SOCIAL CONTROL THEORY AND DELINQUENCY*

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Hirschi's social control theory proposes that delinquents fail to form or maintain a bond to society consisting of attachment, commitment, involvement, and belief. Using data from the Youth in Transition Study, the present report develops and tests multivariate models of social control theory which simultaneously consider how the four bond elements operate in relation to delinquency. Factor analysis and communality analysis examine the uniqueness of the four bond elements, and revised and additional measures are suggested. Background factors–measures of social class and ability–are added to the model, and a revised formulation of social control is suggested.

Hirschi's (1969) *Causes of Delinquency* is a benchmark for theory construction and research in the delinquency field. 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). Since delinquency is intrinsic to human nature, it is conformity that must be explained. Conformity is achieved through socialization, the formation of a bond between individual and society comprised of four major elements: attachment, commitment, involvement, and belief. The stronger each element of the social bond, the less likely delinquent 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.

Commitment is related to the aspiration of going to college and attaining a high-status job. This is an investment in conventional behavior which the youth risks should he become delinquent. In contrast to youths with well-defined goals, adolescents engaged in drinking, smoking, dating, and other behavior not oriented toward future goals are much more likely to get involved in delinquent behavior.

Involvement refers to participation in conventional activities which lead toward socially valued success and status objectives. The quality of a youth's activities and their relationship to future goals and objectives are important in preventing delinquency. Time spent on homework, for example, is viewed as antecedent to success in attaining educational goals which are prerequisites to high-status occupations.

Belief is acceptance of the moral validity of the central social-value system (Hirschi, 1969:203). This variation in the acceptance of social rules is central to social control theory, because the less rule-bound people feel, the more likely they are to break rules (Hirschi, 1969:26). Hirschi (1969:26) argues that there is one

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dominant set of values and that even delinquents may recognize the validity of those values, although they may not feel bound by them because of weakened ties to the dominant social order.

HIRSCHI'S DATA ANALYSIS

Although Hirschi's theory fares better than subcultural and differential association theory, Empey (1978:239) implies that the theory's empirical support falls short of complete explanation. Hirschi does not consider how his four elements might act simultaneously to affect the likelihood of delinquent behavior. In addition, instead of empirically analyzing the relationships among the elements of the bond, he simply hypothesizes relationships between attachment and commitment, commitment and involvement, and attachment and belief. Consequently, Hirschi's theory construction and data analysis raise three related questions. First, 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. Second, why are only four elements of the bond identified? The modest predictive power of Hirschi's constructs suggests that additional elements of the bond should be considered. Third, although educational and occupational aspirations are central to Hirschi's theory, he fails to incorporate constructs—such as family socioeconomic level, ability, and significant-others' influence—that research has determined to be important in the development of these aspirations (Haller and Portes, 1973; Sewell, Haller, and Portes, 1969). Hirschi worries about this, but his examination of the zero-order correlations of delinquency and social class finds that there is no important relationship between social class and delinquency (1969:75). Nevertheless, Hirschi (1969:73) suggests that this relationship may be suppressed by some third, intervening variable.

The present research addresses the foregoing three issues. First, we create measures of each of Hirschi's four elements and estimate how much each element contributes over and above the others to the explanation of delinquent behavior. Second, we examine more closely the structure of the social bond, using factor analysis to discover and define new elements. Finally, we perform two multivariate analyses, incorporating measures of social class, ability, and grades as well as elements of the social bond. The first analysis, using Hirschi's four elements, is intended to replicate and extend, rather than extensively reformulate, his study. Finally, we develop and evaluate a revised model, based on the factor analysis, which is somewhat more parsimonious and complete than Hirschi's.

DATA AND MEASURES

Data were obtained 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 in five waves of data collection. The use of concurrent measures parallels Hirschi's (1969) research. A multistage probability sample was used to provide an essentially unbiased representation of tenth-grade boys in public high schools throughout the United States (Bachman, O'Malley, and Johnston, 1978:3).[1]

The selection of information was guided by Hirschi's (1969) discussion and research. Since the exact items used in Hirschi's study were not available, equally weighted composite scales were constructed from items which coincided with Hirschi's constructs. The selection of dissimilar items creates the possibility that differences in results are attributable to

[1] Originally 88 schools selected from the University of Michigan's Survey Research Center's primary sampling units were invited to participate in the study and 71 consented. Replacement schools were found in the same geographic area for all but one school. Approximately 25 males were selected from each school, and of the 2,277 boys who were invited to be members of the survey group, 2,213 (over 97%) chose to participate. This would indicate that nonrespondents and dropouts were not a serious problem (Bachman, O'Malley, and Johnston, 1978: 2–4). Participation rates for waves 2 through 5 were 85.2, 81.3, 73.2, and 73.5%.

differences in measures. Homogeneity or reliability coefficients are used to assess scale reliability. Although assessments of acceptable levels of reliability are governed by convention, a low coefficient is a source of measurement error. In the more parsimonious model of the social bond, selected items are deleted from scales when they result in scales with unacceptably low reliability coefficients.

Items in the Youth in Transition data set that appeared closely related to those in Hirschi's data set were identified. Then factor-analytic and item-analytic procedures were used to identify the measures to be used in the model testing. The following paragraphs discuss the items chosen for initial examination as measures of Hirschi's four elements; see Appendix A for abbreviations and sample items.

Attachment involves the relation of the youth to parents, peers, and school. We represented attachment to parents by two indices, measures of closeness of the youth to his father and to his mother. Attachment to peers was represented by items about the importance of friends to the respondent and how important it was to spend time with his peers. Attachment to school was represented by indices of positive attitude toward school, negative attitude toward school, academic achievement, self-concept of school ability, and the youth's perception of teachers' interest 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 continuum of educational interests; additional items measured the clarity of occupational plans, whether the boys had taken any steps toward attending college, and the amount of time spent and frequency of dating. As will be shown later, the wide conceptual range in the component elements of commitment, as initially constructed, affected its reliability coefficient.

Involvement was represented by three pieces of information that indicated how much school work the youth was doing. While Hirschi relied primarily on the relationship between the amount of homework done and delinquency, we 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 difficult to operationalize because the process of developing beliefs is complex. A youth with close parental attachments is rewarded for conformity by ". . . the approval and esteem of those he admires" (Hirschi, 1969:200). This causal sequence in turn leads to a respect for ". . . persons in positions of authority, to belief that the rules of society are binding on one's conduct" (1969:203). Frequently, Hirschi uses "conscience" in terms of superego development (1969:87) and integrates this with the concept of guilt in noting that delinquent youth experience little guilt when breaking the law.

We used a broader definition of belief, selecting items that measured belief at its final stage of development rather than some earlier stage. The possibility does exist that youth may abide by social rules but not respect the police. An honesty index comprised of items which assessed attitudes towards truthfulness, lying, cheating, and helping friends in difficult situations was used for part of the belief measure. These belief items were initially supplemented by a guilt index, included because individuals lacking a psychological sense of responsibility would, in theory, be free to behave without any notion of psychological accountability for their behavior. The guilt index was later deleted because of unacceptable psychometric properties of the belief scale; its relatively low reliability coefficient is a potential challenge to the use of this index as an operational measure of belief.

Delinquency was measured using an index consisting of the responses to 26 items (with up to six missing data items allowed) adapted from Gold's (1966) self-report measure of delinquency. 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. To protect the confidentiality of the respondents, data on individual delinquency

items were not made available. While it would have been desirable to restrict the items to criminal offenses and exclude trivial offenses, this was not possible. However, the items included in the index have a high alpha coefficient of .85, which demonstrates their internal consistency.

Hirschi's study used two items from Nye and Short's (1957) seven-item delinquency scale and four items from Dentler and Monroe's (1961) five-item "theft scale." Nye and Short's research has been criticized for including trivial items (Hindelang et al., 1979) as have other early self-report instruments (Elliott and Ageton, 1979). Differences in the findings of this study and those of Hirschi may be due to the different measures of the dependent variables.

In the Youth in Transition study report there was no direct validation of delinquency measures against official police reports. There is evidence, however, concerning the validity of the scale items (Bachman, et al., 1978:172) and the self-report method in general (Elliott and Ageton, 1980:96; Hardt and Hardt, 1977). These include the concurrence of the Youth in Transition findings with other studies, the stability of responses over an eight-year period, the internal consistency of attitudinal and behavioral data, and methodological studies that indicate infrequent affirmative responses to the use of fictitious drugs. The authors conclude that the validity of a variable is a matter of individual judgment and that their ". . . measures are basically valid" (Bachman, O'Malley, and Johnston, 1978:173).

Socioeconomic level was measured with a scale of five items that were equally weighted to form an index: father's occupational status, parent's 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.

COMMUNALITY ANALYSIS

Hirschi theorizes that there are four separate elements of the social bond. In statistical terms this means that the four measures are independent of each other—that each makes at least some unique contribution to predicting 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 on the basis of Hirschi's (1969) theory, are used to predict delinquency, and the unique contribution of each composite is examined.

Tables 1 and 2 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 correlation of all bond elements except those assumed related to the element under con-

Table 1. Regression of Delinquency on Individual Measures Assumed to be Associated with the Elements of the Bond

Bond element and variable	r	Beta
Attachment		
CLOSMOM	−.261*	−.120*
CLOSFATH	−.243*	−.101*
HOWIMPF	−.015	.011
TIMWFRN	.015	−.006
POSSCHI	−.313*	−.083*
NEGSCHI	.302*	.104*
ACAACHI	−.256*	−.028
ABILCON	−.102*	.028
TCHINTR	−.163*	−.045**
Commitment		
DUNASPI	−.085*	.060**
CLAROCPL	.015	−.016
RCVOJT	.039	−.016
COMPHS	−.137*	−.033
RCVMILT	.036	.015
RCVVOC	.021	−.020
ATNDCOL	−.158*	−.028
MADECOLP	.018	.013
DATEIND	.372*	.332*
Involve		
TIMEHW	−.155*	−.082*
DSCHWFR	−.160*	−.012
XTRASCH	−.181*	−.050**
Belief		
HONESTI	−.319*	−.136*
GUILTIN	−.155*	.069*
R^2 = .318		

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

Table 2. Total Association 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	—

NOTE: 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 achievement when that set is added to the regression equation after all other predictors have already been used in a regression equation.

sideration from the squared multiple correlation obtained when all bond elements are used to predict 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 that 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.

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. Appendix B describes the measures used in Tables 3, 4, 5, and 6. The correlation matrix and alpha reliability coefficients for each scale are presented in Table 3. The commitment and belief scales were difficult to construct because the items which were initially chosen to operationally represent an element formed scales with unacceptably low alphas. Only scales with acceptable reliabilities are reported here. 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 from all three items was less than that explained by dating alone. One interpretation of this is that involvement in dating may represent a dimension of the bond which is independent of the other parts of commitment, as the low communality of dating in the factor analysis in the following section would indicate.

The honesty and guilt indices formed a scale with an alpha of .22. Despite the allusions to the relationship of conscience and superego development to belief (Hirschi, 1969:87, 200), the data did not support combining these measures into a

Table 3. Correlation Matrix and Alpha Coefficients for Scaled Bond Measures

	1	2	3	4	5	Alpha[a]
1. Attachment	1					.54
2. Commitment	.321*	1				.59
3. Involvement	.403*	.205*	1			.77
4. Belief	.435*	.193*	.192*	1		.87
5. Delinquency	−.360*	−.137*	−.248*	−.319*		.85

* $p \leq .01$.

[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 .50s for other scales.

simple index. The correlation between honesty and guilt was .129 and the coefficient between guilt and delinquency was −.015. The guilt item was *deleted* from the analysis and the homogeneity coefficient of .87 shown for belief in Table 3 refers to the reliability of the honesty index. The zero-order correlation between the honesty measure and delinquency is −.319, in the direction and magnitude predicted by Hirschi.

In Table 3 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 4 declined to .174 because of the exclusion of the dating item from the commitment scale.[2] The unique variance explained by each scaled element remained small, ranging from .000 to .034, indicating that incrementally each bond element adds little to the explanation of delinquency in relation to the total amount of variance explained.

Table 4. 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	

* $p \leq .01$

INTERNAL STRUCTURE OF THE BOND

Our variables were chosen as reasonable measures of Hirschi's constructs, and considerable efforts were taken to examine the psychometric properties of these variables. The items 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. 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 5 shows the results of a seven-factor principal components solution with varimax rotation. Although a scree test implied that fewer factors might have been rotated, the conceptual clarity of the seven-factor solution led us to use it for this portion of the analysis (seven eigenvalues were greater than 1.0).

The positive and negative school indices and the academic achievement index have high loadings on the first factor (Table 5), which might be termed attachment to school. The second and third factors represent status or achievement orientation and appear related to Hirschi's concept of commitment. Those individuals who have high aspirations, are certain of their academic abilities, and want 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 fourth factor appears to tap school involvement, including the positive school-attitudes index and the feeling that teachers take a personal interest in that individual. This dimension also 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. Factor V relates to parental attachment. Factor VI suggests the existence of a peer-attachment element of the social bond. The dating element also appears on factor VI, suggesting that this dimension

[2] The association of extensive dating with a host of youthful behaviors which do not conform to conventional adult values is well-supported in the literature (see Hirschi, 1969:163–71; Galvin, 1975; and Coleman, 1961). However, Bealer, Willits, and Maida (1965) have argued that failure to adopt one or more conventional values does not preclude conformity to others.

Table 5. Varimax Rotated Factor Structure of Measures Related to Hirschi's Constructs

	I	II	III	IV	V	VI	VII	h^2
CLOSMOM	.207	−.008	−.006	−.088	.771	.061	.042	.650
CLOSFATH	.068	−.023	−.033	−.160	.805	−.007	.001	.679
HOWIMPF	.054	.076	−.027	−.016	.073	.726	.024	.543
TIMWFRN	.068	−.023	.036	−.008	−.049	.777	−.005	.612
POSSCHI	.565	.003	−.173	.471	.198	.090	.097	.628
NEGSCHI	−.550	−.213	.303	−.203	−.167	−.041	.119	.524
ACAACHI	.748	.055	−.141	.149	.057	.057	.121	.626
ABILCON	.132	.443	−.354	.328	−.080	.041	.135	.473
TCHINTR	.028	.019	.016	.568	.273	.128	−.077	.421
DUNASPI	.215	.419	−.481	.112	−.092	.054	.070	.482
CLAROCPL	.021	.161	−.505	−.044	.057	−.030	−.108	.299
RCVOJT	−.057	−.720	−.052	.077	−.036	.051	−.001	.534
COMPHS	.114	.014	−.689	−.031	.059	.041	−.046	.496
RCVMILT	.026	−.659	.043	.038	−.008	.004	.012	.438
RCVVOC	−.082	−.682	−.044	−.008	.039	.002	.017	.476
ATNDCOL	.153	.443	−.572	−.147	.043	.037	.088	.580
MADECOLP	−.126	.009	−.176	−.033	.107	.006	.802	.703
DATEIND	−.332	−.191	.019	.016	.071	.365	.030	.286
TIMEHW	−.053	−.001	.277	−.190	−.086	.091	−.057	.134
DSCHWFR	.114	−.033	−.046	.701	.004	.024	−.004	.508
XTRASCH	.103	.064	−.050	.737	.039	−.094	.064	.575
HONESTI	.799	.026	−.067	.010	.136	−.107	−.001	.662
GUILTIN	.328	.015	.177	.076	−.091	.054	.575	.487

NOTE: Complete names for variables and sample items included in indexes are provided in Appendix A.

taps a more comprehensive concept of sociability in which the youth chooses to associate not only 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 perceive 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 may be interpreted as an indication that attitudes and behavior are not always linked, or that too many factors have been extracted.

Because the four elements of the social bond representing attachment, commitment, involvement, and belief did not appear as separate factors, a new interpretation of the bond appears necessary. 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, and parental and peer attachments. The dating and belief items also did not appear as factors. Dating had a moderate negative loading on attachment to school and the high-status career orientation but was unrelated to the low-status career stream. This is important because a host of nonproductive juvenile activities which include dating, drinking, and cruising around in a car are thought to prevent youths from making investments in conventional behavior. While this is partially supported in these data, concomitantly, dating is largely unrelated to all of the factors as a whole ($h^2 = .29$). The low communality of dating suggests that it should be represented separately in a social-control model.

These results suggest 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 Halpern, 1978; 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 serves as a mechanism in which aspirations formed earlier in life are translated

into concrete achievement goals. Naturally, conclusions derived from any factor analysis are largely determined by which variables are chosen for analysis. While Hirschi's analysis reflects a concern with parental, educational, peer, belief, and aspirational items, it is grounded on the premise that the parental relationship is an important determinant of the later elements of the social bond. Thus the emergence of school-related factors is in part a function of the number of school-related items selected, and it is also indicative of the relative strength of those items in a factor analysis of the social bond.

A factor representing a vocational orientation implies that there is 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). 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 honesty index on the school-attachment dimension contradicts Hirschi, who hypothesized that the adherence to conventional social values should be related to attachment to parents. This is consistent with research which suggests that, as society becomes more complex, socialization functions which once belonged to the family are assumed by educational institutions (Smelser and Halpern, 1978; Parsons, 1959).

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 congruent 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 process 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 reconceptualize the nature of the bond.

A SIMPLE MULTIVARIATE MODEL OF THE SOCIAL BOND

We constructed a path model which structured the multivariate examination of Hirschi's four elements of the bond (Figure 1), despite doubts about the elements' utility raised by the communality and factor analyses. Rather than simply arguing, as did Hirschi (1969:75), that social class is not important to delinquency, we consider socioeconomic class and ability as prior or exogenous variables whose causes are unanalyzed, but examine direct and indirect effects of these variables via elements of the bond. The contributions of the four elements of social control theory are also assessed with SES and ability used as statistical controls. Thus this "simple" model may be considered a modification of Hirschi's original formulation. However, if the hypothesized effects do not emerge, then notions of class and ability differences in socialization can be discarded and Hirschi's theory returned to its original form. Appendix B describes the indices which are analyzed in Tables 6, 7, 8, and 9.

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.[3] The re-

[3] Path analysis was used to examine the effects of components of the model described in Figure 1 on delinquency outcomes. Central to our analysis is an understanding of the terms total associations, total contributions, direct contribution, and indirect contributions (Alwin and Hauser, 1975; Gottfredson, 1978). The total association is the zero order correlation between two variables, while the total contribution is the standardized partial regression coefficient (Beta weight) in a regression equation which includes all potential explanatory variables. The direct con-

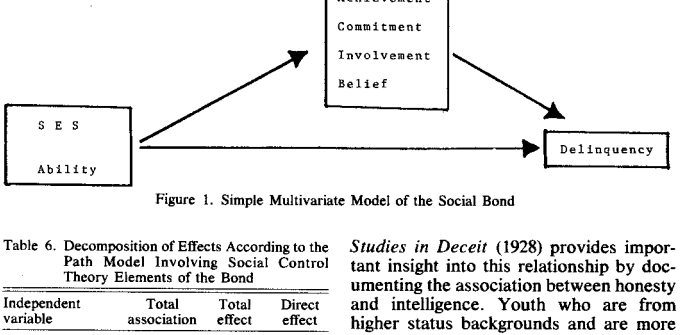

Figure 1. Simple Multivariate Model of the Social Bond

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	.026	.044	.103*
Ability	−.024	−.043	−.060**
Bond			
Attachment	−.360*	−.234*	−.234*
Commitment	−.137*	−.069*	−.069**
Involvement	−.248*	−.113*	−.113*
Belief	−.319*	−.206*	−.206*

NOTE: R^2 = .188 residual = .901
* $p \leq .01$
** $p \leq .05$

sults 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. Hartshorne and May's *Studies in Deceit* (1928) provides important insight into this relationship by documenting the association between honesty and intelligence. Youth who are from higher status backgrounds and are more intelligent may report their deviant behavior more completely, accounting for the relationship between socioeconomic status, intelligence, and delinquency.[4]

Social class is a significant factor in explaining the levels of commitment and of moderately significant importance in explaining levels of attachment and involvement. Ability also makes moderately sized and significant positive contributions to attachment 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 influence levels of delinquent behavior primarily because it affects the commitment of youth to conventional attainment goals. It should be kept in mind that commitment as measured in the present research refers largely to high levels of academic and occupational aspirations. In short, the results correspond with theory in implying that students of low ability and social class are less committed to conventional goals, presumably because those goals are beyond their reach, and that as a consequence of lowered commitment, these students are free to engage in delinquent behavior.

In spite of the generally positive results, these findings are far from satisfactory for three reasons. First, the proportion of

tribution is the Beta weight in a regression equation which includes the causally prior but not intervening variables at that stage, or inclusion level (cf. Nie et al., 1975:375) of the equation, while the indirect effects are those effects which are transmitted via intermediary variables.

[4] The book by Hartshorne and May, *Studies in Deceit* (1928) was made known to the author by an anonymous reviewer.

Table 7. Standardized and Unstandardized 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(.058)*	.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

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

variance in delinquency explained by the model is not large—19%. This is small in comparison with the proportion explained using all twenty-three variables examined in Table 5, 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 inversely related to delinquency (Hirschi, 1969:111–20; Silberberg and Silberberg, 1971; Bachman, O'Malley, and Johnston, 1978), which implies that the model is misspecified. The next section describes analysis of a reformulated model designed to remedy these defects.

A COMPLEX MODEL OF THE SOCIAL BOND

In the reformulated model (Figure 2) the bond elements are chosen to more faithfully represent the bond components and structure derived from interpretation of the factor and communality analyses.[5]

Since Hirschi did not present a multivariate model of the social bond, the model here can be challenged on the grounds that the specification of the model is incorrect. However, this should indicate the general difficulty of constructing models from verbal descriptions of theories. Socioeconomic status and ability are again treated as exogenous background variables because status-attainment research (Blau and Duncan, 1967; Haller and Portes, 1973) 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. While factor analysis says nothing about the causal ordering of variables, belief was placed after the previous block of variables because of the loading of the belief items on the attachment-to-school factor. This suggests that acceptance of conventional social values may be the consequence of a youth's belief in the efficacy of education in pursuing future goals, although the relationship could

[5] The measures used in the remainder of this analysis are presented in the bottom portion of Table

5. Dr. Travis Hirschi reviewed an early draft of this paper and did not criticize the specification of the model.

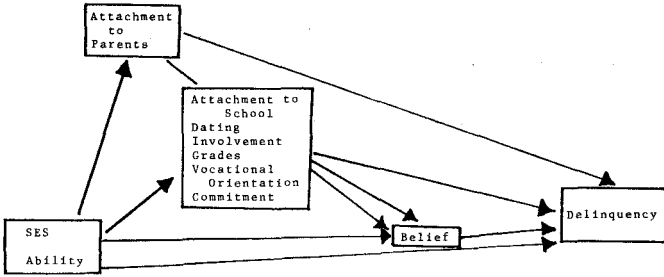

Figure 2. Complex Model of the Social Bond

be reversed. Belief is treated as a separate element 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, the amount of variance in delinquency explained is comparable to that explained in the 23-item regression analysis presented earlier in Tables 1 and 2. Compared to the simple social control model shown in Figure 1, the more complex model of Figure 2 explains an additional 14% of the variance.

Table 8 shows the decomposition of effects according to the revised 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. Grades, involvement, and belief have smaller but nevertheless statistically significant total and direct effects on delinquency. In contrast to the earlier model (Figure 1), the revised model implies moderate positive *net* (direct) effects of 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.

In social control theory, the peer relations of delinquents are characterized by their low level of social skills (Hirschi, 1969). The lack of a relationship between peer attachment and delinquent behavior therefore reflects the unimportance of friends to delinquent youth. This illustrates an important difference between social control theory and other delinquency theories which posit a central role for peer relations (Hansell and Wiatrowski, 1980).

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 improvement. 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 versus school attachment on belief. The path coefficient

Table 8. Decomposition of Effects of Revised Model of Social Control Theory

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

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 "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 with measures of elements of the bond. Our 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. In the future, longitudinal analysis should be directed at making explicit the causal ordering of variables.

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. The revised model implies that the low correlations between social class and ability and delinquency and the emergence of the positive direct effects reported are spurious in the context of other variables which are included in the equation to explicate the relationship to delinquency. Therefore, a substantive interpretation of the effects of social class and ability will not be offered. 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 our revised measures of commitment and involvement is important. Our commitment variable did not exhibit the strong negative effects predicted by Hirschi's control theory; thus, although the present results confirm a negative association of adherence to conventional "success" or

INVOLVE		COMMIT		PEERATT		BELIEF		DELINQ		
Total	Dir.	Total	Dir.	Total	Dir.	Total	Dir.	Total	Dir.	Alpha
.094*	.081*	−.033	−.028	−.010	−.014	.009	−.039	.044	.095*	
.013	.022	.051	.047	.046	.049	.217*	.127*	−.044	.096*	.78
−.222*	.222*	−.090*	−.090*	.066*	.066*	.229*	.090*	−.298*	−.182*	.76
						−.025	−.025	−.097*	−.100*	
						−.091*	−.091*	.334*	.323*	.92
						.500*	.500*	−.239*	−.178*	.85
						.033	.033	.011	.015	.54
						−.022	−.022	−.082*	−.085*	.77
						.011	.011	.033	.034	.59
						.001	−.001	.004	.004	.62
								−.125*	−.125*	.87

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

attainment goals with delinquency, that reduced relationship may be considered unimportant. This may be due to the redundancy of commitment with other measures in the expanded models or to its low reliability. The strength of the involvement relationship is also reduced, but still significant and in the predicted direction.

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

Our model subscribes 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 theories 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. Our examination of the total association, or the zero-order correlations, shows that large correlations with Hirschi's four bond elements do exist (with the exception of the element of commitment to college and a high-status career). When those components in the complex model are considered simultaneously and with controls for ability and school grades, however, it can be seen that several components are more important than others. Our results imply that models such as those depicted in Figures 2 and 3 will be more adequate and parsimonious than that originally formulated by Hirschi.

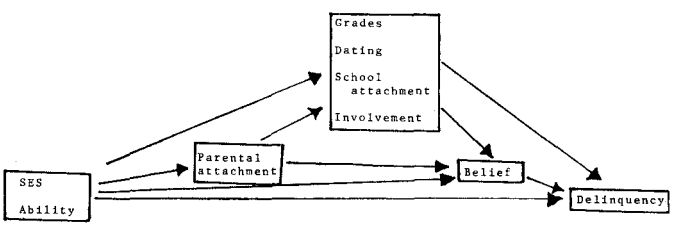

Figure 3. Modified Complex Model of the Social Bond

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)*
GRADETM									−.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	.970	.995	.997	.826	.822

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

The emergence of schools as primary socializing institutions reflects the division of labor in a complex society, where specialized social institutions perform functions of education, socialization, and preparation for adult social roles which previously occurred within the family (Parsons, 1959; Smelser and Halpern, 1978). The bonds to society are thus formed not only in the family, as Hirschi argues, but in part in an educational context, as this research demonstrates. Social class and ability are included in our final model because of their relationship with elements of the bond which in turn affect delinquency involvement: social class and ability are treated as exogenous variables which affect both parental attachment and a set of school-related components of the social bond, which in turn affect belief. Belief was placed after the parental and school-related items because of its theoretical relationship to familial socialization and empirical relationship to the educational measures discussed earlier. In turn, the background, parental, school, and belief measures predict delinquency involvement. The resulting model of the social bond is more complex than that shown in Figure 1 and accords with theory and research on the effects of schooling and adolescence.

APPENDIX A

LIST OF ABBREVIATIONS AND SAMPLE ITEMS

The following items were used in the study. Sample items which were used to constitute scales are presented below.

1. CLOSMOM = Index to Closeness to Mother
   a. How close do you feel to your mother?
   b. How much do you want to be like the kind of person your mother (or female guardian) is?
2. CLOSFATH = Index of Closeness to Father
   a. How close do you feel to your father?
   b. How much do you want to be like your father (or male guardian) when you are an adult?
3. HOWIMPF = How important are Friends
   a. How important would you say friends are in your life?
4. TIMWFRN = Time with Friends
   a. How important is it to spend time with your friends?
5. POSSCHI = Positive School Attitudes Index
   a. I feel satisfied with school because I learn things I want to know.
   b. I believe school will help me be a mature adult.
6. NEGSCHI = Negative School Attitudes Index
   a. School is very boring for me, and I'm not learning what I feel is important.
   b. I feel the things I do at school waste my time more than the things I do outside of school.
7. ACAACHI = Academic Achievement Index
   a. Studying constantly in order to become a well educated person.
   b. Studying hard to get good grades in school.
8. ABILCON = Self-concept of Academic Ability
   a. How do you rate yourself in school ability compared with those in your grade at school?
   b. How close do you come to doing the best work you are able to do in school?
9. TCHINTER = Teacher Interest
   a. How often do teachers take an interest in my work?
10. DUNASPI = Duncan Ranking of Aspired Occupation
11. CLAROCPL = Clarity of Occupational Plans
    a. How likely is it that your plans will work out this way?
12. RCVOJT = Receive On-The-Job-Training
    a. How likely are you to receive on-the-job training?
13. COMPHS = Complete High School
    a. How likely are you to complete high school?
14. RCVMILT = Receive Military Training
    a. How likely are you to receive job training in the military?
15. RCVVOC= Receive Vocational Training
    a. How likely are you to attend a technical or vocational school?
16. ATNDCOL = Attend College
    a. How likely are you to attend college?
17. MADECOLP = Made College Plans
    a. Have you made plans to attend college?
18. DATEIND = Dating Index
    a. On the average, how many evenings a week during the school year do you usually go out for fun and recreation?
    b. On the average, how often do you go out on dates?
19. TIMEHW = Time Spent on Homework
    a. About how many hours do you spend in an average week on all your homework, including both in and out of school?
20. DSCHWFR = Discuss Homework with Friends
    a. Outside of homework how often do you have discussions with friends about ideas that come up in your courses?
21. XTRASCH = Extra School Work
    a. How often are you interested enough to do more reading or other work than the course required?
22. HONESTI = Honesty Index
    a. Never cheating or having anything to do with cheating situations even for a friend.
    b. Helping a close friend get by in a tight situation even though you may have to stretch the truth a bit to do it.
23. GUILTIN = Guilt Index
    a. I do things I feel guilty about afterwards.
    b. When I do wrong my conscience punishes me.

APPENDIX A *(Continued)*

24. SES = Socioeconomic Status—equally weighted composite comprised of
    a. Father's occupational status.
    b. Parent's education.
    c. Possessions in home.
    d. Number of books in home.
    e. Number of persons per room.
25. ABILITY = Ability Index
    a. GATB Vocabulary level.
    b. GATB Arithmetic level.
26. GRADETM = Grades Time 1
    a. What was the average grade you got in your class last year?
27. Delinquency Index Items
    a. Stayed out later than your parents said you should.
    b. Taken something not belonging to you worth under $50.
    c. Hurt someone badly enough to need bandages or a doctor.
    d. Taken an expensive part of a car without permission of the owner.
    e. Taken part in a fight where a bunch of your friends are against another bunch.
    f. Taken something not belonging to you worth over $50.
    g. Used a knife or gun or some other thing like a club to get something from a person.

APPENDIX B

ITEMS USED TO CONSTITUTE SCALES IN THE PATH ANALYSIS OF THE SIMPLE AND COMPLEX MODELS OF SOCIAL BOND

The following indices used in Tables 6, 7, 8 and 9 were constructed by equally weighting the composite elements derived from Appendix A.

SES	= Socioeconomic Status
ABILITY	= GATB Math and Verbal Test Scores
ATTACHMENT	= CLOSMOM + CLOSFATH + HOWIMPH + POSSCHI + NEGSCHI + ACAACHI + ABILCON + TCHINTR
COMMITMENT	= DUNASPI + ATNDCOL
INVOLVEMENT	= TIMEHW + DSCHWFR + X-TRASCH
BELIEF	= Honesty Index

The following indices used in Tables 10 and 11 were constructed by equally weighting the composite elements derived from Appendix A.

SES	= Socioeconomic Status
ABILITY	= GATB Math and Verbal Test Scores
PARATT	= Parental Attachment a. CLOSMOM + CLOSFATH
GRADETM	= Grades Time 1
DATEIND	= Dating Index
SCHLATT	= School Attachment a. POSSCHI + NEGSCHI + ACAACHI
VOCORNT	= Vocational Orientational a. RCVOJT + RCVMILT + RCVVOC
INVOLVE	= Involvement a. TIMEHW + DSCHWFR + XTRASCH
COMMIT	= Commitment a. DUNASPI + ATNDCOL
PEERATT	= Peer Attachment a. HOWIMPF + TIMWFRN
BELIEF	= Honesty Index

NOTE: The items used to construct scales were derived from those measures of the bond presented in Tables 2 and 3. Items were combined on the basis of theoretical parsimony and their contribution to the stability of the scale. Items which did not add to the scale stability and explanatory power of the scale were deleted.

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