

Do Adolescents Engage in Delinquency to Attract the Social Attention of Peers?

An Extension and Longitudinal Test of the Social Reinforcement Hypothesis

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Although social-learning theory remains among the dominant perspectives in micro-level research concerning the causes of delinquency, research has yet to provide an adequate test of its social-reinforcement component using the methods required by the logic of operant psychology. The present article discusses the limits of existing attempts to test the social-reinforcement hypothesis, offers a new approach for testing it, and describes the use of panel data to provide such a test. In particular, the author examined (1) whether delinquency increases the amount of time a perpetrator's peers choose to spend with him or her, (2) whether such attention serves as a direct reinforcement prompting further delinquency from the perpetrator, and (3) whether such attention serves as a vicarious reinforcement prompting delinquency from audience members in proportion to their desire for informal socializing among peers. The results suggest support for vicarious, but not direct, social reinforcement.

Keywords: *delinquency; peers; learning; reinforcement*

Sutherland's (1947) theory of differential association asserts that criminal peers increase an individual's criminal propensity by providing behavioral models and encouraging deviant attitudes. Extending this idea, Burgess and Akers (1966) proposed a "differential association-reinforcement" theory that combines Sutherland's theory with the principles of operant psy-

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chology. According to Burgess and Akers, individuals engage in crime not only when they associate with criminals but also when crime provides reinforcing rewards in the absence of punishment. Today, the Burgess-Akers theory remains the foundation of the criminological learning perspective (see Akers 1985, 1998).

Perhaps because differential association and crime are so strongly correlated (e.g., Agnew 1991; Akers 1998; Akers et al. 1979), empirical tests of the reinforcement hypothesis are less common than those of the differential-association hypothesis. Even among tests of the reinforcement hypothesis, a number are indirect tests from the perspective of deterrence or rational-choice theory. These tests, for example, suggest that delinquency is less likely among those who perceive a high certainty of official sanctions (e.g., Bachman, Paternoster, and Ward 1992; Klepper and Nagin 1989a, 1989b; Nagin and Paternoster 1993; Paternoster 1989) and witness or experience punishment avoidance following crime (e.g., Paternoster and Piquero 1995; Piquero and Paternoster 1998; but see also Piquero and Pogarsky 2002; Pogarsky and Piquero 2003). However, such tests tend to model delinquency as a function of its potential costs, assuming its benefits to be self-evident (see Gottfredson and Hirschi 1990). Among the limited rational-choice studies examining the potential benefits of delinquency, most measured benefits in purely economic terms (e.g., Carroll 1978; Pilliavin et al. 1986), although Nagin and Paternoster (1993) found evidence that delinquent intent is highest among those who believe such behavior to be associated with "fun or a kick" (p. 482).

Among direct tests of the reinforcement hypothesis, Akers et al. (1979) provided perhaps the most often cited test by examining the relationship between substance use and five "social reinforcement" scales. These scales included respondents' (1) "report[s] as to whether or not friends, parents, or both encouraged them *not* to use," (2) "report[s] of anticipated or actual positive or negative sanctions of friends," (3) "report[s] of anticipated or actual positive or negative sanctions of parents," (4) "perceived probability that their parents would catch them," and (5) "perceived probability that the police would catch them" (p. 655). The results revealed several of these scales to be associated with self-reported substance use, and further studies yielded similar findings among a range of samples (e.g., Akers and Cochran 1985; Akers and Lee 1996; Brezina and Piquero 2003; Bruinsma 1992; Lanza-Kaduce and Klug 1986; Orcutt 1987; Winfree and Griffiths 1983; Winfree, Sellers, and Clason 1993).

Despite such results, existing tests of the social-reinforcement hypothesis suffer from three limitations. First, most studies collapsed measures of

reward with measures of punishment to produce a series of "reinforcement" scales. This strategy fails to isolate the independent relationship between delinquency and such outcomes as status or popularity within adolescent peer groups. All five social-reinforcement scales in Akers et al.'s (1979) study, for example, included measures of social or nonsocial punishment. As a result, it remains possible that the correlation between social reinforcement and delinquency stems entirely from the negative influence of perceived costs on delinquency. The failure of some studies to isolate the relationship between precise social rewards and delinquency has resulted in repeated criticism (e.g., Halbasch 1979; Sampson 1999; Warr 2002), and Akers (1981) himself acknowledged the validity of such criticism.

Second, measures of social reinforcement not involving costs tend to involve items gauging peer pressure (e.g., Winfree and Griffiths 1993) or peer approval (e.g., Winfree et al. 1993). Yet peers may reinforce one's delinquency after the fact without explicitly applying social pressure before the fact (see Akers 1998). Moreover, just as many adults have reinforced off-color jokes behind closed doors while claiming not to "approve" of their offensive content in the broader public sphere, many youths may not technically approve of behaviors such as binge drinking or prank phone calling while being amused by the perpetrators of such behavior and thus reinforcing them with laughter, attention, or inclusion in social activity. Research concerning the correlation between peer approval and delinquency may therefore speak little to the validity of the reinforcement hypothesis.

Third, many studies of the reinforcement hypothesis used cross-sectional data. Akers et al. (1979), for example, found that several of their social-reinforcement scales were correlated with self-reported substance use. Although such findings are compatible with the hypothesis that delinquency results from the social approval of substance-using peers, they are also compatible with the hypothesis that delinquents choose to associate with peers who approve of their lifestyles (see Gottfredson and Hirschi 1990). Cross-sectional research has failed to account for the fact that the operant learning process (e.g., Skinner 1974), which serves as the basis of the social-reinforcement hypothesis, involves three key steps that take place in a specific order across time. First, an organism engages in an innovative, but not necessarily deliberative, behavior whose *a priori* outcome is unknown. Next, the given behavior may produce, or cause, a stimulus that is positively valued. Finally, the organism may associate the behavior with the positive stimulus and respond by increasing the frequency of that behavior across time. A true test of the reinforcement hypothesis would therefore appear to require longitudinal assessments of (1) whether delinquency, as an independent

variable, increases one or more positive social outcomes and (2) whether receiving such outcomes exerts a reciprocal influence on the frequency of delinquent behavior.

Extending the Social-Reinforcement Hypothesis

The present analysis addressed the above limitations by examining whether delinquency increases the amount of time peers choose to spend with perpetrators and whether such social attention in turn promotes further delinquency among perpetrators and/or audience members. Research in this area, which tends to be cross-sectional, suggests that antisocial children are somewhat unpopular among peers in early childhood (e.g., Coie, Dodge, and Underwood 1988; Dodge, Coie, and Brakke 1982) but increasingly popular as they reach adolescence. Rodkin et al. (2000), for example, found that popular boys in elementary school are often aggressive or defiant of authority. Xie, Cairns, and Cairns (1999:147) found that "high social network centrality [is] associated with high levels of aggressive behavior" among fourth through seventh graders (see also Salmivalli et al. 1996). Giordano, Cerkevich, and Pugh (1986) found, contrary to the assertions of control theorists (e.g., Hirschi 1969), that delinquents are more prone than conformists to feel that others look up to them and to have loyal and self-disclosing relationships. Finally, research suggests that delinquent youths are more likely to be socially active (Agnew and Petersen 1989; Lotz and Lee 2000; Tolone and Tieman 1990) and that this relationship obtains net of peer delinquency (Agnew 1991).

Why Might Delinquency Attract the Social Attention of Peers?

Notwithstanding Durkheim's (1893/1964) observation that crime is functional insofar as it bonds conventional members of society, criminologists tend to assume that delinquency provides benefit exclusively to perpetrators (e.g., Agnew 1992; Gottfredson and Hirschi 1990). Yet despite the generally negative valence of terms such as *deviance* and *delinquency*, such behavior may provide benefits to a delinquent's peers during adolescence. Three examples merit particular attention.

First, a delinquent may provide entertainment for his or her peers via such spectacles as pranks, fights, and drinking games, to name a few. Holding other considerations constant, the delinquent may therefore be viewed as

being more "fun" than a straight-laced counterpart. Adolescent audiences, perhaps comprising what Hagan (1991) termed a "party subculture," may therefore entice delinquency from their peers with the proverbial "dare" and reinforce it with their attention or with other forms of social reward. Hazing rituals, in which adolescents or young adults are required to engage in some form of "deviant" behavior in exchange for social acceptance, serve as prime examples.

Second, delinquency may provide group resources that would otherwise remain unavailable. An adolescent who is willing to "borrow" a parent's car without permission may provide transportation for his or her peers. An adolescent who risks the potential legal sanctions associated with using a fake ID may provide alcohol to his or her peers. An adolescent who risks purchasing illegal substances such as marijuana may become the center of attention among those who enjoy its use. An adolescent who is willing to have a party at his or her parents' home in their absence provides a locale for group congregation. Further examples abound.

Third, delinquency, by virtue of the various risks it entails, may signal to friends that a given individual will have the "nerve" to stand by them in times of trouble. Anderson (1999), for example, found that inner-city adolescents who demonstrated "heart" in the face of danger garnered status within adolescent gangs (see also Whyte 1943). Whereas affiliation with timid individuals may be detrimental to a gang's reputation, affiliation with individuals who have proved their mettle publicly serves to protect the gang both directly, during gang fights, and indirectly, by promoting the gang's reputation for toughness. To the degree that "images of hipness grounded in the inner-city subculture . . . move by cultural diffusion . . . into the middle-class" (Anderson 1999:124), delinquents may garner disproportionate social attention among adolescents more broadly.

In sum, whereas Cohen (1955) suggested that delinquency is a reaction to exclusion from the middle class and Moffitt (1993) suggested that delinquency reflects an attempt to achieve independence from adults, the present perspective suggests that delinquency may help an adolescent "stand out," as much as "fit in," thereby attracting attention within the peer group:

Hypothesis 1: Increases in delinquency are associated with increases in the amount of time that peers choose to spend socializing with perpetrators.

How Might Social Attention Promote Further Delinquency?

To the degree that adolescence heightens the importance of the peer group (e.g., Corsaro and Eder 1990; Crockett, Losoff, and Petersen 1984; Dornbusch

1989; Sebold 1992; Thornberry 1987; Warr 2002; Youniss and Smollar 1985), peer attention may be construed as a positively valued stimulus above and beyond the economic and visceral benefits that control theorists (e.g., Gottfredson and Hirschi 1990) associate with delinquency. To the degree that a perpetrator consciously or unconsciously (see Berry and Broadbent 1984; Claxton 1999; Lewicki, Hill, and Czyzewska 1992; Massey 2002) associates delinquency with social reward, the process of direct reinforcement may prompt him or her to seek further reward via increased delinquency:

Hypothesis 2: Increases in time socializing are associated with increases in a perpetrator's delinquency.

If the direct-reinforcement hypothesis is correct, Hypotheses 1 and 2 should be supported simultaneously. On the other hand, if Hypothesis 2 is supported but Hypothesis 1 is disconfirmed, the results will be more consistent with opportunity theory (e.g., Osgood et al. 1996), which predicts that time socializing may increase exposure to delinquent opportunities but not that delinquency affects time socializing.

To the degree that delinquency tends to take place within groups (see Agnew 2005), perpetrators are not likely to be the only ones to associate delinquency with its social consequences. Peer audiences are also likely to observe the social consequences of a perpetrator's delinquency and adjust their own behavior accordingly. An adolescent might, for example, observe that socially active peers tend to be those who drink alcohol or smoke. If so, the vicarious-reinforcement hypothesis predicts that the adolescent may engage in delinquency as a partial function of his or her own desire for an active social life:

Hypothesis 3: Increases in the importance that an adolescent attaches to socializing with peers will be associated with increases in delinquency.

If the vicarious-reinforcement hypothesis is correct, Hypotheses 1 and 3 should be supported simultaneously such that delinquency increases time socializing, and attaching high importance to socializing promotes greater delinquency.

Do These Arguments Apply to Some Groups More Than Others?

Assuming that the above arguments have merit, there exists reason to believe that the processes of direct and vicarious reinforcement prompt delinquency from some social groups more than others. First, the gender

socialization literature suggests that that boys are more likely to receive reinforcement for aggressive or delinquent behavior (e.g., Carter and Levy 1988; Fagot and Leinbach 1989; Marcus and Overton 1978; Rheingold and Cook 1975; Smetana and Letourneau 1984). Perhaps reflecting this tendency, theorists such as Greenberg (1977) and Messerschmidt (1993) have suggested that delinquency is particularly valuable for boys insofar as it may help them achieve masculine identities. Extending the logic of such theories, it may further be the case that the direct- and vicarious-reinforcement hypotheses are more applicable to boys than to girls:

Hypothesis 4: Hypotheses 1 to 3 will be more strongly supported among boys than among girls.

Second, developmental and life-course research suggests reason to believe that adolescents are more likely to receive reinforcement for delinquency than young children or adults. In particular, the onset of puberty may heighten the importance of the peer group (e.g., Corsaro and Eder 1990; Crockett et al. 1984; Dornbusch 1989; Sebald 1992; Thornberry 1987; Youniss and Smollar 1985), whereas life-course transitions in early adulthood may lower its importance. For example, whereas only older looking adolescents may be capable of procuring resources such as alcohol, young adults are less dependent on peers for such resources. Similarly, adulthood allows entrance into the economic sphere, which marks a critical life-course transition whereby individuals may achieve respect in ways that were unavailable during adolescence (e.g., Moffitt 1993). Finally, the same transition to adulthood may prompt individuals to invest more in careers and long-term romantic relationships that constrain the short-term risks associated with delinquency (see Sampson and Laub 1993).

Methods

Data

The data for this study came from the first and third waves of the National Youth Survey (NYS; Elliott, Huizinga, and Ageton 1985). The second wave was omitted as a result of high rates of missing data on certain delinquency measures. NYS data provided a number of advantages for this study. First, they come from a national sample representative of adolescents between the ages of 11 and 17 years at the time of data collection. Second, whereas alternative data used ordinal or truncated responses categories

for their delinquency measures, NYS data included more precise measures of delinquency that maximized variance. Third, NYS data contain measures of both the time respondents reported spending with their friends and the importance respondents attached to their social lives. Fourth, the longitudinal nature of the NYS data allows for preliminary analyses aimed at teasing out causal relationships. Finally, the NYS sample is self-weighted and therefore does not entail complex weighting and design effects that preclude the use of currently available covariance-structure-modeling packages.

Measures

Delinquency. This study used delinquency measures including vandalism, petty theft, interpersonal aggression, drunkenness, and truancy. After asking respondents to report the specific number of instances in which they engaged in each behavior during the year prior to each interview, NYS researchers collapsed the responses into nine categories (see the Appendix).

Time socializing. The NYS included three items probing the amount of time respondents and their friends spent socializing outside formal or educational settings. Respectively, these items probed informal time socializing on weekday afternoons following school, on weekday evenings, and on the weekends. Although such items provide one operational measure of social reward, they are clearly not exhaustive and could conceivably reflect something other than social reward. At the same time, the above hypotheses clearly delineate predictions about these measures that differ from those of alternative theories such as opportunity theory (Osgood et al. 1996). To examine whether time socializing can legitimately be viewed as a rewarding stimulus, however, exploratory analyses examined the correlation between time socializing and the importance of socializing. At a minimum, if time socializing is experienced as a positive stimulus, it should be highest among those who most value socializing. The results suggested this to be the case reliably across both waves of data.

Importance of socializing. The present study included three items reflecting each respondent's desire for social interaction with peers. The first probed the degree to which respondents reported that they valued friends' requests to be included in informal social activity, the second probed how important it was for respondents to socialize with friends, and the third probed how important it was for respondents to have friends. To ensure that these

Table 1
Varimax-Rotated Factor Analyses of Time Socializing, the
Importance of Socializing, and Delinquency Items

Item	1976 (<i>n</i> = 1,483)			1978 (<i>n</i> = 1,499)		
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
Afternoons with friends	.04	.77	-.02	.08	.77	-.02
Evenings with friends	.12	.76	-.01	.15	.81	.00
Weekends with friends	.14	.61	.30	.00	.69	.28
Important that friends ask to spend time	-.05	-.04	.76	-.03	-.03	.81
Important to have friends	-.11	.09	.74	-.08	.05	.79
Importance of social activity	.16	.10	.64	.16	.16	.66
Petty theft	.74	.03	.04	.72	.02	.04
Hit students	.60	.05	-.05	.65	-.03	.00
Drunkenness	.60	.22	.07	.56	.29	.04
Skipping class	.71	.19	-.06	.65	.28	-.09
School vandalism	.72	-.07	.03	.66	-.03	.03
Cronbach's α	.66	.57	.55	.61	.68	.64

Note: Loadings greater than .40 are in boldface type. Substantive results were similar after disaggregating by gender.

items represented a construct distinctive from delinquency and time socializing, items for all three constructs were included in the varimax-rotated factor analyses presented in Table 1. The results suggested that the three constructs are in fact empirically distinct, and this finding was reliable across time points.

Control variables. Given that social-learning theory might suggest the predicted relationships to be spurious in the absence of statistical controls for differential association, this study included three scales derived from differential-association theory: peer delinquency, peer attitudes toward delinquency, and personal attitudes toward delinquency. Given that social-control theory might suggest the predicted relationships to be spurious in the absence of statistical controls for social bonds in the family and school contexts, this study included three social control scales: time spent with the family, emotional attachment to the family, and time spent studying. Descriptive statistics for each of the above scales are presented in Table 2, and each scale's constituent items are presented in the Appendix. In addition,

Table 2
Descriptive Statistics

Variable	<i>n</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>	Skew
Gender	1,725	0	1	.5	.5	-.1
Divorce/separation	1,683	0	1	.2	.4	1.9
Age	1,725	11	17	13.9	1.9	.1
Delinquency						
1976	1,713	5	31	7.3	3.2	2.5
1978	1,619	5	34	7.6	3.6	2.3
Time socializing						
1976	1,488	1	15	8.2	3.4	-.2
1978	1,506	1	15	8.5	3.5	-.1
Importance of socializing						
1976	1,489	3	15	11.4	2.4	-.5
1978	1,509	3	15	11.5	2.4	-.4
Peer delinquency						
1976	1,713	5	24	9.7	3.9	.9
1978	1,567	5	24	10.2	3.8	.6
Peer disapproval						
1976	1,695	5	25	18.9	3.3	.3
1978	1,606	8	25	18.5	3.0	.0
Respondent disapproval						
1976	1,715	5	20	16.5	2.6	-.7
1978	1,625	6	20	15.8	2.7	-.2
Time with family						
1976	1,719	1	15	10.5	3.4	-.5
1978	1,625	1	15	9.7	3.7	-.4
Family attachment						
1976	1,713	3	15	11.6	1.8	-.6
1978	1,622	3	15	11.9	2.1	-.9
Time studying						
1976	1,700	1	15	6.8	3.1	.1
1978	1,523	1	15	6.9	3.5	.1

given that delinquency has been linked to divorce and separation between an adolescent's parents (Rebellion 2002) and that age is related to both delinquency and adolescent socializing (Warr 2002), family structure and age were included as control variables in the ordinary least squares (OLS) analyses.

Analytic Strategy

The analyses were conducted in three sets. The first used OLS regression to examine the partial correlation of delinquency with time socializing

and with the importance of socializing among NYS respondents. Regressions were disaggregated by gender and replicated across two separate time points. To the degree that cross-sectional OLS regression analyses suggested significant relationships between delinquency and time socializing and the importance of socializing, the causal direction accounting for the relationships remained ambiguous in the absence of longitudinal analyses. A second set of analyses therefore used LISREL 8 (Jöreskog and Sörbom 1993) to estimate contemporaneous-effects panel models (see Kessler and Greenberg 1981) of the relationship between delinquency and time socialization, and a third set used the same method to estimate similar models of the longitudinal relationship between delinquency and the importance of socializing. Following prior research using panel models with skewed delinquency measures (e.g., Matsueda and Anderson 1998), these analyses used polychoric correlations to estimate models via a weighted least squares algorithm. Rather than assuming normality among observed items, this asymptotically distribution-free method of estimation assumes normality of the latent structure underlying each item as well as bivariate normality underlying the estimated polychoric correlations (Browne 1984). Following Kessler and Greenberg (1981), each panel model included an estimate of the correlation between the error terms of its latent dependent variables, thus purging the influence of unmeasured variables that may have simultaneously affected multiple latent constructs.

Results

Table 3 presents the results of four cross-sectional OLS regressions examining whether delinquency is related to the amount of time a respondent spent socializing and to the importance a respondent attached to socializing. The first column of Table 3 suggests that delinquency tended to be lower among boys who disapproved of delinquency, among boys whose friends disapproved of delinquency, and among boys who spent more time studying. Likewise, it suggests that delinquency tended to be higher among boys whose parents had divorced or separated and whose friends engaged in high levels of delinquency. Net of these associations, the first column of Table 3 further suggests that delinquency was positively related to the time a boy spent socializing and to the importance he attached to socializing. The second column of Table 3 suggests that delinquency tended to be higher among girls whose friends engaged in high levels of delinquency. Likewise, it suggests that delinquency tended to be lower among girls whose friends

Table 3
Cross-Sectional Relationship between Delinquency, Time
Socializing, and the Importance of Socializing: Standardized
Ordinary Least Squares Estimates

Variable	1976		1978	
	Boys	Girls	Boys	Girls
Divorce/separation	.13**	.05	.07*	.10*
Age	.01	.02	.14**	.06
Peer delinquency	.34**	.39**	.39**	.44**
Peer disapproval	-.15**	-.13**	-.08*	-.06
Respondent disapproval	-.19**	.07	.08	-.11**
Family attachment	-.02	-.04	-.02	-.11**
Time with family	-.04	-.07*	-.10**	-.06
Time studying	-.08**	-.07*	-.12**	.04
Time socializing	.10**	.14**	.13**	.08**
Importance of socializing	.06*	-.04	.07*	.04
R^2	.46	.42	.51	.48
N	725	621	700	654

* $p < .05$; ** $p < .01$ (two-tailed).

disapproved of delinquency, who spent more time with their families, and who spent more time studying. Net of these associations, it further suggests that female delinquency was positively associated with time socializing but unrelated to the importance that girls attached to socializing. Finally, the third and fourth columns of Table 3 suggest that the relationships between delinquency and time socializing and the importance of socializing were reliable across the time period.

A series of contemporaneous-effects panel models, presented in Figures 1 and 2, explored the causal ordering that may have been responsible for the partial correlations observed in the cross-sectional results. Table 4 presents measurement models for boys and girls of the relationship between delinquency and time socializing. Across time points and gender, all items exhibited substantively high and statistically significant weighted least squares factor loadings. Likewise, disturbance terms for the majority of items exhibited statistically significant correlations across time. Given these results, structural models based on the items presented in Table 4 provided a more precise basis for statistical inference than the OLS regression models presented above.

Figure 1 presents structural models, disaggregated by gender, of the contemporaneous relationship between delinquency and time socializing.

Table 4
Reciprocal Relationship between Delinquency and
Time Socializing: Measurement Model

Variable	Weighted Least Squares Factor Loading		Disturbance Term		Disturbance Term: Serial Correlation
	1976	1978	1976	1978	
Male model (<i>n</i> = 669)					
Petty theft	.85**	.85**	.28**	.28**	.09*
Hit students	.58**	.68**	.66**	.54**	.19*
Drunkenness	.90**	.84**	.19**	.29**	.13**
Skipping class	.87**	.82**	.24**	.33**	.03
School vandalism	.76**	.83**	.42**	.31**	.09**
Afternoons with friends	.61**	.66**	.63**	.56**	.11**
Evenings with friends	.71**	.85**	.50**	.28**	.08*
Weekends with friends	.42**	.42**	.82**	.82**	.08*
Female model (<i>n</i> = 641)					
Petty theft	.91**	.74**	.17**	.45**	.19**
Hit students	.56**	.65**	.69**	.58**	.27**
Drunkenness	.81**	.81**	.34**	.34**	.14**
Skipping class	.70**	.70**	.51**	.51**	.06
School vandalism	.67**	.67**	.55**	.55**	.20**
Afternoons with friends	.64**	.65**	.59**	.58**	.03
Evenings with friends	.66**	.84**	.56**	.29**	.11**
Weekends with friends	.63**	.69**	.60**	.52**	.10**

Note: Estimates reflect fully standardized solution.

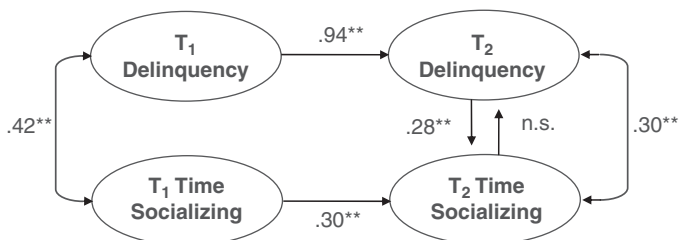
* $p < .05$; ** $p < .01$ (two-tailed).

Examining the time 1 correlation between delinquency and time socializing in each model suggests that these constructs were significantly correlated for both boys and girls. Examining the lagged effect of each construct on itself suggests significant stability in each one across time and gender. Net of these considerations, the model for boys suggests that an increase in delinquency promoted an increase in time socializing but that an increase in time socializing did not prompt further delinquency. Despite the significant time 1 correlation between delinquency and time socializing, Figure 1 suggests no longitudinal relationship between the latter two constructs among girls.

Table 5 provides disaggregated measurement models for boys and girls of the longitudinal relationship between delinquency and the importance respondents attached to socializing. Across time points and gender, all items

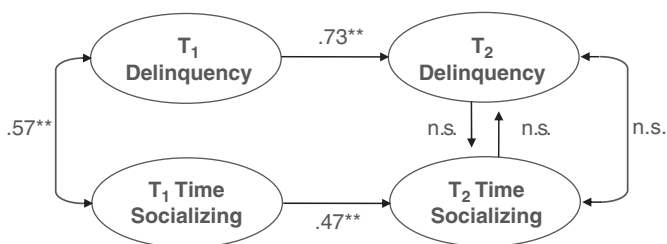
Figure 1
Reciprocal Relationship between Delinquency and Time
Socializing: Structural Model

Male Model (N = 669):



$\chi^2 = 271.92$ ($df = 90$), $RMSEA = .055$, $AGFI = .97$

Female Model (N = 641):



$\chi^2 = 224.90$ ($df = 90$), $RMSEA = .048$, $AGFI = .97$

* $p < .05$, ** $p < .01$ (two-tailed tests)

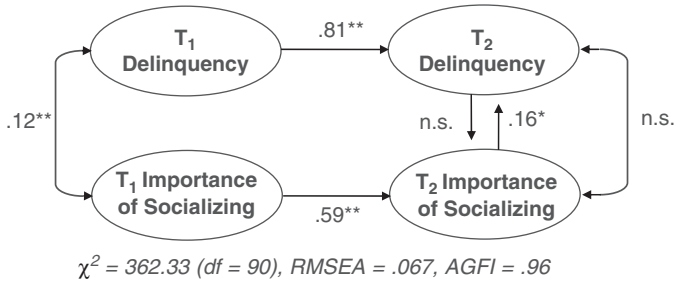
Note: AGFI = adjusted goodness-of-fit index; RMSEA = root mean square error of approximation; T₁ = time 1; T₂ = time 2.

again exhibited substantively high and statistically significant weighted least squares factor loadings. Likewise, disturbance terms for the majority of items again exhibited statistically significant correlations across time.

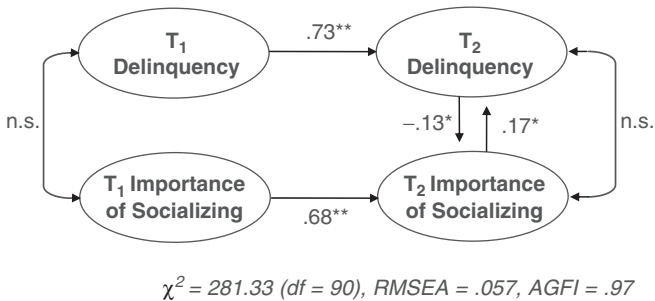
On the basis of the measurement models presented in Table 5, Figure 2 presents structural models, disaggregated by gender, of the contemporaneous

Figure 2
Reciprocal Relationship between Delinquency and the
Importance of Socializing: Structural Model

Male Model (N = 670):



Female Model (N = 644):



* $p < .05$, ** $p < .01$ (two-tailed tests)

Note: AGFI = adjusted goodness-of-fit index; RMSEA = root mean square error of approximation; T₁ = time 1; T₂ = time 2.

relationship between delinquency and the importance respondents attached to socializing. The results of the model for boys suggest that delinquency and the importance of socializing were significantly correlated at time 1. Examining the lagged effect of each construct on itself suggests significant stability in each one across time. Net of these considerations, the model for boys suggests

Table 5
Reciprocal Relationship between Delinquency and the
Importance of Socializing: Measurement Model

	Weighted Least Squares Factor Loading		Disturbance Term		Disturbance Term: Serial Correlation
Variable	1976	1978	1976	1978	
Male model (<i>n</i> = 670)					
Petty theft	.81**	.84**	.35**	.28**	.04
Hit students	.59**	.68**	.65**	.54**	.20**
Drunkenness	.81**	.83**	.34**	.31**	.17**
Skipping class	.86**	.78**	.26**	.39**	.03
School vandalism	.78**	.81**	.39**	.34**	.07
Friends ask to spend time	.53**	.71**	.72**	.50**	.17**
Social activity	.61**	.79**	.63**	.38**	.03*
Have friends	.66**	.68**	.56**	.54**	.08*
Female model (<i>n</i> = 644)					
Petty theft	.90**	.73**	.19**	.47**	.18**
Hit students	.56**	.70**	.69**	.51**	.35**
Drunkenness	.73**	.78**	.47**	.39**	.10**
Skipping class	.66**	.67**	.56**	.55**	.17**
School vandalism	.79**	.69**	.38**	.52**	.20**
Friends ask to spend time	.80**	.82**	.36**	.33**	.04
Social activity	.61**	.69**	.63**	.52**	.13**
Have friends	.66**	.75**	.56**	.44**	.10**

Note: Estimates reflect fully standardized solution.

* $p < .05$; ** $p < .01$ (two-tailed).

that an increase in the importance a respondent attached to socializing yielded an increase in delinquency. Conversely, the same model suggests that a change in delinquency yielded no change in the importance a male respondent attached to socializing. Combining the latter results with those of Figure 1 suggests that male delinquents spent more time socializing not because delinquency somehow increased their desire for socializing but, instead, because delinquency increased the desire of others to associate with them.

The model for girls in Figure 2 yielded more complex results. In particular, the results of this model suggested that delinquency and the importance of socializing exerted opposite effects on each other, yielding an insignificant bivariate correlation at a given time point, as illustrated by the results in Table 3. Specifically, an increase in the importance a girl attached to socializing appeared to yield an increase in her delinquency. Although

Figure 1 suggests that delinquency did not actually serve to increase the amount of time a girl spent socializing with friends, it may be the case that girls mistakenly attribute causality to the bivariate correlation that Figure 1 reveals between delinquency and time socializing. Figure 2 further suggests that an increase in delinquency served to lower the importance girls attached to socializing. Given the gender literature cited above, it may be the case that delinquency in some sense serves to "empower" girls such that they become less attached to "traditional" gender norms that encourage girls to be concerned with interpersonal attachment.

Discussion

Billy Joel once observed that he would "rather laugh with the sinners than cry with the saints—the sinners are much more fun." In the spirit of that claim, the present study examined whether delinquency attracts the attention of adolescent peers and whether such attention provides direct and/or vicarious reinforcement for delinquency. The results support the vicarious-reinforcement hypothesis in two ways. First, the results for boys are consistent with Hypothesis 1: Net of controls, delinquency is positively related to time socializing, and this relationship would appear to reflect the social attractiveness of a delinquent rather than the delinquent's desire for an active social life. Second, the results for boys and girls are consistent with Hypothesis 3: Net of controls, delinquency is a partial function of the importance adolescents attach to socializing. Together, these findings are consistent with the notion that a delinquent attracts the attention of peers, that audience members take note of this phenomenon, and that they therefore increase their delinquency in proportion to their own desire for peer attention.

The results fail to support the direct-reinforcement hypothesis. Although they are consistent with the assertion that delinquency prompts peers to spend more time with male perpetrators, they do not yield evidence that such attention increases perpetrators' own delinquency. It remains possible, however, that time socializing exerts multiple effects on delinquency and that such effects serve to negate one another. For example, increases in time spent socializing may simultaneously serve to reinforce delinquency and reduce strain (e.g., Agnew 1992). In this case, a process of direct reinforcement might be said to increase delinquency, whereas a process of strain reduction might exert a countervailing influence on delinquency. This speculation is clearly post hoc but may nonetheless guide further longitudinal research aimed at testing the direct-reinforcement hypothesis.

The results yield only mixed support for hypotheses concerning gender. On one hand, the results suggest that male, but not female, delinquency attracts the informal social attention of peers. In light of the gender socialization literature cited above, these findings are compatible with expectations. On the other hand, the results suggest that social aspirations increase delinquency equally across gender. Aside from running counter to Hypothesis 4, which predicted a stronger relationship between social aspirations and delinquency among boys, this finding begs the question, Why do female social aspirations promote delinquency if delinquency does not attract peers to female perpetrators? Two possibilities merit particular attention. First, notwithstanding the gender socialization literature, girls may sometimes base their own delinquent behavior on the social consequences they observe for male perpetrators, who tend to be "instigators" in cross-sexed adolescent groups (see Warr 2002) and who do appear to attract social attention for their delinquent behavior. Second, girls may mistakenly interpret the bivariate correlation between female delinquency and social attention as evidence that the former causes the latter.

Despite supporting the vicarious-reinforcement hypothesis, the present study has several limitations that should be noted. First, the present data were not collected specifically to test the direct- or vicarious-reinforcement hypothesis. As a result, measures of plausibly "rewarding" social stimuli are limited and may be argued to reflect concepts other than those intended. Although this precludes the above analyses from providing definitive conclusions, it should be noted that the present data were chosen for a number of strengths outlined above that are unavailable in alternative data. Likewise, the above results are more consistent with the vicarious-reinforcement hypothesis than with the predictions of alternative theories. For example, opportunity theory (e.g., Osgood et al. 1996) would have difficulty explaining why the importance of socializing appears to influence delinquency, whereas actual time socializing appears not to influence delinquency. These results, in contrast, are consistent with the predictions of the vicarious-reinforcement hypothesis.

Second, the NYS data provide no means by which to measure the intent that motivated respondents' delinquency. If the above formulation of the vicarious-reinforcement hypothesis is correct, three things should be true. First, delinquency should provide social benefits above and beyond its material or visceral benefits. Second, adolescents should note the relationship between delinquency and its benefits. Third, those who most value those benefits should disproportionately increase their delinquency across time. The present data support the first and third criteria but provide no means of

testing the second. The data do not, therefore, provide a means of determining whether the relationships unveiled above reflect the deliberate attempt of adolescents to improve their social lives. At the same time, given research suggesting that learning may take place without conscious awareness (Berry and Broadbent 1984; Claxton 1999; Lewicki et al. 1992; Massey 2002), measures of delinquents' conscious "motivations" would not necessarily prove sufficient for falsifying the vicarious-reinforcement hypothesis.

Third, the present study focused on delinquency's potential social benefits without incorporating analysis of its potential costs. Although this focus reflects a deliberate attempt to fill a gap in the existing literature, further research might extend the present method to an analysis of costs and benefits, as long as each is measured with separate scales that allow for an assessment of each one's independent influence on delinquency. It may, for example, be the case that social reinforcements and punishments exert independent and equal influences on delinquency, that each exerts an independent but unequal influence on delinquency, or that only one exerts an independent influence on delinquency.

Fourth, the present study's focus on the social benefits of delinquency likewise fails to answer the important question of how social reinforcement may be related to the more commonly researched concept of differential association. To that end, it should be noted that the above findings are compatible in three ways with research concerning differential association. First, the results for boys shown in Figure 1 unveil a significant correlation between the time 2 error terms for delinquency and time socializing. It may be the case that a portion of that correlation reflects the influence of differential association on both delinquency and time socializing. Second, it may be the case that differential association promotes delinquency partly because individuals who associate with delinquent peers are disproportionately prone to observe the positive social consequences of delinquency. Third, more delinquency may be required to stand out among peers who are themselves delinquent (see Anderson 1999). Given that differential association bears the strongest partial relationship with delinquency of all variables included in Table 3 and given a significant (albeit largely attenuated) relationship between differential association and delinquency in recent panel analysis (Matseuda and Anderson 1998), each of the above possibilities should be examined in further research.

Despite the present study's limitations, its support for the vicarious-reinforcement hypothesis suggests several further avenues of future research. First, future research might incorporate ethnographic approaches such as those of Anderson (1999) and Whyte (1943) to test the reinforcement hypothesis

qualitatively. Such work partly motivated the present study by suggesting that, far from being unilaterally dysfunctional, delinquency may provide benefits to a perpetrator's peers, who in turn reinforce it. To date, such work has generally taken place among inner-city youths. Given the present findings, however, it might prove useful to examine whether concepts such as Anderson's "heart" have important meaning among adolescents outside the inner city. Ethnographic work aimed at answering such questions might also serve to bridge a potential divide that exists between quantitative academics' operational measures of reinforcement and real-world manifestations of the concept that such measures purport to represent. For example, although Anderson's work provides strong evidence that youth in the inner city grant "props" to tough boys who demonstrate heart via physical violence (i.e., grant socially reinforcing status to delinquents), it remains an open question whether such youth equate the terms *props* and *peer approval*. Because inner-city vernacular may not make frequent use of terms such as *approval* in reference to status, influence, or prestige, such terms may do a poor job capturing the concept that criminologists intend to measure when ostensibly testing the social-reinforcement hypothesis with traditional reinforcement measures.

Second, the above results suggest extending the present analytic strategy to other samples and other measures of social reinforcement. As suggested above, it may be the case that inner-city samples such as Anderson's (1999) are particularly prone to reward delinquency. Likewise, some forms of social reward ultimately may prove more critical than others. Future research might explore whether one's delinquency is most related to inclusion, rank, influence, or social support within a given friendship group. Although the present measure of social reward is limited to the amount of informal time that adolescents spend with peers in general, future work might also explore whether delinquency is related to the number of different groups in which an adolescent is included, has influence, or receives social support. Likewise, future research might explore whether some individuals are more susceptible to the social lures of delinquency than others. It may be, for example, that the effects unveiled herein apply disproportionately to those individuals who are least capable of achieving social inclusion via their appearance, their humor, their athletic ability, or any number of other desirable characteristics. Such qualities are certain to play a large role in the social lives of adolescents and possessing such qualities might condition the degree to which a given individual chooses to engage in delinquency as a means of attaining social goals.

Last, although the present perspective suggests that some amount of delinquency may be "functional" within the confines of adolescent social

networks, it does not imply that such functionality exists without limits. Even to the degree that the data support the vicarious-reinforcement hypothesis, there undoubtedly exists some level of delinquency whose negative consequences outweigh its "utility" among adolescents. This possibility raises a number of further questions to which the present theoretical and analytic framework might be applied. At what point, for example, does delinquency begin to repel, rather than attract, an individual's peers? Does that point vary across subcultural groups? Do delinquent individuals lack the self-control with which to avoid damaging the interests of in-group members (e.g., Gottfredson and Hirschi 1990), or does there exist honor among thieves (e.g., Anderson 1999)? Future research can address these and related issues.

Appendix

Measurement Items

Delinquency (1 to 9)

- Destroy property
- Drunkenness
- Steal something worth <\$5
- Hit students
- Skip class

Time socializing

- Weekday afternoons with friends (0 to 5)
- Weekday evenings with friends (0 to 5)
- Weekend time with friends (1 to 5)

Importance of socializing (1 to 5)

- Importance that friends ask to spend time
- Importance of social activity
- Importance of having friends

Peer delinquency (1 to 5)

- Use alcohol
- Stole something worth <\$5
- Suggest you break the law
- Cheat on tests
- Damage property

Peer disapproval of delinquency (1 to 5)

- Cheating on tests
- Stealing something worth <\$5
- Hitting someone

Using alcohol

Destroying property

Time with family

Weekday afternoons with family (0 to 5)

Weekday evenings with family (0 to 5)

Weekend time with family (1 to 5)

Family attachment (1 to 5)

Close to family

Lonely with family (reversed)

Outsider with family (reversed)

Time spent studying

Weekday afternoons studying (0 to 5)

Weekday evenings studying (0 to 5)

Weekend time studying (1 to 5)

Note: For 1976, National Youth Survey researchers assigned a value of nine to both missing values and values representing "2-3 times per day." For this reason, in the present study, offense rates were recalculated on the basis of count data such that 1 = 0 times in the past year, 1 = 1 to 2 times, 3 = 3 to 6 times, 4 = 7 to 12 times, 5 = 13 to 26 times, 6 = 27 to 52 times, 7 = 53 to 156 times, 8 = 157 to 365 times, 9 = 366 to 998 times, and 999 = missing.

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