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ABSTRACT

Hirschi's social control theory of delinquency status that delinquency involvement is the function of the failure of an adolescent to form or maintain a bond to society comprised of attachment, commitment, involvement and belief. In the past decade Hirschi and other researchers have found substantial support for this original thesis using tabular analysis. Multivariate models of social control theory which simultaneously consider how all of the bond elements operate in relation to delinquency were investigated. Factor analysis and communality analysis were used to examine the empirical support for the uniqueness of the four bond elements; a great deal of shared variance among them was found. Measures of social class and ability as background factors were also added to the model to explicate the effects of those variables on the educational and occupational aspirational parts of social control theory. (Author)

Social Control Theory and Delinquency:

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This report, prepared by the Studies in Delinquency and School Environments program, examines Hirschi's (1969) social control theory of delinquency.

ABSTRACT

Hirschi's (1969) social control theory of delinquency states that delinquency involvement is the function of the failure of an adolescent to form or maintain a bond to society comprised of attachment, commitment, involvement and belief. In the past decade Hirschi and other researchers have found substantial support for his original thesis using tabular analysis. The present report develops and tests multivariate models of social control theory which simultaneously consider how all of the bond elements operate in relation to delinquency. Factor analysis and communality analysis were used to examine the empirical support for the uniqueness of the four bond elements, and a great deal of shared variance among them was found. Finally, measures of social class and ability as background factors were added to the model to explicate the effects of those variables on the educational and occupational aspirational parts of social control theory. Based on the factor analytic and structural equation modeling results, a revised formulation of social control is suggested.

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Social Control Theory and Delinquency: A Multivariate Test

Hirschi's (1969) Causes of Delinquency is a benchmark for theory construction and research in the delinquency field. Gibbons (1976) notes:

> Hirschi's findings on social control and delinquency are particularly significant in that he has explicated a detailed version of this perspective and has then conducted research designed to test the argument (p. 93).

Empey (1978) observed:

> Hirschi not only conducted a comprehensive examination of his own theory but avoided some of the pitfalls into which earlier researchers had fallen (pp. 233-234).

Hirschi attempted to explain why individuals engage in normative as opposed to delinquent behavior. The theory rests on the Hobbesian assumption that human behavior is not inherently conforming, "but that we are all animals and thus naturally capable of committing criminal acts" (Hirschi, 1969:31). Conformity then is the behavior which sociologists should explain and delinquency, because it is intrinsic to human nature, is taken for granted.

Socialization is represented by a bond comprised of four major elements--attachment, commitment, involvement and belief--which an individual forms to society. The stronger each of these elements of the social bond, the less delinquent the behavior. Attachment corresponds to the affective ties which the youth forms to significant others. The family environment is the source of attachment because parents act as role models and teach their children socially acceptable behavior. If this interaction is successful, the child will be positively oriented toward school as a

major socializing institution and will respond to teachers as adults whose evaluations of peer associations and behavior the youth respects. Hirschi posits that the quality of peer relations among delinquents and nondelinquents is different, and one characteristic of the bond to one's parents is the willingness to engage in social interaction with nondelinquent peers of whom the youth's parents would approve.

The concept of commitment is related to a distinguishing feature of American culture in which individuals nearly universally attempt to achieve high status positions in the social class structure (Merton, 1957). The aspiration of going to college and attaining a high status job is an investment in conventional behavior which the youth risks should he become involved with delinquency. Not all persons share these aspirations to the same degree, however. In contrast to those youths with well defined goals, some adolescents are engaged in drinking, smoking, dating, and other behavior not oriented toward future goals, and these youths are much more likely to get involved in delinquent behavior.

Participation in conventional activities which lead toward the socially valued success and status objectives is the major component of the third element of the bond, involvement. By making involvement an important part of his explanation of the control of delinquency Hirschi does not mean to imply simply that idle hands are the devil's workshop. Instead he notes that delinquent activities are not intrinsically time consuming and there is little difference in delinquent behavior among boys who are working and those who are unemployed (1969:188). He views the quality of a youth's activities and their relationship to future goals and objectives as more important factors in preventing delinquency. Time spent on home-

work, for example, is viewed as an antecedent to success in attaining the educational goals which are prerequisites to high status occupations. Thus this becomes the major measure of involvement.

Belief, the remaining element of the bond, is the acceptance by the youth of the moral validity of the central social value system. This component helps differentiate social control theory from subcultural (Cohen, 1955; Stinchcombe, 1964; Cloward and Ohlin, 1960) and cultural deviance (Sutherland and Cressey, 1966) theories of delinquency. Subcultural theorists argue that delinquents form an alternative value system in reaction to the rejection of the norms of the dominant value system. In contrast, cultural deviance theorists state that in a pluralistic society there are multiple value systems, and it is possible for a person to act in conformity with his own beliefs yet for those values to be at variance with the dominant value structure. Hirschi argues that there is one dominant set of values and that even delinquents recognize the validity of those values, although they may not feel bound by them.

Hirschi's Data Analysis

Hirschi's data analysis tested his formulation of social control theory against subcultural and strain theories of delinquency using cross-sectional data. Consistently, Hirschi's theory fares better than competing theories. Yet Empey's assessment of the theory's empirical support implies that it falls far short of complete explanation:

> While the various elements of the bond are more or less related to delinquent behavior, they account for only about 25 percent of the variation between delinquents and nondelinquents (Empey, 1978:239).

While explaining 100% of the variation in delinquent behavior is a lofty goal, some questions about Hirschi's data analysis can be asked. Hirschi

did not consider how all the elements might act at the same time to affect the likelihood of delinquent behavior. In addition, instead of empirically analyzing the relationships among the elements of the bond, he simply hypothesizes the existence of interrelationships between attachment and commitment, commitment and involvement, and attachment and belief. Consequently, one issue left unresolved in Hirschi's work is how the elements of the bond function simultaneously.

Hirschi's theory construction and data analysis raises three related questions. First, why are only four elements of the bond identified? The modest predictive power of Hirschi's constructs indicates that there are additional elements of the bond not considered. Nisbet (1970) discusses the nature of individual bonds to society and suggests some additional ways in which people are tied to society. Second, the extent to which Hirschi's four elements represent empirically distinct components of socialization is unclear. If most of the variance explained in the criterion is shared by the four elements, they would not constitute analytically distinct elements of the bond. Third, although educational and occupational aspirations are central to Hirschi's theory, he fails to incorporate constructs that research has determined to be important in the development of these aspirations. Specifically, research in educational and status attainment implies that family socioeconomic level, ability, and significant others' influence are important determinants of aspirations (Haller and Portes, 1973; Sewell, Haller and Portes, 1969). This is apparently problematic to Hirschi also. He asks "Why, if social class is related to variables causing delinquency, is social class unrelated to delinquency?" (1969:173)

The present research addresses the foregoing three issues. Specifically, we first examine the factor structure of the social bond. Based on this work, and on Hirschi's theoretical formulations, measures of each element of the bond are created and used to estimate how much each element contributes to the explanation of delinquent behavior over and above the other elements. Then, Hirschi's theory is tested in a multivariate analysis which simultaneously considers all elements. Finally, a revised model--which in some ways is more parsimonious and in some ways more complete--is developed and evaluated using multivariate analyses. The following section describes the data used and the measures included in the analyses.

Data and Measures

Data were taken from the Youth in Transition study (Bachman, 1975). This is a longitudinal study of 2213 tenth grade boys from 87 schools who were surveyed in 1966.[1] The information collected includes tests of ability, measures of family background, self-reported delinquent behavior, affective status, self-concept, values and attitudes, plans and behaviors.

The selection of information to include in the research was guided by Hirschi's (1969) discussion and research. We tried, however, to be more inclusive than Hirschi by including multiple measures of each construct. The following paragraphs briefly describe the selected variables according to the element of the bond to which they appeared related.

Attachment involves the relation of the youth to parents, peers, and school. Attachment to parents was represented by two indices, a measure of closeness of the youth to his father and a measure of closeness to his mother. Attachment to peers was represented by items questioning the boy

about the importance of friends to him and how important it was to spend time with his peers. Attachment to school was represented by a positive attitude toward school index, a negative attitude toward school index, an academic achievement index, a self-concept of school ability index, and a scale assessing how interested the youth felt teachers were in him.

Commitment was represented by an index of the youth's occupational aspirations coded by Duncan occupational prestige scores. Educational aspirations were measured by a much wider range of items than those used by Hirschi. Whereas Hirschi used only college aspirations, items which conveyed an expanded continuum of vocational and educational interests were used in this study. These ranged from receiving some type of on-the-job training to attending college. Additional items measuring the clarity of occupational plans and whether the boys had taken any steps toward attending college were also used in the commitment items. The amount of time and frequency of dating were represented by a dating index.

The construct of involvement was represented by three pieces of information that indicated how much school work the youth was doing. Whereas Hirschi relied primarily on the relationship between the amount of homework done and delinquency, the present research expanded the analysis to include not only homework, but also extra school work not required by the teacher and the frequency with which school work was discussed by the boys.

Belief was represented by an honesty index and a guilt index. The honesty index included items indicating the willingness to follow social rules and conventions regulating social behavior. Frequently Hirschi uses "conscience" in terms of superego development (1969:87). One component of conscience in this analysis is guilt or a psychological sense of responsibility for behavior which is wrong or illegal. Individuals lacking both

belief and this sense of responsibility would in theory be free to behave without any notions of either psychological or sociological accountability for their behavior. The guilt index contained items indicating the youth felt bad about mistakes, is punished by his conscience, blames himself when things go wrong, and does things which make him feel sorry.

Delinquency was measured using an index composed of the responses to 26 items (with up to six missing data items allowed) adapted from Gold's (1966) self-report measure of delinquency assessing a wide range of delinquent behavior. Among the areas measured were responses to questions about theft and vandalism, interpersonal aggression, delinquency in school, frequency and seriousness of delinquency and trouble with parents. Socioeconomic level was composed of five items which were equally weighted to form an index. These include the father's occupational status, parents' education, possessions in the home, number of books in the home, and the number of rooms per person in the home. Mental ability was measured using scores on the General Aptitude Test Battery for verbal and math ability.

Internal Structure of the Bond

The variables listed in the foregoing paragraphs were chosen because they appeared a priori to be reasonable measures of Hirschi's constructs, but considerable pains were taken to examine the psychometric properties of these variables. The items which were assumed to represent elements of the social bond were factor analyzed using a principle component analysis and varimax factor rotation to examine their underlying structure. One use of factor analysis is to test the hypothesis that a set of variables such as those which represent the social bond fall into relatively distinct

groupings. We would expect that four elements representing attachment, commitment, involvement and belief would emerge as factors. The structure of the bond, however, takes a different form from that implied in Causes of Delinquency.

Table 1 shows the results of a varimax seven-factor solution using the method of principle components. Although a screen test implied that fewer factors might have been rotated, the conceptual clarity of the seven-factors solution was more appropriate for this portion of the analysis.[2]

On the first factor in Table 1, a number of items emerge relating to what might be termed attachment to school. The positive and negative school

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Table 1 About Here
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index and the academic achievement index have high loadings on this factor.

The second and third factors represent status or achievement orientation and appear related to Hirschi's concept of commitment. Those individuals having high aspirations, being certain of their academic abilities, and wanting to attend college score high on factor II. Correspondingly, the vocational items including job training and military or vocational training are negatively loaded on this factor. Boys scoring high on the third factor have low academic ability self-concepts, low aspirations, and unclear occupational plans. Those represented on this low status orientation factor are also unlikely to expect to complete high school or attend college.

The next factor appeared to tap into the school involvement dimension. This construct includes the positive school attitudes index and the feeling that teachers take a personal interest in that individual. Also this dimen-

sion taps a "motivational" element in which the youth is willing to discuss homework with friends and voluntarily do extra school work.

The final three factors explain only a small portion of the remaining variance. Nevertheless, factors V, VI and VII deserve some comment. Factor V relates to parental attachment. Factor VI suggests the existence of a peer attachment element of the social bond. With the dating element also appearing on this factor it may be the case that this dimension taps a larger notion of sociability in which the youth not only chooses to associate with his male peers, but also with members of the opposite sex. Factor VII is difficult to interpret and represents little of the common variance. The only item with a high loading indicates whether the youth had made college plans. This item was chosen to show whether the youth was able to conceive of the link between educational aspirations and actually attending college. It would have been expected to load on the second factor, and the failure to do so might be interpreted as an indication that attitudes and behavior are not always linked, or that too many factors have been extracted.

The results imply that a reorganized interpretation of the social bond emerges from the factor analysis in that separate elements of the bond representing attachment, commitment, involvement and belief did not appear as factors. Instead we find factors representing parts or components of the social bond such as the attachment to school and school involvement, high and low status commitments as well as parental and peer attachments.

The dating and belief items did not appear to represent separate empirically defined components of the social bond. Dating had a moderate negative loading on the attachment to school and the high status career

orientation, but was unrelated to the low status career stream as might be construed from Hirschi's arguments (1969:162-170). This is important because a host of nonproductive juvenile activities which include dating, drinking, and cruising around in a car are thought to prevent the youth from making investments in conventional behavior. While this is partially supported in these data, it is also the case that dating is largely unrelated to all of the factors taken together ($h^2 = .29$). The low communality of dating suggests that it should be represented separately in a social control model. According to social control theory, youths with high educational and occupational aspirations are considered to be bonded to society if the other bond elements are also high.

These results imply a more complex interpretation of the social bond than that presented by Hirschi. The emergence of a strong factor involving the school accords with other research which indicates that in adolescence the peer structure of boys is a major locus of influence (Greenberg, 1977; Coleman, 1961; Smelser and Halpren, 1978; and Polk and Schafer, 1972). The presence of this school-related factor is also consistent with the view that one function of the school is to assist young people in the transition to adult social roles. School exists as a mechanism in which aspirations formed earlier in life are translated into concrete attainment goals. In addition a factor representing a vocational orientation implies that there exists a group of youths bonded to society, but in somewhat lower status positions. This factor appears to accord with some speculation by Polk (1975) that the relationship between social status and socialization includes lower social status youths who are not involved in an alternative youth culture system. The zero-order correlations of dating with a scaled measure

of commitment and vocational orientation (described in a later section of the report) are close to zero (.000 and .085, respectively). While those relations are in the direction which social control theory would predict, these results do not demonstrate the ability of commitment to conventional goals to exclude dating or the preoccupation of those vocationally oriented with activities which are unrelated to future goals.

The emergence of the belief item on the school attachment dimension contradicts Hirschi (1969:29-30), who hypothesized that the adherence to conventional social values should be related to attachment to parents. Delinquency researchers have been engaged in an important debate over the effects of I.Q. on delinquency (Hirschi and Hindelang, 1977; Simms, 1978). Yet in most delinquency research the school is viewed only in its most simple role as evaluator of student ability. Not considered is the school's more complex socializing role or the view of the school as a complex organization with contextual and process effects (Alexander, Cook and McDill, 1978). "Although most acknowledge the central role of the school they tend to theorize that it is the life-style and the disadvantaged position that produces delinquent behavior, not any impaired capacity on [the delinquent's] part" (Empey, 1978:236).

The variety of items in the factor analysis loading on the first factor (attachment to school) indicates that youths with a positive relationship to school are making investments in conventional patterns of behavior. This is consistent with the thesis that school does have a socializing function in which values are reinforced and also with a social control hypothesis that school involvement represents a primary group pro-

cess in which socialization occurs in successful conventional social interaction.

In summary, some of Hirschi's postulated dimensions emerge as distinct factors, but the general picture of the components of the bond is altered. What this suggests is that it may be more appropriate to discuss the bond in somewhat different terms than originally proposed by Hirschi. A concrete proposal in this regard is postponed until after some further explorations of the elements of the bond.

Communality Analysis

A major portion of Hirschi's thesis is that there are four separate elements of the social bond. In statistical terms this means that measures are independent of each other--that each makes at least some unique contribution to the prediction of delinquency. The extent to which the elements do make unique contributions is examined in this section. First, the extent to which delinquency is predictable using all the measures assumed to tap some element of the bond is estimated. Then composite measures, constructed according to the implications of Hirschi's (1969) theoretical statement, are used to predict delinquency and the unique contribution of each composite is examined.

Tables 2 and 3 summarize the first part of these results. The proportion of the variance of delinquency explained by all 23 individual indicators of the bond was .318. The unique variance attributable to each element of the bond was obtained by subtracting the squared multiple correla-

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Table 2 About Here

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tion of all bond elements except those assumed related to the element under

consideration from the squared multiple correlation obtained when all bond elements are used to preduct delinquency. In Table 3 the variances for each element of the bond are indicated along with the explained variance for an element operating by itself. The unique variances for each element are quite low, ranging from .010 for involvement items to .109 for commitment. An alternative interpretation of the low amount of uniqueness is that underlying these measures of the bond there exists a general factor called socialization, and these elements along with other undefined elements of the bond are negatively correlated with delinquency because delinquency is negatively correlated with the larger construct of socialization.

Table 3 About Here

One criticism of the communality analysis presented above is that categories of bond measures containing a larger number of measures may be expected to be associated with more variance in the criterion because of their number alone. In addition, the use of multiple indicators of each bond element does not allow for a simple presentation of control theory. To deal with these problems, scales were formed for each bond element and the communality analysis was again performed.

Scales were constructed by examining the correlation matrix and determining which items within an element such as attachment or commitment were positively correlated with each other. Alpha reliability coefficients

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Table 4 About Here
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are presented in Table 4 for each scale. The commitment and belief scales were difficult to construct because the items which were initially chosen

to operationally define an element formed scales with unacceptably low alphas. For the commitment scale the dating item did not form a scale with the occupational and educational aspiration items. The proportion of variance of delinquency involvement explained by a scale formed of all three items was less than that explained by dating alone. One interpretation of this is that the involvement with dating may represent a separate dimension of the bond which exists independently of the other parts of commitment as the low communality of dating in the factor analysis would indicate.

In a similar manner the honesty and guilt indices formed a scale with an alpha of .22. Despite the allusions of the relationship of conscience and superego development to belief (hirschi, 1969:87), the data did not support combining these measures into a simple index. The correlation between honesty and guilt was .129 and between guilt and delinquency was -.015. The guilt item was deleted and the homogeneity coefficient shown for belief in Table 4 refers to the reliability of the honesty index.

In Table 4 the correlation matrix shows that the scaled bond elements are associated with each other and that each element is negatively related to delinquency to about the same degree as was reported by Hirschi (1969). The proportion of total explained variance of the four bond elements taken together as shown in Table 5 declined to .174, because of the exclusion of

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Table 5 About Here

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the dating item[3] from the commitment scale. The unique variance explained by each scaled element remained small, ranging from .000 to .034, indica-

ting that incrementally, each bond element adds little to the explanation of delinquency in relation to the total amount of variance explained.

Socioeconomic level, ability and delinquency. One of the major difficulties with tabular analysis is that it is difficult to visualize the effects of many variables simultaneously operating in a causal system. At several points in Causes of Delinquency, assertions are made about th effects of social class on delinquency and the relation of ability to school performance and in turn to delinquency.

The idea that social class is not related to delinquency is counter-intuitive to most individuals. Hirschi's examination of the zero-order correlations of delinquency and social class finds that:

> In sum, then, there is in the present sample no important relation between social class as traditionally measured and delinquency. We do find a small group at the bottom of the class hierarchy whose children are more likely to be delinquent, and, at the other extreme, we do find that the sons of professionals and executives are consistently less likely to be delinquent. The percentage point differences and/or the number of cases in extreme categories are, however, small, so small in fact, that we need not control social class in subsequent analysis (1969:75).

Yet, although social class may not directly affect delinquency involvement, it may be the case that:

> ...the relation between socioeconomic status and delinquency assumed by control theory is suppressed by the effects of some third variables. Not only may it be true that the intervening variable is, as expected, related to delinquency; it may also be true that the measure of social class is, as expected, related to the intervening variables.

In the delinquency literature the link between grades and juvenile misbehavior is well documented (Hirschi, 1969:111-120; Silberberg and

Silberberg, 1971; Bachman, O'Malley and Johnston, 1978). Yet the mechanism through which delinquency occurs may be more complicated than previously thought. A central part of social control theory is the manner in which values about the efficacy of education are transmitted to children and in turn how those values are translated into social psychological investments in conformity which the youth will not risk with delinquency involvement. Hirschi states:

> In a system in which competence is rewarded and incompetence is therefore punished, the cost of detection is assumed to be reduced for the incompetent because his ties to the conventional order have been previously weakened. In other words, the academically incompetent person may be very well able to foresee the consequences of his acts; the problem is that, for him, the consequences are less serious. Academic competence is thus assumed to operate through attachment, commitment, involvement and belief to produce delinquent acts (1969:112-113).

In summary, support exists for a model of social control theory which includes measures of ability and social class because of their antecedent effects and these probable links into the fundamental constructs of control theory. Rather than simply arguing, as did Hirschi, that social class is not important, it is proposed that social class, ability, and grades be examined empirically in an expanded model of social control theory. If the path coefficients between social class and ability and the bond elements are low, then the variables can be eliminated on the basis of more systematic empirical evidence.

Figure 1 shows the path model which structured the multivariate examination of elements of the bond according to Hirschi's theory. Socioeconomic

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Figure 1 About Here

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class and ability are considered to be prior or exogenous variables whose causes are unanalyzed, but direct and indirect effects of these variables via elements of the bond are examined. In addition, the contributions of social control theory variables are assessed with SES and ability used as statistical controls.

Tables 6 and 7 About Here

Table 6 shows the decomposition of effects according to the model in Figure 1, and Table 7 shows the direct path coefficients according to the model. These results imply that each of the social control theory variables makes significant direct contributions to the explanation of delinquent behavior even when SES and ability are statistically controlled, and that none of the contributions is negligible even when other social control variables are considered simultaneously. The direct and indirect contributions of the background variables (SES and ability) are of interest. As noted by Hirschi (1969) social class has a tiny and nonsignificant total association with delinquency. When other variables are considered simultaneously, however, SES paradoxically makes a modest but significant positive contribution to the amount of self-reported delinquent behavior. Additionally, it is a significantly important factor in explaining the levels of commitment and of moderately significant importance in explaining levels of attachment and involvement. Ability makes a tiny but significant direct contribution to delinquency. Ability also makes moderately sized and significant positive contributions to attachment, involvement, and belief; and it has a major effect on the level of commitment. This outcome accords well with Hirschi's theoretical account in which ability is assumed to in-

fluence levels of delinquent behavior primarily because it influences the commitment of youth to conventional attainment goals. Recall that commitment as measured in the present research refers largely to high levels of academic and occupational aspirations. In short, the results accord with theory in implying that students of low ability are less committed to conventional goals, presumably because those goals are beyond their reach, and as a consequence of lowered commitment are free to engage in delinquent behavior.

The foregoing generally positive characterization of these results notwithstanding, these results are far from satisfactory for three reasons. First, the proportion of variance in delinquency explained by the model is relatively small--19 percent. This is small in comparison with the proportion explained using all twenty-three variables examined in Table 2 primarily because the predictive power of the individual variables was ravaged by constructing scales which accorded closely with Hirschi's theoretical statement. In particular, because dating did not scale with the commitment variables as Hirschi appears to imply it would, this variable could not be used. (Scoring it together with other measures of commitment results in a much lower reliability of that scale. The alpha reliability of the scale used was .59, and when dating is added this drops to .46.) Second, the factor analysis results imply that an alternative set of bond elements would more faithfully represent the structure of the variables involved. And third, the model does not explicitly take into account the well-established finding that school grades are universally related to delinquency (Hirschi, 1969:111-120; Silberberg and Silberberg, 1971; Bachman, O'Malley and Johnston, 1978), which implies that the model is misspecified. The next

section describes analyses involving a reformulated model which is designed to remedy these defects.

In the reformulated model (Figure 2) the bond elements are chosen to more faithfully represent the bond components and the structure of their

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Figure 2 About Here

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relations derived from the factor and communality analysis. Socioeconomic status and ability are again treated as exogenous background variables because (Blau and Duncan, 1967; Haller and Portes, 1973) status attainment research implies that SES and ability affect the nature of parental socialization, which in turn affects educational and occupational aspirations and attachment to school. The relationship of ability to educational aspirations, school attachment, and grades through parental attachment is also informed by the status attainment model. Parental attachment was regarded as the foundation of the social bond. Thus, the model shows parental attachment as causally prior to and directly linked with commitment to educational and occupational aspirations, dating, attachment to school, and involvement. Note that the bond elements are reformulated to accord with the structure made apparent by the earlier factor analytic results. Belief was placed after the previous block of variables because of the loading of the belief items on the attachment to school factor, which suggests that the acceptance of the conventional social values system may be a consequence of the youths' attitudes about the efficacy or utility of education. It is treated as a separate element despite the factor analysis results because it is conceptually distinct from attachment to school.

The revised model of social control theory explains 32.5% of the variance in delinquency. With 13 fewer variables, an amount of variance in delinquency is explained which is comparable to that explained in the 23-item regression analysis presented earlier in Tables 2 and 3. In contrast to the simple social control model shown in Figure 1, this more complex model of Figure 2 explains an additional 14 percent of the variance.

Table 8 shows the decomposition of effects according to the revised

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Tables 8 and 9 About Here

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model, and Table 9 shows the path coefficients. Parental attachment and school attachment both have substantial negative total and direct effects on delinquency net of other variables in the model; and dating has substantial positive total and direct effects. Other variables have smaller but nevertheless statistically significant direct effects on delinquency. As was the case with the earlier model (Figure 1), the revised model implies moderate positive net (direct) effects of belief, SES and ability. Grades make a moderate negative direct contribution, as does involvement. In the context of the revised model, commitment to a vocational career, commitment to college and a high status occupation, and peer attachment make no statistically significant contributions to the explanation of delinquency, implying that their zero-order association may be regarded as spurious.

Some of the other results in Tables 8 and 9 should be highlighted. First, except for belief and grades in general the coefficients of determination (R^2) are generally small, implying that the residuals (the contributions of unmeasured variables and measurement error) are large. This means, in short, that even the revised model allows much room for improve-

ment. Second, ability has strong positive total and direct effects on grades, and moderate positive total and direct effects on school attachment, and a moderate negative effect on dating. Parental attachment has fairly strong positive effects on school attachment, involvement, and belief (as well as delinquency), implying that even for adolescents who are well into their high school years, parental attachment exerts considerable influence.

The proportion of variance in belief which was explained is substantial in comparison to other elements of the bond. This analysis makes possible a comparison of the effects of parental vs. school attachment on belief. The path coefficient for school attachment is much larger than the coefficient for the path from parental attachment to belief. This result is explained in part by an examination of Table 8 in which the associations are decomposed. Table 8 shows that parental attachment affects school attainment which is strongly related to the level of belief, implying that part of the effects of parental attachment on belief is transmitted through school attachment.

Discussion

Several limitations of the present research require comment. First, we assessed the contributions of elements of the bond in a way which parallels as closely as possible Hirschi's (1969) original research. The self-report delinquency measure used in Hirschi's research included items like the following: "Have you ever taken a car for a ride without the owner's permission?" Such an item taps delinquent behavior for a time period prior to the collection of data. We have followed suit here and used retrospective self-reports of delinquent behavior collected concurrently with measures of elements of the bond. The measure of delinquent behavior asks for reports

on behavior over the past three years, but the school performance measure (grades) refers only to the past year. This means that the causal ordering implied by our path models is, for these data at least, questionable. This is a limitation which undermines confidence in causal interpretations in the present research, but it is a limitation deliberately introduced in order to replicate Hirschi's research, and scrutinize the elements of the bond in data similar to Hirschi's own. Longitudinal data should be used in future research.

A second potential limitation is the use of a single, global measure of delinquency. This measure contains some items pertaining to delinquent behavior in school, and it is possible that the apparent influence of attachment to school and other school-linked variables on delinquency may be due only to the inclusion of these items. At the same time, however, Gold (1970) and Faine (1974) have carefully examined the dimensionality of self-report data similar to the kind used here, and have concluded that little is to be gained by use of more than a single dimension.

Despite these limitations, the development of the revised model produced several important results. First, social class and ability make a positive net contribution to delinquency in contrast to the widespread belief that social class is unrelated or negatively related to delinquency (Nettler, 1978:62-87) and that there is a small negative correlation between mental ability and delinquency (Hirschi and Hindelang, 1977). The revised model implies that the low negative correlations often reported are spurious in the context of other variables which explicate the relationship between those bond components and delinquency. Parental attachment and school attachment have a strong negative relation with delinquency, whereas for grades the coefficient was moderately negative as would be predicted by control

theory. Dating was strongly related to delinquency indicating that those boys who dated more were involved to a greater extent with delinquency.

The pattern of results which emerged for involvement and commitment is important. These variables did not exhibit the strong negative effects predicted by Hirschi's control theory. Thus, although the present results confirm an association of adherence to conventional "success" or attainment goals and work toward those goals and delinquency, the results imply that because involvement and commitment are redundant with other valid predictors of delinquency their associations may be considered spurious or unnecessary.

The moderate and significant negative path coefficient for belief in this model implies that when other variables are considered simultaneously, conventional value orientations are related to the incidence of delinquent behavior. In short, conventional value orientations are important in the explanation of delinquency.

This model accedes to the validity of the component concepts introduced in Causes of Delinquency, but questions the utility of that particular set of elements of socialization. In the context of statistical controls for ability, social class, and grades in school, the bond elements which emerge as important explanatory variables are attachment to parents, dating, attachment to school, belief and involvement. A model incorporating these bond elements appears more isomorphic with the processes of adolescent socialization which treat education as important in the integration of the youth into adult social life.

In considering how all the elements of the bond operate simultaneously, a different picture emerges than when applying simpler forms of analysis.

Examination of the total association, or the zero-order correlations, shows that large correlations with Hirschi's bond elements do exist (with the exception of the element of commitment to college and a high status career). When those same components are considered simultaneously and with controls for ability and school grades, however, it can be seen that several components are more important than others. The present results imply that a more adequate and parsimonious model of delinquency than that originally formulated by Hirschi may have merit. Such a model, depicted in Figure 3, summarizes the results of the present research.

Figure 3 About Here

Footnotes

1. Although this was a longitudinal study involving five waves of data collection, only the first wave was used in the research reported here. The use of concurrent measures parallels Hirschi's (1969) research.
2. Seven eigenvalues were greater than 1.0.
3. The association of extensive dating with a host of questionable youthful behaviors is well supported in the literature. Hirschi's "Passage to Adult Status" (1969:163-171) describes a situation where juveniles participate in quasi-adult behaviors without any of the responsibilities of adulthood, including extensive dating, cruising around in a car, drinking and smoking and so forth. Because this represents little investment in conventional behavior on the part of the adolescent, nothing is risked when the opportunity to consider delinquent behavior arises. This is in contrast to those youths who value a college education and a high status career who risk losing those investments if apprehended and processed in the juvenile justice system. Similarly, a thesis of "youthful rebellion" in which adult values are rejected has been developed by Calvin (1975), while the oppositional nature of adolescent values to adult values is developed by Coleman (1961). The ability of each of these orientations to preclude other conventional social aspirations and attachments, however, must be questioned. Bealer, Willits and Miada, writing on "The Myth of a Rebellious Adolescent Youth Culture," stated that instead of searching for a youth culture which rejects adult values...it is instead more accurate to speak of many youth cultures and indeed, differentiation of various types of adolescent behaviors may provide a more fertile field for research." (1965)

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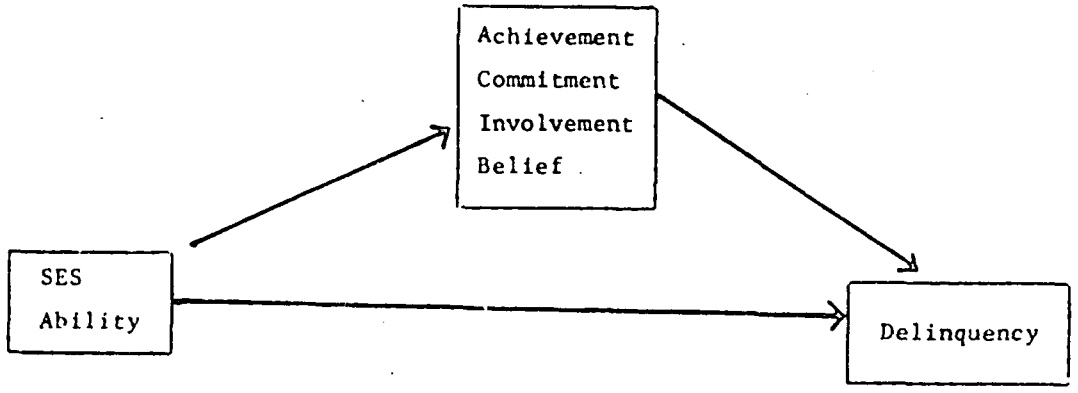

Achievement
Commitment
Involvement
Belief
SES
Ability
Delinquency

Figure 1

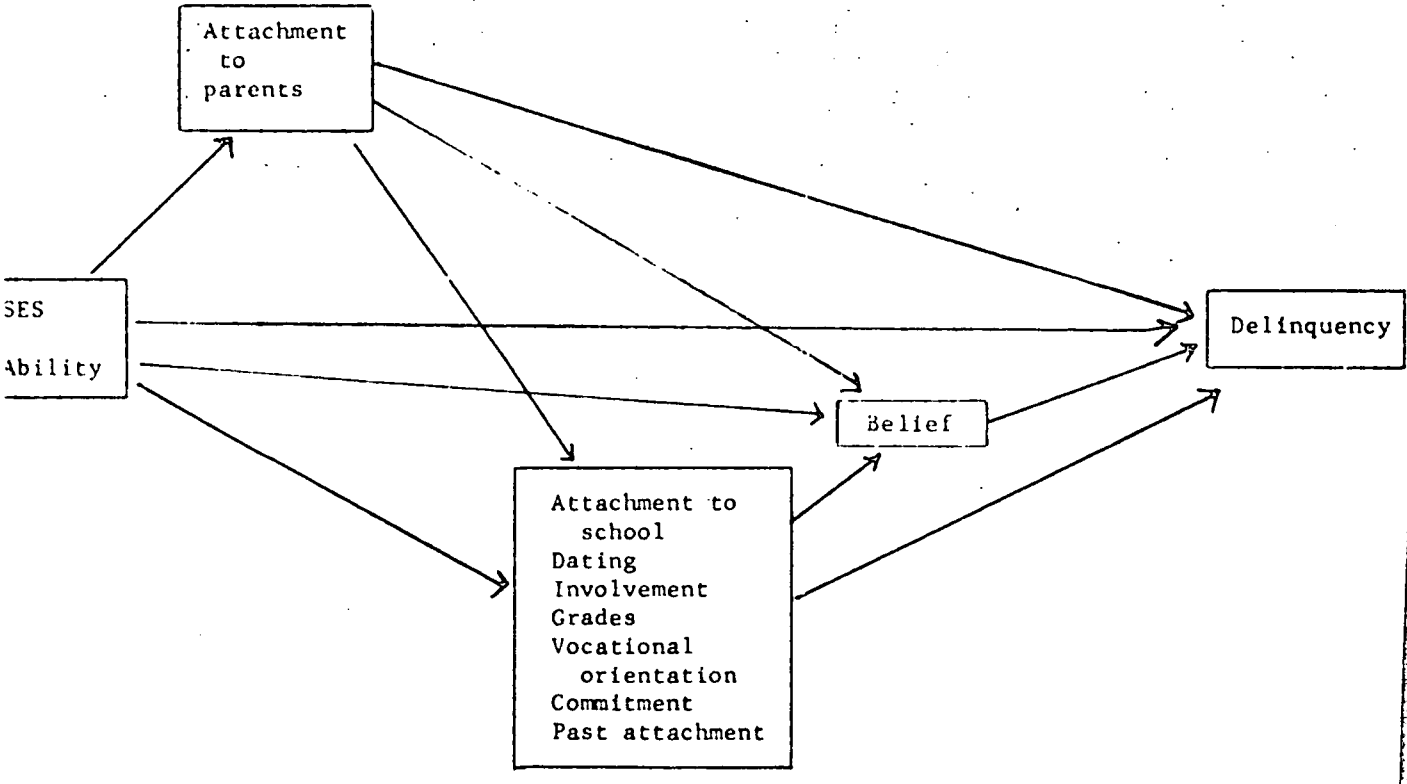

Attachment to parents
SES
Ability
Belief
Delinquency
Attachment to school
Dating
Involvement
Grades
Vocational orientation
Commitment
Past attachment

Figure 2

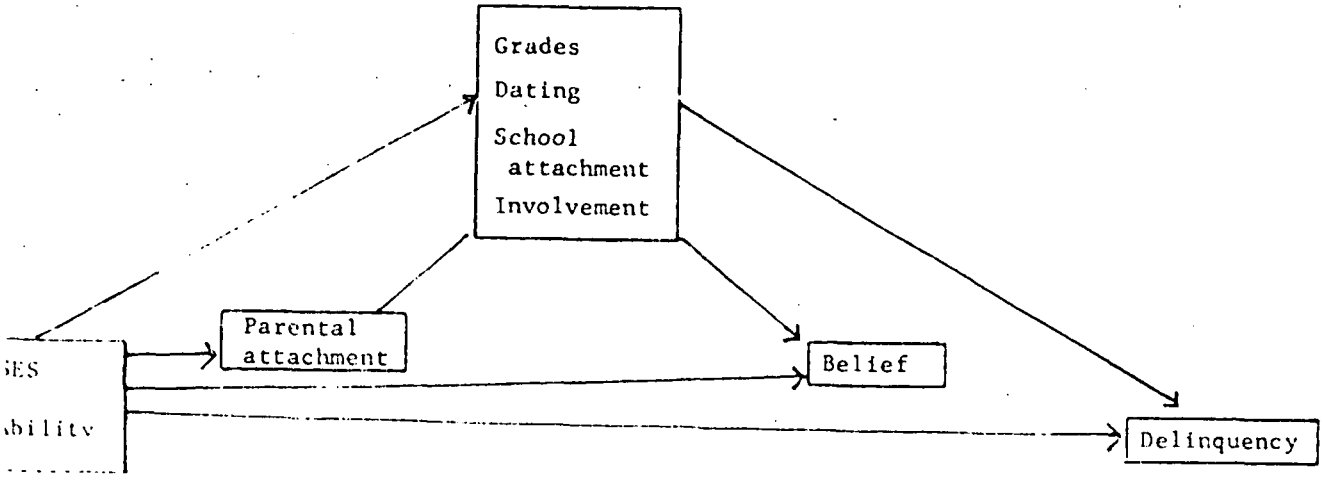

Grades
Dating
School attachment
Involvement
Parental attachment
Belief
Delinquency

Figure 3

Table 1

Varimax Rotated Factor Structure of Measures
Related to Hirschi's Constructs

	I	II	III	IV	V	VI	VII	h^2
CLOSMON1[1]	0.207	-0.008	-0.006	-0.088	0.771	0.061	0.042	0.650
CLOSFATH	0.068	-0.023	-0.033	-0.160	0.805	-0.007	0.001	0.679
HOWEMPF1	0.054	0.076	-0.027	-0.016	0.073	0.726	0.024	0.543
TIMWFRN1	0.068	-0.023	0.036	-0.008	-0.049	0.777	-0.005	0.612
POSSCHI1	0.565	0.003	-0.173	0.471	0.198	0.090	0.097	0.628
NEGSL1	-0.550	-0.213	0.303	-0.203	-0.167	-0.041	0.119	0.524
ACAACHI1	0.748	0.055	-0.141	0.149	0.057	0.057	0.121	0.626
ABILCON1	0.132	0.443	-0.354	0.328	-0.080	0.041	0.135	0.473
TCHINTR1	0.028	0.019	0.016	0.568	0.273	0.128	-0.077	0.421
DUNASPI1	0.215	0.419	-0.481	0.112	-0.092	0.054	0.070	0.482
CLAROCPL	0.021	0.161	-0.505	-0.044	0.057	-0.030	-0.108	0.299
RCVOJT1	-0.057	-0.720	-0.052	0.077	-0.036	0.051	-0.001	0.534
COMPHS1	0.114	0.014	-0.689	-0.031	0.059	0.041	-0.046	0.496
RCVMILT1	0.026	-0.659	0.043	0.038	-0.008	0.004	0.012	0.438
RCVVOC1	-0.082	-0.682	-0.044	-0.008	0.039	0.002	0.017	0.476
ATNDCOL1	0.153	0.443	-0.572	-0.147	0.043	0.037	0.088	0.580
MADECOLP	-0.126	0.009	-0.176	-0.033	0.107	0.006	0.802	0.703
DATEIND1	-0.332	-0.191	0.019	0.016	0.071	0.365	0.030	0.286
TIMESM1	-0.053	-0.001	0.277	-0.190	-0.086	0.091	-0.057	0.134
DSCHWFR1	0.114	-0.033	-0.046	0.701	0.004	0.024	-0.004	0.508
XTRASCH1	0.103	0.064	-0.050	0.737	0.039	-0.094	0.064	0.575
HONEST11	0.799	0.026	-0.067	0.010	0.136	-0.017	-0.001	0.662
GUILTIN1	0.328	0.015	0.177	0.076	-0.091	0.054	0.575	0.487

[1] Complete names for variables are listed on the following pages.

List of Abbreviations

The following abbreviations are used in some of the tables:

1. CLOSMOM1 = Index of Closeness to Mother
2. CLOSFATH = Index of Closeness to Father
3. HOWIMPF = How important are friends
4. TIMWFRN1 = How important is it to spend time with friends
5. POSSCHI1 = Positive school attitudes index
6. NEGSCL1 = Negative school attitudes index
7. ACAACHI1 = Academic achievement index
8. ABILCON1 = Self-concept of academic ability
9. TCHINTR1 = How often do teachers take an interest in my work
10. DUNASPI1 = Duncan aspirations index
11. CLAROCPL1 = Clarity of occupational plans
12. RCVOJT1 = Likelihood of receiving on-the-job training
13. COMPHS1 = Likelihood of completing high school
14. RCVMILT1 = Likelihood of receiving military training
15. RCVVOC1 = Likelihood of receiving vocational training
16. ATNDCOL1 = Likelihood of attending college
17. MADECOLP = Have you made plans to attend college
18. DATEIND1 = Dating index
19. TIMEHW1 = Time spent on homework
20. DSCHWFR1 = How frequently do you discuss school or homework with friends
21. XTRASCH1 = How frequently do you do extra school or homework not required by the teacher
22. HONESTI1 = Honesty index
23. GUILTIN1 = Guilt index

Table 2

Regression of Delinquency on Individual Measures Assumed to be Associated with the Elements of the Bond

Variable and Bond Element	r	Beta
Attachment		
CLOSMOM1	-0.261*	-0.120*
CLOSFATH	-0.243*	-0.101*
HOWIMPF1	-0.015	0.011
TIMWFRN1	0.015	-0.006
POSSCHI1	-0.313*	-0.083*
NEGSL1	0.302*	0.104*
ACAACHI1	-0.256*	-0.028
ABILCON1	-0.102*	0.028
TCHINTR1	-0.163*	-0.045**
Commitment		
DUNASPI1	-0.085*	0.060**
CLAROCPL	0.015	-0.016
RCVOJT1	0.039	-0.016
COMPHS1	-0.137*	-0.033
RCVMILT1	0.036	0.015
RCVVOC1	0.021	-0.020
ATNDCOL1	-0.158*	-0.028
MADECOLP	0.018	0.013
DATEIND1	0.372*	0.332*
Involve		
TIMEHW1	-0.155*	-0.082*
DSCHWFR1	-0.160*	-0.012
XTRASCH1	-0.181*	-0.050**
Belief		
HONESTI1	-0.319*	-0.136*
BUILTIN1	-0.155*	0.069*

R^2 = .318

* = p ≤ .05

** = p ≤ .01

Table 3

Total Association[1] and Unique Contribution of Each Category of Predictors

Set of predictors	Number of measures in the set	Total association	Unique contribution
Attachment	9	.177	.065
Commitment	9	.157	.109
Involvement	3	.061	.010
Belief	2	.103	.016
All predictors	23	.318	--

[1] Total association is the squared multiple correlation of a set of predictors with delinquency. The unique contribution of a set of predictors is the incremental validity of the set. That is, it is the gain in R^2 achieved when that set is added to the regression equation after all other predictors have already been used in a regression equation.

Table 4

Correlation Matrix and Alpha Coefficients for Scaled Bond Measures

	1	2	3	4	5	alpha
1. Attachment	1					.54
2. Commitment	.321*	1				.59
3. Involvement	.403*	.205*	1			.77
4. Belief	.435*	.193*	.192*	1		.87
5. Delinquency	-.359*	-.137*	-.247*	-.319*		.85[a]

* $p < .01$

[a] This is an approximation based on code book data for item means and standard deviations, and the total scale mean and standard deviation, using an adaptation of the formula for KR20. Estimates of the reliability of several subscales made by Patrick O'Malley (personal communication, August 30, 1979) assuming that measurement error is equal at each time (i.e., each data collection) and that errors are uncorrelated range from .85 for a scale composed of items related to delinquent behavior in school to the low .50's for other scales.

Table 5

Squared Zero-Order Correlations and Unique Contributions of Scaled Elements of the Bond

Element	r^2	unique variance
Attachment	.130	.034
Commitment	.019	.000
Involvement	.062	.012
Belief	.102	.032
R^2	.174	

Table 6

Decomposition of Effects According to the Path Model Involving Social Control Theory Elements of the Bond

Independent Variable	Total Association	Total Effect	Direct Effect
Background			
SES	.025	.044	.103*
IQ	-.024	-.043	-.060**
Bond			
Attachment	-.360*	-.234*	-.234*
Commitment	-.137*	-.069*	-.069**
Involvement	-.247*	-.113*	-.113*
Belief	-.319*	-.206*	-.206*

Note: R^2 = .188 residual = .901

* $p \leq .01$

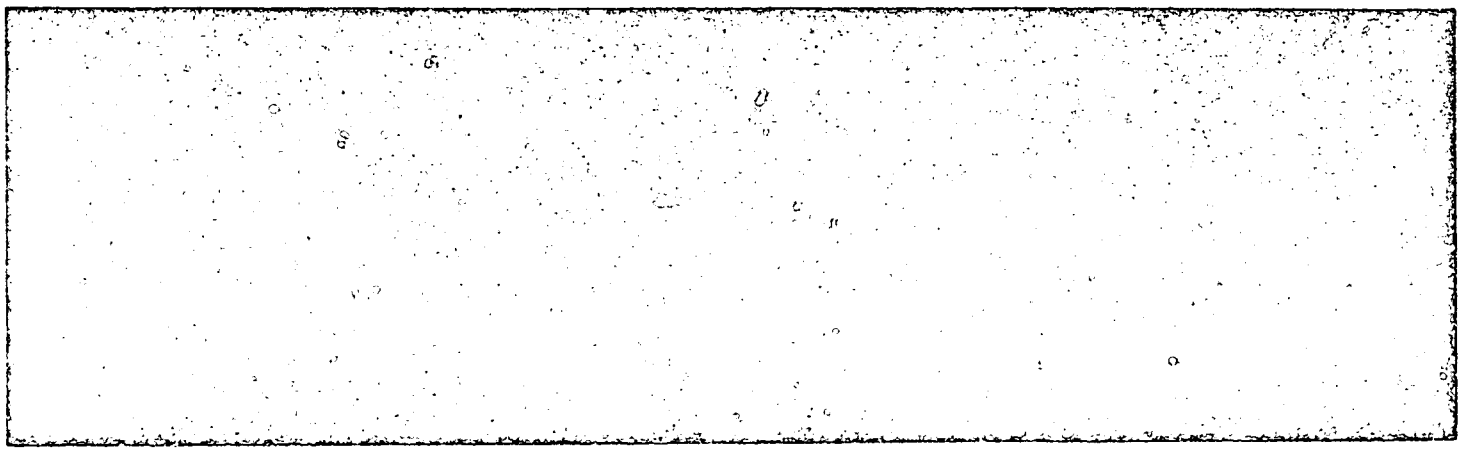
** $p \leq .05$

Table 7

Path Coefficients in Social Control Model of Delinquency

Independent Variable	Attachment Beta b	Commitment Beta b	Involvement Beta b	Belief Beta b	Delinquency Beta b
Background					
SES	.122(.006)*	.287(.006)*	.092(.002)*	.006(.000)	.103(.000)*
Ability	.149(.149)*	.315(.057)*	.017(.004)	.214(.023)*	-.060(.002)
Bond					
Attachment					-.234(-.019)
Commitment					-.069(-.012)
Involvement					-.113(-.016)
Belief					-.206(-.059)
R^2	.053	.260	.010	.047	.188
Residual	.973	.860	.999	.976	.901

* p < .01



Delinquency Beta	b
.103(.000)*	
-.060(.002)	
-.234(-.019)*	
-.069(-.012)*	
-.113(-.016)*	
-.206(-.059)*	
.188	
.901	

Table 8

Decomposition of Effects of Revised Model of Social Control Theory

	Total Association	PARATT		GRADETM1		DATEIND		SCHATT		VOCORNT		INVOLVE	
		Total	Dir	Total	Dir	Total	Dir	Total	Dir	Total	Dir	Total	Dir
SES	.025	.062*	.062*	.038	.032	-.023	-.022	.094*	.076*	-.123*	-.123*	.094*	.081*
ABILITY	-.026	-.042	-.042	.441*	.445*	-.130*	-.130*	.193*	.205*	-.118*	-.118*	.013	.022
PARATT	-.295	-	-	-.092*	-.092*	-.017	-.017	.292	.292*	.015	.015	-.222*	.222*
GRADETM1	-.214												
DATEIND	.372												
SCHLATT	-.367												
VOCORNT	.042												
INVOLVE	-.248												
COMMIT	.083												
PEERATT	.000												
BELIEF	-.319												

* $p \leq .01$

** $p \leq .05$

Table 8 (continued)

	Total Association	COMMIT		PEERATT		BELIEF		DELINQ	
		Total	Dir	Total	Dir	Total	Dir	Total	Dir
SES	.025	-.033	-.028	-.010	-.014	.009	-.039	.044	.095*
ABILITY	-.026	.051	.047	.046	.049	.217*	.127*	-.044	.096*
PARATT	-.295	-.090*	-.090*	.066*	-.066*	.229*	.090*	-.298*	-.182*
GRADETM1	-.214					-.026	-.025	-.097*	-.100*
DATEIND	.372					-.091*	-.091*	.334*	.323*
SCHLATT	-.367					.500*	.500*	-.239*	-.178*
VOCORNT	.042					.033	.033	.011	.015
INVOLVE	-.248					-.022	-.022	-.082*	-.085*
COMMITT	.083					.011	.011	.033	.034
PEERATT	.000					.001	-.001	.003	.003
BELIEF	-.319					-	-	-.125*	-.125*

* $p \leq .01$

** $p \leq .05$

Table 9

Standardized and Unstandardized Path Coefficients for
Revised Model of Social Control Theory

	PARATT	GRADETM1	DATEIND	SCHLATT	VOCORNT	INVOLVE	COMMIT	PEERATT	BELIEF	DELINQ
SES	.062	.032	-.022	.076	-.123	.081*	-.028	-.014	-.039	.095
	(.001)*	(.003)	(-.027)	(.002)*	(-.003)*	(.002)	(-.000)	(-.000)	(-.000)	(.003)*
ABILITY	-.042	.445	-.130	.205	-.118	.022	.047	.049	.127	.096
	(-.038)	(1.680)*	(-7.142)*	(.270)*	(-.104)*	(.024)	(.031)	(.046)	(.070)*	(.015)*
PARATT	-	.092	-.017	.292	.015	.223	-.090	.066	.090	-.182
	-	(.378)*	(-1.000)	(.415)*	(.013)	(.268)*	(-.063)*	(.067)*	(.054)*	(-.031)*
GRADETM1									-.026	-.100
									(-.004)	(-.004)*
DATEIND									-.091	.323
									(-.001)	(.001)*
SCHLATT									.500	-.178)
									(.209)*	(-.021)*
VOCORNT									.033	.015
									(.020)	(.027)
INVOLVE									-.022	-.085
									(-.011)	(-.012)*
COMMIT									.011	.034
									(.009)	(.008)
PEERATT									.014	.004
									(.001)	(.001)
BELIEF									-	-.125
									-	(-.036)*
R^2	.003	.218	.020	.146	.041	.059	.010	.006	.318	.325
Residual	.998	.782	.989	.924	.975	.97	.995	.997	.826	.822

* $p \leq .01$