Social Control and Delinquent Behavior
Cheryl R. Tieman

ABSTRACT OF DISSERTATION

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The Graduate School
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SOCIAL CONTROL AND DELINQUENT BEHAVIOR

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Abstract of dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at the University of Kentucky

By

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ABSTRACT OF DISSERTATION

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Social control theorists assume that man is basically immoral and must desire to conform. The impetus for conforming behavior is found in the individual's bond to the social order. According to Hirschi's theory of the causes of delinquent behavior, this bond consists of four elements: attachment, commitment to conventional lines of action, involvement in conventional activities and belief in the existing rules. If for some reason this bond is weakened or broken, the individual is free to deviate. There is no longer any preventive influence stemming from the individual's ties to society.

Unlike many theorists, Hirschi tested his formulation of control theory. Utilizing a sample of white male adolescents, Hirschi found support for all except one of the hypothesized elements of the bond. There was no evidence that involvement in conventional activities had any preventive influence on delinquent behavior. Hirschi also underestimated the influence of delinquent peers. Because Hirschi utilized a cross-sectional design he could not assess the causal direction of the variables.

Data collected in California from 1963 to 1968 per-

mitted a replication of Hirschi's analysis with a longitudinal research design. The sample consisted of 2,617 males and females of diverse class and ethnic backgrounds. Measures of the independent variables were obtained when the cohort was in the ninth grade. This was defined as Time I. Subsequent delinquent behavior, the dependent variable, was measured by a self-reported delinquency checklist administered in the latter part of the cohort's senior year of high school. This was defined as Time II. Data on delinquent acts committed prior to Time I also were obtained for cross-sectional comparisons and for clarification of the temporal sequence of the variables.

The findings of an intensive replication were consistent with the results of Hirschi's analysis; this suggested that the samples employed in the two studies were comparable. In an extensive replication, a large pool of items thought to measure social control variables were factor analyzed to derive scales. A regression of these scales on subsequent delinquent behavior provided little support for social control theory. In fact the control theory variables were not as efficient as predictors of subsequent delinquent behavior as was knowledge of prior involvement in delinquency.

A final analysis employed a restricted portion of the sample; students who reported serious delinquent acts at Time I were eliminated. In this way the temporal sequence of the independent and dependent variables was not con-

founded, and inferences about causal order were possible. This analysis provided moderate support for the idea that attachment to parents and to the school have a preventive influence on delinquency. Unconventional beliefs and association with delinquent peers were found to increase the likelihood of delinquency. However, no support was found for the commitment component of control theory; high educational aspirations were not related to subsequent delinquent behavior.

In general, the predictive ability of social control theory is similar across class and ethnic groups. However, it is not as efficient in predicting female delinquency as it is male delinquency.

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1

INTRODUCTION

Conformity and deviation from norms have been long-standing interests of sociologists. There have been various attempts to explain both sides of the theoretical coin--some have focused on explanations of conformity, others on deviance. Some explanations are antithetical to others; some converge and complement each other. The focus of these theories, whether it be on conformity or deviance, only indicates the basic point of divergence which is the assumptions made about the nature of man.

One perspective that takes conformity for granted and tries to explain deviance is classified by Hirschi (1972) as strain theory. This position explains delinquency as the result of legitimate desires which cannot be realized by legitimate means. Proponents such as Merton, Cloward and Ohlin, and Cohen assume that individuals are moral beings who have "internalized the norms of their society or group and want to obey the rules" (Stark, 1975:108). People develop a conscience and are sensitive to the expectations of others. But because they value what others value and cannot achieve these goals legitimately, they are forced out of desperation to deviate. However, they can deviate

only with great psychic cost, or strain.

In the subcultural perspective, it is also assumed that people are basically moral. Due to a variety of normative systems within a society, it is the adherents of one normative system that are considered deviant by adherents to another system. Generally people adhere to the norms of their group or subculture, but this may automatically involve the violation of the norms of the dominant group in society who have the power to enact laws that represent their normative standards. Thus, the "deviant" is one who conforms to a different set of rules from those held and enforced by the dominant group in society.

A third perspective, control theory, focuses on conformity as the problematic concern. Control theory assumes that man is by nature amoral. He must learn the right and wrong things to do: "learning to be grown-up is learning to do the unnatural thing" (Bredemeier and Toby, 1960:78). If an individual wants a positive relationship with another individual, he must choose to submit to the other's influences, standards and expectations (Gold, 1963:37). Thus, there is the implicit assumption in control theory that attraction or affection for another is important in eliciting conventional behavior. Also, the rational element is significant: the rewards of conformity, whether they be material or emotional, must be perceived as outweighing those of deviance (Hirschi, 1972:11). If the rewards on which the individual is dependent are not sufficient to elicit consistently conforming behavior, the individual is

free to choose other courses of action which may be deviant. This can occur not only when the rewards of primary relationships are diminished, but also when group norms are unclear or conflicting. The individual is then free to pursue his own interests and perhaps deviate; there is little reason to follow the rules, especially if they involve sacrifice, when others fail to live up to their expectations (Shibutani, 1961:570-571).

Thus, for the subcultural theorist deviance is a matter of social definition by those outside one's own group. For the strain theorist deviance is caused by the provocations in the social system which push the individual into deviance. And for the control theorist, deviance is prevented by emotional and rational considerations which outweigh the gains of deviant behavior.

In Causes of Delinquency, Hirschi (1972) assumes that most individuals would deviate were it not for the ties they have to networks of interpersonal relations, commitments and beliefs--ties that lead to conformity and maintenance of the social order. The individual is dependent upon the kinds of relationships he or she values. It is this kind of dependence or bond to the social system that Hirschi refers to as "social control." An individual's self-control is equivalent to social control when he or she behaves in a manner "to maintain self-respect through achieving social respect by meeting the group's expectations" (Clinard, 1968: 67). If the individual's bond to the social order is weak-

ened or broken, he or she is to that extent free to deviate, but according to the theory, not required to do so.

Unlike earlier theorists, Hirschi attempts to test his own theory and thus provides the link between theory and methodology so often lacking in the literature. The operationalizations provided by the theorist not only reduce the ambiguity and vagueness of most theoretical statements, but also lessen the possibility of a researcher taking too much latitude when testing another's theory.

However, as Hirschi's title indicates, he claims to have found certain "causes" of delinquent behavior. The major limitation of his research is the use of cross-sectional data; it is difficult, if not impossible, to assess causal influence with data collected at one point in time. Only correlates of delinquency may be uncovered with data of this type. It is left to replication attempts to assess causal influences using the guidelines and operationalizations provided by Hirschi.

The problem for the present analysis will be to examine Hirschi's theory with longitudinal data. There are certain inherent problems in a longitudinal design such as sample attrition. However, with such data the temporal sequence of the variables is assured and causal influence more easily inferred. At the present time, social control theory offers a plausible explanation of delinquent behavior. The fundamental task in this analysis is to determine the predictive power of the theory. In other words,

an assessment will be made of the extent to which variables drawn from social control theory can predict subsequent delinquent behavior.

2

SOCIAL CONTROL THEORY

Underlying Assumptions

A basic issue that must be confronted in a discussion of social control is the type of assumptions one is willing to make about the nature of man. As has been the case with philosophers through the centuries, even Durkheim's writings, which have been a starting point for many sociological theories, have led to opposing views on the nature of man.

According to Durkheim, man is a social being, not just because he lives with other men, but also because he needs other men for his physical and psychic well-being. Man is tied to other men and never free of them: there is both a bond and a bondage. When these elements are balanced, the social being and the social order are at equilibrium. However, man "can be crushed by the excessive demands of others upon his life, so, too, he 'falls apart' when he lives without restraint" (Nettler, 1974:155).

There is another type of balance necessary for man's contentment, namely, that between his appetites and satisfactions. A man can become as much a slave to his appetites and impulses--whether for knowledge, wealth, power, or sex--as he can be enslaved to other men (Shibutani, 1961:278).

So even when the demands of others are not excessive, man places demands on himself, and he must impose controls on himself to maintain balance and contentment.

It is the rules of society that man may take on as his own that constitute another set of constraints. This generally may occur in the process of socialization; this process is one of continuous communication in which man "selectively incorporates into his behavioral sets those patterns of conduct that are sanctioned in the group" (Shibutani, 1961:494). He may take certain selected norms as patterns for his own conduct.

Durkheim perceived that the rules of society were not merely external constraints on the individual, but that the individual imposes these constraints on himself as well. In this way they become internal, psychological constraints (Wrong, 1961:186). However, some modern writers have taken this concept of internalization to have the same meaning as "learning" or "habit formation." "Thus when a norm is said to have been 'internalized' by an individual, what is frequently meant is that he habitually both affirms it and conforms to it in his conduct" (Wrong, 1961:187). It follows from this that conformity is normal and that deviance is problematic and must be explained.

Merton, for example, borrowed Durkheim's concept of anomie to explain how individuals who desired exactly what society taught them to want might be pushed into deviance. The original meaning of anomie, a state of lawlessness,

was transformed into a condition involving a discrepancy between societal goals and the availability of appropriate or legitimate means to achieve them. In this perspective man is not viewed as fighting the strictures of society, but rather as desiring only that which society taught him to want and, not being able to achieve these ends through legitimate channels, he must either settle for less, or deviate.

Another premise in the Mertonian view closely paralleling this one is the idea of man as acceptance seeker (Wrong, 1961:188). Thus, man acts in ways that will maintain an acceptable self-image, which, in turn, is determined by the acceptability of these acts to others. "Man is increasingly seen as a 'role-playing' creature, responding eagerly or anxiously to the expectations of other role-players in the multiple group settings in which he finds himself" (Wrong, 1961:190). An example of this is found in Cohen's explanation for the emergence of the delinquent gang. Cohen (1955:56) works from the assumption that we all value membership "in good standing" in various groups. "To the degree that we covet such membership, we are motivated to assume those signs, to incorporate them into our behavior and frame of reference" (Cohen, 1955:57). Through this route both personal acceptance and validation of the frame of reference are gained. Unfortunately, for the working-class boy who may not measure up to the standards of his middle-class peers, nonacceptance may lead to rejec-

tion of the rejectors: "To the degree to which he values middle-class status, either because he values the good opinion of middle-class persons or because he has to some degree internalized middle-class standards himself, he faces a problem of adjustment and is in the market for a 'solution'" (Cohen, 1955:119). To Cohen (1955:123) it makes no sense to argue that the boy may be totally indifferent to the opinion of middle-class persons. The response, then, is a new frame of reference validated by other peers with whom the boy can gain acceptance.

Cohen never questions why the acceptance of this latter group of peers was not sought in the first place. Of course, he is concerned with the emergence of a delinquent subculture. But once it is granted that there are individuals in society who engage in delinquent activities, it is hard to argue why their acknowledgment and acceptance of an individual is not as strong a motivating force as the acceptance of conventional, middle-class peers. It is difficult--unless one starts with the assumption that conformity is normal and deviance must be explained.

Durkheim, on the other hand, contended that deviance was normal, that the existence of a rule implied the possibility of its violation. As Wrong (1961:191) states, "[Durkheim] maintained that 'for the originality of the idealist whose dreams transcend his century to find expression, it is necessary that the originality of the criminal, who is below the level of his time, shall also be possible.

One does not occur without the other.'" Durkheim also maintained[1] that individuals vary in their ability to be regulated just as societies vary in their ability to regulate (Taylor et al., 1973:87).

None of this is meant to imply that man is completely molded by the society in which he lives, nor that he could survive independently of society. It does imply an interaction between man and his society and the constraints placed upon him that may be based on coercion and conflict as well as a desire to conform. "Man after all, is a reflective being; man alone is capable of considering alternative actions, of breaking from the established social order. Once the individual has an awareness of self, acquired as a member of society, he is able to choose his actions" (Quinney, 1965:122). This awareness of self is acquired through socialization, through an understanding of what others expect of him. This permits both predictability of what others will do and how others will react. It also permits a consistent self-image so that one acts in characteristic ways in a variety of contexts, when faced with pressures from others or totally alone (Shibutani, 1961:269).

On the other hand, socialization or a consistent self-

[1]Indeed, Durkheim did not hold that anomie was the single cause of crime, but that egoism, individuality and even physiological factors determined criminal behavior (Taylor et al., 1973:67-90).

image does not imply conformity as an inevitable behavioral outcome. Evolution of the self-image may occur through opposition to what others expect or in conflict with the established social order. It is man's nature to choose, and to various degrees he is free to do so. As Matza (1964:27) suggests, some men are freer than others; no one is wholly free or completely constrained--either by external or internal constraints. It is usually thought that freedom results when there are no controls. Yet, man's freedom implies command over one's self (Matza, 1964:28). "As paradoxical as this may sound, a man feels most free when his inner discipline is best developed. He then believes that he is the responsible agent, that he is making up his own mind, that he is doing what he wants to do" (Shibutani, 1961:278).

It follows that conformity is dependent upon an individual's self-control, for in a very real sense, self-control is social control: the individual sees himself from the viewpoint of the group and seeks self-respect by fulfilling group expectations. Self-control then becomes an extension of external control (Quinney, 1965:122; Clinard, 1968:67; Shibutani, 1961:512-517).

> But the manner in which each person controls himself is in each case unique, for it develops in response to the specific demands made upon him by the particular people with whom he is in sustained contact.
>
> But a person restricted by the demands of his immediate associates is not independent. He

> achieves the freedom to choose, even when his preferences happen to be contrary to the interests of significant others, to the extent that he develops a more comprehensive perspective, one that transcends that of any particular primary group (Shibutani, 1961: 514, italics deleted).

Therefore, while internalization as a process is reflected in an individual's behavior, there can be no assumption that the result of this process will be conforming behavior. It is erroneous to assume that there are rules for all situations, that the rules are unchanging and known to all, and that all interpret them in the same way (Quinney, 1965:126). The rules that one incorporates are selectively chosen; the audience to which one responds is, at least in part, a matter of choice. The problem, then, is not to explain deviation but conformity.

Precursors of the Theory

In the early part of this century, American sociologists had a difficult problem in reconciling the diverse cultural aspects of American society with the consensual, organic model of society (Taylor et al., 1973:124). Rather than explain away deviant behavior as individual pathology, theorists of the Chicago School developed the view that deviant behavior was caused by social pathology. This pathology, or social disorganization, prohibited the norms from permeating all segments of society.

To demonstrate this, Shaw and McKay (1942) and others (1929) studied the differential crime and delinquency rates

of certain areas of Chicago. They found that the rates of delinquency varied by neighborhoods with the highest rates in low-rent areas; these areas were characterized by high mobility. Areas that had high rates in 1930 had high rates in 1900, regardless of the change in nationality or ethnic background of the inhabitants over time (Sutherland and Cressey, 1974:184). Similar findings have been reported in studies of other large metropolitan areas. Thus, some areas characterized by social disorganization were thought to provide norms and values supportive of delinquent behavior. Writing in the tradition of social disorganization, they contended that "the development of divergent systems of values requires a type of situation in which traditional conventional control is either weak or nonexistent" (Shaw and McKay, 1942:182). Coupled with life history accounts, Shaw and McKay argued that some areas have a tradition of delinquency that is passed down from one generation to the next through group contacts and associations (Shaw, McKay and McDonald, 1938).

The conventional or criminal outcome of an individual in a high-crime-rate area was not due to personal disorganization, but rather to identification with criminal or anti-criminal groups. While the family is traditionally considered an anti-criminal value source, its effectiveness as a control agent may be limited by the presence of divergent value systems in an area (Shaw and McKay, 1942:177-178; Voss and Petersen, 1971:18). With few pro-criminal groups

in an area, the neighborhood may act as a primary agent of control, but in an area characterized by mobility and heterogeneity of populations, there is little concern for the attitudes and informal sanctions of those in the neighborhood: "members of one group do not seek the approval of peoples of whom they themselves disapprove" (Faris, 1948: 132). Thus, the tradition of delinquency was maintained and persisted over time.

Some specific criticisms of Shaw and McKay's work have been made. Kobrin (1971) notes certain inconsistencies and shifts in their logical argument. For example, Shaw and McKay failed to define what they meant by a "tradition" of delinquency. The indicators of social organization used by Shaw and McKay, such as collective solutions to common problems, were not shown to be related to other elements of diversity, such as racial heterogeneity. Heterogeneity may make it impossible to achieve consensus in an area, but homogeneity does not guarantee collective action. Shaw and McKay also failed to show that low-rate areas are more successful in efforts to solve community problems; they only document that high-rate areas tend to be heterogeneous and infer that this reduces the capacity for common action. Downes (1966) points out that the arguments made by Shaw and McKay were essentially tautological: the delinquency rates were used as indicators of social disorganization, which was then posited as the cause of the delinquency rates.

Generally, the concept of social disorganization is criticized as being too subjective; theorists in this perspective also tended to utilize their value stance in characterizing an area as organized or disorganized. Disorganization itself is viewed as "bad." However, many activities associated with "disorganized" or "bad" areas, such as gambling, are highly organized. Indeed, deviance is not necessarily an indicator of disorganization or a threat to social organization; it can function as an organizing element in an area or society (Clinard, 1968:41-42; Coser, 1962; Whyte, 1943).

The overriding theoretical problem with the concept of social disorganization is that it is based on a consensual view of society (Taylor et al., 1973:125). If this notion were rejected, society could be seen as a mosaic of cultural and normative patterns. Areas then would not be viewed as disorganized, but would be characterized as differentially organized. Differential social organization could explain variations in crime rates due to variations by areas in values and normative patterns, as well as exposure to criminal influences. In fact, Sutherland used this concept to complement his theory of differential association (Sutherland and Cressey, 1974:96). Thus, while this concept was employed to explain variations in crime rates, the latter explained the individual's criminal behavior by specifying the mechanism through which a person acquires definitions favorable to law violation.

Without going too far afield with a discussion of the theory of differential association and criticisms that have been offered regarding this formulation, it should be noted that the theory takes into account the individual's definition of the situation.[2] To understand an individual's behavior requires knowledge of (1) his definition of the situation, (2) what type of person he believes himself to be and (3) the audience before which he tries to maintain his self-respect (Shibutani, 1961:279). Sutherland suggested that criminal behavior is learned, as is all behavior, in interaction with others through a process of communication. "Differential associations may vary in frequency, duration, priority and intensity" (Sutherland and Cressey, 1974:76). Frequency and duration are self-explanatory. Priority refers to how early pro-criminal or anti-criminal influences enter into the life-history of the individual. Intensity refers to "the prestige of the source of a criminal or anti-criminal pattern and with emotional reactions related to the associations" (Sutherland and Cressey, 1974:76). This aspect of the theory of differential association has been severely criticized because of the difficulty in operationalizing these concepts. DeFleur and Quinney (1966) assert that the theory of differential association assumes differential exposure to pro- and anti-criminal influences.

[2]See Cressey (1960) for a discussion of the various criticisms levelled against the theory. Burgess and Akers (1966) and DeFleur and Quinney (1966) offer refinements of the theoretical statement.

While less emphasis is placed on early influences in contemporary learning theory than was the case in Sutherland's day, the concepts of frequency, duration, and intensity refer to important dimensions of a person's exposure to, or relative insulation from, pro-criminal views. These concepts imply that associations vary in importance to an individual as does the influence of such associations on a person's subsequent behavior.

Unfortunately, these concepts seemingly imply, as does Sutherland's principle of differential association, that an individual has little choice; one is pushed or pulled in a particular direction according to the preponderance of pro- or anti-criminal influences. Sutherland suggests that parents may be highly important in this process because of their early input in the individual's life history. However parental influence may be tempered by emotional reactions and may be outweighed by others for whom the individual has a more positive affect. Glaser's (1956) modification of Sutherland's theory is relevant to this point. "The theory of differential identification, in essence, is that a person pursues criminal behavior to the extent that he identifies himself with real or imaginary persons from whose perspective his criminal behavior seems acceptable. Such a theory focuses attention on the interaction in which choice of models occurs including the individual's interaction with himself in rationalizing his conduct" (Glaser, 1956:440). A further advantage of Glaser's reformulation is that it

implies choice on the part of the individual, not only in what is learned, but in the weight the person attaches to it (Taylor et al., 1973:129-130). The relative influence of various audiences for an individual is an important point that many writers in the tradition of control theory have ignored.

One other major contribution to control theory was derived from the social disorganization approach. Originally Thomas and Znaniecki (1918:1128) had defined social disorganization as "a decrease of the influence of existing social rules of behavior upon individual members of the group." Several authors placed primary emphasis on the lack of controls as the explanation of deviant behavior. Rather than emphasize the view of society as differentially organized, they stressed the mobility and heterogeneity of the society. This, they claimed, lends itself to a situation of anomie--in the classical sense. The breakdown of the family and the homogeneous neighborhood results in a reduction in the effectiveness of these traditional agents of social control. This was not a view of society as pathological, as in the social disorganization perspective, but a view that emphasizes a weakening of personal and social controls that may result in deviant behavior.

In a move to clarify the effectiveness of controls, Reiss (1951:197; 1952) hypothesized that in most cases delinquency results from "a relative weakness of personal and social controls." To test this idea he studied success or

failure on probation of 1,110 white male delinquents in Cook County. He found that within primary groups, such as the family, the objective and psychological needs of the child must be met, and adequate moral role models must be provided for the individual to develop "contra delinquent personal controls" (Reiss, 1951:198). Where these were not met, or where open disagreement and/or inappropriate supervision characterized the family, the child was more likely to have weak ego and super-ego control which resulted in delinquency and failure on probation. Social control was lessened by the crime rate of the area of residence and the mobility of the family. Although Reiss' study has internal inconsistencies that tend to build in the expected outcome, it was one of the first attempts to move away from a societal or community level of explanation to a social-psychological level to explain individual delinquency.

Further attempts in this direction appeared in the late fifties and early sixties in a series of articles by Reckless and Dinitz and their students in which self-concept as an unsulating factor against delinquency was examined (Reckless et al., 1956; 1957; Dinitz et al., 1962; Reckless and Dinitz, 1967). The main question was why nondelinquents in high delinquency areas remained nondelinquent and resisted the delinquency tradition of their neighborhood. It was hypothesized that a "good" self-concept steered an individual away from delinquency, while a "poor" self-concept offered no resistence to the tempta-

tions of delinquency. "The poor concept of self is indicative of a residual unfavorable socialization (by 12 years of age probably not the result of participation in delinquency subculture) and indicative of weak inner direction (self or ego), which in turn does not deflect the boy from bad companions and street corner society, does not enable him to embrace middle class values, and gives him an awareness of being cut off from upward movement in the legitimate opportunity system" (Dinitz et al., 1962:517).

These studies were criticized on a number of grounds. Voss (1970b:174) questioned the implicit assumption that all boys in high delinquency areas have an equal opportunity to learn delinquent attitudes and behavior patterns. Others have criticized the investigators' evaluation that a delinquent self-concept was a negative or "poor" self-concept (Tangri and Schwartz, 1967:187; Jensen, 1972a:85). The research design utilized by Reckless and his coworkers also raises questions about possible interpretations of these data. The dichotomization of boys on the basis of teachers' evaluations of potential delinquents and non-delinquents does not provide any information on those boys not classified, nor does it provide a very accurate basis for identification of "good" versus "bad" boys (Tangri and Schwartz, 1967:184). These studies did not show that an evaluation by others is related to future experiences; the question of whether or not these boys know and accept these evaluations is still unanswered. "It might be argued, for

example, that a poor self-concept ought to produce behavior more in conformity with the demands of significant others like mother or teacher. Or does poor self-concept lead to rejecting the rejectors and subsequent attribution of significance to those others who prove rewarding to the self (say, delinquent peers)?" (Tangri and Schwartz, 1967:190). "Does poor self-concept leave one vulnerable to delinquency only where delinquent alternatives to conformity are available?" (Schwartz and Tangri, 1965:923). Schwartz and Tangri further suggest that the attribution of significance to others may vary by situation. Perhaps rejection by a teacher forces a child to turn for support to the family; this may vary not only by situation, but over time.

In his discussion of the "theoretical convergence" of containment theory and differential association, Voss (1969) presented evidence suggesting that the two theories are complementary. He points out that the same mechanisms are posited by Sutherland to explain the delinquent's behavior that Reckless and Dinitz used to explain the nondelinquent's lack of involvement in delinquency. Voss (1969:383) asserts: "Sutherland stressed the crucial importance of the process of differential association (or pro-delinquent socialization) in the acquisition of definitions favorable or unfavorable to violation of law, while Reckless and Dinitz emphasized the acquisition of 'socially appropriate' and 'socially inappropriate' self-conceptions, or the products of socialization processes." In terms of prior socialization and the

individual's self-conception, delinquent behavior may occur in a situation that the person defines as appropriate for law violation and for which the individual has prodelinquent attitudes. In other words, a person may commit delinquent acts if situations arise in which he sees himself as one who can act in a delinquent manner due to the attitudes and values he holds (Hartung, 1966:88).

Reckless' 1961 statement of containment theory was an attempt to spell out in more detail the implications of control mechanisms for the individual. This theory is phrased in terms of inner and outer containment. Inner containment consists of self-components, such as good self-concept, ego strength, and goal orientation. Outer containment refers to "the structural buffer in the person's immediate social world which is able to hold him within bounds," such as presentation of a consistent moral front, norms, expectations, opportunities and alternatives (Reckless, 1961:45). Reckless asserts: "Containment theory points to the regulation of normative behavior through resistance to deviancy as well as through direction toward legitimate social expectations" (Reckless, 1961:45). Environmental pressures and pulls as well as organic and psychological pushes are "handled" by the individual's inner and outer containment systems to resist the temptations of delinquency.

As Jensen (1970) points out, this theoretical statement is little more than a classification system filled with con-

tradictions and ambiguities. Certain types of delinquency are excluded from the theory, but are used as examples of the pushes and pulls applied to the individual. The interrelationships of these pushes and pulls and containment systems are largely ignored by Reckless' theory. In short, "it appears that the only criterion for deciding which factors are causally relevant in the theory is their outcome. If a push or pull can be contained, then the theory applies; and if it cannot, then it was beyond the scope of the theory anyway" (Jensen, 1970:3).

Reckless' attempt to develop a theory on the basis of his research regarding self-conceptions of "good" and "bad" boys was preceded by Toby's (1957) theoretical integration of the societal and social-psychological approaches. Toby saw social disorganization as the explanation of community rates of crime and delinquency: troubled people concentrated in the slums do not concern themselves with anyone else; this reduces the effectiveness of social controls. For the individual, however, delinquent behavior may result from lowered "stakes in conformity." The lower-class boy with little motivation and encouragement from his family, sees school as meaningless. He is likely to drop out of school, and in any case he can usually find only unskilled jobs with no possibility of advancement. In this situation deviant behavior would jeopardize very little. However, for the middle-class boy who has more than just material status to lose, the enticement of deviant behavior has

little appeal. His stakes in conformity are so high that he can resist the temptations of delinquency.

Obviously, Toby's theory is a class-linked perspective that reflected the findings of many studies based on official data that had been conducted prior to the appearance of his formulation. His theory also reflects an image of man as amoral. There remains throughout this literature an underlying assumption that man is evil; without appropriate restraint both from internalized values and external "instrumental" techniques, deviance is the inevitable result (Nadel, 1953). Nye (1958:3-5) suggests that the implication for theory is that delinquency is not caused but prevented by the presence of adequate, effective controls. He identifies four patterns of attitudes and behavior that must be considered in an analysis of social control: (1) direct control of restrictions and punishments applied to an individual; (2) internalized control of the conscience; (3) indirect control of affectional ties; and (4) the availability of alternative means to goals and values. Conscience would be sufficient to prevent delinquency if internalization were complete and perfect, but it is not. Indirect controls are only as effective as the ties of the individual to the "teacher." And direct control depends upon the possibility of detection.

Korn and McCorkle (1959) suggested an intervening variable between one's self-concept or internal controls and delinquent behavior--role fulfillment. They argued that

the juveniles in their study were not committed to the act itself or to the goal of the act (in this case, the money acquired by theft), but rather to group expectations. Each boy, encouraged by what he thought the others expected of him, continued to participate, and thus, encouraged the others to think that he expected the same of them. Each became committed "to the extent that his self-evaluation is critically dependent on the evaluations of a person or a group with which he is involved" (Korn and McCorkle, 1959: 342).

This sense of commitment, as Matza (1964:28) points out, does not imply "rendering oneself presently and in the future unavailable for other lines of action." Thus, Matza disagrees with theorists who emphasize subcultural participation. Subcultural delinquency theorists had held that the delinquent's activities were essentially mandatory due to his commitment to an ethical code which demanded such conduct. In contrast, Matza saw the delinquent at drift between two worlds--the world of adulthood with its responsibilities and the world of youth and its leisure values (Matza and Sykes, 1961). In this view delinquents are not committed to either world, nor are they free of the responsibilities and constraints of both worlds. On a smaller scale, within any given situation "commitment" may occur through shared misunderstandings that lead each delinquent to feel he has the support of all of the others involved (Matza: 1964:59). Delinquency does not happen simply be-

cause constraints are removed. The missing element for Matza is will: What choice does the delinquent make in unstructured situations?

Briar and Piliavin (1965) assume that delinquent acts are situationally induced, that is, prompted by the short-term goals, desires and loyalties existing in a particular place and time, rather than any long-term motives. Nevertheless, the motives arising within a situation may not lead to action if prevented by the individual's stakes in conformity. Briar and Piliavin (1965:38) suggest that "whether or not the motives to deviate are situationally induced, the behavioral expression of them depends on the degree to which the individuals experiencing the motives also experience constraints against that behavior." Such things as the ease with which the act can be carried out, the risk of detection or strong motives can lead to deviance, even from boys with high stakes in conformity. These stakes may also decrease over time, as relationships with parents change, for example, or increase, as marriage and full-time employment occur. This would explain the "maturing out" of delinquency that generally occurs in late adolescence.

Polk and Halferty (1966) presented support for the stakes in conformity and drift hypotheses. They found that adolescents tended to drift out of delinquency as commitments to adult activities were assumed. They also note a problem inherent in much delinquency research; on the basis

of their findings they could not identify the temporal sequence of these events, and thus, their causal ordering. The issue of temporal order is addressed in chapter 4.

3

HIRSCHI'S THEORY OF SOCIAL CONTROL

Statement of the Theory

Hirschi (1972:16-34) begins with the assumption that delinquent acts occur when an individual's bond to society is either weakened or broken. Hirschi differentiates four elements of this societal bond--attachment, commitment, involvement and belief.

Attachment. The first element, attachment, is similar to the concepts of superego or internalization of norms used by other control theorists. However, as noted previously, the concept of internalization has often been treated as an assumption and not a variable (Bordua, 1962: 248). It is, then, difficult to explain an individual's behavior over time. Hirschi suggests that this conceptual problem is avoided by examining the individual's attachment over time. It is the attachment an individual has to others that is the essence of the internalization of norms. To conform to norms is to act in accordance with the expectations of others. If an individual is insensitive to, or does not care about the wishes of others, "then he is to that extent not bound by the norms. He is free to deviate" (Hirschi, 1972:18). If attachment, or sensitivity to the wishes of others, decreases, the effect may be an

increase in delinquent acts.

There are three areas where attachment is relevant: attachment to parents, to the school and to peers. Attachment to parents is reflected in the intimacy of communication between parent and child, and the "psychological presence" of the parent for the child. By this is meant the child's perception of what the parent's reaction would be to certain acts were he to commit them.[1] Of course, if the child does not care what his parents think, he is to that extent free to deviate. According to Hirschi, attachment to unconventional parents does not result in delinquency, but the lack of such attachment again makes delinquent behavior more likely.

Attachment to the school is influenced by competence; the more competent a youth is as a student, the less the likelihood that the individual will commit delinquent acts. Unlike strain theorists, such as Cohen, Hirschi posits that boys with limited competence may reduce their attachment to school and thus become free to commit delinquent acts. They are not forced into this behavior by their frustrated desires to succeed; they do not continue to desire success (Hirschi, 1972:123). Likewise, if a boy does not care what his teachers think of him, he is not likely to view their authority as legitimate and thus is

[1]Hirschi's theory is not limited to males, but is applicable to females as well. However, he confines his analysis to males and tends to phrase his theory with this application in mind.

free to deviate.

Attachment to peers does not alienate or subvert a boy's attachment to parents, nor is it conducive to delinquency. Hirschi proposes that even if the individual is attached to delinquent peers, he is more likely to be conventional in his behavior than his unattached counterpart. "We honor those we admire not by imitation, but by adherence to conventional standards" (Hirschi, 1972:152). However, Hirschi underestimated the significance of delinquent peers in his theoretical scheme and, on the basis of his own analysis, was forced to revise his statement. For the boy with high stakes in the conventional order, the influence of delinquent friends greatly increases the chance that he will be delinquent in comparison to high-stakes boys with conventional friends. His counterpart with low stakes and conventional friends is less likely to commit delinquent acts than the low-stakes boy with delinquent friends. Hirschi (1972:159) concedes that it was an unfortunate omission to have denied the validity of Sutherland's position, but he contends that "the boy's stake in conformity affects his choice of friends rather than the other way around." Furthermore, boys with high stakes are unlikely to have delinquent friends.

Commitment. Commitment, the second element of the social bond, is the rational component. If an individual foresees that the risks and consequences of an act far outweigh the possible gains, he will probably refrain from

that act. In Hirschi's theory this means that the individual whose present activities or future aspirations may be jeopardized by a delinquent act with a high risk of detection will instead choose to conform to the rules of society. Commitment is not to the rules, but to the things or positions the person has or hopes to attain.

Hirschi specifies three areas or lines of action--educational, occupational and adult status--in which the individual may be bound by commitment. However, with "adult status" he falls into a conceptual trap. Movement from adolescent to adult status is conventional and appropriate, but only if it occurs at the right time. If it occurs at the wrong time, that is, before the boy can actually assume adult status, then it is inappropriate. Commitment in the latter case is not to a conventional line of action but to an unconventional line. Hirschi, of course, never states, nor does he ever imply that this unconventional commitment is sufficient as a cause of delinquency without a weakening of the bond. By implication it is also possible that this line of action is unconventional because it is consistently highly correlated with delinquency and thus contradicts his theory. There are methodological problems here, too, because all of the measures of commitment to adult status are actually measures of involvement in particular acts, such as dating, smoking, or drinking.

The higher one's aspirations, either to educational or

occupational goals, the less the likelihood is of delinquency. The boy with high aspirations has more to lose by such activity. According to Hirschi, a discrepancy between aspirations and expectations would not necessarily lead to delinquency, but low expectations would free the individual because he would have little to lose from such activity.

Involvement. Involvement in conventional activities theoretically limits the time available for pursuit of delinquent activities. The major assumption is that, given adequate opportunities of a conventional nature, such as recreational facilities or a job, the individual will occupy his time in these activities rather than in delinquent behavior. If such involvement is missing, the result is the development of a pseudo-leisure class that values kicks, acceptance and a "big score"--values that are conducive to delinquent behavior (Hirschi, 1972:23; Matza and Sykes, 1961).

However, Hirschi admits that this part of his theory was totally unsupported by his analysis and subsequently drops this element from the theory. The problem was in assuming "that 'delinquency' is a more or less full-time job, a common enough idea in delinquency theory but highly inappropriate when applied to an explanation of delinquent acts. Most 'conventional' activities are neutral with respect to delinquency; they neither inhibit nor promote it" (Hirschi, 1972:190).

Belief. The fourth element of Hirschi's theory, belief, is based on the assumption that all members of society share a common value system. There is, however, variation in the extent to which a person believes he should obey the rules. If a person's belief in the rules of the social order is weakened, then he is to that extent free to deviate. Hirschi is neither positing an explanation based on subcultural beliefs and rules, nor is he arguing that delinquents hold a different value system than that of the majority. "We have not suggested that delinquency is based on beliefs counter to conventional morality; we have not suggested that delinquents do not believe delinquent acts are wrong. They may well believe these acts are wrong, but the meaning and efficacy of such beliefs are contingent upon other beliefs and, indeed, on the strength of other ties to the conventional order" (Hirschi, 1972:26).

For Hirschi, definitions favorable to the violation of the law do not require delinquent behavior, but merely free the actor to commit such acts. In his view it is one's attachment and commitment to others that determines receptivity to these definitions. "When the only thing that stands between a man and violation of the law are considerations of expediency, for him the state of anomie has arrived. He has accepted a definition favorable to the violation of the law; he is by no means constrained to violate the law, but he is free to violate the law if it appears that it would be to his advantage to do so" (Hirschi, 1972:

202). Once relatively free to deviate, rationalizations are not necessary; but if they are implemented, they will occur after the act and may clear the way for further deviant acts in the future. This, of course, is the opposite of Sykes and Matza's (1957) view; they theorized that through techniques of neutralization, the individual overcame feelings of guilt and apprehensions before committing delinquent acts.

In an interesting discussion on the place of motivation in control theory, Hirschi (1972:31-34) initially concludes that it is not necessary to explain delinquent behavior by positing motivational causes. The delinquent boy attempts to satisfy the same desires and reacts to the same pressures as the non-delinquent boy. The question to be answered by control theory is not "Why do they do it?" but "Why don't we?" Hirschi's theory, then, focuses on the elements that cause most individuals to conform to society's rules. The absence or weakening of the ties to the conventional order permits delinquent behavior, but does not necessitate such behavior. However, in his final assessment of the theory, Hirschi admits that his overestimation of the influence of involvement and his underestimation of the importance of delinquent companions requires some revision of the theory. The fault, Hirschi decides, was in assuming "natural motivation." "In other words, failure to incorporate some notions of what delinquency does for the adolescent probably accounts for the

failure of the theory in these areas. Notions about the contribution delinquent activities make to the person's self-concept or self-esteem would also seem to be necessary in accounting for much of the potency of the adult-status items" (Hirschi, 1972:230-231). It is possible that as one is freed of the social bond--for example, if a child's attachment to his parents decreases--a youth becomes more receptive to the views and opinions of others. Unconventional peers then may serve as a source of self-esteem as one gains their approval and acceptance. It is also possible that attachment to delinquent peers decreases one's attachment to parents and conventional peers. These are, of course, empirical questions. Yet, a more serious problem is that Hirschi may not have developed a theory of the causes of delinquency, but may have simply identified correlates which may or may not precede the commission of delinquent acts. There is serious doubt as to whether "he has isolated causes of delinquency or simply found associations between self-reported delinquency, facts, and attitudes, the order of whose occurrence remains problematical" (Lemert, 1970:191).

Hirschi's Analysis

Sample. The sample on which Hirschi based his study was drawn from eleven junior and senior high schools in Northern California as part of the Richmond Youth Project (Hirschi, 1972). Hirschi does little more than describe the

sample; the design of the sample seems to have been deliberately glossed over.

Of 17,500 students entering the schools in the Richmond area in the fall of 1964, a stratified probability sample of 5,545 was randomly drawn in "most" cases. The reasons for the target sampling fractions are not presented by Hirschi. Initially, one might assume that these sampling fractions were used to permit some estimate of the population parameters, but the next phase of the sampling procedure would make such estimates impossible.

The completion rate was 73.5 percent, or a total of 4,077 students completed questionnaires. Twelve percent of the original sample were lost due to a failure to obtain parental permission for administration of the questionnaire to the student. This seems a high loss at the outset of a study, and one that might have been lessened by more persistent methods on the part of the research team; it is, however, unfair to level such a charge without some knowledge of the difficulties encountered by the researchers. The effect of this loss on parameter estimates is not known.

An additional 6.2 percent of the original sample were lost through transfers and dropouts. Hirschi argues that this is of little consequence because ". . . the population at issue is the in-school population during the spring of the school year" (1972:37). However, there is evidence that transfers and dropouts are not randomly distributed throughout school systems. These students differ on various

characteristics from those students who remain in a school system. Perhaps a replacement of transfers in the sample with incoming students could have reduced some of this bias, but no attempt was made to do so. The effect of this loss on a probability sample is again not specified.

Another 7.1 percent were lost through absenteeism or failure to complete a sufficient portion of the questionnaire on the days it was administrated. Questionnaires were initially administered by the teachers--with no attempt at anonymity or assurance of confidentiality of responses. Often inadequate time for completion was allowed by the schools. Follow-up attempts were successful in reducing the number of incomplete questionnaires, but cooperation of some of the schools was less than desirable. Thus, another bias, that may or may not be related to the characteristics of the students, influenced the probability of inclusion of any given student in the final sample. An additional 1.2 percent were lost because of errors in response.

To compensate for all of these losses a weighting procedure was introduced. "The assumption upon which these weighting procedures are based is that the students completing the questionnaire within a subgroup are representative of all students in that subgroup" (Hirschi, 1972:38). This is a strong assumption, and it appears to be unwarranted in view of the fact that nonrandom influences affected who was included in the final sample. If these influences were fairly random, there should have been approximately the

same completion rate across subgroups. "Since 130 subgroups were actually sampled, and since different response rates were obtained in each . . ." a simple self-weighting procedure based on the completion rate of each race-sex category was used (Hirschi, 1972:37). If the overall completion rate for a race-sex category was exceeded by a subgroup, then cases were randomly removed. Similarly, some cases were randomly duplicated to compensate for lower rates of completion for some subgroups. In all, 193 cases were removed and 171 cases were duplicated, supposedly, to allow for estimates of population parameters.

As if this were not sufficiently complicated, Hirschi then decides to ignore most of his sample. With an apology, the girls "disappear." After a few elementary comparisons Negro boys are dropped because (1) the results were consistent, that is, the relationships between the independent variables and delinquency were similar but smaller for Negroes in comparison with those for whites; and (2) there was ". . . greater unreliability of Negro data, partly stemming from their generally low verbal skills . . ." (Hirschi, 1972:79). The other factors that lead Hirschi to consider the responses of Negroes as unreliable are not specified. Hirschi further notes that "non-Negro" becomes "white" because he has dropped the few Oriental and Mexican-American boys from the non-Negro category. It should be noted that "non-Negro male" was one of the race-sex categories on which the sampling weights were

assigned, not "white males," so that most of Hirschi's tables present what can only be called an unknown and probably totally distorted portion of the original sample.

In view of Hirschi's deletion of substantial portions of his sample, the attention devoted to sampling procedures, especially sampling fractions, appears to be designed to give the illusion of adequate sampling. However, the adequacy of Hirschi's sample is open to serious question, and his elimination of various subgroups greatly limits the population to which his results are applicable.

Nonresponse Bias. Hirschi was able to compare the official records of delinquent behavior of the boys in the original sample with those of boys in the final sample. He found that "nonresponse is related to delinquency. In fact, boys included in the final sample are considerably less likely to be delinquent than are boys who failed to complete the questionnaire" (Hirschi, 1972:41). This relationship is highly significant ($p < .001$). However, there is no significant difference in terms of race between those who completed the questionnaire and those who did not ($p < .084$). But, due to problems of sampling and the exclusion of ethnic groups other than whites, several authors have viewed Hirschi's conclusions with some skepticism. Voss and Chilton both question the conclusion that class and delinquency are unrelated; based on such a limited sample--white males from one California county--the conclusion may be unwarranted (Chilton, 1971:648-649; Voss, 1970a:

1114-1115). Hirschi admits that nonrespondents tended to be black and delinquent. He also believes that blacks tend to be at the lower end of the class continuum. Yet he excludes them from his analysis and concludes that class is unrelated to delinquency.

To complicate the picture further is the fact that the questionnaires, with each respondent's name on an answer sheet, were administered by teachers in the students' classrooms. The truthfulness of responses on delinquency checklists has been a major issue in delinquency research; previous investigators have obtained anonymous replies or have guaranteed confidentiality. As Hindelang (1973:475) notes, Hirschi's results must be questioned because he made no attempt to provide anonymity or to assure confidentiality of responses.

Hirschi states that the totals from table to table vary due to different response rates on items. Students who failed to respond to an item were excluded from the tables based on that item. This is a common practice. However, he notes another reason for variation in table totals: "The table programs employed differed in their definition of 'complete data.' In one program, tables were based only on those cases for whom data were available on all items in the 'run,' regardless of the number of items in a particular table" (Hirschi, 1972:69). The loss of information by this procedure could have been slight; it could also have drastically changed many of his associations

if there were low response rates for several items. Hirschi does not indicate how many tables were effected by this procedure, or how many students were thereby excluded from the analysis.

Hirschi's Data. Hirschi, along with Hanan Selvin (1973:38), once pointed out that to establish a causal relationship, three things are necessary: (1) there must be a statistical association between two variables; (2) one variable must be temporally prior to the other; (3) the association must not be spurious, that is, due to the effect of other influences operating on both variables. In Hirschi's book that purports to examine the causes of delinquency, he apparently overlooked his own advice. (1) While there may be statistical associations between his independent variables and delinquency, he does not show the degree of association, possibly because few of them are worth mentioning. (2) While he can assume which variable came first, Hirschi has no way to determine from his cross-sectional data whether, in fact, delinquency preceded or followed its supposed causal influences. (3) While various other influences may have been operating, Hirschi ignores them and for the most part presents tables of zero-order relationships.

In general, the statistical associations calculated on the basis of Hirschi's data do not provide overwhelming support for his social control theory. These associations will be examined in chapter 5. On the other hand, Hirschi's

failure to control for spuriousness may not be as damaging as it sounds. He states that none of the usual background variables ". . . was sufficiently strongly related to delinquency to require that it be controlled in examining the relations between other variables and delinquency" (Hirschi, 1972:236). Although it is not, then, necessary to control for these variables as a general rule, it nonetheless might have been useful to examine such partials for distorter, suppressor or conditional relationships (Blalock, 1964; Hirschi and Selvin, 1973). Such analyses might have further explained the relationships that Hirschi reports.

Take, for example, the problem of age in Hirschi's sample. The students were enrolled in grades 7 through 12. Hirschi claims that as each student was asked only about delinquent acts committed during the previous year, age was controlled by the design of the study (Hirschi, 1972:62). However, he shows that the incidence of delinquent acts increases with age and peaks in middle adolescence--ages 15 to 16 (Hirschi, 1972:236). Yet, this is one of the background variables that is not controlled in further analyses of values of the independent variables and delinquency, and it is one that may have proven to be theoretically relevant for many of Hirschi's items designed to measure attachment.

All of the foregoing limitations of his work are important, but the most damaging aspect of Hirschi's analysis is his exclusive reliance on cross-sectional data. Hirschi

acknowledges the necessity of limiting the time period covered by questionnaire items because values of variables may change through time. Thus, for example, he limited his analysis of delinquent behavior to those acts committed during the previous year: "otherwise, the current value of the independent variable may not be what it was when the delinquent acts were committed" (Hirschi, 1972:62). However, a cross-sectional design of this type forces the investigator to measure the values of independent variables after the occurrence of the dependent variable. This in no way can establish causal order; the temporal order of the independent and dependent variables remains unclear. This is a constant problem in delinquency, as well as many other types of research.

However, it appears that Hirschi has built in some temporal inconsistencies that can only further confuse his analysis. For example, he measures academic achievement in terms of scores on a battery of tests taken by all students in the eighth grade. Since his sample covers grades 7 through 12, for most of the students the temporal order of the variables is fortuitously correct. But for students in the seventh grade, scores were incorporated into the data the following year (Hirschi, 1972:39). In the latter case measurement of the "independent" variables followed the assessment of the "dependent" variable.

In contrast with most theorists, Hirschi strengthens his theoretical formulation by operationalizing his concepts

and testing his major hypotheses. There are the obvious benefits of having the author's intended meanings of concepts translated into operational terms. On the other hand, Hirschi's work is weakened by other considerations. One author suggests that Hirschi's interpretations must be viewed with caution. Hindelang (1973:472), who conducted a partial replication of Hirschi's research, points out that it is not clear whether the theory was developed after the data were analyzed; if this is the case, it may be that only supportive data were presented.

It is possible that the sample had built-in specificity to the theory but this interpretation is prohibited by the use of a white male sample. Hirschi (1972:100-103) states that within the literature there are contradictory findings about the importance of attachment to parents. Some researchers report that the mother and father have different influences; some report that knowledge of attachment to one parent adds little or no additional information as to the effect on delinquent behavior if attachment to the other parent is known. What Hirschi and other researchers often overlook is that the influence of parents may differ with the sex of the child. If the sample studied consists only of males, there are only limited theoretical interpretations that are possible. It is possible that attachment to parents or one parent in particular is highly associated with a lower rate of delinquency for girls and only moderately related to the boys' rate. For example, Nye (1958:

100, 108) found cross-influences; mothers had more of an effect on their sons, while fathers had a greater influence on their daughters. Elliott and Voss (1974:137), in a related analysis, found that the home was an important factor in the delinquency of girls, while the school was more important to boys. And Hindelang (1973:476) found that attachment to either parent was more of a deterrent from delinquency for boys than for girls. Theoretical implications cannot be so specified when the sample is confined to white males, as in Hirschi's analysis.

For the most part the items used by Hirschi to operationalize the concepts of control theory have face validity. While some improvements could be suggested, these are largely matters of word choice or phrasing and not problems of validity.

There are a few glaring exceptions to this, however. Hirschi raises the question of unconventional parents: Will attachment to such parents encourage delinquency? To test the notion of a lower class milieu as an influence on delinquent behavior, Hirschi poses an hypothesis: "If some parents hold criminal values, lack of attachment to them may have effects opposite to the effects of lack of attachment to conventional parents, and the effects of attachment on delinquency for the sample as a whole may be attenuated" (1972:94-95). He notes that the sons of fathers with histories of unemployment or welfare have high rates of delinquency. Since these fathers are also "most likely to be

members of the lower-class culture," (Hirschi, 1972:95) he looks at delinquent activities in relation to attachment to these "unconventional" parents. While unemployment or welfare histories may indeed indicate class level, this in no way suggests the conventionality or unconventionality of the fathers. To infer that it does is to reflect a middle-class bias that "unconventional" means anything different from middle-class "conventional" standards. Certainly a measure of welfare status cannot be equated with a measure of the criminal values held by a parent.

Defining Delinquency. Hirschi defines delinquency as "acts, the detection of which is thought to result in punishment of the person committing them by agents of the larger society," (1972:47). This definition avoids many of the pitfalls and theoretical distortions that have occurred in much delinquency research.[2] Unfortunately Hirschi's concept of delinquency is not as well measured as it is defined.

Hirschi borrowed from two previously used delinquency scales, those of Short and Nye, and Dentler and Monroe, to develop a self-report measure of delinquency. The question that may be raised about Hirschi's approach is not directed against the use of a self-report measure; indeed, this is an appropriate way to operationalize his concept and avoids

[2]Hirschi provides an excellent discussion of various definitions of delinquency (1972:48-53).

the extensive biases of official agents and their records (Kitsuse and Cicourel, 1963; Piliavin and Briar, 1964; Goldman, 1963).

The following six items were used (Hirschi, 1972:54).

(1) Have you ever taken little things (worth less than $2) that did not belong to you?

(2) Have you ever taken things of some value (between $2 and $50) that did not belong to you?

(3) Have you ever taken things of large value (worth over $50) that did not belong to you?

(4) Have you ever taken a car for a ride without the owner's permission?

(5) Have you ever banged up something that did not belong to you on purpose?

(6) Not counting fights you may have had with a brother or sister, have you ever beaten up on anyone or hurt anyone on purpose?

It should be noted that three of the six items are acts of theft. While theft is the offense most frequently committed by juveniles, its importance is overweighted in this scale. The response categories were identical for the six items (Hirschi, 1972:56):

(1) Never

(2) More than a year ago

(3) During the last year

(4) During the last year and more than a year ago

Hirschi chose to emphasize when the acts occurred rather than how many times they took place. In this way, he increased his confidence in his ability to tap the relevant value of his independent variables: "Strictly speaking, the theory suggests that during the time a given independent

variable has the value X, the probability of delinquent acts is increased. Thus the period during which one might legitimately take the total number of delinquent acts as a measure of the dependent variable depends upon the independent variable in question" (Hirschi, 1972:61). This, however, does not eliminate the problem of time order of the variables examined, but may further confuse it.

Three indices were developed by varying the scoring of these response categories (Hirschi, 1972:62).[3] The recency score is the number of acts committed during the previous year, based on the very conservative estimate of one act for every positive response. The problem here is that, while it measures in a crude way the versatility of the individual in committing delinquent acts during the previous year, it does not measure the extent of involvement in any one. "Measures of delinquency which, in effect, equate an admission of one petty larceny with one arrest for strong-arm robbery would appear to conceal more than they reveal" (Chilton, 1971:648-649).

A second index, the standard score, is the total number of delinquent acts ever committed, with each positive response counted as one act. The last index, the persistence score, weights involvement over time. It does not,

[3]

Response	Recency	Standard	Persistence
Never	0	0	0
More than a year ago	0	1	1
During the last year	1	1	2
During last year and more than a year ago	1	1	3

as Hirschi contends, weight frequency. The boy who first committed the act more than a year before and again during the year previous to the study is considered more delinquent than a boy who reported committing the act during the previous year; unfortunately, the latter individual may have committed 10 or 20 offenses, while in the former case only two illegal acts were committed.

Despite the methodological problems in his analysis, Hirschi's findings are generally not inconsistent with other research in the area. The asset of Hirschi's analysis remains in the fact that he attempted a test of his own theoretical statement. Regardless of the weaknesses of that test, Hirschi must be commended for the attempt.

Related Research

Generally, studies have found support for various elements of control theory. Besides those studies already cited on which Hirschi based his theory, other researchers have found evidence for the attachment component of control theory. Nye (1958), of course, provided the starting point for Hirschi when he found support for the parental attachment thesis. However, he found that the effect of attachment varied by the sex of the child--a finding that Hirschi totally ignores in the test of his own theory.

It is also evident that there are class and ethnic differences in parental attachment patterns (Erickson and Empey, 1965). Westley and Elkin (1957) found that middle-

class students were willing to tell their parents about their activities, while working-class children were not, and did not communicate as much with their parents. Tennyson (1967) reports that among the boys in his sample there were generally favorable attitudes expressed toward their mothers; this was more likely for blacks than whites. There was about a 30 percent drop in the proportion expressing paternal attachment, except for white middle-class boys who expressed an equally high attachment for mothers and fathers. However, over two-thirds of the boys reporting high paternal attachment also admitted many police warnings. While this should not be taken to indicate a high involvement in delinquency, it does suggest that attachment alone does not prevent delinquency.

Studies which have focused on parent versus peer attachment have produced varied results. Hirschi had predicted a positive relationship between attachment to parents and attachment to peers, while Hindelang (1973) found the relationship to be negligible. Coleman (1961) found that the majority of the students in his sample were more concerned with the possible disapproval of their parents rather than with the disapproval of peers or teachers. However, the leaders in the school were much more peer-oriented; they were much more likely to seek their friends' approval and to view athletics as more important than high grades and intellectual achievement. Bandura (1964) reported that adolescents internalized the attitudes and

values of their parents and close friends who shared similar values. Thus peers served as similar sources of control when parents were not present. The "generation gap" seems to have little relevance to this issue (LoSciuto and Karlin, 1972). It appears that adolescents shift their orientations from parents to peers with increasing age (Floyd and South, 1972). Generally, boys become more peer-oriented earlier (in the sixth grade), with both sexes becoming increasingly reliant on peer support until a peak is reached at grade 10 for females and grade 12 for males. This coincides with the period of greatest disturbance in self-esteem, from ages 11 to 14, and with the stability of the self-image in late adolescence (Simmons, Rosenberg, and Rosenberg, 1973). It is quite possible, then, that variations in the associations found between parental and peer attachment reflect the age of the sample and the dynamics of the process at a single point in time.

Reports on the effects of attachment on delinquency are inconsistent. Glaser et al. (1971) reported no differences in conflict or attachment with the family of addicted and nonaddicted siblings. However, Jensen (1972b) found a strong direct relationship between number of delinquent friends and delinquent behavior, while Conger (1976) reports no association between peer attachment and delinquency. Linden and Hackler (1973) suggest four variables to explain the effects of attachment: (1) closeness, or how much concern the individual has for their approval; (2) visibility--

are they likely to know?; (3) responsiveness, or the effect of an action on general esteem accorded the individual; and (4) behavioral preferences of each associate--the direction of the influence. They assumed that conventional people are thought by the actor to have conventional preferences and delinquent associates are thought to have unconventional preferences. In their sample of boys in a delinquency prevention program, they found that as ties increase to conventional parents and peers, delinquency decreases. Those boys with strong ties to delinquent associates were most likely to be delinquent.

In an extensive replication of Hirschi's study, Hindelang (1973) also found a direct relationship between peer identification and delinquency. Hirschi had originally predicted an inverse relationship between peer attachment and delinquency, and admitted that he underestimated the influence of delinquent peers. Thus, it becomes apparent that attachment is not sufficient as a predictor of delinquent behavior; the characteristics of those to whom one is attached must be specified to clarify the prediction (Hindelang, 1973:479).

Another proposition of Hirschi's control theory, commitment to conventional activities, was indirectly supported by Liu and Fahey (1963) and Karacki and Toby (1962). In both studies delinquents were found to be concerned with short-term goals and immediate gratifications; they were not found to be committed to school or occupational success

lines. Without commitment to the conventional order, adolescents moved toward the "youth culture" that values increased loyalties to peers, immediate gratification and machismo, or proof of masculinity through physical aggression (Karacki and Toby, 1962:211).

Liu and Fahey (1963) assumed that delinquent status was the determining factor in the adolescent's perception of his access to the opportunity structure. Thus, the lower aspirational levels of delinquents were seen as caused by the perception of limitations that accrue to those with a delinquent record. Hirschi, of course, viewed a lack of commitment to higher occupational goals as freeing one to participate in delinquency. As long as cross-sectional data are used, the causal argument is without proof and the evidence can be used to support either theoretical claim. However, when longitudinal analysis is used, it is clear that frustrated goals do not produce delinquency; delinquency may frustrate some goal attainment as Quicker (1974) found when he analyzed part of Elliott and Voss' (1974) data. It must be kept in mind that Hirschi was not hypothesizing that frustrated goals lead to delinquent behavior. He was concerned with the lack of goals that could free an adolescent for delinquent activity, an hypothesis which is supported with cross-sectional data (Piliavin, Hardyck and Vadum, 1968; Piliavin, Vadum and Hardyck, 1969). A comparable analysis with longitudinal data has not yet been done.

Parental and peer attachment is often reflected in the aspirations and expectations of the adolescent. Simpson (1962) found that parental and peer influences had an independent effect on college aspirations, with parental influence being more strongly related to the adolescent's college plans. Alexander and Campbell (1964) reported that aspirations and attainments of adolescents are quite similar to those of their best friends, and more similar with increased reciprocity of choice by the friend. However, there is evidence that it is not simply attachment that explains these results; the structural effects of the school are also important:

> With individual ability and status characteristics constant, a "benefit" accrues to students in educational institutions characterized by a high status-low ability student body in terms of increased likelihood of enrollment in a college preparatory curriculum, of involvement with college-oriented peers, and of enhanced academic self-concept, college plans and actual attainments. Competing with relatively low status-high ability peers, on the other hand, has the opposite effects (Alexander and Eckland, 1975:414).

This may partially explain the results of the study by Ringness (1967) in which he found that, unlike previous studies, high achievers did not identify with their fathers any more than did low achievers. Hirschi suggests that high grades may favorably effect the rapport between parent and child, and thus, produce a positive association between parental attachment and commitment to conventional activities. Again, Hirschi's failure to specify the qualities of the person to whom one is attached has proved to be a weak-

ness of his theory. Support of the family is crucial to commitment, but too much pressure from the family, especially the father, can deter an adolescent from seeking higher goals (Rivera and Short, 1967). It is also evident that the parents of delinquents have lower expectations for their children (Gold, 1963). They also felt that their delinquent sons would need less education than did parents of nondelinquents. "It is probably a significant part of the situation of many repeated delinquent boys that their parents seem both to expect them to fall short and to stand ready to blame them for it" (Gold, 1963:159).

Hirschi's contention that there is a common value system in the United States, but variation in the extent to which people believe they must abide by these rules is supported by several studies. Class variations are cited most commonly; for example, Blum et al., (1972) found that middle-class students--like their parents--believe that certain laws are archaic and obedience to them is unnecessary. Working-class families tend to have a more obligatory view of the legal system and more affectionate opinion for its enforcers. It is also clear that although there is general agreement on the relative ranking of crimes, females tend to rank certain acts as more serious than do males, and blacks tend to rank them as more serious than do whites (Rossi et al., 1974). There is only a hint of a "subculture of violence" in the fact that the subgroup of black males with less than a high school education expressed the

least agreement with the rankings of the total sample. This subgroup considered as less serious those crimes where the victim and offender were acquaintances (like "beating up an acquaintance"). In another study whites were only slightly less likely to have engaged in physical violence than blacks, and physical violence was reported equally common across all education and income groups (Stark and McEvoy, 1970). Thus, behavioral differences show less variation than opinions about the seriousness and appropriateness of such behavior. The conclusion drawn by Rossi et al., is that "there is strong evidence that whether an individual's ratings of crimes agree with the general normative trends depends heavily on formal educational attainment, suggesting that exposure to the normative structure and language handling ability lead to better knowledge of the normative structure" (1974:237). This is not inconsistent with Hirschi's view; if educational attainment is an indicator of stakes in conformity, then it would be expected that belief patterns would coincide with general population expectations as stakes increase.

The other side of the coin is also possible. In a study of the drinking patterns of freshman fraternity pledges, Burkett (1972:181) reports that:

> Although there was nothing in the data to suggest that either deviant self-perceptions or deviant other-perceptions 'push' some toward deviant role behavior, the findings did suggest that the presence or absence of a deviant public identity may frequently inhibit conformity among those already engaged in rule-violating behavior.

As Hirschi admits, his statement of social control theory failed to take into account the gains or advantages of deviant behavior for the individual in terms of group acceptance, self-esteem or other benefits perhaps perceived only by the individual (see Turner, 1972).

In an extensive test of Hirschi's theory, Hindelang (1973) utilized a sample of rural males and females in New York to assess the generalizability of the theory to females and to other geographic locations. As noted previously he found generally the same supportive evidence for the theory as did Hirschi. He also found little support for the involvement component of control theory except where activities were relevant to school activities. For example, time spent on homework and a desire for good grades indicate an investment in academic activities, and are associated with low delinquency involvement. Involvement in school-related, but not academic, activities is only weakly related to low delinquency (Hindelang, 1973:481-483). Thus, involvement in activities relevant to conventional commitments of the adolescent is the crucial issue.

While some of the evidence for Hirschi's social control theory is conflicting and inconsistent, these only underscore the weaknesses of the theory and not any errors. As Conger states, "Social control theory is more incomplete than incorrect" (1976:35). It would seem advisable to test the theory on samples with males and females to examine the possibility of specification of the attachment and commit-

ment components. Obviously Hirschi's underestimation of the influence of delinquent peers was a serious omission. It is crucial that some clarification of the direction of influence of significant others be included. It is not sufficient to assume that an individual thinks "conventional" others would prefer him to act in a conventional manner. It is also essential to examine the causal significance of the theory's components on subsequent delinquency. Only with a longitudinal analysis can the predictive and preventive power of these theoretical elements be properly assessed.

4

RESEARCH DESIGN

The data to be analyzed in this study were gathered by Elliott and Voss (1974) from 1963 to 1968. They identified the basic problem of their research as evaluation of a theory; therefore, their research design utilized a purposive sample in which the school was the basic sampling unit. Purposive sampling permits an evaluation of a proposition's effectiveness in explaining the variability in the dependent variable, but it does not permit generalization to a larger population on statistical grounds (Elliott and Voss, 1974:40). Elliott and Voss accepted Camilleri's (1962) argument that the advantages of testing a theory adequately outweigh the disadvantage of nonrepresentativeness, an elusive goal in even the best sampling designs.

The schools initially selected were seven junior high schools in a suburban southern California area and one four-year senior high school in northern California. The students in the seven junior high schools were funneled into five senior high schools. Within each school all students in the ninth grade at the start of the study were enumerated. Questionnaires were administered in the ninth grade and in each successive year thereafter until high school graduation or dropout. In addition, interviews with

the mother or mother-surrogate were conducted in the first year of the study, and teacher evaluations of the students were obtained in the same year. Information was obtained from school records and police records each year of the study.

The design is, therefore, longitudinal in nature. Data from questionnaires administered to the students while in the ninth grade constitute the first period of the analysis, or Time I. Data gathered after this initial contact while the students were in the tenth through twelfth grades comprise the second time period (Time II) for this analysis.

A longitudinal design entails several problems not encountered with cross-sectional data. The first of these is the problem of maturation or aging of the sample. This, however, is controlled by the design with the enumeration of one grade, the ninth, and continued observation of this cohort through the study period. Thus, maturational effects may be noted in comparisons of data obtained in different years, but will not influence comparisons within the data gathered at any point in the study.

Attrition is also a major problem in a longitudinal study. The original target population had 2,721 students in the two study areas (Table 1). Fifty-eight students were absent each time attempts were made to contact them; consequently, they were excluded from the sample. Only five students refused to participate in the study, and 41 parents refused permission for their child to participate.

TABLE 1. Attrition of Sample

	Number	Percentage
Target Population	2,721	
Absentees	58	2.1
Student Refusals	5	0.2
Completed Questionnaires	2,658	97.7
Parental Refusals	41	1.5
Enumerated Sample, Time I	2,617	96.2
Incomplete Data, Time II.	245	9.0
Complete Information, Time II	2,372	87.2

Thus, the enumerated sample totaled 2,617 students; this constitutes a loss of 3.8 percent of the target population. Over the four-year study period elaborate tracking procedures were used to maintain contact with all members of the cohort, but by the end of the study there were 8 students whose whereabouts were not known and a total of 245 students on whom there were incomplete data. Of these students, 19 refused to continue to participate in the study. For the most part the missing data covered the senior year of high school; complete information on school outcome was obtained. The data on police and juvenile contacts were complete for students who remained within the two study areas; comparable information was obtained for 92 percent of the mobile subjects (Elliott and Voss, 1974:

51). Thus, the attrition rate was 9.4 percent of the enumerated sample or a total loss of 12.8 percent from the target population. In Hirschi's study complete information was available on only 73.5 percent of his target population, primarily due to absenteeism and refusals. Thus, the completion rate in the present analysis over the four-year period is far superior to that of Hirschi's.

Of the 2,617 students in the sample cohort, there are 1,338 boys and 1,279 girls (Table 2). The average age of the sample at the beginning of the study was 14. There is no significant ethnic difference between those students in the sampled population and those on whom there is complete information for the four-year period. There is a difference, significant at the .001 level, between self-reported delinquents and nondelinquents for whom there are completed data; this difference, however, is found only among males. Thus, the males on whom there is complete information for the entire study are slightly more likely to be nondelinquent than delinquent than are the boys for whom information is incomplete.[1]

The distribution of the respondents in terms of ethnicity reflects the population of the areas in which the study was conducted. Approximately three-fourths of the students are Caucasian; Mexican-Americans make up slightly

[1]The proportion of male nondelinquents with complete data is 91.9; for male delinquents it is 84.5 percent.

TABLE 2. Descriptive Characteristics of the Sample

	MALES		FEMALES		TOTAL	
	Number	Percentage	Number	Percentage	Number	Percentage
Age-Ninth Grade						
12	1	.1	1	.1	2	.1
13	120	9.0	165	12.9	285	10.9
14	895	66.9	938	73.3	1833	70.0
15	278	20.8	158	12.4	436	16.7
16	42	3.1	17	1.3	59	2.3
17	2	.1	0	0	2	.1
Ethnicity						
Caucasian	991	74.1	952	74.4	1943	74.2
Mexican-American	186	13.9	174	13.6	360	13.8
Negro	92	6.9	101	7.9	193	7.4
Oriental	38	2.8	23	1.8	61	2.3
Other	31	2.3	29	2.3	60	2.3
Social Class						
I (High)	24	1.8	34	2.7	58	2.2
II	115	8.6	105	8.2	220	8.4
III	409	30.6	359	28.1	768	29.3
IV	543	40.6	539	42.1	1082	41.3
V (Low)	247	18.5	242	18.9	489	18.7
Family Status						
Mother & Father	1003	75.0	960	75.1	1963	75.0
Mother & Stepfather	130	9.7	134	10.5	264	10.1
Father & Stepmother	28	2.1	19	1.5	47	1.8
Mother Only	122	9.1	124	9.7	246	9.4
Father Only	22	1.6	13	1.0	35	1.3
Aunt or Uncle	3	.2	8	.6	11	.4
Other	27	2.0	21	1.6	48	1.8
Missing Information	3	.2			3	.2
Total	1338	51.1	1279	48.9	26.7	

more than one-half of the remaining subjects. The proportions of males and females in the various ethnic categories do not differ substantially; there are slightly higher percentages of Negro females and Oriental males than their counterparts in the sample, but these minimal differences are based on small numbers of respondents.

The measure of social class employed in this study was the Hollingshead Two-Factor index of social class based on the educational level and occupation of the head of each student's household. Relatively few of the students are in Class I, and in most of the subsequent analyses Classes I and II will be combined. The class distributions are almost identical for males and females; about 70 percent of the respondents are categorized in Classes III and IV.

Family status was determined by the following question: "With whom do you usually live?" The majority of the students in the sample live with their natural parents. It may be seen in Table 3 that Negroes, male and female, and Mexican females are less likely to live with their parents. Negroes in the sample are much more likely to live with one parent and a step-parent than any other ethnic group; 20.7 percent of the black males and 18.8 percent of the black females live with a parent and step-parent. In comparison, the rate is 11.2 percent for males and 12.0 percent for females for the entire sample. On the other hand, blacks are no more likely than Mexicans to live in a one-parent household.

TABLE 3. Family Status by Sex and Ethnicity

Family Status	Caucasian	Mexican	Negro	Oriental	Other	Total
MALES						
Mother & Father	76.8 (761)	74.2 (138)	55.4 (51)	76.3 (29)	77.4 (24)	75.0 (1003)
Parent & Stepparent	11.5 (114)	9.6 (18)	20.7 (19)	13.2 (5)	6.4 (2)	11.2 (158)
One Parent Only	9.7 (96)	14.5 (27)	15.2 (14)	10.5 (4)	9.7 (3)	10.7 (144)
Other	1.8 (18)	1.6 (3)	7.6 (7)	0.0 (0)	6.4 (2)	2.2 (30)
Totals	(991)	(186)	(92)	(38)	(31)	(1338)
FEMALES						
Mother & Father	79.1 (753)	62.6 (109)	56.4 (57)	87.0 (20)	72.4 (21)	75.1 (960)
Parent & Stepparent	10.9 (103)	13.8 (24)	18.8 (19)	8.7 (2)	17.2 (5)	12.0 (153)
One Parent Only	8.7 (83)	18.4 (32)	18.8 (19)	4.3 (1)	6.9 (2)	10.7 (137)
Other	1.4	5.2	6.0	0.0	3.4	2.2
Totals	(952)	(174)	(101)	(23)	(29)	(1279)

For males the relationship between family status and class is not clear (Table 4). The highest proportion of households with the natural mother and father present occurs in the middle class. The upper and upper-middle classes parallel the lower class in the proportion of males living with their natural parents. There is evidence however, that one-parent homes are most common in the lowest class. For females there is a direct relationship between family status and class; the proportion of girls who live with their natural parents decreases as class decreases. The greatest discrepancy between males and females is in the proportion of intact homes in the upper and upper-middle classes; 71.9 percent of the males live with their natural parents, but 87.7 percent of the females in these classes live with their natural parents. This may indicate a greater reluctance on the part of upper-class parents to separate if they have a daughter than if they have a son. The difference in these percentages is not due to small numbers of cases, as they are based on 100 and 122 students, respectively.

It is not surprising to note in Table 5 that there is a greater concentration of Caucasians in the upper, upper-middle and middle classes than is the case for the other ethnic groups. To a lesser degree this is also true of the Orientals. Mexican-Americans and Negroes are heavily concentrated in the lower-middle and lower classes, as are those classified as other in terms of ethnic background.

TABLE 4. Family Status by Sex and Social Class

Family Status	Upper and Upper-Middle	Middle	Lower-Middle	Lower	Total
		M A L E S			
Mother & Father	71.9 (100)	81.7 (334)	74.4 (404)	66.8 (165)	75.0 (1003)
Parent and Stepparent	13.6 (19)	9.0 (37)	13.9 (75)	10.9 (27)	11.8 (158)
One Parent Only	10.8 (15)	8.1 (33)	9.6 (52)	17.8 (44)	10.7 (144)
Other	3.6 (5)	1.2 (5)	1.8 (5)	4.0 (10)	2.2 (10)
Total	(139)	(409)	(543)	(247)	(1338)
		F E M A L E S			
Mother and Father	87.7 (122)	81.1 (291)	71.6 (386)	66.5 (161)	75.1 (960)
Parent and Stepparent	5.7 (8)	8.9 (32)	15.8 (85)	11.6 (28)	12.0 (153)
One Parent Only	6.4 (9)	8.1 (29)	9.8 (53)	19.0 (46)	10.7 (137)
Other	0.0 (0)	2.0 (7)	2.7 (15)	2.9 (7)	2.2 (29)
Total	(139)	(359)	(539)	(242)	(1279)

TABLE 5. Social Class by Ethnicity

Social Class	Caucasian	Mexican	Negro	Oriental	Other	Total
Upper and Upper-Middle	13.3 (258)	1.9 (7)	3.6 (7)	8.2 (5)	1.7 (1)	10.6 (278)
Middle	33.8 (657)	15.3 (55)	15.5 (30)	24.6 (15)	18.3 (11)	29.3 (768)
Lower-Middle	41.0 (796)	42.8 (154)	36.8 (71)	45.9 (28)	55.0 (33)	41.3 (1082)
Lower	11.9 (232)	40.0 (144)	44.0 (85)	21.3 (13)	25.0 (15)	18.7 (489)
Total	(1943)	(360)	(193)	(61)	(60)	(2617)

These distributions are similar for males and females, but are not presented in tabular form.

One area of interest in the literature is the distribution of delinquency by sex, ethnicity, and socio-economic groupings. To examine these distributions the students were characterized as nondelinquents, nonserious delinquents, or serious delinquents on the basis of the kinds of acts they reported having committed prior to Time I and in Time II. Time I refers to the three years preceding the initial contact; Time II refers to the subsequent three-year period. A student who reported any serious offense during the respective time periods was classified as a serious delinquent.

Examination of Table 6 reveals a common pattern; boys report more involvement and more serious involvement in delinquent behavior than girls. Slightly more than two-fifths of the males were classified as serious delinquents at Time I, whereas only one-fourth of the girls were similarly classified. Differences in the percentages of students who report no delinquent acts at Time I are minimal across the several classes (Table 7). Among those who admit delinquent acts, there is a sharper differentiation. Students in the higher classes are more likely to report nonserious delinquent acts, whereas more of the lower class youth reported serious violations. Forty percent of the students in the lowest socio-economic class admitted a serious delinquent act in comparison with 26 percent of the

TABLE 6. Delinquency Status by Sex, Time I

Delinquency Status	Males	Females	Total
Nondelinquent	14.1 (189)	23.6 (302)	18.8 (491)
Nonserious Delinquent	43.5 (581)	51.2 (654)	47.2 (1235)
Serious Delinquent	42.4 (566)	25.2 (322)	34.0 (888)
Total	(1336)	(1278)	(2614)*

*Missing data on three cases.

TABLE 7. Delinquency Status by Class, Time I

Delinquency Status	Upper	Upper-Middle	Middle	Lower-Middle	Lower	Total
Nondelinquent	17.2 (10)	18.2 (40)	19.7 (151)	19.4 (209)	16.6 (81)	18.8 (491)
Nonserious Delinquent	56.9 (33)	50.5 (111)	50.4 (387)	45.7 (493)	43.1 (211)	47.2 (1235)
Serious Delinquent	25.9 (15)	31.4 (69)	29.9 (230)	34.9 (377)	40.3 (197)	34.0 (888)
Total	(58)	(220)	(768)	(1079)	(489)	(2614)*

*Missing data on three cases.

youth in the highest class.

The relationship between delinquency status at Time I and class is conditional on the sex of the student (Table 8). There is virtually no difference by class for females within any delinquency status classification. However, for males who report delinquent acts, the likelihood of serious acts increases with a decrease in socio-economic class. In Time I, 20.8 percent of boys in the upper class report serious delinquent acts, whereas 52.2 percent from the lower class report such acts. This should not be taken as evidence of a clear class link to delinquency; the delinquency status classification reflects only the seriousness, and not the frequency, of involvement in delinquent activities.

In Table 9 it can be seen that the modal pattern in all ethnic categories, except Mexican-American students, was involvement in nonserious delinquent activities at Time I. More Mexican-Americans reported serious offenses, while Oriental students were least likely to report such offenses. Similarly, introduction of controls for sex and ethnicity (Table 10) specifies the relationship, but it appears that sex, rather than ethnicity, is the important variable. For example, 20 percent of the Orientals were classified as nondelinquents. This percentage reflects disparate involvement in delinquency by sex; 10.5 percent of the males and 39.1 percent of the Oriental females are categorized as nondelinquents. The sex differences are

TABLE 8. Delinquency Status by Sex and Class, Time I

Delinquency Status	Upper	Upper-Middle	Middle	Lower-Middle	Lower	Total
			M A L E S			
Nondelinquent	12.5 (3)	14.8 (17)	15.2 (62)	14.6 (79)	11.3 (28)	14.1 (189)
Nonserious Delinquent	66.7 (16)	47.8 (55)	48.7 (199)	40.9 (221)	36.4 (90)	43.5 (581)
Serious Delinquent	20.8 (5)	37.4 (43)	36.2 (148)	44.5 (241)	52.2 (129)	42.4 (566)
Total	(24)	(115)	(409)	(541)	(247)	(1336)*
			F E M A L E S			
Nondelinquent	20.6 (7)	21.9 (23)	24.8 (89)	24.2 (130)	21.9 (53)	23.6 (302)
Nonserious Delinquent	50.0 (17)	53.3 (56)	52.4 (188)	50.6 (272)	50.0 (121)	51.2 (654)
Serious Delinquent	29.4 (10)	24.8 (26)	22.8 (82)	25.3 (136)	28.1 (68)	25.2 (322)
Total	(34)	(105)	(359)	(538)	(242)	(1278)*

*Missing data on three cases.

TABLE 9. Delinquency Status by Ethnicity, Time I

Delinquency Status	Caucasian	Mexican	Negro	Oriental	Other	Total
Nondelinquent	17.9 (347)	20.3 (73)	21.8 (42)	21.3 (13)	26.7 (16)	18.8 (491)
Nonserious Delinquent	49.3 (957)	37.9 (136)	43.0 (83)	55.7 (34)	41.7 (25)	47.2 (1235)
Serious Delinquent	32.8 (637)	41.8 (150)	35.2 (68)	23.0 (14)	31.7 (19)	34.0 (888)
Total	(1941)	(359)	(193)	(61)	(60)	(2614)*

*Missing data on three cases.

TABLE 10. Delinquency Status by Sex and Ethnicity, Time I

Delinquency Status	Caucasian	Mexican	Negro	Oriental	Other	Total
			M A L E S			
Nondelinquent	14.4 (143)	13.0 (24)	14.1 (13)	10.5 (4)	16.1 (5)	14.1 (189)
Nonserious Delinquent	44.9 (445)	35.1 (65)	41.3 (38)	60.5 (23)	32.3 (10)	43.5 (581)
Serious Delinquent	40.6 (402)	51.9 (96)	44.6 (41)	28.9 (11)	51.6 (16)	42.4 (566)
Total	(990)	(185)	(92)	(38)	(31)	(1336)*
			F E M A L E S			
Nondelinquent	21.5 (204)	28.2 (49)	28.7 (29)	39.1 (9)	37.9 (11)	23.6 (302)
Nonserious Delinquent	53.8 (512)	40.8 (71)	44.6 (45)	47.8 (11)	51.7 (15)	51.2 (654)
Serious Delinquent	24.7 (235)	31.0 (54)	26.7 (27)	13.0 (3)	10.3 (3)	25.2 (322)
Total	(951)	(174)	(101)	(23)	(29)	(1278)*

*Missing data on three cases.

similar, but less dramatic for the other ethnic groups. More than one-half of the Mexican-American boys and males from the diverse groups included in the other category reported a serious delinquent act. Among the females, the highest proportion who reported a serious delinquent act is also observed among the Mexican-Americans.

Tables 11 through 15 are based on the same class and ethnic distributions of the students with delinquency status representing the seriousness of involvement for the period following the initial contact, Time II. It is possible that students who reported serious delinquent acts during Time I could report no acts for Time II and are now classified as nondelinquent. Thus, there is no necessary correspondence between the descriptive classifications for the two time periods.

It is obvious from Table 11 that boys are again more likely to report delinquent acts, and are twice as likely to admit serious involvement in delinquent activities than are girls. Comparison of these data with the data in Table 6 reveals that there is an increase in serious acts reported for males but not for females, although there is an increase in the proportion of females who report nonserious acts. There is also a 7 percent reduction in the proportion of the sample who report no delinquent acts.

In Table 12 it can be seen that there is little class difference among the students who report no delinquent acts at Time II. There is a slight inverse relationship between

TABLE 11. Delinquency Status by Sex, Time II

Delinquency Status	Males	Females	Total
Nondelinquent	7.1 (84)	15.4 (183)	11.2 (267)
Nonserious Delinquent	41.1 (488)	60.2 (714)	50.7 (1202)
Serious Delinquent	51.8 (614)	24.4 (289)	38.1 (903)
Total	(1186)	(1186)	(2372)
Missing Information	(152)	(93)	(245)

TABLE 12. Delinquency Status by Social Class, Time II

Delinquency Status	Upper	Upper-Middle	Middle	Lower-Middle	Lower	Total
Nondelinquent	10.7 (6)	9.2 (19)	11.2 (80)	11.7 (114)	11.4 (48)	11.2 (267)
Nonserious Delinquent	58.9 (33)	51.2 (106)	50.4 (360)	51.6 (502)	47.7 (201)	50.7 (1202)
Serious Delinquent	30.4 (17)	39.6 (82)	38.5 (275)	36.7 (357)	40.8 (172)	38.1 (903)
Total	(56)	(207)	(715)	(973)	(421)	(2372)
Missing Information	(2)	(13)	(53)	(109)	(68)	(245)

seriousness of involvement and class. However, if the upper and upper-middle classes are combined, the proportion reporting serious acts is 36 percent which would suggest that there is actually little difference by class in the commission of delinquent acts. Thus, from Time I (Table 7) there has been a levelling tendency across the classes in the proportion reporting serious acts; the upper and middle class respondents increased their activities while the lower class youth report a constant rate of involvement.

There is no difference by class among males or females (Table 13). In each class approximately twice as many males as females report serious delinquent acts. While there has been a reduction from Time I in the proportion of nondelinquents in all classes for females, there has been no increase in the serious delinquency classification. In other words, the females reported more extensive involvement in nonserious acts. For males there are also fewer nondelinquents than before, but the substantial increase in serious acts reported by males in the upper classes has negated the class difference at Time I. There is a 24 percent difference in the proportion of males at Times I and II who report serious acts, but only a 5 percent change for males in the lower class.

There are some ethnic differences in delinquency status at Time II (Table 14). Students in the "Other" category are more likely to be nondelinquent than are members of the other ethnic groups. With one other

TABLE 13. Delinquency Status by Sex and Class, Time II

Delinquency Status	Upper	Upper-Middle	Middle	Lower-Middle	Lower	Total
			M A L E S			
Nondelinquent	13.6 (3)	3.8 (4)	7.4 (28)	7.4 (35)	6.7 (14)	7.1 (84)
Nonserious Delinquent	40.9 (9)	41.3 (43)	43.8 (165)	41.3 (196)	36.0 (75)	41.1 (488)
Serious Delinquent	45.4 (10)	54.8 (57)	48.8 (184)	51.4 (244)	57.2 (119)	51.8 (614)
Total	(22)	(104)	(377)	(475)	(208)	(1186)
Missing Information	(2)	(11)	(32)	(68)	(39)	(152)
			F E M A L E S			
Nondelinquent	8.8 (3)	14.6 (15)	15.4 (52)	15.9 (79)	16.0 (34)	15.4 (183)
Nonserious Delinquent	70.6 (24)	61.2 (63)	57.7 (195)	61.4 (306)	59.2 (126)	60.2 (714)
Serious Delinquent	20.6 (7)	24.3 (25)	26.9 (91)	22.7 (113)	24.9 (53)	24.4 (289)
Total	(34)	(103)	(338)	(498)	(213)	(1186)
Missing Information	(0)	(2)	(21)	(41)	(29)	(93)

exception, there is little ethnic difference between students who become either nonserious or serious delinquents. Orientals are least likely to report serious acts, but are most likely to report nonserious acts, a pattern which was also found at Time I. The largest increase from Time I in the proportion admitting serious delinquent acts occurred among Orientals, followed by students with a variety of ethnic backgrounds, then Negroes.

TABLE 14. Delinquency Status by Ethnicity, Time II

Delinquency Status	Caucasion	Mexican	Negro	Oriental	Other	Total
Nondelinquent	10.8 (190)	13.3 (44)	10.0 (17)	10.2 (6)	17.5 (10)	11.2 (267)
Nonserious Delinquent	52.1 (915)	45.8 (151)	46.5 (79)	55.9 (33)	42.1 (24)	50.7 (1202)
Serious Delinquent	37.1 (651)	40.9 (135)	43.5 (74)	33.9 (20)	40.4 (23)	38.1 (903)
Total	(1756)	(330)	(170)	(59)	(57)	(2372)
Missing Information	(187)	(30)	(23)	(2)	(3)	(245)

For both males and females at Time II the finding is that Orientals report the highest proportion of nonserious acts and the lowest proportion of serious acts (Table 15). Other ethnic differences also appear; for males, Negroes and students with a variety of ethnic backgrounds are most likely to report serious delinquent acts. This is not true for females; Mexican-American females are most likely to admit serious acts, while girls in the "Other" category of

TABLE 15. Delinquency Status by Sex and Ethnicity, Time II

Delinquency Status	Caucasian	Mexican	Negro	Oriental	Other	Total
MALES						
Nondelinquent	7.6 (67)	6.7 (11)	3.7 (3)	5.6 (2)	3.4 (1)	7.1 (84)
Nonserious Delinquent	41.8 (366)	42.1 (69)	33.3 (27)	50.0 (18)	27.6 (8)	41.1 (488)
Serious Delinquent	50.6 (443)	51.2 (84)	63.0 (51)	44.4 (16)	69.0 (20)	51.8 (614)
Total	(876)	(164)	(81)	(36)	(29)	(1186)
Missing Information	(115)	(22)	(11)	(2)	(2)	(152)
FEMALES						
Nondelinquent	14.0 (123)	19.9 (33)	15.7 (14)	17.4 (4)	32.1 (9)	15.4 (183)
Nonserious Delinquent	62.4 (549)	49.4 (82)	58.4 (52)	65.2 (15)	57.1 (16)	60.2 (714)
Serious Delinquent	23.6 (208)	30.7 (51)	25.8 (23)	17.4 (4)	10.7 (3)	24.4 (289)
Total	(880)	(166)	(89)	(23)	(28)	(1186)
Missing Information	(72)	(8)	(12)	(0)	(1)	(93)

ethnicity are least likely to report these acts. From Time I there is an overall decrease in the number of nondelinquents. For females the increase is in the proportions of all ethnic groups who report nonserious acts. Only for Oriental females is there an increase in admissions of serious acts, but there is only one more person in this category from Time I to Time II. For males there is a decrease from Time I in the proportions reporting nonserious acts in four of the five ethnic groups. The increases occur in the serious delinquency classification; only among Mexican-American males is the rate constant for the two time periods. The greatest increases are among Negroes and boys of varied ethnic backgrounds.

Students on whom self-reports were not available (N=245) at the close of the Elliott and Voss study were more likely to be males than females. These students tended to be Caucasian, Mexican-American or Negro, and generally were members of the lower-middle or lower class. As noted earlier, on the basis of their self-reported delinquent acts at Time I, these students were more likely to be delinquent than the students on whom complete information was available. This fact may tend to attenuate the associations found when delinquency at Time II is the dependent variable. However, these students comprise only a small proportion of the total sample, 9.4 percent, and their omission should not have any sizable effect on this analysis.

CONTINUED

1 OF 3

As mentioned earlier, Hirschi tested his theory and offers future researchers all of the operational definitions that he used to convey the meanings of his basic concepts. The advantage for research is obvious; clarification and operationalization of concepts by the theorist provides future researchers with specific guidelines for defining the concepts. The present analysis will be an extensive, but not exact, replication of Hirschi's research. The questionnaires from which the data for the present study were gathered were not designed to test Hirschi's theory. However, some of the same indicators are available. Wherever possible, these items will be utilized. In some instances comparable or additional items to those suggested by Hirschi will be used.

While it is possible to administer anonymous questionnaires in a longitudinal study, the analysis would then have to be confined to group data. The linkage of an individual's responses from two points in time would be impossible. The enormous loss of information did not seem warranted to Elliott and Voss (1974:42). Thus, while the questionnaires they administered were not anonymous, they assured the students that the data gathered would be held in strictest confidence. Elliott and Voss encouraged an atmosphere of trust and confidentiality by repeatedly stressing their affiliation with a California university. They further assured the students that, not only were the researchers totally independent of the high school's administrators,

but also that the data would never be seen by anyone in their respective schools. The students' teachers were not permitted to be present during the administration of the questionnaires, and the questionnaires were immediately removed from the school premises by the researchers. Thus, every effort was made to insure the confidentiality of all responses.

Analysis in the present study will be confined to data gathered during only two data waves of the Elliott and Voss study. Information from the first annual questionnaire and the parent interview, gathered while the students were ninth graders, will be defined as data from Time I. This information provides base measures, or controls, and predictors of subsequent delinquency.

The focus of the analysis will be on the causes of delinquent acts as measured by self-reports. Data on youths' official contacts with police and juvenile authorities have certain inherent biases, such as variation in exposure to detection and differential police and court handling (Goldman, 1963; Piliavin and Briar, 1964; Lohman et al., 1965; Black and Reiss, 1970; Williams and Gold, 1972). These biases are avoided with measures of self-reported behavior.

The dependent variable, delinquent behavior, is measured at two points in time. Self-reported delinquent behavior which occurred while the students were in grades 7 through 9 is taken from data obtained in the first collec-

tion wave, Time I, for base measures and cross-sectional analysis. Time II covers delinquent behavior which occurred after Time I and was reported while the students were in twelfth grade. That is, the data refer to delinquent acts committed while the respondents were in senior high school, or grades 10 to 12. The items that made up the delinquency checklist on the final questionnaire specifically asked for acts committed since the students entered the tenth grade. This assures that the measures cover that time period subsequent to the administration of the first questionnaire. Therefore, measures of the independent variables precede any acts recorded on this measure of the dependent variable. This clearly establishes the temporal sequence of the independent and dependent variables. If the time lapsed between the measures of the independent variables and that of the dependent variables is sufficient to allow any causal influences to operate, then the fact that the temporal order is clear permits an inference of causal direction with more safety than is possible with cross-sectional data.

Two dimensions of self-reported delinquent behavior will be analyzed. The first indicates the seriousness of admitted offenses, based on whether the act is classified as a misdemeanor or a felony in the California Penal Code (1963). The second is an indication of the frequency of delinquent acts committed. A frequency score is a simple reflection of the number of acts committed at Time I or

during the interval between Times I and II. In this instance, the frequency score is a conservative estimate of the extent of a student's involvement in delinquency. The transformation of the response categories of the delinquency checklist into frequencies will be the same as that done by Elliott and Voss (1974:65). Responses of "No" or "None" equal 0; "Once" or "Twice" equals 1; "Several times" or "Three times" equals 3; and "Very often" equals 4. This frequency score, however, does not reflect the relative increase or decrease from Time I in the student's involvement in delinquent activities. For this reason a raw gain score will also be used; by subtracting the number of acts reported at Time I from that reported at Time II, the student's relative involvement in delinquency is reflected.

Although longitudinal data assure the temporal sequence of the independent and dependent variables, it is necessary to control for any other causes that might be operating. One essential control when delinquent behavior is the dependent variable is a control for prior delinquency. A relationship may be due to an original relationship between the independent variables and delinquency at Time I. Subsequent delinquency at Time II may not, then, be due to the causal influence of the independent variables, but to the influence of prior involvement in delinquent activities. Thus, residual gain scores will also be used. This score for an individual is the difference between his frequency score at Time II and a predicted score based on a

regression of second scores on first scores for the entire sample (Elliott and Voss, 1974:55-56; Rankin and Tracy, 1965). The residual gain score statistically controls for the effects of prior delinquency; the difference between an individual's observed and predicted scores is the amount left unexplained by prior delinquency.

5

REPLICATION ANALYSIS

There are two different kinds of replication (Mack, 1951). Intensive replication essentially involves duplicating previous research. The original measures would be used to gather data on a similar sample with the goal of examining the reliability of the measures over time. In extensive replication the goal is a test of the theory with similar measures to those used in the original research or a duplication of the original findings on a different kind of sample. Obviously, there are combinations of the aspects of the two kinds of replication research.

In the present study, both an intensive and an extensive replication of Hirschi's study will be made. The first will be limited by the fact that this is a secondary analysis; Hirschi's original measures were not the basis of the questionnaire items utilized by Elliott and Voss (1974). But the sample will be limited to white males, like Hirschi's, and only those items will be analyzed that are similar in wording to Hirschi's original items. The second part of the replication will cover items that measure aspects of control theory in a sample which includes males and females, blacks and whites. Longitudinal data will be used throughout all analyses, with cross-sectional associations provided for

comparative purposes.

Intensive Replication

In an attempt to replicate Hirschi intensively, only the responses of white males (N=991) from the total sample were examined. In addition, only the items most closely approximating those used by Hirschi were cross-tabulated. Wherever possible, items with the exact wording and/or content as used by Hirschi were included, but, obviously, due to the fact that this is a secondary analysis, compromises, particularly in wording, were necessary in several instances to approach the content intended by Hirschi's items. For example, Hirschi's (1972:90) index of communication intimacy with parents consisted of two items: "Do you share your thoughts and feelings with your mother (father)?" and "How often have you talked over your future plans with your mother (father)?" For purposes of comparison only one item was used: "How many of your problems do you talk over with your father and mother?" The responses were coded separately for father and for mother.

A delinquency scale similar to Hirschi's was developed. The following six items were used:

(1) Have you ever taken little things (worth less than $2) that did not belong to you?

(2) Have you taken things of medium value (between $2 and $50)?

(3) Have you taken things of large value (over $50)?

(4) Have you driven a car without the owner's permission?

(5) Have you purposely damaged or destroyed public or private property that did not belong to you?

(6) Have you used force (strong-arm methods) to get money from another person?

Response categories were identical for all six items:

(1) No

(2) Once or twice

(3) Several times

(4) Very often

The same items were used for a delinquency scale at Time II, the boys' senior year of school. Based on a conservative estimate of frequency, with "very often" considered as four acts, the simple addition of responses for each boy yielded a crude frequency scale. Scores ranged from 0 to 24. Non-delinquents were defined by scores between 0 and 6; non-serious delinquents had scores between 7 and 8, and serious delinquents, from 9 to 24. While it would have been possible to develop a more sophisticated and more informative scale, this method was chosen for its comparability to that used by Hirschi without the disadvantages of his various indexes. Although this scale weights frequency of involvement in delinquent behavior, it, like Hirschi's recency index, does not take into account the seriousness of the acts committed.

The measure of association, gamma, was computed for Hirschi's tables whenever comparable computations could be

made in the present analysis. Cutting points for the two sets of data were identical. In all, 16 tables reported by Hirschi could be duplicated.

Some relationships were not presented in tabular form by Hirschi; this prohibited the calculation of measures of association. In other tables, Hirschi used a different measure of the dependent variable, the average number of self-reported acts in the subgroups he examined. "They thus allow boys committing many delinquent acts to have the influence they deserve on the statistics . . ." (Hirschi, 1972:74). This measure, however, is based on the recency index and does not give the average number of acts committed, but the average number of types of delinquent offenses in which the group was involved. At best it is a versatility measure; however, it represents only three "types" of offenses, theft, destruction of property and assault with theft offenses overweighted. At its worst, it muddles petty and serious offenses while providing little information about delinquent behavior. In Hirschi's (1972:158) study the highest average number seems to be 2.20; because it is based on a scale with a maximum of six acts, this would not seem to indicate extensive involvement in delinquent behavior. Tables in which this measure was used were not duplicated.

In Table 16 the items that were used are presented as they appeared in the Elliott and Voss study. The first item was taken from the parental interview; the eighth item

TABLE 16. Measures of Association of Selected Items with Delinquent Behavior--A Comparison of Cross-Sectional, Longitudinal and Base Measures of Association

Item	Time I	Time II	Base[a]
Attachment to Parents:			
1. Do you feel parents should know where their children are when they are away from home?	.285	.351	.272 (89)
2. How many of your problems do you talk over with your father?	.428	.239	.251 (91)
3. Which one of these things would be hardest for you to take--your parent's disapproval, your teacher's disapproval, or your friend's disapproval?	.210	.064	.190 (150)[b]
Attachment to Peers and Exposure to Criminal Offenses:			
4. Have any of your best friends ever been in trouble with the law while they were your best friends?	.631	.361	.627 (99)
5. Will you probably be taken to juvenile court sometime for getting into trouble?	.576	.288	.35 (146)[c]
6. How many of your problems do you talk over with your father, by Have any of your best friends ever been in trouble with the law?	.292	.351	.130 (100)
7. Which one of these things would be hardest for you to take, by Have any of your best friends ever been in trouble with the law?	.625	.529	.488 (150)[d]
Attachment to School:			
8. Grade Point Average--9th grade	.228	.170	.194 (116)
9. Some people your age like going to school and some don't. How do you like school?	.543	.294	.418 (121)

TABLE 16. Continued

Item	Time I	Time II	Base[a]
10. Sometimes grades are not a good indication of one's real ability. Apart from your grades, how would you rate your ability on the following scale?	.084	.044	.117 (118)
11. Do you think your teachers treat you fairly?	.308	.100	.401 (126)
Commitment to Conventional Activities:			
12. Do you have a car of your own?	.362	.283	.283 (169)
13. Let's think for a minute about school plans. How far would you like to go in school?	.225	.148	.330 (171)
14. How far in school do you think you will actually go?	.313	.162	≃1 [e] (172)
Involvement in Conventional Activities:			
15. How much time, on the average, do you spend doing homework outside school?	.326	.235	.331 (191)
Belief:			
16. What do you think of the following statement? "It's not what you do but who you are that counts with the law."	.097	.043	.434 (203)

[a]All base measures were computed from tables presented by Hirschi for comparable items. Page numbers are indicated in parentheses.

[b]Table 48.

[c]This correlation was given by Hirschi.

[d]Table 49.

[e]Cell size too small for stable association.

was obtained from official school records. The remainder of the items appeared on the first student questionnaire. Cross-sectional associations were those obtained when delinquency data from Time I were used; longitudinal comparisons utilized data from Time II. Obviously, there are few important differences.

There is one exception, a discrepancy of .337 in the "Belief" category. In the present analysis the item "It's not what you do but who you are that counts with the law" was used. The comparable item used by Hirschi was "It is alright to get around the law if you can get away with it." It is possible that these items simply do not measure the same underlying dimension. However, Hirschi (1972:202-203) states that there are few items in his analysis that are more strongly related to delinquent behavior than this one; yet the association is only .379 on the table he presents and .434 with the categories collapsed. This would not seem to indicate a strong relationship. Certainly, calculation of the statistical association in the present analysis does not yield strong support for his idea that belief in conventional standards is an important factor in preventing delinquent behavior.

In general, the relationships found in Hirschi's study and in the data analyzed herein do not vary in magnitude or strength of the association. It should be noted that in only two instances (no. 1 and no. 6) are the associations at Time II higher than those at Time I. For the most part,

longitudinal analysis yields lower associations between the independent variables and subsequent delinquency than between independent and dependent variables measured at the same point in time. Elliott and Voss (1974:202) suggest that a significant problem of cross-sectional analysis is an overestimation of the causal importance of independent variables. Not only is the causal direction uncertain in cross-sectional analysis, but the strength of the association may also be misleading. It is difficult to determine whether cross-sectional analysis inflates the association or longitudinal analysis deflates it by assessing measures that cover too extensive a period of time. It is possible that an optimal length of time for the causal influence of independent variables has been exceeded in this study. Perhaps measures of subsequent delinquency should have been made at grades 10 or 11; perhaps other causal influences have intervened during the study period. Regardless of these possibilities, it still appears preferable to place more confidence in even moderate associations where the causal direction is safely inferred, than in strong associations involving unknown causal directions.

The strongest support for Hirschi's theory is found within the "attachment to parents" dimension. While the associations are modest, there is an indication that parental ties are related to future acts. There is also weak support for the deterrent effect of attachment to the school. Although Hirschi (1972:230) cites a theoretical overestima-

tion of the effect of involvement in conventional activities, there is one measure of involvement which provides weak support--time spent on homework. However, this is a dual-purpose indicator of involvement and commitment. Therefore, this probably is an indication of an overextension of the theory; and it suggests that items relevant to educational activities should be taken as indicators of commitment to educational lines.

The strongest associations are those relating peer attachments and criminal influences to delinquent behavior. This proved to be an embarassment to Hirschi (1972:230) in his own study. The findings in this analysis also point out that Hirschi's theory underestimates the importance of peer influences.

Extensive Replication

Regression Analysis

The data available in the present study permit a more extensive replication of control theory. Not only is the sample more varied than Hirschi's, with the inclusion of females and non-white ethnic groups, but the data provide questionnaire items similar to those of Hirschi's in addition to those already examined. Although the questionnaire was not designed to test Hirschi's theory, Hirschi (1972) and Elliott and Voss (1974) borrowed items from earlier studies, particularly Nye's (1958). While the main concern here is not with the concepts measured and examined by Elliott and Voss, it is possible to utilize the same items

as they reflect other theoretical concepts. Therefore, the goal was to test control theory on the entire sample of 2,617 respondents using items that measured the general concepts of control theory. From these items scales would be developed that constituted continuous variables for use in a regression analysis.

Scales. Of the items on the ninth-grade questionnaire there were about 100 items that had face validity as measures of the various components of control theory including those examined in the intensive replication. In order to reduce the pool of variables to a workable number and to develop scales, a factor analysis was performed on each set of variables representing a component of the theory.

Factor analysis works on the assumption that any variables which cluster when plotted are linearly related and are caused by an exogenous variable. This is not very different from, for example, the use of income and occupation as indicators of socio-economic status, a theoretical concept that is not directly measurable and is not part of the research model. With factor analysis, however, it is assumed that the unmeasured variable is the cause of the relationships delineated by the analysis (Rummel, 1970). Each measured variable is mathematically plotted, and a vector is radiated (Rummel, 1972:36). Factor analysis geometrically defines a factor by rotating an axis until the center of a cluster of vectors is found. Each factor represents a cluster of variables mathematically related to

its cause, the factor. "Through this relationship the factors describe the regularities in the data and it is these regularities that define a causal nexus" (Rummel, 1970:26).

The rotation of the axis may be done in several ways. Two of the most commonly used rotations are the orthogonal and oblique rotations. With orthogonal rotation, the total set of factors is rotated as a rigid frame, with each factor immovably fixed to the origin at a right angle (orthogonal) from every other factor (Rummel, 1972:59). If all the clusters are uncorrelated with each other, each orthogonal factor will be aligned with a distinct cluster. The more correlated the clusters, the less orthogonal rotation can clearly discriminate them. In an oblique rotation, the factors are allowed to be correlated, with each factor rotated individually to fit each distinct cluster. Relationships between resulting factors reflect the relationships between clusters. If the clusters are uncorrelated, an oblique solution will result in orthogonal factors. The difference is not in discriminating uncorrelated or correlated factors, but in whether this distinction is empirical or imposed on the data by the model.

Factor analysis was considered appropriate for this analysis for several reasons (Rummel, 1970:29-32). (1) The technique is useful as a data reduction tool. Rather than deal with individual indicators or the characteristics of dimensions, the dimensions themselves can be examined. (2) Factor analysis gets at the basic structure of a domain.

In this case, factor analysis of the indicators of each separate component yielded clusters which were not always identical to the underlying properties of the component as outlined by Hirschi. (3) This analysis provides the patterns of interrelationship of the clusters as well as the relationships of the items to the factor. (4) Scales of each factor are obtained by the addition of items due to that factor, weighted to reflect their relative importance. Thus, each scale is the linear combination of the effects of that factor.[1]

All items thought to indicate a particular individual component of control theory were factor analyzed as a unit. For example, all items pertaining to attachment to parents were analyzed. Care was taken with the items measured ordinally so that the distributions of responses were not skewed to any one value (Rummel, 1970:225). An oblique rotation was used because it was assumed that any pattern emerging would necessarily reflect correlated clusters. To force the factors to be uncorrelated through an orthogonal rotation would be to impose an unrealistic restriction on the data. At the same time, although correlated, these patterns accounted for the greatest amount of variance

[1]Specifically, in this analysis an oblique simple-structure solution was used. A simple-structure solution means that each variable is determined by fewer than the total number of common factors obtained (Mulaik, 1972:219). This maximizes the fit of the factor to the cluster, rather than to the maximum amount of variance, which may actually lie between clusters (Rummel, 1970:191).

within each component of the theory.

Factors were retained which had an eigenvalue approaching unity or greater. An eigenvalue is a measure of the amount of variation accounted for by a dimension (Rummel, 1972:47). Often a cut-off point of unity or better is mechanically applied, but the decision of when to stop factoring is arbitrary. Factors with eigenvalues of less than one were retained if the rule of discontinuity obtained: a sharp drop in eigenvalue of subsequent factors was apparent, or the variance explained by subsequent factors yielded a small (less than 10 percent) addition to the explained variance (Rummel, 1970:363; Harman, 1960:363). As Rummel (1970) points out, the average eigenvalue is unity, so there will be some values above and some below. Those close to one, for example, .95, should not be mechanically discarded because small data errors, a different choice of distributional transformation, skewed distributions, the choice of correlation coefficients and other design decisions can shift eigenvalues above and below unity.

Within each factor, only those items with a pattern loading above an absolute value of .3 were retained. The pattern loading indicates the degree of involvement of each variable in that factor; it is a measure "of the unique contribution each factor makes to the variance of the variables. They measure the dependence of the variables on the different factors and in this sense they are regression coefficients of the variables on the factors" (Rummel, 1970:

397, 399). In an oblique rotation they cannot be strictly interpreted as correlations, but are close approximations (Rummel, 1972:48). Oblique rotations tend to provide more distinct dimensions with few moderate loadings, but more high and low loadings. While the cutting-point is again arbitrary, and could have been .5 or .2, there was no basis known for choosing another cutting-point. Harman (1960: 283) uses .3, while Rummel (1970:325) states that the decision "depends on the assessment of error in his data, the overall interrelationship between the variables, and the findings of other factor studies in his substantive domain."

There are three ways to develop scales from the results of a factor analysis (Rummel, 1970:172). The first involves the use of all variables; obviously, some variables will have very little involvement in a factor and would be weighted to reflect this. The second method is to retain the variables with the highest loadings. In this case, since one goal of the factor analysis was to reduce the data pool, this selection method was utilized. The third method involves the use of only the variable with the highest loading as an indicator of that factor. While there is an obvious loss of information as to the relationships of the cluster, the single variable has the advantage of simplicity (Rummel, 1972:51-52).

To construct the scales, the factor score matrix is used; this provides a score for each case on these patterns. Each variable is weighted proportionately to its involve-

ment in a dimension or factor. To compute the scale value for each case, the factor score coefficients are used to weight the standardized or Z-values of each variable. The sum of these products for all variables relevant to the scale yields the scale value.[2]

The result of all this is the emergence of composite measures which approximate continuous measures, and thus, can be used in regression analysis. The process, however, is an indeterminate one. Replication and comparability to other studies are affected by the population sampled, the overlapping of variables to approximate the same underlying dimensions from one study to another, the number of factors extracted, the number of variables retained, and of course, the method of rotation chosen (Mulaik, 1972:339, 351, 356). It is quite possible to derive very different scales from the same data set simply by altering choices in the solution process; for example, there are eight techniques of oblique rotation alone, and none is agreed to be superior (Rummel, 1970:411, 445).

Nine scales were generated by this method (Appendix A). For the four-item scales, a case was omitted only if data were missing on two or more of the items. For scales of three items, a case had to have information on at least

[2]Scale value=factor score coefficient of A $\frac{\text{A-mean of A}}{\text{standard deviation of A}}$ + factor score coefficient of B $\frac{\text{(B-mean of B)}}{\text{standard deviation of B}}$ +...

two of the items to be included. Scales of two items required that values on each of the variables be available to include a case. Since very little information was missing on values for the independent measures, this was not considered an overly liberal approach. Of the nine scales, only two had fewer than 2,550 cases where complete information was available. These two scales included father-related and mother-related items. In many cases when the respondent did not live with that parent, no response was made to the questionnaire item.

As noted earlier, the scales which emerged did not always coincide with the theoretical concepts outlined by Hirschi. The Openness of Communication Scale obviously is suggestive of control theory. Both the extent and willingness to talk with parents are tapped by this scale. The Home Alienation Scale is also in line with control theory; while the items are stated in terms of desires to leave home, the student's acceptance of his home situation is also measured. The Parental Acceptance of Peers Scale is not directly suggested by Hirschi, but certainly taps any conflict between parental and peer attachment and, thus, measures a relevant issue for control theory.

The surprise in the Parental Attachment items is the Perceived Assessment of Others Scale. These items measure the student's perception of his parents' assessments concerning his possible or potential trouble with the law. Hirschi hypothesizes nothing about the importance of a

student's perceptions about how others view him. Indeed, he seems to assume that conventional people will expect conventional behavior from others, when, in fact, parents may not wish that their child will become involved with the law but, in some cases, fully expect that it will happen. More importantly to the student is his or her perception of these parental opinions--actual or not--and the effect this may have on his or her actions. It should be kept in mind that at this point in the analysis no assessment has been made of these items' relevance to delinquent behavior; they emerged as a scale because these items taken together explained a significant proportion of the variation in the parental attachment items. This scale suggests that a measure of attachment is not sufficient; an assessment of the quality of that relationship and the perceived direction of behavior and attitudes others expect may also be relevant to the child.

A similar idea emerges with the School Attachment Scale. Although the scale combines perceptions with measures of behavior, the scale is only an indirect measure of school satisfaction. Other items pertaining to whether or not the student likes school were not significant, nor was grade point average, in explaining the variation among these items.

The Conventionality of Beliefs Scale and Commitment to Conventional Activities Scale are quite similar to the lines investigated by Hirschi. The second scale derived from the

commitment items, Perceived Parental Desires, again reflects the student's ideas about his or her parents' wishes. These perceptions would appear to be more relevant than inferring parental preferences by the educational achievements of the parents, as Hirschi did.

One outcome of the factor analysis was indirect support for a similar finding in Hirschi's own analysis which caused him to revise his theory. In the factor analysis of items measuring involvement in conventional activities, no significant clusters emerged. Since there was a methodological problem in Hirschi's study--the use of "involvement" items as indicators of "commitment"--another factor analysis was made of all items pertaining to involvement and commitment. Again no significant factor emerged as a measure of involvement; however, the same two scales measuring commitment appeared.

Also, as Hirschi hypothesizes in his revision, there is a significant group of items pertaining to delinquency of peers, that must be examined with regard to their relationship with delinquent activity. The Unconventional Peer Influences Scale is a measure of attachment to peers as well as the conventionality of those peers.

Delinquent Behavior. Measures of the dependent variable used in the regression analysis were continuous variables based on the frequency of self-reported delinquent activities (Appendix B). Data on the ten self-reported acts in the delinquency checklist obtained when the students

were in the ninth grade (Time I), served as origin measures. Data on subsequent delinquent activities during the period covering the tenth, eleventh and twelfth grades (Time II), were considered to be the dependent variables for this analysis. Seriousness of a student's involvement in delinquency is reflected by the frequency of acts reported that are classified as felonies in the California Penal Code (1963).

In addition to the frequency of delinquent acts, two other measures of the dependent variable were utilized. Both measures take into account the fact that delinquent activities are themselves predictive of subsequent delinquent involvement. To control mathematically for the effect of delinquency on subsequent acts, raw gain scores and residual gain scores were computed. For a particular respondent a raw gain score is simply the difference between the number of acts at Time II and at Time I. The residual gain score is derived by a regression of frequency scores at Time II on the scores at Time I to obtain a predicted score. The difference between the student's actual number of acts at Time II and his predicted score is his residual gain score.[3] The residual gain score is, then, statistically uncorrelated with origin measures. For both of these measures, computations were made on all reported acts, as well

[3]The formula is $\Delta = X^2 - \hat{X}_2$ where $\hat{X} = (X_1 - \bar{X}_1)(r_{12}\sigma_2/\sigma_1) + \bar{X}_2$ (Ageton and Elliott, 1974:91). It may also be stated as $z - r_{12}z_1$ where z represents the standardized score of the variable (Tracy and Rankin, 1967).

as on only the serious acts.

Analysis. In Table 17 it can be seen that the simple regression coefficients are consistently higher for the relationships at Time I than at Time II, for both the total and the serious frequency measures. None of the scales is strongly related to delinquency in either time period. Four of the relationships do have coefficients of moderate strength; the scales are the Perceived Assessment of Others, School Attachment, Conventionality of Beliefs and Unconventional Peer Influences scales. These scales are highly suggestive of Hirschi's revised theoretical statement which stresses that parental and school attachment must be examined relative to the delinquency of peers. Thus, to this point there is some support for control theory.

Controlling for the effects of prior delinquency either with raw gain or residual gain scores reduces most of these relationships to near zero. This suggests that the predictive power of the factor scales considered individually is minimal.

A multiple regression of the factor scales on total delinquency at Time I results in the explanation of 50 percent of the variance. When the total number of serious delinquent acts at Time I is treated as the dependent variable 34 percent of the variance is explained. Thus, with cross-sectional data social control theory has strong explanatory power. However, a regression analysis with longitudinal data should provide an excellent test of the

TABLE 17. Regression of Factor Scales on Measures of Delinquent Behavior

Factor Scales	DELINQUENT BEHAVIOR							
	Total Frequency Time I	Serious Frequency Time I	Total Frequency Time II	Serious Frequency Time II	Total Raw Gain	Serious Raw Gain	Total Residual Gain	Serious Residual Gain
Openness of Communication	-.258	-.158	-.202	-.109	.011	.020	-.075	-.046
Perceived Assessment of Others	-.508	-.411	-.330	-.257	.094	.078	-.068	-.093
Home Alienation	-.260	-.148	-.180	-.066	.037	.054	-.049	-.005
Parental Acceptance of Peers	-.144	-.111	-.057	-.026	.068	.065	.024	.021
Commitment to Conventional Activities	-.242	-.222	-.108	-.091	.101	.092	.025	.001
Perceived Parental Desires	-.096	-.107	.001	-.003	.086	.082	.059	.044
School Attachment	-.576	-.476	-.417	-.313	.061	.079	-.130	-.125
Conventionality of Beliefs	-.420	-.335	-.260	-.210	.093	.065	-.042	-.077
Unconventional Peer Influences	.606	.513	.399	.315	-.108	-.105	.090	.113

predictive ability of these same variables.

When delinquent behavior at Time II is the dependent variable, a multiple regression analysis yields 24 percent of the variance of the total frequency measure, and 14 percent of the serious delinquency measure, explained by the factor scales. In both instances additional variance is explained by the inclusion of prior delinquency as an independent variable. An additional 8 percent of the variance in the total measure is, thus, accounted for; and for the serious delinquency measure, 6 percent more of the variance is explained.

But when the factor scales and prior delinquency are permitted to enter the analysis wherever the explanatory power of each is most significant, prior delinquency appears as the most significant contributor to the variance of the dependent variable. When prior delinquency enters the analysis first it explains 29 percent of variance in the total measure, with the factor scales contributing only an additional 3 percent for a total of 32 percent of the variance. For the serious delinquency measure, prior delinquency accounts for 17 percent; the total explained after the other variables are entered is 20 percent. While the overall variance accounted for is obviously unaffected by the order in which the variables enter the regression equation, prior delinquency is a better predictor of subsequent delinquency than is obtained by a combination of the measures derived from social control theory.

When the effects of prior delinquency are removed, either through a raw gain score or a residual gain measure, the simple regression coefficients reduce to near zero in almost every instance. Overall, in a multiple regression, the scales can account for less than three percent of the variance. For the raw gain measure the variance explained is 2.8 and 2.2 percent for the total and serious measures, respectively, while for the residual gain scores the parallel percentages are 2.9 and 2.6 percent.

In the multiple regression analysis School Attachment appears as the most influential scale (Table 18). This is consistent with the result of the Elliott and Voss (1974: 183) analysis although the measure they employed was of school normlessness. In a comparison with their findings, their school normlessness measure accounts for 12 percent of the variance of the dependent variable, while school attachment explains 17 percent. However, all of their predictor variables account for a total of 31 percent of the variance in comparison with 24 percent in the present analysis. A comparable portion of the variance in the present analysis is explained only when prior delinquency is also entered into the analysis.

The multiple regression of the factor scales on the residual gain scores for the total frequency of reported acts results in an explanation of only 3 percent of the total variance (Table 19). The comparable explanatory power of all variables in the Elliott and Voss study (1974:184)

TABLE 18. Stepwise Multiple Regression Analysis: Factor Scales on Total Self-Reported Delinquency Frequency Scores, Time II

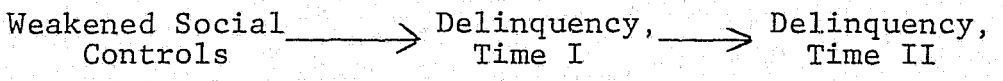
Step Number	Factor Scale	R	R^2
1	School Attachment	.417	.174
2	Unconventional Peer Influences	.464	.215
3	Openness of Communication	.472	.223
4	Perceived Assessment of Others	.477	.227
5	Home Alienation	.480	.230
6	Perceived Parental Desires	.482	.233
7	Conventionality of Beliefs	.484	.234
8	Parental Acceptance of Peers	.485	.235
9	Commitment to Conventional Activities	.485	.236
10	Total Frequency Score, Time I	.562	.316

TABLE 19. Stepwise Multiple Regression Analysis: Factor Scales on Total Self-Reported Delinquency Residual Gain Scores

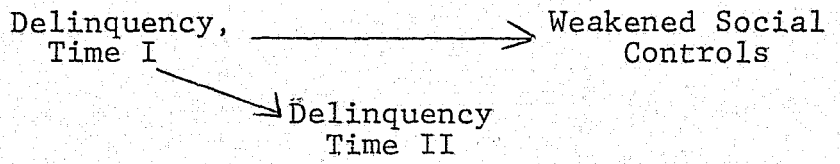
Step Number	Factor Scale	R	R^2
1	School Attachment	.130	.017
2	Perceived Parental Desires	.147	.022
3	Openness of Communication	.154	.024
4	Parental Acceptance of Peers	.162	.026
5	Commitment to Conventional Activities	.166	.028
6	Unconventional Peer Influences	.168	.028
7	Home Alienation	.169	.028
8	Conventionality of Beliefs	.170	.029

is 21 percent; a substantially larger portion of the variance is thus explained by their measures. However, they did not confine their analysis to base measures as were used here, but also employed gain measures of the predictor variables (Elliott and Voss, 1974:131). Measures from the four data-gathering waves of the Elliott and Voss study permitted the computation of residual gain scores for each of the independent variables. Obviously, these gain measures were more significant in the multiple regression than were the base measures of their variables. The discrepancy in the explanatory power of the two sets of variables, then, may not be due to the greater predictive ability of one theoretical model over the other, but to the time span covered by the respective measures.

The introduction of controls for prior delinquency that drastically reduces the correlation coefficients is consistent with a model in which:



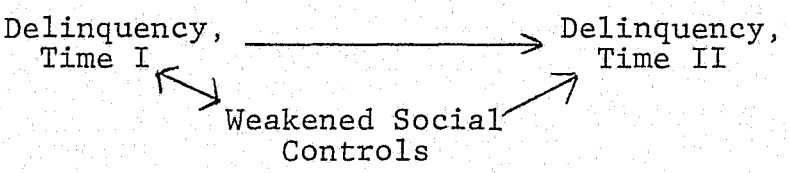
In this instance delinquent behavior at Time I acts as an intervening variable. Control on this variable thus reduces the relationships between the independent variables and subsequent delinquency to near zero. But this outcome is also consistent with the spurious relationship in which:



Blalock (1964:142) suggests the use of an exogenous variable causally prior to one of the independent variables, but not to both, to group the data in order to distinguish between these two models. No such variable seemed appropriate in the data available.

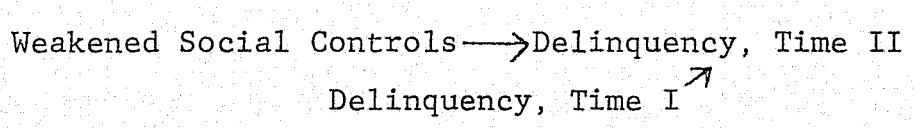
However, another tactic was revealing, even though it is not considered appropriate (Blalock, 1964:85-87). The effects of the social control variables were removed. If these are the independent variables (according to the first model), and their effects were controlled, this would generally result in a decrease in the correlation coefficient between the intervening and dependent variables, while the slope of the regression line between the two would remain unaffected. The extent of the reduction in the correlation is determined by the strength of the relationship between the independent and intervening variables. In this case, the correlation coefficient drops from the simple r of .536 to a partial r of .398 after the effects of the first social control variable are removed, and further drops to r=.325 after all of the effects have been removed. This suggests that the social control variables have some causal effect, and that the relationship is not a spurious one due to delinquency at Time I. However, the beta of the regression line is also reduced, from .536 to .402. Thus, while there appears to be some causal influence from the social control variables on delinquency at Time II, the findings are not consistent with a clear developmental sequence

through delinquency at Time I.[4] In fact, these results imply a situation of multicollinearity in which the independent variables are highly correlated with each other. While the highest correlation between any of the social control variables and delinquency at Time I is .606, the effect on the relationship with delinquency at Time II is apparent.

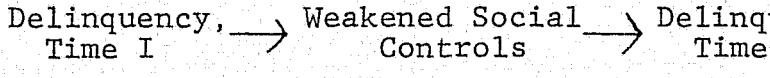


For example, if multicollinearity is the problem, the relationship of an independent variable with the dependent variable that has the highest correlation should remain high when the other independent variable is controlled (Blalock, 1963). In this case, delinquency at Time I has

[4]Two other models may also be eliminated.



In the first, the correlation coefficients between subsequent delinquency and the scales would not reduce to zero when delinquency, Time I is controlled. The second would result in reduced correlations (but not to zero) when



delinquency at Time I was controlled. The relationship between delinquency at Time I and at Time II should also have vanished with the removal of the effects of the social control variables which, of course, did not occur.

the higher correlation and this is maintained after the social control variables' effects are removed. Also, a control on the variable with the higher correlation will reduce the second variable's correlation, possibly to zero, and may even result in a sign reversal. This also is the case in the present analysis.[5]

In an attempt to resolve this problem, the availability of the residual gain score takes on added importance. Not only does the residual gain score control for prior delinquency, but the measure is uncorrelated with delinquent behavior at Time I. Thus, for statistical purposes, delinquency is removed as an independent variable, and multicollinearity is not an issue. Yet when this measure of the dependent variable is used, the social control variables taken together explain only 2.9 percent of the variance. However, the high correlation between the social control scales and prior delinquency cannot be so easily removed, for the statistical control of the residual gain score also removes their confounding influences.

[5]Let: X = delinquency, Time I

Y = unconventional peer influence

Z = delinquency, Time II

$r_{xz} = .536$

$r_{yz} = .399$

$r_{xy} = .606$

then $r_{yz.x} = .111$

$r_{xz.y} = \sim .36$

Ideally measures of the independent variables should be gathered at least at two points in time, both prior to the measurement of the dependent variable. In this way the developmental sequence could adequately be assessed and the relationship of social control theory with prior delinquency could be clarified. But certainly an erroneous impression would have been gained from reliance on a cross-sectional analysis. And it is obvious that, although no firm conclusion can be reached on the causal influence of weakened social controls on subsequent delinquency in this analysis, the theory does not provide as good a predictive tool as does knowledge of prior delinquency.

Tabular Analysis

In a final attempt to isolate the causal influence of control theory variables, students who admitted any serious delinquent behavior at Time I were eliminated from the sample. In this way the predictive power of these variables can be examined on a sample of students not already seriously involved in delinquency. It is known that early involvement in delinquent behavior leads to further acts, which are usually more frequent and serious in nature, until about age 16. For students who already admit serious involvement, the time has passed to assess the preventive influence of strong ties to the social order. Only for students minimally involved in delinquency at Time I is the temporal order of the independent and dependent variables

not confounded by the presence of already established delinquent behavior patterns.

The elimination of the serious delinquents at Time I resulted in the loss of 888 students. Three other students on whom delinquency status information was unavailable were also omitted. To drop all students admitting any delinquent acts at Time I would have resulted in the loss of 1,235 additional cases, with the remaining sample of 491 being too small to partial. Therefore, only serious delinquents at Time I were excluded from further analysis.

To simplify the discussion of the independent variables at this point only the highest loading item of each scale is used as an indicator of that cluster (Table 20). There are three ways to delineate a factor: (1) retain all items related to the cluster; (2) retain only those items above some selected loading value, as was previously done; or (3) rely on the highest loading item as an indicator of the cluster of variables. The last method was chosen for further analysis because of the exclusion of part of the sample. The factors were derived from rotations involving the total sample of 2,617. There is no way to know if the weights assigned to each item are appropriate to the smaller sample. Indeed, a factor analysis on this less inclusive sample could result in different factors as well as different weights. The purpose of this final analysis is not to define new clusters of the independent variables, but to examine the causative influence of those clusters already

TABLE 20. Single Item Indicators of Factor Scales

1. How many of your problems do you talk over with your mother?
   1. all or most of them
   2. some of them
   3. few or none of them

2. How many of your friends do your parents know?
   1. most of them
   2. some, very few, none of them

3. Does your father think you are headed for trouble with the law?
   1. definitely no
   2. unlikely, not sure, probably, definitely yes

4. I sometimes wanted to run away from home.
   1. false
   2. true

5. Think of the friends you have known for the longest time. Were any of them ever in trouble with the law?
   1. very few, several, most were
   2. none were

6. Do you feel that any of your teachers think you are headed for trouble with the law?
   1. definitely no
   2. unlikely, not sure, probably, definitely yes

7. How far would you like to go in school?
   1. graduate from a college or university
   2. business or trade school, some college
   3. quit as soon as I can, graduate from high school

8. Which of the following best describes your mother's attitude toward continuing school after this year?
   1. would object strongly to my leaving school before graduation from college
   2. would think I was foolish if I did not try to go to college
   3. would like me to quit as soon as I can; would not object to my leaving school before high school graduation; would think I was foolish if I tried to go to college

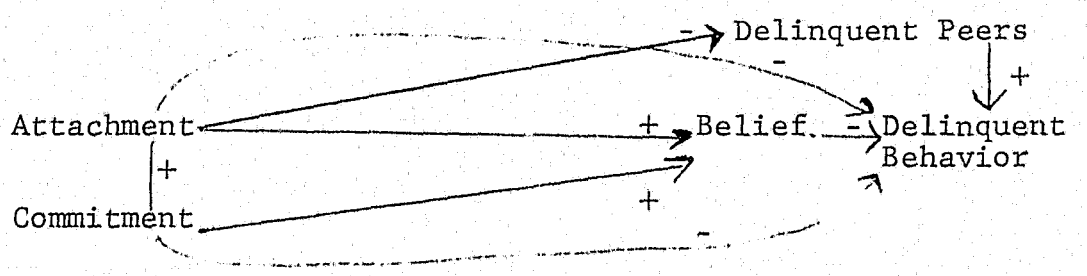
9. Beating up on another person:
   1. it's wrong to beat up on somebody else unless it is a matter of self-defense
   2. it's o.k. if the person belongs to another race; it's o.k. if you don't like the other person; it's o.k. if the other person "wises off," and makes you mad.

identified on a sample for which the problem of multicollinearity should be greatly reduced.

There are disadvantages to the single item indicator of a factor (Rummel, 1972:51-52). (1) The single item does not provide an accurate estimate of the variance of the cluster. (2) There is an obvious loss of information over that contained in the factor. (3) The basic indicator's relationship to other variables through time may change, while the cluster of interrelationships may not. However, there are advantages to the single item indicator. (1) It is probably well known and appears in other research. (2) It is operationally pure and easily reproduced, while the factor score estimates would require that the same variables be combined and identically weighted for replication. (3) The basic indicator communicates more meaning.

The refinement of the sample and the single item indicators also require a change in the statistics used. Regression analysis is no longer appropriate; the independent variables are no longer continuous. Therefore, percentages will be presented in tabular format with gamma as a measure of association. For purposes of clarity, the measure of the dependent variable will be the student's delinquency status at Time II--either nondelinquent, nonserious delinquent or serious delinquent.

A reading of Hirschi's Causes of Delinquency (1972) suggests the following revised model.



Attachment to parents and to the school, commitment to conventional activities and belief in conventional values are hypothesized to be positively related, while each is negatively related to delinquency. Delinquent peers are viewed as influential when attachment to conventional others is decreased.

Attachment to Parents. Of the single item indicators, four are measures of attachment to parents. However, only one of these, "Does your father think you are headed for trouble with the law?," is even moderately related to subsequent delinquency (Table 21). This relationship is slightly stronger for males than for females. When class is controlled (Table 22) there is an increasing differential in the proportion of students whose fathers think they are headed for trouble and those who do not who subsequently become serious delinquents, except in the lowest class. In Class V the proportions of serious delinquents are similar among those who did (30.9 percent) and did not (28.3 percent) perceive negative paternal attitudes. Overall, Class V also has the highest proportion of any delinquent outcome who perceive that their fathers think they are headed for trouble with the law.

TABLE 21. Delinquency Status, Time II, by Single Item Indicators of Factors, Zero- and First-Order Relationships (With Sex, Class and Ethnicity Controlled), in Gammas

Indicators	ZERO-ORDER	FIRST ORDER PARTIALS							
		Sex		Ethnicity		Class			
		Male	Female	White	Other	I & II	III	IV	V
Problems talked over with mother	-.121	-.046	-.160	-.139	-.074	-.348	-.044	-.134	-.091
Friends parents know	.013	-.007	.042	.009	.029	-.322	.211	-.011	-.121
Father thinks you are headed for trouble	-.262	-.263	-.203	-.252	-.288	-.249	-.260	-.323	-.135
I wanted to run away	-.162	-.089	-.304	-.175	-.132	-.298	.016	-.131	-.483
Friends in trouble with the law	.286	.191	.285	.301	.245	.565	.226	.344	.086
Teachers think you are headed for trouble	-.321	-.416	-.190	-.330	-.306	-.159	-.323	-.393	-.238
School Aspiration	.001	-.103	-.016	-.013	.040	-.213	.015	-.001	.048
Mother's attitude toward continuing school	.080	.024	.070	.073	.096	.131	.030	.147	-.026
Beating up another person	-.414	-.314	-.305	-.451	-.325	-.471	-.364	-.541	-.231

TABLE 22. Delinquency Status by Parental Attachment by Class

Delinquency Status	Classes I & II High	Low	Total	Class III High	Low	Total
Serious Delinquent	27.7 (36)	35.2 (19)	29.9 (55)	28.3 (99)	36.2 (59)	30.8 (158)
Nonserious Delinquent	56.2 (73)	59.3 (32)	57.1 (105)	53.7 (188)	57.7 (94)	55.0 (282)
Nondelinquent	16.2 (21)	5.6 (3)	13.0 (24)	18.0 (63)	6.1 (10)	14.2 (73)
Total	70.7 (130)	29.3 (54)	(184)	68.2 (350)	31.8 (163)	(513)
Gamma	-.249			-.260		

	Class IV High	Low	Total	Class V High	Low	Total
Serious Delinquent	23.5 (106)	37.3 (75)	27.7 (181)	28.3 (45)	30.9 (30)	29.3 (75)
Nonserious Delinquent	57.5 (260)	53.7 (108)	56.4 (368)	52.2 (83)	57.7 (56)	54.3 (139)
Nondelinquent	19.0 (86)	9.0 (18)	15.9 (104)	19.5 (31)	11.3 (11)	16.4 (42)
Total	69.2 (452)	30.8 (201)	(653)	62.1 (159)	37.9 (97)	(256)
Gamma	-.323			-.135		
Zero-order gamma				-.262		
First-order partial				-.282		

NOTE: In this and subsequent tables Parental Attachment is indicated by the item "Does your father think you're headed for trouble with the law?" A response of "No" indicated high attachment; "maybe" or "yes" indicated low attachment.

Data were incomplete on 120 cases. The delinquency status at Time II of 119 students was unknown. The total number of cases in this phase of the analysis is 1,726. Thus, for tables in which delinquency status is reported, the total is 1,607 unless otherwise noted.

The relationship between parental attachment and belief is reduced in both partials by the introduction of sex as a control (Table 23). Both the parental attachment item and belief are negatively related to sex, but positively related to each other. This relationship is specified by a control on ethnicity (Table 24). Due to the small percentage differences it seems reasonable to conclude that the specification is the result of the independent effects of parental attachment and ethnicity on conventionality of beliefs.

Commitment. Two items measure commitment to conventional activities, school aspirations and the student's perception of his or her mother's attitude toward continuing school. However, neither of these items is related to any of the parental attachment items or to conventional beliefs, or to subsequent delinquency. None of these relationships is affected by controls on background variables. This is not supportive of Hirschi's model, and indeed greatly weakens the claim that stakes in conformity are a deterrent to delinquency.

The two commitment items do provide some expected results when correlated with each other. Not surprising is the fact that mothers are more likely to encourage their sons to complete college than they are their daughters. And, while there is no difference in the strength of the relationship when class is controlled, the proportion of students whose mothers would like them to complete college

TABLE 23. Belief by Parental Attachment by Sex

Belief	MALES High	MALES Low	MALES Total	FEMALES High	FEMALES Low	FEMALES Total
Self-defense only	88.7 (417)	80.3 (236)	85.5 (653)	96.2 (652)	92.1 (255)	95.0 (907)
Other	11.3 (53)	19.7 (58)	14.5 (111)	3.8 (26)	7.9 (22)	5.0 (48)
Total	61.5 (470)	38.5 (294)	(764)	71.0 (678)	29.0 (277)	(955)
Gamma	.318			.368		

Zero-order gamma .376

First-order partial .336

Note: Data were incomplete on 7 cases.

TABLE 24. Belief by Parental Attachment by Ethnicity

Belief	WHITES High	WHITES Low	WHITES Total	NONWHITES High	NONWHITES Low	NONWHITES Total
Self-defense only	94.4 (832)	87.1 (364)	92.1 (1196)	88.8 (237)	83.0 (127)	86.7 (364)
Other	5.6 (49)	12.9 (54)	7.9 (103)	11.2 (30)	17.0 (26)	13.3 (56)
Total	67.8 (881)	32.2 (418)	(1299)	63.6 (267)	36.4 (153)	(420)
Gamma	.432			.236		

Zero-order gamma .376

First-order partial .405

Note: Data were incomplete on 7 cases.

who would also like to complete college decreases with a decrease in class, from 83.8 percent in Classes I and II to 52.6 percent in Class V. These data are not shown in tabular form.

School Attachment. The attachment to school item--"Do you feel that any of your teachers think you are headed for trouble with the law?"--is an indirect measure of attachment. Whether the student likes school or not would seem to be a more direct approach to the measurement of this dimension; however, it was not a significant item in the factor analysis. Instead, the cluster covers areas of perceptions and behavior in the school milieu that would contribute to and indicate one's level of attachment. The single item is a representation of this cluster and, of course, closely parallels a similar pattern from the parental attachment items.

School attachment is moderately related to delinquent behavior, and this relationship is specified by a control on sex (Table 25). It is apparent that the perception of teacher attitudes has more influence on boys than on girls: 55 percent of the boys and only 24 percent of the girls who perceive negative teacher attitudes subsequently become involved in serious delinquent activities.

School attachment is not even moderately related to commitment. However, when sex is introduced as a control, a relationship of moderate strength between school aspiration and school attachment emerges for boys (Table 26).

TABLE 25. Delinquency Status by School Attachment by Sex

Delinquency Status	MALES High	MALES Low	MALES Total	FEMALES High	FEMALES Low	FEMALES Total
Serious Delinquent	33.6 (155)	55.1 (136)	41.1 (291)	18.3 (119)	23.9 (59)	19.8 (178)
Nonserious Delinquent	52.3 (241)	40.5 (100)	48.2 (341)	61.1 (398)	62.8 (155)	61.6 (553)
Nondelinquent	14.1 (65)	4.5 (11)	10.7 (76)	20.6 (134)	13.4 (33)	18.6 (167)
Total	65.1 (461)	34.9 (247)	(708)	72.5 (651)	27.5 (247)	(898)
Gamma	-.416			-.190		
Zero-order gamma	-.321					
First-order partial	-.288					

Note: In this and subsequent tables, School Attachment is indicated by the item "Do any of your teachers think you're headed for trouble with the law?" A response of "no" indicates high attachment; low attachment is indicated by a response of "maybe" or "yes."

No information on the independent variable was available for one case.

More than 76 percent of the boys and 58 percent of the girls who perceive no negative teacher opinions hope to finish college. When class is controlled the cell sizes are generally too small to allow clear inferences to be drawn. However, in the lowest class, where the smallest proportion of students plans to graduate from college, the percentage difference is greatest between those who perceive no negative teacher opinions (54 percent) and those who do (38 percent). While Hirschi's theory predicts no class differentials, this result would tend to suggest that, although the perception of teachers' opinions does not differ by class, lower class students will have higher aspirations if they perceive that their teachers have positive attitudes toward them.

TABLE. 26. Educational Aspiration by School Attachment by Sex

Educational Aspiration	MALES High	MALES Low	MALES Total	FEMALES High	FEMALES Low	FEMALES Total
College Graduate	76.6 (380)	60.0 (162)	70.8 (542)	57.9 (392)	51.5 (137)	56.1 (529)
Some College	14.5 (72)	25.2 (68)	18.3 (140)	29.0 (196)	33.1 (88)	30.1 (284)
High School only	8.9 (44)	14.8 (40)	11.0 (84)	13.1 (89)	15.4 (41)	13.8 (130)
Total	64.8 (496)	35.2 (270)	(766)	71.8 (677)	28.2 (266)	(943)
Gamma	.337			.111		
Zero-order gamma			.185			
First-order partial			.198			

Note: Data were incomplete on 17 cases.

As expected, parent and school attachment are strongly related; this is not changed by any controls on background variables.

The relationship between school attachment and beliefs held is moderate and is specified by ethnicity (Table 27). Whites who perceive no negative teacher attitudes are more likely than nonwhites to believe that fighting is appropriate only in situations of self-defense. Nonwhites in either school attachment category are more likely to view fighting as all right in a wider variety of situations than are whites. The relationship between school attachment and belief is also specified by sex; three times as many males as females perceive negative teacher attitudes who also believe that fighting, other than for self-defense, is appropriate (Table 28). Girls tend to view self-defense as the only reason for fighting; this is true regardless of their perception of teacher attitudes.

Belief. Of all the variables in Hirschi's model, belief is the most strongly related to subsequent delinquent behavior. Twenty-seven percent of the students with conventional beliefs became serious delinquents in comparison with 47 percent of those with unconventional beliefs. The strength of this association is attenuated by a control on sex (Table 29). More of the variance in delinquent behavior is explained by sex than by the belief held by the student. When ethnicity is controlled, the relationship is specified; those with unconventional beliefs are more likely to become

TABLE 27. Belief by School Attachment by Ethnicity

	WHITES			NONWHITES		
Belief	High	Low	Total	High	Low	Total
Self-defense only	94.5 (826)	87.1 (370)	92.1 (1196)	88.3 (271)	82.3 (93)	86.7 (364)
Other	5.5 (48)	12.9 (55)	7.9 (103)	11.7 (36)	17.7 (20)	13.3 (56)
Total	67.3 (874)	32.7 (425)	(1299)	73.1 (307)	26.9 (113)	(420)
Gamma	.438			.236		
Zero-order gamma	.358					
First-order partial	.413					

Note: Data were incomplete on 7 cases.

TABLE 28. Belief by School Attachment by Sex

	MALES			FEMALES		
Belief	High	Low	Total	High	Low	Total
Self-defense only	89.2 (444)	78.6 (209)	85.5 (653)	95.6 (653)	93.4 (204)	95.0 (907)
Other	10.8 (54)	21.4 (57)	14.5 (111)	4.4 (30)	6.6 (18)	5.0 (48)
Total	65.2 (498)	34.8 (266)	(764)	71.5 (683)	28.5 (272)	(955)
Gamma	.383			.213		
Zero-order gamma	.358					
First-order partial	.324					

Note: Data were incomplete on 7 cases.

serious delinquents if they are white than if they are of another ethnic group (Table 30). However, it should also be noted that of those students with conventional beliefs, nonwhites are more likely to become serious delinquents. With a control on class, the associations vary, due primarily to cell size, but in all classes, belief is moderately related to delinquent behavior.

TABLE 29. Delinquency Status by Belief by Sex

Delinquency Status	MALES Self-Defense	MALES Other	MALES Total	FEMALES Self-Defense	FEMALES Other	FEMALES Total
Serious Delinquent	38.9 (233)	53.8 (56)	41.1 (289)	19.3 (166)	28.2 (11)	19.7 (177)
Nonserious Delinquent	49.1 (294)	42.3 (44)	48.1 (338)	61.5 (528)	64.1 (25)	61.6 (553)
Nondelinquent	12.0 (72)	3.8 (4)	10.8 (76)	19.1 (164)	7.7 (3)	18.6 (167)
Total	85.2 (599)	14.8 (104)	(703)	95.7 (858)	4.3 (39)	(897)
Gamma	-.314			-.305		
Zero-order gamma			-.414			
First-order partial			-.311			

Note: Data were incomplete on 7 cases.

TABLE 30. Delinquency Status by Belief by Ethnicity

Delinquency Status	WHITES Self-Defense	WHITES Other	WHITES Total	NONWHITES Self-Defense	NONWHITES Other	NONWHITES Total
Serious Delinquent	26.3 (294)	49.5 (47)	28.2 (341)	30.8 (105)	41.7 (20)	32.1 (125)
Nonserious Delinquent	58.4 (652)	45.3 (43)	57.4 (695)	49.9 (170)	54.2 (26)	50.4 (196)
Nondelinquent	15.2 (170)	5.3 (5)	14.5 (175)	19.4 (66)	4.2 (2)	17.5 (68)
Total	92.2 (1116)	7.8 (95)	(1211)	87.7 (341)	12.3 (48)	(389)
Gamma	-.451			-.325		
Zero-order gamma	-.414					
First-order partial	-.434					

Note: Data were incomplete on 7 cases.

Delinquent Peers. The relationship between the delinquency of friends and a student's subsequent behavior is moderate and is changed very little by controls on background variables. For example, nonwhites are slightly more likely than whites to become serious delinquents regardless of the delinquency of their friends, but nonwhites are also more likely to be nondelinquents than their white counterparts. It is interesting to note that when sex is controlled, the effect of delinquent peers is greater for females (Table 31). Actually, the absence of delinquent friends is twice as likely to result in nondelinquent behavior for females than for males. With class controlled, the relationship between delinquent peers and behavior

disappears in Class V; delinquent friends have only a slight tendency either to prevent or contribute to delinquent behavior (Table 32).

TABLE 31. Delinquency Status by Delinquent Peers by Sex

Delinquency Status	MALES Any	None	Total	FEMALES Any	None	Total
Serious Delinquent	47.8 (131)	36.9 (160)	41.1 (291)	24.3 (49)	18.5 (129)	19.8 (178)
Nonserious Delinquent	43.1 (118)	51.4 (223)	48.2 (341)	67.3 (136)	59.9 (417)	61.6 (553)
Nondelinquent	9.1 (25)	11.8 (51)	10.7 (76)	8.4 (17)	21.6 (150)	18.6 (167)
Total	38.7 (274)	61.3 (434)	(708)	22.5 (202)	77.5 (696)	(898)
Gamma	.191			.285		
Zero-order gamma			.285			
First-order partial			.239			

Note: Information on the independent variable was unavailable for one student.

TABLE 32. Delinquency Status by Delinquent Peers in the Lower Class

Delinquency Status	Any	None	Total
Serious Delinquent	31.3 (25)	28.4 (50)	29.3 (75)
Nonserious Delinquent	55.0 (44)	54.0 (95)	54.3 (139)
Nondelinquent	13.8 (11)	17.6 (31)	16.4 (42)
Total	31.3 (80)	68.8 (176)	(256)
Gamma	.086		
Zero-order gamma			.285
First-order partial			.289

Note: The delinquency status of 36 students was not known.

The measure of parental attachment most highly associated with the indicator of delinquent friends is the same item--"does your father think you are headed for trouble with the law?" This relationship is also specified by sex, and it is stronger among males (Table 33). For boys who perceive that their fathers think they are headed for trouble, 52 percent have delinquent friends; this is a difference of 20 percentage points over boys who do not perceive their fathers as holding such a view. The comparable difference for females is only 12 percent. When class is controlled, the relationship is strengthened within every class, except the lower-middle class (Table 34). In this class paternal attitudes have the least impact on selection of friends (assuming Hirschi's proposed causal sequence is correct). However, the relationship is still moderately strong.

TABLE 33. Delinquent Peers by Parental Attachment by Sex

	MALES			FEMALES		
Peers	High	Low	Total	High	Low	Total
Any	30.7 (145)	51.7 (154)	38.8 (299)	19.7 (134)	31.8 (88)	23.2 (222)
None	69.3 (327)	48.3 (144)	61.2 (471)	80.3 (545)	68.2 (189)	76.8 (734)
Total	61.3 (472)	38.7 (298)	(770)	71.0 (679)	29.0 (277)	(956)
Gamma	-.414			-.309		
Zero-order gamma	-.389					
First-order partial	-.360					

TABLE 34. Delinquent Peers by Parental Attachment by Class

Peers	CLASSES I & II High	Low	Total	CLASS III High	Low	Total
Any	17.6 (24)	37.9 (22)	29.9 (58)	25.8 (94)	46.0 (80)	32.3 (174)
None	82.4 (112)	62.1 (36)	76.3 (148)	74.2 (270)	54.0 (94)	67.7 (364)
Total	70.1 (136)	29.9 (58)	(194)	67.7 (364)	32.3 (174)	(538)
Gamma	-.481			-.419		

	CLASS IV High	Low	Total	CLASS V High	Low	Total
Any	24.9 (120)	38.2 (84)	29.1 (204)	24.3 (41)	45.5 (56)	33.2 (97)
None	75.1 (362)	61.8 (136)	70.9 (498)	75.7 (128)	54.5 (67)	66.8 (195)
Total	68.7 (482)	31.3 (220)	(702)	57.9 (169)	42.1 (123)	(292)
Gamma	-.301			-.446		
Zero-order gamma			-.389			
First-order partial			-.364			

The only effect on the relationship between school attachment and delinquent peers is specification by ethnicity (Table 35). Whites are more likely than nonwhites to have delinquent friends if they perceive negative teacher attitudes than if they do not.

Educational aspirations and delinquent friends are not related. Nor is this relationship affected by controls on background variables.

TABLE 35: Delinquent Peers by School Attachment by Ethnicity

Peers	WHITES High	WHITES Low	WHITES Total	NONWHITES High	NONWHITES Low	NONWHITES Total
Any	22.4 (196)	44.1 (189)	29.5 (385)	29.0 (89)	40.9 (47)	32.2 (136)
None	77.6 (679)	55.9 (240)	70.5 (919)	71.0 (218)	59.1 (68)	67.8 (286)
Total	67.1 (875)	32.9 (429)	(1304)	72.7 (307)	27.3 (115)	(422)
Gamma	-.464			-.257		
Zero-order gamma			-.414			
First-order partial			-.446			

Although Hirschi does not explicitly predict the relationship between delinquent friends and conventionality of beliefs, it seems likely that as the number of delinquent friends increased, a student would express more unconventional beliefs to coincide with those of his friends. This, of course, reflects an assumption of much of control theory that conventional people have conventional beliefs and convey them to others. Likewise, the influence of unconventional peers would result in less conventional attitudes. But it is also possible that the student whose beliefs are in conflict with those of his parents may seek out friends with similar beliefs. Thus, friendship selection could reflect decreased attachment to parents as conflict increased regarding attitudes and opinions. In any case, the relationship between these two concepts is very strong and remains so regardless of the sex or ethnicity of the student.

With class controlled, the relationship in Classes I and II is quite strong, but is probably the result of small cell size (Table 36). In the middle class those who believe that fighting is appropriate only for self-defense are more likely to have delinquent friends than similar students in the other classes, while their unconventional counterparts are least likely to have delinquent friends. Nevertheless, the relationship is of moderate strength.

TABLE 36. Delinquent Peers by Belief by Class

	CLASSES I & II			CLASS III		
Peers	Self-Defense	Other	Total	Self-Defense	Other	Total
Any	19.2 (34)	70.6 (12)	23.7 (46)	30.0 (145)	50.0 (26)	32.0 (171)
None	80.8 (143)	29.4 (5)	76.3 (148)	70.0 (338)	50.0 (26)	68.0 (364)
Total	91.2 (177)	8.8 (17)	(194)	90.3 (483)	9.7 (52)	(535)
Gamma	-.820			-.400		

	CLASS IV			CLASS V		
	Self-Defense	Other	Total	Self-Defense	Other	Total
Any	26.1 (168)	62.5 (35)	29.0 (203)	29.2 (75)	61.8 (21)	33.0 (96)
None	73.9 (475)	37.5 (21)	71.0 (496)	70.8 (182)	38.2 (13)	67.0 (195)
Total	92.0 (643)	8.0 (56)	(699)	88.3 (257)	11.7 (34)	(291)
Gamma	-.650			-.594		

Zero-order gamma -.592

First-order partial -.571

Note: Data were incomplete on 7 cases.

Implications of the Model. Thus far, the examination of the linkages between the independent variables have yielded moderate support for the various components of control theory with one glaring exception: commitment to conventional lines of action as measured by educational aspirations was correlated only weakly, if at all, with the other variables. The more crucial test, though, is to examine how adequate these linkages are in predicting delinquent behavior. It should be kept in mind that, as seen in several cases of first-order partials, most second-order partials result in drastically reduced cell sizes. Thus, the more inclusive the test of the model, the less precise are the inferences that can be drawn.[6]

Hirschi suggests that when a child is attached to his parents he or she will take on their conventional beliefs, and thus, will not become involved in delinquent activities. It appears that parental attachment is only mildly effective in preventing delinquent behavior among those students who believe that fighting is appropriate only for self-defense, but has no effect on students who believe that fighting is appropriate in many instances (Table 37). When sex of the students is also controlled, the same relationship exists among males. For females who believe in fighting for reasons other than self-defense, the relation-

[6]Tables of second-order partials are not presented for this reason, but trends will be noted in the text.

ship reverses: in this case, females are twice as likely to become serious delinquents if they are attached to their parents. However, the number of serious female delinquents in this partial case is only 11, and is not conclusive evidence for differential effects of attachment on males and females. The relationship, as it appears in Table 37, for those with conventional beliefs also holds for whites and nonwhites. For whites with unconventional attitudes, a higher proportion of those attached to their parents become serious delinquents than do those who are not attached, while for nonwhites, the reverse is true. For nonwhites, regardless of the belief held, parental attachment decreases the likelihood of delinquent behavior.

TABLE 37. Delinquency Status by Parental Attachment by Belief

Delinquency Status	SELF-DEFENSE High	Low	Total	OTHER High	Low	Total
Serious Delinquent	24.7 (251)	33.6 (148)	27.4 (399)	47.2 (34)	46.5 (33)	46.9 (67)
Nonserious Delinquent	56.0 (569)	57.4 (253)	56.4 (822)	45.8 (33)	50.7 (36)	48.3 (69)
Nondelinquent	19.3 (196)	9.1 (40)	16.2 (236)	6.9 (5)	2.8 (2)	4.9 (7)
Total	69.7 (1016)	30.3 (441)	(1457)	50.3 (72)	49.7 (71)	(143)
Gamma	-.257			-.027		
Zero-order gamma	-.259					
First-order partial	-.254					

Note: Data were incomplete on 7 cases.

With class of the students held constant, the original relationship is retained for those who believe in fighting only for reasons of self defense in all but the lowest class. In that class parental attachment has no effect on preventing delinquent behavior. For those who believe fighting is appropriate in other circumstances the cell sizes are quite small, but an interesting pattern emerges. Students in the upper and middle classes are more likely to become involved in serious delinquent acts if they <u>are</u> attached to their parents, while students in the lower two classes who express attachment to parents are least likely to become serious delinquents.

In his theoretical revisions, Hirschi hypothesizes that a decrease in attachment to parents could result in an increase in affiliations with delinquent peers, that is, with peers who are unconventional when compared to generally conventional parents. In this way he claimed that Sutherland's differential association theory would complement his own theory. Specifically, the student freed of the parental bond may become more receptive to peers who could encourage involvement in delinquent behavior. In Table 38, this does appear to be the case. Parental attachment has an independent effect and does prevent involvement in serious delinquent activity. However, the presence of delinquent friends increases the chance of a student's becoming a serious delinquent. This relationship is stronger among males than females. The direction of the relation

is unchanged, but parental attachment and delinquent peers are simply not as influential as causes of female delinquency. Approximately 53 percent of the unattached boys with delinquent friends become serious delinquents as compared to 25 percent for girls.

TABLE 38. Delinquency Status by Parental Attachment by Delinquent Peers

Delinquency Status	NONE			ANY		
	High	Low	Total	High	Low	Total
Serious Delinquent	23.7 (197)	30.7 (92)	25.6 (289)	34.1 (89)	42.3 (91)	37.8 (180)
Nonserious Delinquent	56.1 (466)	58.0 (174)	56.6 (640)	52.9 (138)	54.0 (116)	53.4 (254)
Nondelinquent	20.1 (167)	11.3 (34)	17.8 (201)	13.0 (34)	3.7 (8)	8.8 (42)
Total	73.5 (830)	26.5 (300)	(1130)	54.8 (261)	45.2 (215)	(476)
Gamma	-.211			-.235		
Zero-order gamma			-.262			
First-order partial			-.216			

Note: Information on Parental Attachment was unavailable for one case.

The relationship between parental attachment and delinquency status with the effects of delinquent peers held constant is unchanged by the ethnicity of the students, although it is slightly stronger for nonwhites. With one exception the relationship is also unchanged by a consideration of the socio-economic status of the students; students in the lowest class with no delinquent friends are equally

likely to become serious delinquents, regardless of parental attachment. Although the cell sizes are not particularly small in this partial table, the overall consistency of the relationship would suggest a statistical rather than theoretical explanation for this discrepancy.

The same theoretical arguments can be made for school attachment as for parental attachment in regard to its relationship with delinquent friends and beliefs and their contributions to subsequent delinquency. Not only does attachment to the school decrease the probability of delinquent behavior in both cases, but as Hirschi predicts, delinquent peers and unconventional attitudes both increase the likelihood of serious involvement in delinquency.

When the effects of delinquent peers are held constant, the relationship is consistent among males and females, but stronger among males (Table 39). The proportion of males who perceive negative teacher attitudes and who become serious delinquents is 51 percent for those without delinquent friends, and 58 percent for those with friends who have been in trouble. The corresponding percentages for females are 21 and 29 percent.

Ethnicity of the students does not change this relationship but, again, the strength of the relationship is greater for nonwhites. In fact, for nonwhites with delinquent friends, the proportion attached to the school who become serious delinquents is 28 percent, while among those not expressing attachment to the school, 62 percent become

serious delinquents. The conditional gamma is .56; in comparison, the second-order partial gamma is .28.

TABLE 39. Delinquency Status by School Attachment by Delinquent Peers

Delinquency Status	NONE High	NONE Low	NONE Total	ANY High	ANY Low	ANY Total
Serious Delinquent	22.9 (195)	33.6 (94)	25.6 (289)	30.2 (79)	47.2 (101)	37.8 (180)
Nonserious Delinquent	57.3 (487)	54.6 (153)	56.6 (640)	58.0 (152)	47.7 (102)	53.4 (254)
Nondelinquent	19.8 (168)	11.8 (33)	17.8 (201)	11.8 (31)	5.1 (11)	8.8 (42)
Total	75.2 (850)	24.8 (280)	(1130)	55.0 (262)	45.0 (214)	(476)
Gamma	-.250			-.342		
Zero-order gamma			-.321			
First-order partial			-.268			

Note: Information on School Attachment was unavailable for one case.

The independent effect of school attachment and delinquent friends is retained in all but the lowest socioeconomic class. Here school attachment still provides some preventive influence, but there is no difference between students with and without delinquent friends who themselves become delinquent.

Unconventional beliefs combine with the influence of negative teacher attitudes to produce delinquent behavior (Table 40). This is particularly true of males; the proportion of males who are not attached to the school who become

serious delinquents is 51 percent for those with conventional beliefs and 70 percent for those with unconventional beliefs. For girls 24 and 29 percent, respectively, become serious delinquents.

TABLE 40. Delinquency Status by School Attachment by Belief

Delinquency Status	SELF-DEFENSE High	Low	Total	OTHER High	Low	Total
Serious Delinquent	23.9 (248)	35.9 (151)	27.4 (399)	33.3 (25)	61.8 (42)	46.9 (67)
Nonserious Delinquent	57.2 (593)	54.4 (229)	56.4 (822)	61.3 (46)	33.8 (23)	48.3 (69)
Nondelinquent	18.8 (195)	9.7 (41)	16.2 (236)	5.3 (4)	4.4 (3)	4.9 (7)
Total	71.1 (1036)	28.9 (421)	(1457)	52.4 (75)	47.6 (68)	(143)
Gamma	-.284			-.471		
Zero-order gamma	-.321					
First-order partial	-.286					

Note: Data were incomplete on 7 cases.

Because the majority of students expressed conventional beliefs, second-order partialing, with the effects of both belief and ethnicity or socio-economic class held constant, results in unstable statistics. However it would appear that neither ethnicity nor class further explains the original relationship.

There is still no relationship between delinquency status and school aspirations when the effects of beliefs or delinquent friends are held constant (Tables 41 and 42).

On the basis of social control theory, it is predicted that those students with the highest aspirations would be least likely to be delinquent. However, as noted earlier, Quicker (1974) found that short-term rather than long-range goals are more relevant to delinquent behavior. Thus, the student who plans to quit after finishing high school probably is planning to enter the work market and may have a more "relevant" goal than the college oriented student. The problem in the present analysis is again one of small cell size. The three categories of educational aspirations would permit an examination of short- versus long-term goals, or more accurately, occupational versus educational goals, if there was a relationship with delinquent behavior. While the relationship between aspirations and delinquency is consistently near zero, regardless of the controls, the trends implied by the percentages are also unreliable due to unstable statistics. In some instances the first two categories were combined in second-order partials to obtain some indication of even the slightest preventive influence of commitment to conformity, although this did mean a loss of some information.

The sex of the student who holds unconventional beliefs helps to explain the relationship between aspirations and delinquency. Boys who do not plan to graduate from college are more likely to become delinquent, while girls who do plan to graduate are more often serious delinquents. There is also a slight difference between ethnic groups when

TABLE 41. Delinquency Status by Educational Aspirations by Belief

Delinquency Status	College Graduate	Some College	High School	Total
	SELF-DEFENSE ONLY			
Serious Delinquent	27.6 (256)	27.4 (99)	26.1 (40)	27.4 (395)
Nonserious Delinquent	56.3 (523)	57.9 (209)	52.9 (81)	56.3 (813)
Nondelinquent	16.1 (150)	14.7 (53)	20.9 (32)	16.3 (235)
Total	64.4 (929)	25.0 (361)	10.6 (153)	(1443)
Gamma	.021			
	OTHER			
	College Graduate	Some College	High School	Total
Serious Delinquent	47.5 (38)	45.5 (15)	46.4 (13)	46.8 (66)
Nonserious Delinquent	45.0 (36)	54.5 (18)	50.0 (14)	48.2 (68)
Nondelinquent	7.5 (6)	0.0 (0)	3.6 (1)	5.0 (7)
Total	56.7 (80)	23.4 (33)	19.9 (28)	(141)
Gamma	-.022			
Zero-order gamma	.022			
First-order partial	.020			

Note: Data were incomplete on 24 cases. In this table the delinquency status of 118 students was unknown.

TABLE 42. Delinquency Status by Educational Aspirations by Delinquent Peers

Delinquency Status	College Graduate	Some College	High School	Total
NONE				
Serious Delinquent	26.2 (192)	24.5 (68)	24.3 (28)	25.6 (288)
Nonserious Delinquent	56.4 (413)	59.6 (165)	50.4 (58)	56.6 (636)
Nondelinquent	17.3 (127)	15.9 (44)	25.2 (29)	17.8 (200)
Total	65.1 (732)	24.6 (277)	10.2 (115)	(1124)
Gamma	.049			
OTHER				
	College Graduate	Some College	High School	Total
Serious Delinquent	37.0 (104)	39.3 (46)	38.2 (26)	37.8 (176)
Nonserious Delinquent	52.7 (148)	53.0 (62)	55.9 (38)	53.2 (248)
Nondelinquent	10.3 (29)	7.7 (9)	5.9 (4)	9.0 (42)
Total	60.3 (281)	25.1 (117)	14.6 (68)	(466)
Gamma	-.059			
Zero-order gamma	.001			
First-order partial	.032			

Note: Data were incomplete on 17 cases.

the students have unconventional values; nonwhites tend to become serious delinquents if they do not plan to graduate from college. With class controlled, there is also a tendency for more students with limited educational goals to become serious delinquents than is true of those who plan to graduate from college. In any case, conventionality of beliefs still differentiates: a greater proportion of the students with unconventional beliefs become delinquent than do those who say that fighting is appropriate only for self-defense.

There is a similar outcome for delinquent friends; the presence of delinquent friends always increases the proportion of delinquents. But only for males do college plans have an effect and, again, those boys who do not plan to continue their schooling are more likely to become delinquent, if they have delinquent friends. A weak relationship between aspirations and delinquency emerges among nonwhites, but the associations are in opposite directions depending on the presence of delinquent friends. Nonwhites with no delinquent friends tend to become serious delinquents if they plan to graduate from college, but if they have any delinquent friends it is the students with short-range goals who are more likely to be in the ranks of the serious delinquents. The same reversal of direction in the relationship is noted in the lowest class; no delinquent friends and high aspirations result in a greater proportion of delinquents, but delinquent friends and short-range plans

also result in more delinquents.

One further test was made to try to clarify these reversals, since they were the only partials that suggested even a weak relationship between aspirations and subsequent delinquency. Two of the background variables were used simultaneously as test factors. It became obvious that sex was not the crucial factor; whether paired with class or ethnicity any relationships which emerged occurred when short-range goals lead to delinquency. But when class and ethnicity were simultaneously controlled, the reversal appeared for two different classes (Table 43). It is not a surprise that in the lowest class it is the nonwhites who want to graduate from college who are more likely to become serious delinquents. This result suggests an explanation based on opportunity theory, such as Cloward and Ohlin's (1960) and Cohen's (1955), rather than control theory. This is substantiated by the fact that for nonwhites, perceived negative teacher attitudes increase the chance of delinquency involvement when college graduation is the desired goal (gamma = .19).

What was surprising was that whites in the middle class are also more likely to become involved in serious delinquency if they have long-range plans. In this instance the explanation seems to lie in their socio-economic status rather than ethnicity. Goal frustration may also be applicable here, for it is among middle-class students who want to graduate from college that relationships emerge when

TABLE 43. Delinquency Status by Educational Aspirations by Ethnicity in the Middle and Lower Classes

	MIDDLE CLASS					
	WHITES			NONWHITES		
Delinquency Status	College Grad.	Non-College Grad.	Total	College Grad.	Non-College Grad.	Total
Serious Delinquent	33.2 (100)	25.0 (32)	30.8 (132)	23.1 (12)	44.0 (11)	29.9 (23)
Nonserious Delinquent	51.8 (156)	61.7 (79)	54.8 (235)	61.5 (32)	44.0 (11)	55.8 (43)
Non-delinquent	15.0 (45)	13.3 (17)	14.5 (62)	15.4 (8)	12.0 (3)	14.3 (11)
Total	70.2 (301)	29.8 (128)	(429)	67.5 (52)	32.5 (25)	(77)
Gamma	.102			-.333		

	LOWER CLASS					
	WHITES			NONWHITES		
	College Grad.	Non-College Grad.	Total	College Grad.	Non-College Grad.	Total
Serious Delinquent	25.7 (18)	34.0 (18)	29.3 (36)	32.8 (19)	27.4 (20)	29.8 (39)
Nonserious Delinquent	57.1 (40)	58.5 (31)	57.7 (71)	51.7 (30)	49.3 (36)	50.4 (66)
Non-delinquent	17.1 (12)	7.5 (4)	13.0 (16)	15.5 (9)	23.3 (17)	19.8 (26)
Total	56.9 (70)	43.1 (53)	(123)	44.3 (58)	55.7 (73)	(131)
Gamma	-.247			.158		

Zero-order gamma -.004

First-order partial .011

Note: The delinquency status of 60 students was not known, 25 from the middle class and 35 from the lower class.

either teacher or parental attachment is controlled. When the perception is that teachers think the student in this high aspiration group is headed for trouble, the relationship is moderate (gamma = .25). However, the relationship between aspirations and delinquency is stronger for parental attachment (gamma = .42). While the goal-frustration explanation seems plausible, both in the lowest and middle classes, it is possible that self-image is the critical variable. A perception that others expect one to become involved with the law may be a more direct link to delinquency involvement than an explanation that implies that the same perception indicates to someone that he is a failure and cannot achieve his desired goals.

Although Hirschi is vague about the causal connection between delinquent peers and beliefs, it is apparent that both have independent effects on subsequent delinquent behavior (Table 44). Students who express the belief that fighting is appropriate in many circumstances are more likely to become serious delinquents if they also have delinquent friends. This is truer of boys than girls; 57 percent of the boys with unconventional beliefs and delinquent friends became delinquent while this was the case for only 32 percent of the girls. The effects of both variables are stronger for whites than for nonwhites; all of the percentage differences are greater for whites with the result that 56 percent of the whites with unconventional beliefs and delinquent friends, compared to 43 percent for nonwhites

in the same category, subsequently become serious delinquents.

TABLE 44. Delinquency Status by Belief by Delinquent Peers

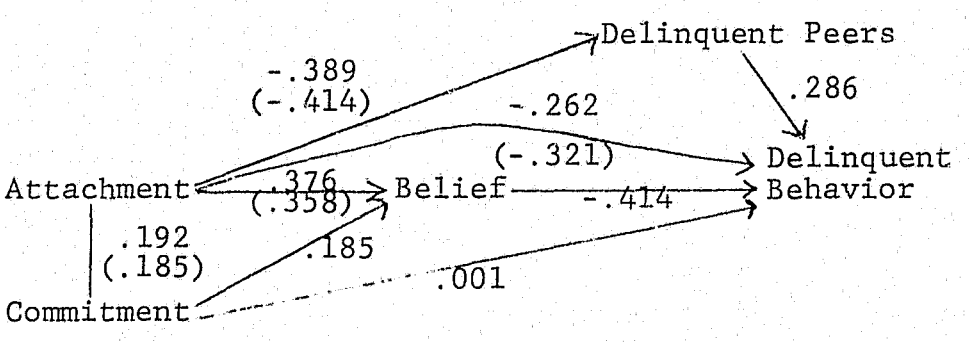
Delinquency Status	NONE Self-Defense	NONE Other	NONE Total	ANY Self-Defense	ANY Other	ANY Total
Serious Delinquent	24.8 (266)	39.3 (22)	25.5 (288)	34.6 (133)	51.7 (45)	37.8 (178)
Nonserious Delinquent	56.9 (611)	51.8 (29)	56.7 (640)	54.9 (211)	46.0 (40)	53.3 (251)
Nondelinquent	18.3 (196)	8.9 (5)	17.8 (201)	10.4 (40)	2.3 (2)	8.9 (42)
Total	95.0 (1073)	5.0 (56)	(1129)	81.5 (384)	18.5 (87)	(471)
Gamma	-.319			-.364		
Zero-order gamma	-.414					
First-order partial	-.335					

Note: Data were incomplete on 7 cases.

With the effects of class held constant, some inconsistencies are noted. Middle-class students with unconventional beliefs are equally likely to become serious delinquents, regardless of whether or not they have delinquent friends. In the lowest class only the beliefs held by the students aids in the prediction of who will become a serious delinquent; delinquent friends have no effect in the lowest class.

Summary

There is general support for the model presented earlier.



The figures in the model do not represent path coefficients. They are zero-order gammas, and are presented in the model only to depict the general results of the tabular analysis. The gammas displayed for Attachment indicate associations between parental attachment and the other variables; similar associations for school attachment are in parentheses.

With one exception, support was found for the hypothesized relationships between the variables in the model insofar as the direction of the associations was concerned. The associations, were, however, weak to moderate in strength, and on this basis they failed to provide strong evidence for all elements of control theory.

The consistently high proportion of students who admit nonserious delinquent acts indicates that involvement in this type of behavior is more common among adolescents than is noninvolvement. Little differentiation on the independent variables is evident for students who admit only nonserious offenses. In general, parental and school attachments are effective in preventing serious delinquent

behavior. The additional influence of delinquent peers or unconventional beliefs increases the likelihood of involvement in serious delinquency when parental or school attachments are low.

With few exceptions the model is about as successful in predicting delinquency for whites as it is for nonwhites, and for members of the various classes. The model is not as effective in predicting female delinquency as male delinquency. Females are more likely than males to be charged with sex offenses and status offenses such as running away from home (Elliott and Voss, 1974:106). The omission of these acts from the delinquency checklist of self-reported offenses may have greatly reduced the area of the theory's applicability to females. Certainly high parental attachment could be hypothesized as preventing a girl from running away from home. However, the more serious offenses included in the checklist were committed by many females in the sample; this finding is consistent with Hindelang's (1971) analysis of the versatility of delinquency of males and females. Yet, the theory's predictive power was not as great for the females as it was for the males.

Some other minor exceptions to the general model occur with the influences of delinquent peers and unconventional beliefs. For students in the lower class, the presence or absence of delinquent peers has little effect on the delinquency outcome. Peers are most influential on males and on nonwhites. Beliefs that the students hold are associated

with subsequent delinquency in the expected directions. The effects of unconventional beliefs are sufficient for whites and members of the upper and middle classes to override the generally preventive impact of high parental attachment.

Only for one component of Hirschi's control theory model is there no support--commitment to conventional lines of action. Aspirational levels of ninth graders are usually high, and probably reflect idealistic dreams that have not yet been tempered by reality. These long-range goals are too far removed from everyday choices to serve as deterrents from delinquent behavior. Indeed, Quicker's (1974) research suggests that the causal sequence actually is reversed in this instance. Delinquency involvement forces the adolescent to reexamine and adjust his goals along more realistic lines, and may result in a lowering of educational aspirations.

As far as Hirschi's model is concerned, stakes in conformity may still be relevant preventive influences, but on a more short-range basis. It is also possible that it is the risk of losing parental goodwill that is the major preventive force; without parental support most short-term goals of the typical ninth-grader could not be realized.

Failure to find support for the rational component of the model suggests an explanation for the weak to moderate correlations found for the other variables--the maturity of the sample at Time I. In the final phase of the extensive

replication the students who admitted serious delinquent acts were eliminated; 34 percent of the total sample already had committed such acts before entering the ninth grade. If the data had been gathered on a younger sample, for example, on seventh graders, the correlations might have been higher. In other words, support for the model may have been greater if the measures had been made on a sample of students still highly dependent on adults for support and guidance.

6

SUMMARY AND COMMENTS

Social control theory, as formulated by Hirschi (1972), assumes that man is essentially amoral and must not only be taught what is expected of him, but must also desire to fulfill the expectations of others. Deviance is not, then, the crucial issue; it is conformity that must be explained.

To some extent previous theorists had suggested important elements of a person's bond to society. The existence of this bond was viewed as preventing deviant behavior. If this bond was broken or weakened, the individual was free to deviate. Relevant areas of the bond derived from formal as well as informal agents of social control. As the control theory tradition evolved, primary emphasis was placed on informal areas of control. Indeed, Nye's (1958) work stressed the importance of a person's ties to his family as the crucial influence in preventing deviance.

Hirschi (1972) describes four elements of the social bond--attachment, commitment, involvement and belief. Attachment refers to the emotional ties of a child to parents, peers and to school. The rational element of the bond, commitment, involves the evaluation of risks as they apply to possible gains and losses of desired goals. These goals are in the areas of educational, occupational and

adult status lines of action. Involvement in conventional activities prevents delinquency simply by occupying the child's time in nondelinquent pursuits. Belief in the existing system of values varies by the individual's commitments and affectional ties. The stronger these ties, the more likely is the individual to assume the conventional values of significant others.

Unfortunately, Hirschi's analysis did not support all of the components of his theory. Hirschi underestimated the influence of delinquent friends; he found that attachment to these peers does not elicit conventional behavior as he had predicted. He also had overestimated the importance of involvement in conventional activities. There always seems to be time for delinquent acts, regardless of how busy one is with conventional activities. Involvement in conventional activities may be time-consuming but it is not all encompassing. Further, Hirschi found that commitment to adult activities may not prevent delinquency, but encourage it by introducing an adolescent to behavior which is not considered appropriate for a person of that age. The weakness of his social control theory, Hirschi concludes, derives from his failure to include the rewards of delinquency for the adolescent, whether they be in self-concept, in improved status among his peers, or in material rewards.

In addition to certain omissions in Hirschi's theory of social control, there were methodological problems in Hirschi's analysis. After an extensive discussion of his

sampling procedure, he limited his analysis to white males. There were also a few measurement problems, such as the use of measures of involvement which doubled as indicators of commitment. The most serious limitation of his analysis, however, was the use of a cross-sectional design to test a theory pertaining to the causes of delinquency. At best he may have only delineated correlates of delinquent behavior, and not their causes. Without knowledge of the temporal sequence of the variables, the causal relationships can only be assumed.

Generally, other studies had found support for various elements of control theory. Few of these other researchers had utilized a longitudinal research design. And fewer still acknowledged that, theoretically, the possibility exists that involvement in delinquent behavior could adversely affect parental and school attachment, goals and the beliefs espoused by an adolescent. The "causes" of delinquency could be its effects.

Obviously, a test of the theory that utilized longitudinal data was necessary. With the data from the Elliott and Voss (1974) study on delinquency and dropout, it was possible to obtain measures of the "independent" variables, those measuring the components of control theory, prior to the measurement of the dependent variable, delinquent behavior. Time I was defined as the data-gathering wave when the students were in the ninth grade. All measures of the independent variables, as well as of self-reported delin-

quent behavior committed before the start of the study, were obtained at this time. Time II covered the following three years until late in the cohort's senior year of high school.

The sample included females and males of various ethnic backgrounds. At Time II it was clear that males were twice as likely to have committed serious delinquent acts as females. However, there was little difference in the social class distribution of the serious delinquents. There were only minimal differences among the various ethnic groups, with the exception of the consistently smaller proportion of Orientals than of any other ethnic group who reported involvement in serious delinquent acts.

Both an intensive and extensive replication of Hirschi's analysis were performed. In the intensive replication that employed a sample of white males, the generally parallel findings of this and Hirschi's study indicated that this sample and Hirschi's were quite similar. Any divergence in findings could not be attributed to a different type of sample, such as was a concern with Hindelang's (1973) replication with a sample of rural students. As in most of the other studies, there was no support for the involvement component. Hirschi (1972:230) suggests that he was misled by the idea that the more time involved in conventional activities, the less time would be available for delinquent activities. Yet, delinquent activities take little time. They can take place in conventional settings during the course of a conventional day. Thus, involvement in other

activities is not pertinent to the prevention of delinquent acts.

The low correlation between belief and delinquent behavior found in the intensive replication does seem to be due to the item used to measure belief. In fact, the item isolated by factor analysis in the extensive replication proved to be one of the strongest predictors of subsequent delinquency.

In the extensive replication the regression analysis provided the least support for the predictive power of social control theory. Clearly, knowledge of prior delinquency was a better predictor of delinquency at Time II than were the independent variables suggested by social control theory. At Time I, the correlations were quite high between delinquency and the independent variables. If this had been a cross-sectional design, the strength of the relationships would have been taken as supportive of control theory. However, with the dependent variable measured at Time II it became obvious that the causal efficacy of the control theory variables was not as clear or as strong as suggested by the cross-sectional design.

It was impossible to determine the appropriate sequential model from the cross-sectional data. The multicollinearity of the independent variables and delinquency at Time I prevented an adequate assessment of the causal influence of the control theory variables alone. Therefore, it was necessary to eliminate those students who had committed

serious delinquent acts prior to the start of the study.

Among the remaining students, the tabular analysis revealed moderately strong support for control theory components as causes of subsequent delinquency. There was support for the contention that parental and school attachment to some extent prevent a delinquency outcome. In general, delinquent peers and unconventional beliefs increase the chance that a student will become involved in serious delinquent acts. The test of the model did not support the hypothesized preventive influence of commitment to conventional lines of action. Another researcher using the same data suggests that involvement in delinquency results in a lowering of aspirational goals (Quicker, 1974). Although the data failed to support the presumed importance of commitment, support for the other variables in the model might have been stronger had the analysis been conducted on a younger sample.

Comments

Some aspects of the analysis proved to be troublesome and complex. Perhaps there were easier, more straightforward approaches to some of these problems, but the availability of longitudinal data seems to elicit complex solutions. Unfortunately, some of these solutions were not totally satisfactory.

One of these complex issues was the utilization of a factor analysis. While factor analysis was appropriate

methodologically for the problem at hand, it was a cumbersome technique which produced some indeterminate results. The multitude of approaches to a factor analytic solution requires a great deal of study to arrive at a satisfactory solution for a specific problem. The goals of using factor analysis, of course, were to gain continuous variables, or measures with adequate ranges to permit regression analysis, and to reduce the pool of theoretically relevant items. These goals were achieved but at the price of face validity. The clusters isolated by factor analysis were statistically correct, and indeed, accounted for the greatest amount of variation among the measures of the independent variables. Often these factors suggested the subtleties of the data rather than the straightforward, seemingly most valid, indicators that might have been selected. Yet, it was these subtleties that Hirschi had overlooked in his theoretical statement and that contributed to this test of the theory.

The factors derived by means of factor analysis suggested the importance of the quality of human relationships as well as the direction of influence that accrues from these relationships. Such items as "How many of your problems do you talk over with your mother?" measure, only indirectly, the attachment of a child to his parent. Directly, however, it measures the amount of shared communication with that parent. Taken with the other items in this particular cluster, the factor measures not only the amount of communication with the mother, but also with the father, whether or

not this communication is helpful or only obligatory, and whether the parents are the most helpful source in problematic situations. Thus, the factor is concise and complex--possibly beyond what might have been chosen on the basis of face validity alone.

The fact that this particular pattern of variables was not strongly related to delinquency does not diminish the usefulness of factor analysis. It reflects more on Hirschi's statement of control theory as it became stretched too thin and too far. Nevertheless, a factor analytic solution is a complex, easily misused and indeterminate tool that must be employed cautiously to be worth the effort involved.

Within this investigation of control theory many avenues could have been explored that were not. The decision had been made to employ factor analysis; this limited the pool of items as desired. And, again, while methodologically correct, strict adherence to the procedure eliminated many items that might have been theoretically "interesting." The tool did what it was employed to do, but perhaps too quickly and preemptorially for the curious investigator.

Another problem area was in the measurement of the independent variables at a single point in time. Ideally with longitudinal data, measures of the input variables would be taken at several points in time (Heise, 1975: 232). Input variables are themselves subject to fluctuations over time. By obtaining repeated measures of these

variables, the average value, or temporal mean, can be evaluated. If there is a causal connection between the independent variables and some outcome, the clearest picture of the relationship will be gained from use of the temporal means as predictors.

In the present analysis repeated measures of the independent variables were available for each of the students' high school years (Elliott and Voss, 1974:45). However, the measure of self-reported delinquency covered the period from tenth through twelfth grades, and thus, overlapped the period during which repeated measures of the input variables were obtained. Heise (1975:233) states that "repeated observations of the inputs could be made after the outcomes have been measured, as long as it can be presumed that the average values of the inputs remain unchanged." This could not be assumed in the present analysis; the possibility remained that delinquent behavior effects the attachments and commitments of the individual. Further, beliefs may be altered to rationalize past behavior. The temporal means could not be assumed to be unchanged during this particular time period. For this reason the analysis was confined to measures of the independent variables at a single point in time. The results, therefore, may not reflect the most accurate appraisal of the true values of the input variables.

Elliott and Voss (1974:131) employed base measures of the independent variables (as were used in this analysis) as

well as gain measures over the four-year study period. Thus, their measures were more sensitive to the changing values of these measures. However, they acknowledge the possible contamination in their analysis due to the overlapping time periods of the measure of self-reported delinquency and later measures of the independent variables. To compensate for the possibility of contamination they argued for the causal importance of a gain measure only when the base measure also supported the claim.

Elliott and Voss were testing a reformulation and extension of Cloward and Ohlin's (1960) opportunity theory. The scales they developed were indicators of the independent variables suggested by that theory, and were derived primarily by the Likert technique. Nevertheless, some of the findings of their analysis are quite similar to those of the present analysis. They also found that the school milieu is a more important arena for adolescents than is the home, but parental attachment cannot be ignored as a significant preventive influence on delinquent behavior. They also found that peer attachments are critical factors in whether or not a student will become a delinquent. On the basis of this analysis it appears that the beliefs of these adolescents were slightly better predictors of future behavior than were peer influences. However, the single indicator of belief employed in this study does not lend itself to a simple interpretation. The beliefs youths hold regarding the appropriateness of fighting may derive from their

interaction with parents and peers or other cultural influences.

APPENDIX A

Items Included in Factor Scales

Attachment to Parents Items

A. Openness of Communication (N=2,550)

1. How many of your problems do you talk over with your mother?
2. Generally when something is worrying or bothering you, does it help you to talk to your mother about it?
3. How many of your problems do you talk over with your father?
4. Who do you confide in when you get into some kind of trouble?

B. Perceived Assessment of Others (N=2,325)

1. Does your father think you are headed for trouble with the law?
2. Does your mother think you are headed for trouble with the law?

C. Home Alienation (N=2,603)

1. I sometimes wanted to run away from home.
2. Sometimes I used to feel that I would like to leave home.

D. Parental Acceptance of Peers (N=2,608)

1. How many of your friends do your parents know?
2. Do you feel free to bring your friends home?

Commitment to Conventional Activities Items

A. Commitment to Conventional Activities (N=2,562)

1. How far would you like to go in school?

2. How far in school do you think you will actually go?

B. Perceived Parental Desires (N=2,143)

1. /What/ best describes your mother's attitudes toward continuing school after this year?

2. /What/ best describes your father's attitudes toward continuing school after this year?

School Attachment (N=2,613)

1. Do you feel that any of your teachers think you are headed for trouble with the law?

2. Have your teachers or counselors ever told you that you were a problem child?

3. In school, I have sometimes been sent to the principal for acting up.

4. In earlier grades in school, I gave the teachers lots of trouble.

Conventionality of Beliefs (N=2,612)

1. Beating up on another person: /is o.k. or wrong in various situations/

2. Taking something that belongs to someone else without his permission: /is o.k. or wrong in various situations/

3. If you saw a group of boys destroying someone's property, /what/ would you do?

Unconventional Peer Influences (N=2,604)

1. Think of the friends you have known for the longest time. Were any of them ever in trouble with the law?

2. Have any of your best friends ever been in trouble with the law while they were your best friends?

3. Think of the friends you have been associated with most often. Were any of them ever in trouble with the law?

4. Was there much crime or delinquency committed by young people (in their teens or below) in the community in which you grew up?

APPENDIX B

Delinquency Checklist

1. Have you ever taken little things (worth less than $2) that did not belong to you?
2. Have you bought or drunk beer, wine, or liquor?
3. Have you purposely damaged or destroyed public or private property that did not belong to you?
4. Have you skipped school without a legitimate excuse?
5. Have you "run away" from home?
6. Have you taken part in "gang fights"?
7. Have you taken things of medium value (between $2 and $50)?
8. Have you driven a car without the owner's permission?
9. Have you taken things of large value (over $50)?
10. Have you used force (strong-arm methods) to get money from another person?

APPENDIX C

Correlation Matrix of Factor Scales and Various Measures of Delinquency*

	1	2	3	4	5	6	7	8
1. Openness of Communication								
2. Perceived Assessment of Others	.279							
3. Home Alienation	.285	.222						
4. Parental Acceptance of Peers	.268	.210	.166					
5. Commitment to Conventional Activities	.105	.236	.120	.144				
6. Perceived Parental Desires	.017	.109	.020	.077	.288			
7. School Attachment	.228	.515	.199	.121	.238	.071		
8. Conventionality of Beliefs	.186	.336	.124	.088	.193	.072	.393	
9. Unconventional Peer Inf.	-.209	-.483	-.182	-.085	-.220	-.088	-.551	-.427
10. Total Freq. SRD,** Time I	-.258	-.508	-.260	-.144	-.242	-.096	-.576	-.420
11. Total Serious SRD, Time I	-.158	-.411	-.148	-.111	-.222	-.107	-.476	-.335
12. Total Freq. SRD, Time II	-.202	-.330	-.180	-.057	-.108	.001	-.417	-.260
13. Total Serious SRD, Time II	-.109	-.257	-.066	-.026	-.091	-.003	-.313	-.210
14. Total Raw Gain Score	.011	.094	.037	.068	.101	.086	.061	.093
15. Serious Raw Gain Score	.020	.078	.054	.065	.092	.082	.079	.065
16. Total Residual Gain Score	-.075	-.068	-.049	.024	.025	.059	-.130	-.042
17. Serious Residual Gain Score	-.046	-.093	-.005	.021	.001	.044	-.125	-.077

APPENDIX C (Continued)

	9	10	11	12	13	14	15	16
9. Unconventional Peer Infl.								
10. Total Freq. SRD, Time I	.606							
11. Total Serious SRD, Time I	.513	.854						
12. Total Freq. SRD, Time II	.399	.536	.419					
13. Total Serious SRD, Time II	.315	.409	.411	.823				
14. Total Raw Gain Score	-.108	-.317	-.314	.631	.549			
15. Serious Raw Gain Score	-.105	-.292	-.410	.480	.662	.808		
16. Total Residual Gain Score	.090	.002	-.045	.845	.715	.947	.752	
17. Serious Residual Gain Score	.113	.060	-.004	.713	.909	.746	.914	.805

* Simple r relationships only
** Self-reported delinquency

APPENDIX D

Matrix of Single Item Indicators of Factors, Selected Controls and Measures of Delinquent Behavior, in Gammas

	1	2	3	4	5	6	7	8
1. Problems talked over with mother								
2. Friends do parents know	.290							
3. Father thinks you are headed for trouble	.292	.093						
4. I wanted to run away	.375	.082	.310					
5. Friends in trouble with law	-.193	-.122	-.389	-.114				
6. Teachers think you are headed for trouble	.252	.089	.694	.299	-.414			
7. School Aspiration	.035	.107	.192	.068	-.133	.185		
8. Mother's attitude toward continuing school	.005	.046	.066	-.023	-.063	.105	.340	
9. Beating up another person	.182	-.096	.376	.005	-.592	.358	.185	.043
10. Sex	-.112	-.039	-.215	.144	.355	-.157	.260	.168
11. Ethnicity	-.048	.211	.093	-.135	-.063	-.134	.165	-.015
12. Class	-.026	.111	.097	-.041	-.044	-.032	.317	.115
13. Delinquency Status, Time II	-.121	.013	-.262	-.162	.286	-.321	.001	.080
14. Total SRD,* Time II	-.163	.004	-.277	-.219	.290	-.309	.043	.094
15. Total Serious SRD, Time II	-.092	.030	-.175	-.097	.256	-.302	.031	.115

APPENDIX D (Continued)

	9	10	11	12	13	14
9. Beating up another person						
10. Sex	-.525					
11. Ethnicity	.282	.040				
12. Class	.033	.092	.511			
13. Delinquency Status, Time II	-.414	.392	-.017	.040		
14. Total SRD, Time II	-.362	.329	.055	.043	.939	
15. Total Serious SRD, Time II	-.370	.455	-.086	.054	1.000	.902

*Self-reported delinquency

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