9: Effects of Peer Variables on Minor Delinquency (N=1,295)

Variable	Equation 1 Main Effects		Equation 2 Model With Interactions	
	β	SE β	β	SE β
Peer Approval	.037	.033	.031	.034
Time With Friends	.010	.028	.008	.028
Friends Use of Marijuana	.036	.031	.039	.031
Friends Break and Enter	.150***	.029	.149***	.038
Peer Attachment	.025	.030	.027	.030
Peer Pressure	.040	.032	.048	.032
Peer Approval x Time			.009	.029
Peer Approval x Marijuana			.041	.032
Peer Approval x Attachment			.026	.030
Peer Approval x Pressure			.037	.031
Peer Approval x Break/Enter			-.022	.040
R^2	.037		.041	
Adj. R^2	.033		.033	
SE of R^2	6.158		6.159	
R^2 Change			.004	

* $p < .05$ ** $p < .01$ *** $p < .001$

TABLE 10: Effects of Peer Variables on Serious Delinquency (N=1,295)

Variable	Equation 1 Main Effects		Equation 2 Model With interactions	
	β	SE β	β	SE β
Peer Approval	.070*	.033	.055	.033
Time With Friends	.122***	.028	.118***	.028
Friends Use of Marijuana	.118***	.030	.124***	.030
Friends Break and Enter	.052	.029	.029	.037
Peer Attachment	.056	.029	.059*	.029
Peer Pressure	.020	.031	.033	.031
Peer Approval x Time			.094***	.028
Peer Approval x Marijuana			.098**	.031
Peer Approval x Attachment			.072*	.029
Peer Approval x Pressure			.047	.030
Peer Approval x Break/Enter			-.019	.039
R^2	.060		.088	
Adj. R^2	.055		.080	
SE of R^2	82.828		82.723	
R^2 Change			.028	

* $p < .05$ ** $p < .01$ *** $p < .001$

The results for serious delinquency are more substantial. For example, three peer variables have significant main effects on Serious Delinquency (see Table 10, Equation 1). Serious Delinquency increases with the number of peers who approve of delinquency ($\beta=.07$, $p<.05$), the amount of time spent with friends ($\beta=.122$, $p<.001$), and with the number of peers who use marijuana ($\beta=.118$, $p<.001$). However, the amount of variance explained is still not considerable ($R^2=.06$). Note that the standard error of R^2 is quite large ($SE \text{ of } R^2=.82828$), signifying that the distribution of the dependent variable Serious Delinquency varies considerably.

In Equation 2 three of the interaction effects on Serious Delinquency are statistically significant: the interaction of peer approval for delinquency and time spent with friends ($\beta=.094$) is significantly related to the dependent variable, as are peer approval for delinquency interactions with peers that use marijuana ($\beta=.098$), and attachment to peers ($\beta=.072$). Additionally, Peer Attachment becomes significant when the interactions are introduced ($\beta=.059$, $p<.05$). This suggests a suppression effect, that no association between Peer Attachment and Serious Delinquency is apparent until the interaction of Peer Approval for Delinquency and Peer Attachment is entered into the equation. Hierarchical F tests reveal that the amount of explained variance in Serious Delinquency is significant and R^2 increases to .088. Thus, the addition of the interaction terms for Serious Delinquency improves the prediction of delinquency.

The data indicate that Peer Approval for Delinquency interacts with three of the peer relationship measures in its effect on Serious Delinquency. Peer Approval for Delinquency

does not, however, interact with any of the peer dimensions in its effect on Minor Delinquency. One possible explanation for this is that peer approval for engaging in minor delinquency may not require much time, exposure or attachment. Breaking into a car or building to steal may not always involve a lot of planning and can be an impromptu act. In contrast, peer approval for engaging in serious delinquency may necessitate the opposite: high levels of time, attachment, and exposure to delinquent peers.

Table 11 reports higher order interaction effects of the peer variables on Serious Delinquency. Higher order interactions were examined to determine whether or not their addition increases the amount of explained variance, and if significant, do they conform to the pattern of results from the two-variable interactions. As none of the first order interaction effects on Minor Delinquency were statistically significant, higher order interactions were not examined. All interaction effects were retained in the regression analysis, since these nonsignificant effects are predicted by theory (see Jaccard et al., 1990).

The three significant items on Serious Delinquency from the first order interactions were multiplied by each other to create a four-way interaction term. As Table 11 reveals, the interaction effect of peer approval for delinquency, attachment to peers, friends who use marijuana and time spent with peers has a statistically significant effect on Serious Delinquency ($\beta=.268$, $p<.001$). The amount of explained variance in Serious Delinquency is significant, and R^2 increases to .146. This means that adding the four-way interaction effect increased R^2 by an additional 7%.

TABLE 11: Higher Order Interaction Effects of Peer Variables on Serious Delinquency (N=1,295)

Variable	Model With Interactions		Model With Controls	
	β	SE β	β	SE β
Peer Approval	.059	.032	.051	.032
Time With Friends	.134***	.027	.134***	.027
Friends Use of Marijuana	.131***	.029	.137***	.030
Friends Break and Enter	.026	.036	.023	.036
Peer Attachment	.050	.028	.056*	.028
Peer Pressure	.031	.030	.026	.031
Peer Approval x Time	.184***	.029	.184***	.029
Peer Approval x Marijuana	.071*	.030	.070*	.030
Peer Approval x Attachment	.003	.029	.001	.029
Peer Approval x Pressure	.062*	.029	.062*	.029
Peer Approval x Break/Enter	-.004	.037	-.005	.037
Peer Approval x Attachment x Marijuana x Time	.268***	.029	.266***	.029
Gender			.031	.028
Ethnicity			-.062*	.026
Age			.005	.026
R ²	.146		.150	
Adj. R ²	.138		.140	
SE of R ²	80.071		79.985	
R ² Change	.058		.004	

*p<.05 **p<.01 ***p<.001

This result supports the basic tenets of differential association theory, which specifies that criminal behavior is learned from frequent, long, intimate and intense associations with an excess of definitions favorable to law violation (Sutherland, 1955). Additionally, the data lends support to Agnew's (1991:55) claim that "the impact of delinquent peers depends on the extent to which (1) the adolescent feels emotionally close to peers, (2) the amount of contact the adolescent has with peers, and (3) the extent to which peers display delinquent patterns." Thus, Peer Approval for Delinquency has the greatest effect on Serious Delinquency when the adolescent is strongly attached to his/her peers, spends much time with them, and is exposed to peers who use marijuana.

To test the robustness of the effects, three antecedent variables were added to the regression equation that are strongly related to crime (Gottfredson and Hirschi, 1990). Adding these control variables did not alter the size nor the significance of the higher order interaction effects (see Table 11). Note though, that gender and age do not have significant main effects on Serious Delinquency while ethnicity has a significant negative effect ($\beta = -.062$, $p < .05$). This result suggests that non-Anglo-Saxons are more likely to engage in serious delinquency than Anglo-Saxons (ethnicity was coded "0" for non-Anglo-Saxons, "1" for Anglo-Saxons; $X = .823$, $SD = .382$).

**TABLE 12: Interactive Effect of Age and Peer Variables on Serious Delinquency
(N=1,295)**

Variable	β	SE β
Peer Approval x Attachment x Marijuana x Time		
For Age:		
18	.724	.069***
19	-.004	.084
20	-.005	.069
21	-.120	.075**
22	.029	.082
23	.039	.081
24	.048	.094

*p<.05 **p<.01 ***p<.001

Although age does not have a significant main effect on crime, life course research reminds us that human development, socialization and adaptations are life-long processes within an interage system. Thus, the above analysis was repeated for each individual age in the sample (i.e. 18 through 24). The results presented in Table 12 indicate an interactive effect of age and dimensions of peer relationships. At age 18, the effect of the four-way interaction term is sizeable and significant ($\beta=.724$, $p<.001$). At age 21, the effect is also significant but negative ($\beta=-.120$, $p<.01$). At every other age, the effect is non-significant.

The data indicate that the four-way interaction term (Peer Approval x Attachment x Marijuana x Time) has the greatest effect on Serious Delinquency at age 18, and the least effect at age 21. These results suggest that peer relations differ for various age groups and that adolescence is a process of rapid and enormous changes during a relatively brief period of time.

Overall, the prediction of delinquency is dominated by the peer variables. The data indicate that the impact of Peer Approval for Delinquency on Serious Delinquency is strongly conditioned by the measures of peer variables. The measure of Peer Approval for Delinquency does not, however, interact with any of the peer dimensions in its effect on Minor Delinquency. The introduction of a four-way interaction term significantly improves the prediction of Serious Delinquency, and a breakdown for each individual age reveals that age differentiation is present and influences the effect of peer variables on delinquency. The next chapter discusses the implications of these results with suggestions for future research.

CHAPTER 6: DISCUSSION AND CONCLUSIONS

Peer relationships have been central to many theories of delinquency, and empirical research has consistently found that individuals who associate with delinquent peers are likely to be delinquent themselves (e.g. Sutherland, 1955; Hirschi, 1969; Jensen, 1972; Akers et al., 1979; Elliott et al., 1985; Tittle et al., 1986). However, empirical research on delinquent peers has been overly simplistic, with little investigation into the dimensions and attributes of relationships that youth have with their delinquent peers.

In a key study, Robert Agnew (1991) explored the interactive effects of peer relationships on delinquency and found that the impact of serious delinquent friends on an individual's delinquency was significantly conditioned by measures of peer relationships. The present analysis used as a foundation Agnew's (1991) study to explore the delinquent activities of peers and examined the interactive effects of delinquent peers on delinquency. In extending previous studies, the present analysis included a wide range of offenses, distinguished peer behavior from peer attitudes, assessed higher-order interactions, and explored the issue of age differentiation.

Several conclusions can be drawn from the results of the regression analyses. First, the data indicate that peer approval for delinquency interacts with dimensions of peer relationships in its effect on serious delinquency but not on minor delinquency. The results suggest that peer approval for engaging in minor delinquency such as stealing a car or damaging property may not require much time, exposure or attachment. In contrast, peer approval for engaging in serious delinquency such as gang fights and drug use may require the opposite: high levels of

time, attachment and exposure to delinquent peers. These results reflect the division between offenses against individuals and offenses against property, and suggest that little interaction among youth is needed to engage in minor delinquency.

Second, the results support Agnew's (1991) claim that the interactive effect of peer dimensions condition delinquency. The addition of the two-variable interaction effects on serious delinquency increases the amount of explained variance in the dependent variable, and the addition of the four-way interaction effect increased R^2 to 14.6%. Thus the addition of the four-way interaction term substantially improves the prediction of serious delinquency. In contrast to previous studies which have typically examined peer relationships as a single variable (see Agnew, 1991 for details), this study examined several dimensions of peer relations, and the analysis suggests that there is substantial variation in these dimensions.

Third, the results lend support to my previous claim that tests of differential association theory have misread Sutherland's (1955) propositions. Most studies have focused on the attitudes of peers and have ignored their behavior (e.g. Warr and Stafford, 1991). Researchers like Warr and Stafford (1991:53) maintain that the primary feature of Sutherland's theory is "its insistence on attitude transference as the mechanism by which delinquency is socially transmitted." The authors (1991) give precedence to Sutherland's (1955:77) sixth proposition, "that a person becomes delinquent because of an excess of definitions favorable to violation of law over definitions unfavorable to violation of law," while overlooking propositions one and two which state that criminal behavior is learned and that learning such behavior takes place through interacting with others. The inclusion of the four-way interaction term significantly

improves the prediction of delinquency, and upholds Sutherland's (1955) claim that deviant behavior is learned from frequent, long, intimate and intense associations.

Fourth, and last, the results indicate that delinquency is conditioned by peer dimensions and that these dimensions vary with age. The four-way interaction has the greatest effect on serious delinquency at age 18 and the least effect at age 21. This suggests that the relationships youth have with their peers and their respective influence can change dramatically over a short period of one's life. Possibly, the difference between respondents aged 18 and 21 reflects a change in the social meanings of their peer relations. The life course perspective suggests (see Elder, 1975) that transitions may produce turning points and correspondingly, roles and behavior will change.

Although informative, the conclusions drawn from this study are limited. One concern is the possible conservative bias of the sample. The National Youth Survey uses a multi-stage, self-weighting cluster sampling strategy to design a probability sample of households in the United States. Although representative of the age, sex, and race of the U.S. population, most respondents have not engaged in any illegal or deviant activities. Youth who are more involved in crime may not have a stable home life, and as the sampling strategy samples households, these youth are not taken into account.

A second problem is that not all of the elements of differential association theory are represented. This is a general limitation of secondary survey analysis, and although the measures of the National Youth Survey draws heavily on differential association theory (see Elliott et al., 1985; Agnew, 1991), some measures were not captured. For example, while

measures of peer attitudes and peer behavior are represented, the techniques of committing the crime are not. The National Youth Survey is a study of delinquent behavior and drug use, not a test of differential association theory, thus the survey does not capture all of the elements of the theory.

A third related concern is that the model is open to specification error. That is, only six peer dimensions are examined. However, the analysis is constrained by the data set and its measures, and consequently could not control for any other dimensions youth may have with their peers.

A fourth limitation is that the analysis assumes a recursive model. Recent studies (e.g. Thornberry et al., 1994) suggest that uni-directional models are inadequate in explaining delinquency, and argue that peer associations and delinquent behavior are interrelated and have bi-directional causal influences on each other. Although the National Youth Survey is a longitudinal study of delinquent behavior and drug use, the present analysis uses only one wave of the survey, thus a non-recursive model (i.e. with reciprocal causation) could not be assessed.

Future research should address the issues raised above. For example, subsequent research needs to delve more deeply into delinquent populations. Although the National Youth Survey provides valuable information and is representative of the United States population (Elliott et al., 1985), the sample tends to have a conservative estimate of delinquent activities. It may be that probability sampling designs are inadequate tools to assess delinquent populations and subsequent large-scale survey research should employ nonprobability

sampling designs such as purposive sampling, which select cases that represent the relevant dimensions of the population, such as sampling dropouts, gang members and homeless youth.

Future research should also build on this study in several ways. First, future research should examine how delinquent behavior is transferred or transmitted. Warr and Stafford (1991:863) state that "measuring these processes in natural settings is likely to prove a difficult task, but several strategies are promising." For example, social learning theory stipulates two mechanisms for the transmission of delinquent behavior: imitation and vicarious reinforcement (Akers et al., 1979). Warr and Stafford (1991) suggest that if researchers ask questions about the consequences of peers' behavior, such as increases in prestige or social ostracism, the process of vicarious reinforcement might be explained.

Second, future research should examine more comprehensively life transitions. Changes from early adolescence to late adolescence to adulthood are key life course transitions and need to be assessed, necessitating longitudinal data (Sampson and Laub, 1993). This would enable researchers to "make proper inferences about individual trajectories of stability and change" (Sampson and Laub, 1993:251). Traditional theories of crime and delinquency have been insensitive to the likelihood that relations among adolescents may differ for various age groups, and subsequent research needs to rectify this oversight.

Third, future research should examine more attentively the different types of delinquent peer groups. Typically, previous research has used a single measure of association with delinquent peers, such as the frequency of peers' delinquency or the number of delinquent friends (Agnew, 1991). The results of the factor analysis and regression analyses from this

study, however, suggest that these groups have different effects on diverse forms of delinquency, and confirms Agnew's (1991) analysis of the first wave of the National Youth Survey.

Finally, future research should examine interactions. Agnew quotes Herbert Costner (1988:45), who states that "the lack of attention to nonadditive effects in our data analysis stands in sharp contrast to the frequency with which nonadditivity is implicitly assumed or explicitly stated in substantive discussions of social science." The present analysis supports this claim, and emphasizes the importance of examining interaction effects.

Although several theories predict that the effect of delinquent peers on delinquency is conditioned by several dimensions of peer relationships, most empirical studies have ignored their interactive effects (see Short, 1958; Voss, 1964; Elliott et al., 1985). The results from this study suggest that by examining interaction effects, conditions under which dimensions of delinquent peer associations affect delinquency can be specified, and as such, considerably improve the prediction of delinquency.

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APPENDIX: Codes of Variables

Variables

Age

(Coded as years of age)

Gender

(Coded as 0 for females, 1 for males)

Ethnicity

(Coded as 0 for other, 1 for anglo-saxon)

Peer Approval

(Coded as 1=strongly disapprove, 2=disapprove, 3=neither approve nor disapprove, 4=approve, 5=strongly approve)

Time Spent With Friends

(Coded on a scale of 0-5, 0=everything less than once a week, except hours per week, in frequency)

Exposure to Delinquent Peers

(Coded as 1=none of them, 2=very few of them, 3=some of them, 4=most of them, 5=all of them)

Peer Attachment

(Coded as 1=very little, 2=not too much, 3=some, 4=quite a bit, 5=a great deal)

Peer Pressure

(Coded as 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree)

Minor Delinquency

(Summation of reported frequencies for the separate items)

Serious Delinquency

(Summation of reported frequencies for the separate items)