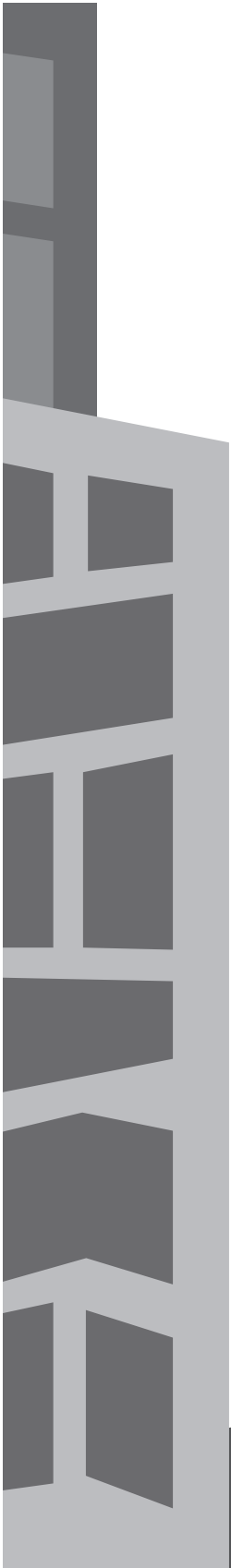


# Chapter Seven.

## Characteristics of the Present Peers

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## Characteristics of the Present Peers

*It is better to walk alone, than with a crowd going  
in the wrong direction – Diane Grant*

Adolescents in western societies spend a lot of their time talking and ‘just hanging out’ with friends (Anderson, 2013; Larson and Verma, 1999). This is part of a developmental process toward autonomy and adulthood and contributes positively to emotional and social functioning (Giordano, 2003). Nevertheless, time spent with peers may also, under certain conditions, contribute to risks for engagement in delinquency and substance use (Weerman et al., 2013). The current study attempts to further specify the conditions under which time with peers is related to an increased risk of delinquency. More specifically, the study examines whether unstructured socializing with some peers is more strongly related to delinquency than unstructured socializing with other peers.

Osgood et al. (1996) coined the term ‘unstructured socializing’ for situations in which peers are present, authority figures are absent, and there is a lack of structured activity. They argued that individuals who are more often engaged in activities characterized by these conditions are at greater risk of becoming involved in delinquency or substance use. Their arguments and findings have been confirmed in other studies (e.g., Bernasco et al., 2013b; Bernburg and Thorlindsson, 2001; Maimon and Browning, 2010). The current study builds on the unstructured socializing perspective *first* by theorizing about four situational peer processes that might stimulate delinquency, and *second*, by identifying friend characteristics that facilitate these processes. Thus, our hypotheses about delinquency conducive friend characteristics are derived from the theorized situational processes, even though we cannot tell the processes apart with our data.

Data from the PROSPER Peers project are used. This project is a longitudinal intervention study among rural adolescents (aged 10 to 17) in

two US states. The data incorporate sociometric information linked with information on how often respondents ‘hang out’ with their nominated friends. The analyses investigated whether unstructured socializing with delinquent friends, risk-seeking friends, friends who were tolerant toward rule breaking, and older friends was more strongly related to delinquency than unstructured socializing with other friends.

## Unstructured socializing and delinquency

Osgood et al. (1996) adapted the routine activity theory (Cohen and Felson, 1979) and lifestyle theory (Hindelang, Gottfredson, and Garofalo, 1978) to an individual perspective on deviant behavior. They argued that three conditions contribute to the risk of deviance in a certain situation. The *presence of peers* makes deviant acts rewarding, because peers can serve as an appreciative audience. The *absence of authority figures* decreases the risk of getting caught. A *lack of structured activity* enables engagement in other (deviant) activities. Osgood et al. (1996) argued that adolescents who spend more time in situations characterized by these conditions—that is, in ‘unstructured socializing’—are likely to have higher deviance rates, because most adolescents are open to the idea of deviance (Briar and Piliavin, 1965; Matza and Sykes, 1961). Since their publication in 1996, the relationship between unstructured socializing and delinquency has often been empirically confirmed (e.g., Bernasco et al., 2013b; Maimon and Browning, 2010; Osgood and Anderson, 2004).

The current study aims to refine the routine activity theory of general deviance (Osgood et al., 1996) by further specifying the characteristics of the present peers that contribute to the risk of delinquency in situations of unstructured socializing. Haynie and Osgood (2005) already argued that unstructured socializing may result in delinquency regardless of whether the involved adolescents have delinquent friends (because deviant or ‘subterranean’ values are widespread; Matza and Sykes, 1961), but that the effects of normative peer influences (having delinquent friends) and opportunity influences (involvement in unstructured socializing) may nevertheless strengthen each other. In addition to their assertions, we state that involvement in unstructured socializing is always associated with an

increased risk for delinquency, regardless of which peers are present, but that this risk *increases* if certain peers are present.

To arrive at hypotheses about *which* peers contribute to delinquency conducive situations, we first need to know *how* peers induce delinquency in a situation. Thus, in the following section, we will discuss four situational peer processes that are theorized to contribute to delinquency conducive situations and will then discuss which characteristics make friends likely to facilitate these processes. The situational peer processes are derived from literature on peer influence, co-offending, and conflict situations.

## Situational peer processes

The current study is concerned with the peers that contribute to a delinquency conducive situation, and thus with situational peer processes. We will briefly discuss four situational peer processes: One that was already suggested by Osgood et al. (1996), and three additional processes. All of these processes operate short-term and are based on the physical presence of peers. The processes therefore differ from socialization: Socialization refers to a long-term influence process in which reinforcement by peers results in the adoption of positive or negative attitudes toward delinquent behavior (e.g., Akers, 1998; Sutherland, 1947), whereas situational peer influence refers to short-term processes that directly influence behavior in one situation (e.g., Briar and Piliavin, 1965; Warr, 2002). Situational processes may transfer influence across situations by impelling the adoption of delinquency favoring attitudes, but this does not necessarily have to be the case: Peers can provoke or reinforce an adolescent into situational behavior that he or she does not wish to repeat.

First, the peers who are present in a situation of unstructured socializing can positively or negatively *reinforce* delinquency in their responses to talk and behavior (e.g., Dishion, Andrews, and Crosby, 1995; Dishion et al., 1996). Delinquent behavior potentially bears “symbolic rewards of enhanced status and reputation”, but only if it comes to the attention of others (Osgood et al., 1996: 639). Present peers may function as an appreciative audience and thereby provide situational inducements for delinquent acts (Briar and Piliavin, 1965). Similarly, co-offending can bring about immaterial

‘exchanged goods’ of affection, tolerance or status (Weerman, 2003). Thus, the peers who are present in a situation of unstructured socializing contribute to the risk for deviancy because their presence potentially brings about social rewards for such behavior. The reverse is also possible: Avoiding negative social responses offers a powerful reason to join (delinquent) group actions. A negative reinforcement is (anticipated) ridicule (Warr, 2002).

Second, the peers with whom adolescents are engaged in unstructured socializing can also encourage delinquency or substance use by *instigating* delinquent acts. For most delinquent group events, there is one person identifiable as the ‘instigator’: The person who takes the initiative or who suggests delinquent acts to others (Warr, 1996). Who the instigator will be depends less on personality than on the situation and group composition. The individual who has the strongest material or immaterial needs and desires has the most reason to initiate a delinquent act (Weerman, 2003). Thus, the individuals who experience the most economic adversity (McCarthy, Hagan, and Cohen, 1998; Nguyen and McGloin, 2013) or who are the most in need of social affirmation will be the ones who instigate offenses. Nevertheless, the *success* of instigating an act (whether others will join in on the action) also depends on whether the individual has enough authority to convince others. An individual’s authority depends on whether he or she has enough skills (McGloin and Nguyen, 2012) and social status.

A third way in which the peers who are present in a situation of unstructured socializing may evoke (aggressive) delinquency of the target adolescent is through *provocation* by showing disrespect or by attacking his or her status with verbal remarks. Status threats sometimes directly provoke delinquent behavior to ‘save face’ (Warr, 2002). The response may be particularly aggressive if the defendants are concerned with their (masculine) identity, or if others are present (Felson, 1982). The most important reasons to exert provocations upon others are to acquire or regain status (Anderson, 1999; Short and Strodbeck, 1965; Tedeschi and Felson, 1994). Most studies in this theoretical area have focused on the provocation of violence, but we wish to stress that status threats can also come in the form of behavioral challenges (e.g., “you would never do that”) that inspire acts of vandalism, theft or substance use.

Finally, peers may contribute to a delinquency conducive situation by their *mere presence*, because groups enhance risky decision making

(Gardner and Steinberg, 2005). In the anonymity of a group, individuals feel unaccountable. The presence of others allows the individual to transfer portions of the blame to others (e.g., “He did it too”), and thus makes inner restraints less important (Postmes and Spears, 1998). Furthermore, people have a tendency to behave in accordance with the group (Kiesler and Kiesler, 1969), which will translate into delinquency if they follow the group in a delinquent act. These collective processes are assumed to operate independently from characteristics of the individuals within the group and we will not discuss them further here.

In summary, we theorize that the peers who are present in a situation of unstructured socializing may encourage an adolescent to commit delinquent acts 1) by responding affirmatively to delinquent behavior and thereby providing positive *reinforcement* for delinquency; 2) by *instigating* a delinquent event; 3) by threatening his or her status and thereby *provoking* a (violent) response; 4) by *merely being present* and thus contributing to the number of people present, providing a group setting that “deflects, dilutes or supplants moral responsibility” (Warr, 2002: 70).

## Whose presence stimulates delinquency?

We will now attempt to identify *characteristics of friends* that make them likely to qualify as a reinforcer, an instigator, or a provoker.

### Friends' delinquency

Involvement in delinquency qualifies friends as potential reinforcers and instigators. Friends who are involved in delinquency may be likely to *reinforce* similar behaviors by others. Because of their own rule breaking, their cognitive frameworks may be more ‘delinquency tolerant’. This would make them more likely to respond affirmatively to ‘deviant talk’, as it confirms their own beliefs and behavior, and thereby to reinforce delinquency (Dishion et al., 1996). In line with this idea, Dishion et al. (1996) found that, within dyadic conversations, if the other peer is antisocial, he or she may push the conversation (further) toward rule breaking topics, regardless of whether the target adolescent is prosocial or antisocial.



Friends who are involved in delinquency may also be more likely to *instigate* delinquent acts, because they have gained the knowledge, specialized skills and confidence needed to initiate those acts (McGloin and Nguyen, 2012), because they are more responsive to criminal opportunities (Apel, 2013), and because they have the authority to gain followers: Others expect them to ‘know what they are doing’. Empirical studies have confirmed that delinquent peers are more likely to be instigators (McGloin and Nguyen, 2012; Van Mastrigt and Farrington, 2011; Warr, 1996).

Friends may qualify as likely instigators not only on the basis of their experience with delinquent behavior in general, but also on the basis of the type of delinquency they have engaged in. Individuals are more likely to instigate an act that they have developed skills for or with which they have some experience (McGloin and Nguyen, 2012). This is relevant for our research question because some types of delinquency are more likely to occur in the presence of peers than other types. For example, vandalism and drug use are more often committed with others than violent crimes and minor thefts (Erickson and Jensen, 1977; Weerman, 2003). Furthermore, empirical studies indicate that some types of delinquency, particularly property delinquency, are more likely to occur as co-offenses with recruiters than are others (Van Mastrigt and Farrington, 2011; Reiss and Farrington, 1991).

Based on these previous studies, we hypothesize that unstructured socializing with delinquent friends is more strongly positively related to delinquency than unstructured socializing with non-delinquent friends (Hypothesis 1). We also expect this effect to differ across types of delinquency: We hypothesize that the presence of friends who have committed theft, vandalism or substance use will contribute more strongly to same-type delinquency than will the presence of friends who have committed violence (Hypothesis 2).

### Friends’ risk-seeking

A high risk-seeking tendency qualifies friends as potential reinforcers and instigators. Adolescents with high risk-seeking tendencies may be more likely than others to try new things and experiment with substance use and breaking the rules: “The fact that an activity involves breaking the law is precisely the fact that often infuses it with an air of excitement” (Matza and Sykes, 1961:

713). We expect that friends with high risk-seeking tendencies are therefore likely to *reinforce* the delinquent behavior of others, because in their eyes such behavior demonstrates honorable qualities such as daring and spontaneity. They may also be more likely to *instigate* delinquent acts because they find the thrill of such behavior rewarding. As previously discussed, individuals with the strongest needs—in this case, for thrills—have the most reason to initiate delinquency. Indeed, McGloin and Nguyen (2012) found that offenders who had engaged in crime ‘because it was exciting’ had an increased chance of instigating group crimes. Some previous studies found a relationship between risk-seeking and co-offending, though they did not specify what processes (reinforcement, instigation, provocation) were at play. McCarthy, Hagan, and Cohen (1998) found that two co-offending strategies (enlisting and collaborative orientation) were encouraged by a willingness to take risks. Nguyen and McGloin (2013: 860) concluded that excitement seeking was “one of the strongest and most consistent predictors of co-offending.” In the current study we will test the hypothesis that unstructured socializing with friends who have high risk-seeking tendencies is more strongly positively related to adolescent delinquency than unstructured socializing with friends who have moderate or low risk-seeking tendencies (Hypothesis 3).

### Friends’ attitudes

Tolerance toward rule breaking qualifies friends as potential reinforcers, instigators and provokers. Friends who are tolerant toward rule breaking may be more likely than others to *reinforce* delinquent acts, as these acts are less incongruent with their moral values. Also, friends who are tolerant toward rule breaking may be more likely to *instigate* delinquent acts, because they feel less internal restraints against proposing delinquent acts. McCarthy, Hagan, and Cohen (1998) found in this regard that intolerance toward rule breaking (believing in honesty) prevented instigation strategies, but that tolerance toward rule breaking (believing it is acceptable to take another’s property) did not stimulate instigation or joining. Finally, friends who are tolerant toward rule breaking may be more likely to *provoke* one another to increase their own status. We expect this to especially be the case if the friends have internalized attitudes that justify violence as a means of obtaining or regaining respect (Anderson, 1999; Short and Strodbeck, 1965). Short and

Strodtbeck (1965: 233) observed aggression within friendships and reported about a “threat which hangs over even the closest of friendships that one may have to prove oneself against one’s friend.”

In the current study we will test the hypothesis that unstructured socializing with friends who are highly tolerant toward rule breaking is more strongly positively related to delinquency than unstructured socializing with friends who are moderately tolerant or intolerant toward rule breaking (Hypothesis 4).

### Friends’ age

Older friends are likely to qualify as *instigators*, whereas the presence of younger friends can trigger an adolescent to instigate delinquency himself. Older friends have more material needs and relatively more social status, and therefore may be more likely to instigate an offense (Weerman, 2003). They are also most likely to convince others to participate, because they serve as role model: Older friends often have more privileges (possessions as well as autonomy, Moffitt, 1993) and (perceived) life experience (Harding, 2009; Warr, 1996). It is relative age that seems important: Adolescents will instigate delinquency if they are the oldest of the peers who are present in that particular situation (Warr, 1996).

Existing studies confirm that older peers are more likely to instigate crimes (Van Mastrigt and Farrington, 2011; Warr, 1996). Age differences are generally small: Members of adolescent delinquent groups are often less than one year apart and overall not more than two years (Sarnecki, 2001; Reiss and Farrington, 1991; Warr, 1996). Previous studies have not clarified the point at which the age difference becomes relevant for increased risks of co-offending and instigation. Is a three months age difference enough to increase the chance that adolescents instigate crime? Or does it start to get ‘risky’ when friends are at least six months, or perhaps nine months apart? This study further explores these questions and tests the hypothesis that unstructured socializing with older or younger friends is more strongly positively related to delinquency than unstructured socializing with friends of the same age (Hypothesis 5). The PROSPER data are based on in-grade nominations, so the age differences between respondents and their nominated friends are generally one year or less.

## Current study

The current study investigates whether the presence of certain friends increases the risk for delinquency in situations of unstructured socializing. To do so, the study combines sociometric data with information on how often respondents spend time ‘hanging out’ with their nominated friends. The study contributes to existing research in several ways. First and foremost, the study examines the friends with whom adolescents are *actually involved* in unstructured socializing. Previous empirical studies that addressed delinquent peer-unstructured socializing interactions in predicting delinquency or substance use investigated whether generally having delinquent friends interacted with the effect of respondents’ overall involvement in unstructured socializing. Their findings were contradictory: Some studies reported significant positive interactions (Bernburg and Thorlindsson, 2001; Sentse et al., 2010; Svensson and Oberwittler, 2010; Thorlindsson and Bernburg, 2006; Wikström et al., 2012a), whereas others did not find evidence of an interaction (Agnew, 1991; Haynie and Osgood, 2005). The studies that found interactions generally did not take into account the skewed distributions of the dependent variables. None of the studies examined the specific friends with whom adolescents engaged in unstructured socializing, even though adolescents spend more time unstructured socializing with some friends than with others (Siennick and Osgood, 2012).

Second, the current study investigates a *broad array of friend characteristics* that may contribute to a crime conducive situation. We take into account not only friends’ delinquent behavior, but also their type-specific delinquency, their risk-seeking tendency, their attitudes and whether they are older or younger than the respondent.

Finally, *methodological improvements* over previous studies include the use of a longitudinal design and friends’ reports about their own characteristics. Most previous studies on this topic relied on cross-sectional data and were therefore less able to control for selection effects that could occur if crime prone adolescents generally prefer unstructured socializing to other leisure activities. Also, most of the existing studies on this topic did not use sociometric data, but instead asked respondents to report about the behavior of their friends, which may cause bias due to ‘projection’ effects (Young et al., 2015).

## Data and methods

Data for this study were collected in 28 rural public school districts in Iowa and Pennsylvania (USA) as part of the PROSPER Peers project. Students in these districts were predominantly white, English speaking and from rural backgrounds. At least fifteen percent of the families in each district was eligible for free or reduced cost school lunches. The sample was two entire cohorts of sixth graders (aged 11 to 12); the first cohort completed in-school surveys in the fall of 2002 ( $N = 6,440$ ), and the second cohort in the fall of 2003 ( $N = 6,058$ ). Both cohorts were surveyed again in the spring of the same school year (wave 2) and in the three subsequent springs (waves 3 to 5). The project allowed new students to enroll at later points in the study. If respondents from the first cohort repeated a grade, they were enrolled in the second cohort the year after.

Respondents were asked to nominate two 'best' friends and five 'close' friends from their own grade. These nominations were later matched to names of other participants based on school rosters. The procedure was computer assisted and used programs to identify spelling matches and phonetic matches. Two coders visually inspected the matches and tried to match names that went unmatched during the computer-assisted process. Of all nominated friends, 82.7 percent were successfully matched to students on the school rosters, 1.9 percent could not be matched due to multiple plausible matches, 0.5 percent were inappropriate nominations such as celebrities or self-nominations, and 14.9 percent appeared to be friends outside of the respondents' grade or school. The respondents nominated 4.0 friends on average. Additional questions were asked to determine the number of friends outside of respondents' school and grade; on average at each wave, respondents had 1.7 friends in other grades and 1.5 friends in other schools<sup>35</sup>.

The current study included only those respondents with valid information on the study variables for at least two waves. Of the total of 16,284 respondents, 2,167 (13.3 percent) were excluded because they participated in only one wave; 1,150 (7.1 percent) because they nominated

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35 The answer categories for these questions did not include an option for 'no friends from other grades or other schools'. Therefore, we treated missing values as zero. When missing values are excluded, respondents reported on average 6.1 friends in other grades in school and 5.4 friends from other schools.

zero friends across all waves; 135 (0.8 percent) because their nominated friends could not be matched; 142 (0.9 percent) because their matched friends provided insufficient information about the key variables; 5 because they did not provide complete information on the dependent variables; and 1596 (9.8 percent) because after excluding person-observations based on these criteria, they had valid information for only one wave. The remaining 11,089 respondents generally had higher grades, were less often eligible for free lunch and were more often engaged in unstructured socializing than the excluded respondents, but the groups did not differ in other aspects<sup>36</sup>.

The final sample is 11,089 respondents contributing 40,582 observations. The sample was roughly evenly split on gender (45 percent male), predominantly white (83 percent) and from two parent families (79 percent), and a sizable minority was eligible for free or reduced cost school lunch (27 percent). For more information on the sample and data collection, see other publications based on these data (e.g., Ragan, Osgood, and Feinberg, 2014; Siennick and Osgood, 2012).

## Measures

*Delinquency* was assessed by asking respondents how often they had been involved in twelve types of delinquency in the past year (e.g., whether they had purposely damaged property or stolen from a store; a full list of items is presented in Appendix 7A at the end of this chapter). Answer categories ranged from never (0) to five or more times (4). The delinquency measure is the sum of the frequency scores across the twelve items. *Substance use* is the sum of the frequency scores on four items on the past year frequency of marijuana use, methamphetamine use, inhalant use and being drunk. Answer categories ranged from not at all (0) to more than twelve times (4). Three other delinquency specific measures were similarly constructed with items that were also included in the general delinquency measure: *Theft* (four items), *vandalism* (two items) and *violence* (one item). All measures were highly skewed and treated as counts. Descriptive statistics are shown in Table 7.1.

<sup>36</sup> Only differences with medium to large effect sizes (> 0.25) are reported here. The other statistically significant differences had very small effect sizes, suggesting that their significance was due to the large sample size.

**Table 7.1.** Descriptive statistics ( $N_{\max} = 40,582$  person-observations)

	Proportion of friends <sup>a</sup>	Mean	(SD)	Min	Max	Alpha	ICC <sup>b</sup>
Delinquency		2.142	(4.879)	.000	48.000	.872	.437
Substance use		.471	(1.490)	.000	16.000	.656	.281
Theft		.731	(2.103)	.000	16.000	.826	.362
Vandalism		.326	(.986)	.000	8.000	.626	.352
Violence		.402	(.905)	.000	4.000	-	.412
Unstructured socializing		3.674	(2.491)	.000	10.580	-	.355
with delinquent friends	42.933	2.260	(2.141)	.000	10.580	-	.306
with non-delinquent friends	57.067	2.666	(2.309)	.000	10.580	-	.295
with substance using friends	18.111	1.117	(1.728)	.000	9.800	-	.176
with non-substance using friends	81.889	3.412	(2.540)	.000	10.580	-	.302
with friends who steal	21.899	1.374	(1.809)	.000	9.800	-	.227
with friends who do not steal	78.101	3.326	(2.465)	.000	10.580	-	.319
with vandalizing friends	17.165	1.130	(1.681)	.000	9.800	-	.209
with non-vandalizing friends	82.835	3.463	(2.495)	.000	10.580	-	.329
with violent friends	22.898	1.415	(1.860)	.000	10.580	-	.269
with non-violent friends	77.102	3.317	(2.444)	.000	10.580	-	.338
Prop. of reciprocal friends who are							
delinquent		.409	(.392)	.000	1.000	-	.255
substance using		.166	(.303)	.000	1.000	-	.153
stealing		.206	(.318)	.000	1.000	-	.199
vandalizing		.157	(.285)	.000	1.000	-	.190
violent		.210	(.324)	.000	1.000	-	.262
Gender (male = 1)		.450		.000	1.000	-	-
Ethnicity (white = 1)		.830		.000	1.000	-	-
Age in years		13.46	(1.315)	10.000	17.000	-	-
Free lunch (free lunch = 1)		.270		.000	1.000	-	.650
Grades		4.110	(.876)	1.000	5.000	-	.627
Two parent family (two parents = 1)		.790		.000	1.000	-	.729
Parental knowledge		4.534	(.729)	1.000	5.000	.849	.420
Number of nominated friends		4.878	(1.873)	1.000	7.000	-	.348
Risk-seeking		2.116	(.986)	1.000	5.000	.771	.403
Attitudes toward substance use		4.446	(2.139)	3.000	12.000	.836	.314
Willingness to act different		4.160	(.753)	1.000	5.000	.624	.340
Perc. social rewards from subst. use		1.417	(.658)	1.000	5.000	.951	.349

ABBREVIATIONS: SD = standard deviation; Min = minimum; Max = maximum; Prop. = proportion; perc. = perceived; subst. = substance.

<sup>a</sup> Proportion of nominated peers characterized by this feature.

<sup>b</sup> The ICCs are calculated in Stata as suggested by Hilbe (2011) and Hosmer and Lemeshow (2000). The ICCs express the percentage of the total variance that is at the individual level (versus the person-observation level). For example, the ICC for delinquency expresses that approximately 44 percent of the variance in delinquency is explained by differences between adolescents. The other 56 percent is explained by differences within adolescents over time.

*Involvement in unstructured socializing* was measured by asking the respondent for each nominated friend, “How often do you spend time just hanging out with this person outside of school (without adults around)?” Answer categories were never (0); once or twice a month (1); once a week (2); a few times a week (3); and almost every day (4). These responses were summed across respondents’ friends and divided by the square root of the number of those friends (range 1 to 7), following the approach taken by Haynie and Osgood (2005).<sup>37</sup>

The unique structure of the data allowed us to specify with which friends respondents spent most time unstructured socializing and how that related to their involvement in delinquency. Furthermore, because the friends were also enrolled in the study, it was possible to obtain information about those friends’ characteristics based on *responses of those friends*, rather than relying on respondents’ reports about their friends.

We constructed several measures that combined characteristics of the friends with the time the respondent spent in unstructured socializing with them. For example, for each respondent we constructed two variables: One variable expressing the time spent in unstructured socializing with delinquent friends, and the other variable expressing the time spent in unstructured socializing with non-delinquent friends. Our primary variables of this type and their descriptive statistics are presented in Table 7.1. Descriptive statistics for additional such variables that were used in supplemental analyses are shown in Appendix 7C at the end of this chapter. In the remainder of this section, we discuss the operationalization of the friend characteristics (i.e., the characteristics of the friends with whom respondents reported engaging in unstructured socializing). These friend measures were constructed with information about the two *best friends* and the five *close friends* nominated by the respondent (the ‘send’ network).

*Friends’ delinquency* was measured for each friend in a similar manner as for respondents. Type-specific measures were constructed to express

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<sup>37</sup> Two other possible approaches are to simply take the sum without correcting for the number of friends (the summative measure), or to divide the sum by the number of friends (the averaged measure). All models were replicated with averaged measures instead of the square root measures (results presented in Appendix 7F in the supplementary material). The findings were fairly similar across measurement strategies, but the models using the square root measure fit the data better than the models using the averaged measure. See Appendix 7B at the end of this chapter for a more detailed discussion of the different measures.



friends' involvement in substance use, theft, vandalism and violence. The descriptive statistics in Table 7.1 indicate that, on average per respondent, 42.9 percent of the nominated friends had engaged in at least one type of delinquency in the past year, 18.1 percent had been drunk or used drugs, 21.9 percent had committed theft, 17.2 percent had committed vandalism, and 22.9 percent had committed violence. Other variables express whether the friend was a 'medium frequent offender' or 'high frequent offender'. High frequent offenders belonged to the ten percent with the highest scores on that particular delinquency type (i.e., they reported seven or more offenses overall in the previous year; or two or more incidents of substance use, theft, vandalism or violence); medium frequent offenders were the 'other' offenders who committed at least one offense.

*Friends' risk-seeking tendencies* were measured with three items on, for example, how often the friends 'do what feels good, regardless of the consequences' (see Appendix 7A at the end of this chapter for the full list of items). Friends' risk-seeking tendencies were defined as 'high' when friends scored one standard deviation or more above the mean, and as 'low' when they scored one standard deviation or more below the mean. Following this definition, 14.9 percent of the nominated friends per respondent had high risk-seeking tendencies, 19.5 percent had low risk-seeking tendencies, and 65.6 percent had moderate risk-seeking tendencies (Table 7C.1 in the Appendix of this chapter).

*Friends' attitudes toward substance use* were measured with three items, asking how wrong it is for someone your age to smoke cigarettes, drink alcohol, and use marijuana. Information about attitudes toward rule breaking behaviors other than substance use was not available. Friends were considered to be 'highly tolerant' if they scored one standard deviation or more above the mean and 'low tolerant' if they scored the minimum value; 14.7 percent of the nominated friends was considered to be highly tolerant, 35.4 percent moderately tolerant, and 49.8 percent low tolerant (Table 7C.1 in the Appendix of this chapter).

The *age difference* measures expressed three-, six-, nine- and twelve-month age differences between respondents and their nominated friends, specified for whether the friends were older or younger than the respondent. Age differences were relatively small, because the nominations were within-grade: The mean difference was five months (SD = four months). On average, 28.8 percent of the nominated friends was more than 3 months older than

the respondent, 15.4 was percent more than 6 months older, 6.9 percent was more than 9 months older, and 2.8 percent was more than twelve months older than the respondent (Table 7C.1 in the Appendix of this chapter).

*Control variables* included background characteristics and general friendship characteristics. To isolate situational effects (of spending time with certain friends under specified conditions) from prior socialization effects of having delinquent friends, we controlled for the *proportion of reciprocal friends that was delinquent*<sup>38</sup>. Reciprocity of a nomination (whether the nominated friend also nominated the respondent) is one measure of friendship quality. Adolescents may be more likely to adapt their behavior to that of their very close friends (Megens and Weerman, 2010; Urberg et al., 2003).

Several other controls were also included. Dummy variables indicated gender (1 = male), ethnicity (1 = white), whether the respondent was eligible for free reduced price lunch (1 = yes) and whether the respondent lived with two parents, including stepparents (1 = yes). *Grades* represented respondents' general grades, varying from mostly D's (1) to mostly A's (5). *Parental knowledge* was the mean of two items on perceived parental knowledge about respondents' whereabouts and who they are with, rated on a scale of never (1) to always (5). Two variables were included to control for respondents' susceptibility to peer pressure: Their willingness to act different and their perceived social rewards from substance use. *Willingness to act different* was the mean of three items on how likely it is that the respondent would, for example, "express an opinion even though others may disagree with you", rated from definitely would (1) to definitely would not (5). *Perceived social rewards from substance use* was the mean of eleven items about substance use, such as "smoking cigarettes makes you look cool". Answer categories ranged from strongly disagree (1) to strongly agree (5). *Number of friends* was a count of the number of the respondents' friends who were matched to the school roster. Other control variables, namely respondents' risk-seeking tendencies and attitudes, were constructed in a similar manner as the variables representing friends' characteristics. An overview of all items is

38 We also constructed several alternative measures including the proportion of best and stable friends that were delinquent; the proportion of delinquent friends that reciprocated the friendship nomination or were best or stable friends; and the proportion of all nominated friends that were delinquent as well as best, stable, or reciprocal friends. Bivariate correlations indicated that of all examined measures, the control variable we used in the main analyses was the strongest predictor of each dependent variable, and thus offered the most conservative control.

given in Appendix 7A at the end of this chapter. Descriptive statistics for the control variables are presented in Table 7.1.

## Analytical strategy

Two-level random intercept models (time within individual) were estimated to examine within-individual changes in delinquency and substance use over time while ‘controlling’ for not only measured time varying individual characteristics, but also measured and unmeasured time stable individual characteristics. Following the hybrid approach suggested by Allison (2009), the models include as predictors two versions of each independent variable: One expresses the person-mean across all waves, and the other expresses the wave specific deviations from that person-mean. We included a set of dummy variables for waves to control for age related change in the outcomes. To account for the skewed distribution of the dependent variables, negative binomial models were estimated. We do not expect multicollinearity to bias the models. The average VIF’s varied between 1.20 and 1.33; the highest VIF was 1.92.

## Findings

### Who are the friends they hang out with?

On average, respondents engaged in unstructured socializing with their friends almost every week. Table 7.2 presents descriptive statistics for the average measures of unstructured socializing (see Appendix 7B for a discussion about the the average and the square root measures). As shown in Table 7.2, the mean score on unstructured socializing (unspecified for friend characteristics) was 1.951; a score of 2 on the measure represents “once a week”. The descriptive statistics in the Table further indicate that respondents generally spent more time in unstructured socializing with their non-delinquent friends (mean = 1.674) than with their delinquent friends (mean = 1.577; a Wilcoxon signed ranks test<sup>39</sup> indicated that the difference was

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<sup>39</sup> The Wilcoxon signed rank test is a nonparametric test to compare two means from the same respondent.

significant,  $Z = -13.353$ ,  $p < .01$ ). We also found this for friends' substance use, theft, vandalism and violence. The characteristics of the friends with whom respondents most often engaged in unstructured socializing were similar to the characteristics of the nominated friends overall: The proportion of nominated non-delinquent friends exceeded the proportion of nominated delinquent friends for all types of delinquency (Table 7.2). For the subsamples of respondents with 'mixed' friends (who had delinquent as well as non-delinquent friends), the pattern was less pronounced or even reversed. As shown in Table 7D.2 in the Appendix of this chapter, the subsample of respondents with delinquent as well as non-delinquent friends spent slightly more time unstructured socializing with delinquent friends (mean = 1.913) than with non-delinquent friends (mean = 1.893; Wilcoxon  $Z$  for difference =  $-2.643$ ,  $p < .01$ ).

**Table 7.2.** Involvement in unstructured socializing with different friends ( $N_{\max} = 40,582$  person-observations)

	Proportion of friends <sup>a</sup>	Mean	(SD)	Wilcoxon signed rank test <sup>c</sup>
Unstructured socializing <sup>b</sup>		1.951	(1.249)	
with delinquent friends	42.933	1.577	(1.418)	
with non-delinquent friends	57.067	1.674	(1.368)	-13.353**
with substance using friends	18.111	.889	(1.332)	
with non-substance using friends	81.889	1.858	(1.293)	-104.540**
with friends who steal	21.899	1.104	(1.410)	
with friends who do not steal	78.101	1.860	(1.294)	-87.210**
with vandalizing friends	17.165	.942	(1.369)	
with non-vandalizing friends	82.835	1.889	(1.277)	-104.675**
with violent friends	22.898	1.127	(1.428)	
with non-violent friends	77.102	1.859	(1.295)	-86.402**

NOTES: The means and standard deviations presented in this Table differ from those in Table 7.1 and Table 7C.1 (in the Appendix), because the measures presented in this Table were constructed by dividing the time spent unstructured socializing by the number of friends (average measure), whereas the measures presented in Tables 7.1 and 7C.1 were constructed by dividing by the squared root of the number of friends (squared root measures). The measures in this Table only serve to give the reader an idea of the involvement of respondents in unstructured socializing with different types of friends; they are not included in the analyses.

ABBREVIATION: SD = standard deviation.

<sup>a</sup> Proportion of nominated peers characterized by this feature.

<sup>b</sup> Average measure to facilitate interpretation (instead of the squared root measure that was used for the analyses).

<sup>c</sup> Results of Wilcoxon signed rank tests comparing two means: Unstructured socializing with delinquent friends and with non-delinquent friends.

+ $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$  (two-tailed).

In summary, although we found that respondents spent more time unstructured socializing with some friends than with others, we did not find that they necessarily ‘hung out with the wrong crowd’. On the contrary, respondents appeared to hang out more often with non-delinquent friends than with delinquent friends. These findings are in line with those of Siennick and Osgood (2012), who reported that the riskiest friends are not the most common unstructured socializing companions.

### Unstructured socializing and delinquency

Table 7.3 presents the general relationship between unstructured socializing with friends and the outcome measures, without specification for friend characteristics. The findings indicate positive relationships between unstructured socializing and all investigated types of delinquency except violence. An increase of one unit in unstructured socializing was associated with increases of 1.1 percent in general delinquency ( $B = .011, p < .05, IRR = 1.011$ ), 1.8 percent in substance use ( $B = .018, p < .05, IRR = 1.018$ ), 2.3 percent in theft ( $B = .022, p < .01, IRR = 1.023$ ), and 1.8 percent in vandalism ( $B = .017, p < .10, IRR = 1.018$ ) compared to respondents’ usual activity patterns<sup>40</sup>. Although these effects seem modest, we want to stress that the models control for all measured and unmeasured time stable individual characteristics and several measured time varying individual characteristics (e.g., parental knowledge, risk-seeking, susceptibility to peer influence), and also take into account prior socialization effects from delinquent friends. The increased involvement in delinquency is therefore attributable solely to changes in involvement in unstructured socializing.

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40 Coefficients were interpreted as log linear and express the change in the log count of the outcome associated with every one-unit increase in the independent variable. The incidence rate ratios (IRR) express the multiplicative change in the outcome measure with every one-unit increase in the predictors.

**Table 7.3.** General delinquency, substance use, theft, vandalism and violence regressed on overall unstructured socializing ( $N_{\max} = 11,089$  persons, 40,582 observations)

	General delinquency		Substance use		Theft		Vandalism		Violence	
	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)
Unstructured socializing	.011*	(.005)	.018*	(.008)	.022**	(.008)	.017+	(.009)	.002	(.007)
Controls										
Prop. reciprocal delinquent <sup>a</sup> friends	.439**	(.023)	.938**	(.038)	.536**	(.037)	.336**	(.044)	.395**	(.035)
Gender	.285**	(.022)	-.191**	(.033)	.242**	(.033)	.393**	(.037)	.720**	(.033)
Ethnicity	-.170**	(.028)	-.026	(.042)	-.210**	(.042)	-.086+	(.048)	-.285**	(.041)
Free lunch	.126**	(.022)	-.005	(.035)	.142**	(.034)	.006	(.039)	.288**	(.032)
Grades	-.140**	(.011)	-.130**	(.017)	-.052**	(.017)	-.065**	(.018)	-.147**	(.016)
Two parent family	-.142**	(.024)	-.194**	(.035)	-.110**	(.036)	-.148**	(.040)	-.165**	(.035)
Parental knowledge	-.369**	(.012)	-.281**	(.018)	-.380**	(.018)	-.413**	(.019)	-.273**	(.017)
Number of nominated friends	-.004	(.005)	-.020*	(.009)	.000	(.008)	-.019*	(.009)	-.010	(.008)
Risk-seeking	.359**	(.010)	.264**	(.015)	.344**	(.015)	.478**	(.016)	.362**	(.014)
Attitudes toward substance use	.306**	(.013)	.603**	(.019)	.363**	(.020)	.316**	(.022)	.175**	(.020)
Willingness to act different	-.020+	(.012)	.070**	(.019)	-.035+	(.018)	-.019	(.020)	-.050**	(.017)
Perc. social rewards from subst. use	.254**	(.014)	.552**	(.020)	.342**	(.020)	.354**	(.023)	.136**	(.021)
Wave 2 (dummy)	-.032	(.025)	-.595**	(.053)	-.164**	(.041)	-.041	(.047)	.279**	(.035)
Wave 3 (dummy)	-.007	(.022)	-.362**	(.038)	-.022	(.033)	.095*	(.038)	.166**	(.032)
Wave 4 (dummy)	.050*	(.020)	-.086**	(.031)	.107**	(.031)	.201**	(.035)	.013	(.032)
Wave 5 (dummy) ref										
Intercept	-.367**	(.052)	-1.153**	(.087)	-.944**	(.079)	-.602**	(.104)	-.052	(.102)
N persons	10,143		10,201		10,188		10,194		10,205	
N observations	29,119		29,643		29,561		29,675		29,723	
Log likelihood	-40632.67		-16149.86		-23024.02		-14984.63		-19125.23	
AIC	81305.34		32339.71		46088.03		30009.26		38290.46	
BIC	81470.97		32505.65		46253.92		30175.22		38456.45	

NOTES: Results are from random intercept panel models; only unstructured socializing results at the within-individual level are shown. ABBREVIATIONS: SE = standard error; Prop. = proportion; perc. = perceived; subst. = substance; ref. = reference category; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion.

<sup>a</sup> Delinquency of friends matches the dependent variable.

+p < .10; \*p < .05; \*\*p < .01 (two-tailed).

## Unstructured socializing with delinquent friends

In line with Hypothesis 1, we found that unstructured socializing with delinquent friends was more strongly related to delinquency than unstructured socializing with non-delinquent friends. Findings in Table 7.4 indicate that an increase of one unit in unstructured socializing with delinquent friends was associated with an increase of 2.9 percent in delinquency ( $B = .029, p < .01, IRR = 1.029$ ), whereas an increase of one unit in unstructured socializing with non-delinquent friends was associated with a decrease of 1.2 percent in delinquency ( $B = -.012, p < .05, IRR = 0.988$ ). The Wald test indicates that the coefficient for 'unstructured socializing with delinquent friends' was significantly different from the coefficient for 'unstructured socializing with non-delinquent friends' ( $\chi^2 = 21.43, p < .01$ ).

The findings shown in Table 7.5 indicate that the regularity of friends' engagement in delinquency is relevant, and thus support the distinctions between unstructured socializing with medium and high frequency offenders. This model indicates that unstructured socializing with non-delinquent friends was not significantly related to delinquency ( $B = -.007, p > .10, IRR = .993$ ). Unstructured socializing with medium frequent offending friends ( $B = .012, p < .05, IRR = 1.012$ ) as well as with high frequent offending friends ( $B = .037, p < .01, IRR = 1.038$ ) was associated with increased delinquency, but the effect of unstructured socializing with high frequent offending friends was stronger (Wald test:  $\chi^2 = 10.55, p < .01$ ).

## Friends' substance use, theft, vandalism and violence

Contrary to Hypothesis 2, we found that unstructured socializing with delinquent friends was more strongly positive related to delinquency *regardless of the type of delinquency*. Results in Table 7.4 indicate that a one unit increase in unstructured socializing with substance using friends, stealing friends, vandalizing friends and violent friends was related to, respectively, increases of 7.9 percent in substance use ( $B = .076, p < .01, IRR = 1.079$ ), 3.6 percent in theft ( $B = .035, p < .01, IRR = 1.036$ ), 5.5 percent in vandalism ( $B = .053, p < .01, IRR = 1.055$ ) and 2.7 percent in violence ( $B = .027, p < .01, IRR = 1.027$ ), compared to respondents' usual activity patterns. On the other hand, we found that unstructured socializing with friends who did not engage in those types of delinquency was unrelated

to theft, vandalism and violence, and even negatively related to substance use ( $B = -.032$ ,  $p < .01$ ,  $IRR = .969$ ). Wald tests confirmed that for all investigated types of delinquency, the unstructured socializing-delinquency relationship was different depending on friends' type-specific delinquent behavior. Furthermore, we found that for all types of delinquency, unstructured socializing with high frequent offending friends was more strongly related to type-specific delinquency than unstructured socializing with medium frequent offending friends or non-delinquent friends (Table 7.5). However, note that for vandalism the coefficient of 'unstructured socializing with high frequent vandalizing friends' ( $B = .053$ ,  $p < .01$ ,  $IRR = 1.054$ ) was higher, but not significantly different from that of 'unstructured socializing with medium frequent vandalizing friends' ( $B = .034$ ,  $p < .01$ ,  $IRR = 1.034$ , Wald test:  $\chi^2 = 1.54$ ,  $p > .01$ ).

### Friends' risk-seeking, attitudes and age

Our findings did not offer support for Hypotheses 3, 4 and 5, regarding respectively the role of friends' risk-seeking tendencies, attitudes and age. Results for these tests are summarized here and presented in full in Table 7E.1 in the supplementary material.

There was some indication that unstructured socializing with moderately risk-seeking friends was more strongly positive related to substance use and theft than unstructured socializing with low or high risk-seeking friends (Model 1 in Table 7E.1). Although similar patterns were visible in the supplemental analyses, Wald tests indicated that the coefficients for unstructured socializing with moderately risk-seeking friends did not differ significantly from those for unstructured socializing with high risk-seeking friends.

For the role of friends' attitudes in the unstructured socializing-delinquency relationship, we found that patterns were not consistent across outcome measures and supplementary analyses (Model 2 in Table 7E.1). This is possibly due to our measure, which specified tolerance toward substance use and no other rule breaking behaviors.

Nor did we find consistent patterns or a clear 'tipping point' for the role of age differences within the unstructured socializing-delinquency relationship (Models 3-6 in Table 7E.1 in the supplementary material). We would expect that if age differences affected the relationship, the effect would become stronger as the age gap increased. There were no such patterns visible in the data.



**Table 7.4.** General delinquency, substance use, theft, vandalism and violence regressed on unstructured socializing with delinquent and non-delinquent friends ( $N_{\max} = 11,089$  persons, 40,582 observations)

	General delinquency		Substance use		Theft		Vandalism		Violence	
	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)
Unstructured socializing with										
non-delinquent <sup>a</sup> friends	-.012*	(.006)	-.032**	(.009)	.005	(.008)	-.006	(.009)	.003	(.008)
delinquent <sup>a</sup> friends	.029**	(.006)	.076**	(.010)	.035**	(.010)	.053**	(.011)	.027**	(.009)
Wald test	21.43**		61.75**		5.00*		14.27**		3.45+	
Controls										
Prop. reciprocal delinquent <sup>a</sup> friends	.221**	(.023)	.521**	(.051)	.282**	(.047)	.056	(.057)	.167**	(.044)
Gender	.221**	(.023)	-.203**	(.033)	.196**	(.033)	.337**	(.038)	.602**	(.034)
Ethnicity	-.145**	(.028)	-.011	(.042)	-.171**	(.042)	-.073	(.048)	-.250**	(.041)
Free lunch	.107**	(.022)	-.016	(.035)	.133**	(.034)	-.002	(.038)	.255**	(.032)
Grades	-.122**	(.011)	-.116**	(.017)	-.037*	(.017)	-.056**	(.018)	-.125**	(.016)
Two parent family	-.122**	(.024)	-.181**	(.035)	-.091*	(.036)	-.130**	(.040)	-.135**	(.035)
Parental knowledge	-.365**	(.012)	-.275**	(.018)	-.374**	(.017)	-.410**	(.019)	-.267**	(.017)
Number of nominated friends	-.005	(.005)	-.027**	(.009)	-.006	(.008)	-.026**	(.009)	-.018*	(.008)
Risk-seeking	.352**	(.010)	.263**	(.015)	.341**	(.015)	.472**	(.016)	.353**	(.014)
Attitudes toward substance use	.296**	(.013)	.585**	(.019)	.350**	(.020)	.306**	(.022)	.162**	(.020)
Willingness to act different	-.021+	(.012)	.064**	(.019)	-.033+	(.018)	-.020	(.020)	-.051**	(.017)
Perc. social rewards from subst. use	.252**	(.014)	.531**	(.020)	.338**	(.020)	.346**	(.022)	.132**	(.021)
Wave 2 (dummy)	-.051*	(.025)	-.585**	(.053)	-.177**	(.041)	-.035	(.047)	.257**	(.035)
Wave 3 (dummy)	-.020	(.021)	-.369**	(.038)	-.036	(.033)	.083*	(.038)	.157**	(.032)
Wave 4 (dummy)	.045*	(.020)	-.110**	(.031)	.099**	(.031)	.193**	(.035)	.012	(.032)
Wave 5 (dummy) ref										
Intercept	-.352**	(.051)	-1.051**	(.087)	-.974**	(.077)	-.567**	(.104)	.005	(.102)

Continuation of Table 7.4

	General delinquency		Substance use		Theft		Vandalism		Violence	
	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)
N persons	10,145		10,203		10,191		10,198		10,209	
N observations	29,220		29,665		29,584		29,700		29,748	
Log likelihood	-40504.97		-16058.51		-22952.13		-14938.73		-19042.38	
AIC	81053.93		32161.02		45948.27		29921.47		38128.75	
BIC	81236.15		32343.57		46130.76		30104.04		38311.36	

NOTES: Results are from random intercept panel models; only unstructured socializing results at the within-individual level are shown.

ABBREVIATIONS: SE = standard error; Prop. = proportion; perc. = perceived; subst. = substance; ref. = reference category; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion.

<sup>a</sup> Delinquency of friends matches the dependent variable.  
 +p < .10; \*p < .05; \*\*p < .01 (two-tailed).

**Table 7.5.** General delinquency, substance use, theft, vandalism and violence regressed on unstructured socializing with friends with varied levels of involvement in delinquency ( $N_{\max} = 11,089$  persons, 40,582 observations)

	General delinquency		Substance use		Theft		Vandalism		Violence	
	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)
Unstructured socializing with										
non-delinquent <sup>a</sup> friends	-.007	(.006)	-.026**	(.009)	.007	(.008)	-.004	(.009)	.004	(.008)
medium frequent delinquent <sup>a</sup> friends	.012*	(.006)	.027*	(.011)	-.017	(.011)	.034**	(.012)	.010	(.009)
high frequent delinquent <sup>a</sup> friends	.037**	(.006)	.079**	(.010)	.051**	(.010)	.053**	(.012)	.037**	(.010)
Wald test low-mid	4.85*		12.94**		2.77+		5.37*		.20	
Wald test low-high	29.14**		62.29**		11.02**		12.94**		6.57*	
Wald test mid-high	10.55**		13.70**		24.60**		1.54		4.81*	
Controls										
Prop. reciprocal delinquent <sup>a</sup> friends	.235**	(.029)	.533**	(.050)	.287**	(.047)	.065	(.056)	.165**	(.044)
Gender	.221**	(.023)	-.198**	(.033)	.193**	(.033)	.334**	(.038)	.603**	(.034)
Ethnicity	-.135**	(.028)	-.011	(.042)	-.167**	(.042)	-.071	(.048)	-.248**	(.041)
Free lunch	.108**	(.022)	-.007	(.035)	.135**	(.034)	-.004	(.038)	.259**	(.032)
Grades	-.117**	(.011)	-.116**	(.017)	-.033*	(.017)	-.054**	(.018)	-.124**	(.016)
Two parent family	-.120**	(.023)	-.188**	(.035)	-.089*	(.036)	-.128**	(.040)	-.135**	(.035)
Parental knowledge	-.364**	(.012)	-.274**	(.018)	-.372**	(.017)	-.410**	(.019)	-.267**	(.017)
Number of nominated friends	-.009	(.005)	-.031**	(.009)	-.008	(.008)	-.028**	(.009)	-.022**	(.008)
Risk-seeking	.352**	(.010)	.265**	(.015)	.343**	(.015)	.470**	(.016)	.353**	(.014)
Attitudes toward substance use	.292**	(.013)	.582**	(.019)	.349**	(.020)	.304**	(.022)	.161**	(.020)
Willingness to act different	-.022+	(.012)	.063**	(.019)	-.034+	(.018)	-.020	(.020)	-.051**	(.017)
Perc. social rewards from subst. use	.246**	(.014)	.529**	(.020)	.332**	(.020)	.344**	(.022)	.132**	(.021)
Wave 2 (dummy)	-.047+	(.025)	-.580**	(.053)	-.170**	(.041)	-.033	(.047)	.255**	(.035)
Wave 3 (dummy)	-.014	(.021)	-.361**	(.039)	-.025	(.033)	.085*	(.038)	.159**	(.032)
Wave 4 (dummy)	.043*	(.020)	-.105**	(.031)	.098**	(.030)	.192**	(.035)	.013	(.032)
Wave 5 (dummy) ref										
Intercept	-.362**	(.050)	-1.033**	(.087)	-.971**	(.077)	-.562**	(.104)	.008	(.102)

Continuation of Table 7.5

	General delinquency		Substance use		Theft		Vandalism		Violence	
	B	(SE)	B	(SE)	B	(SE)	B	(SE)	B	(SE)
N persons	10,145		10,203		10,191		10,198		10,209	
N observations	29,220		29,665		29,584		29,700		29,748	
Log likelihood	-40479.30		-16054.48		-22931.19		-14936.84		-19037.39	
AIC	81006.61		32156.96		45910.39		29921.68		38122.78	
BIC	81205.39		32356.10		46109.47		30120.85		38321.99	

NOTES: Results are from random intercept panel models; only unstructured socializing results at the within-individual level are shown.

ABBREVIATIONS: SE = standard error; Prop. = proportion; perc. = perceived; subst. = substance; ref. = reference category; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion.

<sup>a</sup> Delinquency of friends matches the dependent variable.

+p < .10; \*p < .05; \*\*p < .01 (two-tailed).

## Supplementary analyses

The analyses presented above used a measure of unstructured socializing that was constructed by dividing by the square root of the number of friends (the square root measure). Additional analyses were conducted with an alternative measure constructed by simply dividing by the number of friends (the average measure). Results of these analyses, presented in Table 7F.1 in the supplementary material, were essentially similar to those from the main analyses: They confirmed relationships between unstructured socializing and the outcome measures (except for violence) that were amplified by the presence of type-specific delinquent friends. One noteworthy difference was that unstructured socializing with ‘non-stealing’ friends was more strongly positively related to theft than unstructured socializing with friends who committed theft (Model 2 in Table 7F.1 in the supplementary material).

Furthermore, all models were re-estimated for subsamples of respondents with mixed groups of friends. This check was conducted as a conservative control for potential selection effects that arise if friendship selection in the past is predictive of involvement in unstructured socializing in the present. It is, for example, possible that adolescents with many delinquent friends more often engage in unstructured socializing. Brief descriptions of the subsamples are shown in Tables 7D.1 and 7D.2 in Appendix at the end of this chapter. The descriptive statistics in Table 7D.1 indicate for example that, of the total sample ( $N = 40,582$  person-observations), 11.7 percent solely nominated delinquent friends, 19.7 percent solely nominated non-delinquent friends, and the other 68.7 percent (27,876 person-observations) nominated delinquent as well as non-delinquent friends. The subsample for the analyses on ‘unstructured socializing with delinquent friends’ therefore consists of 22,876 person-observations. Findings of these analyses, as presented in Table 7G.1 in the supplementary material, were similar to those from the main analyses, in that unstructured socializing with type-specific delinquent friends was more strongly related to delinquency than unstructured socializing with other friends—except for violence. Patterns for medium and high frequent offending friends were less clear. For these subsamples, the general relationship between unstructured socializing (unspecified for friends) and delinquency was confirmed for theft and vandalism, but not for substance use and violence.

## Discussion and conclusion

Adolescents spend a lot of their time with peers (Anderson, 2013; Larson and Verma, 1999) and time spent with peers may, under certain conditions, increase the risk for delinquency and substance use (Osgood et al., 1996; Weerman et al., 2013). It is therefore important to scrutinize what these conditions are. The current study focused on whose presence in situations of unstructured socializing increased the risk for delinquency. Of the four investigated friend characteristics, friends' involvement in delinquency appeared to be most relevant. Unstructured socializing with delinquent friends was more strongly positively related to delinquency than unstructured socializing with non-delinquent friends, especially if the friends engaged in delinquency frequently (i.e., if they were in the top ten percent of offending frequency). These findings were consistent across different types of delinquency, namely theft, substance use, vandalism and violence. Results for other friend characteristics (friends' risk-seeking tendencies, attitudes toward substance use, and relative ages) were ambiguous.

These findings provide tentative support for the idea that the behavior of friends ('what they do') is more predictive of adolescents' delinquency than the attitudes of friends ('what they think') when it comes to *situational influence*. Friends' delinquency seemed highly relevant, and even more so when we specified friends' frequency of engaging in delinquency or their type-specific delinquency. This is in contrast with recent findings on *socialization*, which indicated that peers' attitudes may be more important than peers' behavior in the process of learning attitudes favorable of delinquency (Megens and Weerman, 2012; Ragan, 2014).

A more theoretical contribution of our study is the integration of literature from different disciplines on peer influence, co-offending, and conflict situations to specify four situational processes through which adolescents might contribute to each other's delinquency. We argued that peers can motivate adolescents to commit delinquent acts by providing positive reinforcement for such behavior, by instigating a delinquent act, by provoking delinquent behavior through threatening one's status, and by merely being present and thereby providing a delinquency conducive group setting. These theoretical processes were used to derive hypotheses about relevant friend characteristics, although we could not test the

processes directly. Our finding that violence was not related to unstructured socializing (which is in line with findings from Müller, Eisner, and Ribeaud, 2013, and Mustaine and Tewksbury, 2000) may indicate that, among our sample of public secondary school students from Pennsylvania and Iowa, provocation is a less important process. Nevertheless, this is speculation, and further research is necessary to determine whether the investigated friend characteristics indeed make friends more likely to exert these or other types of situational influence.

The current study contributes to the discussion about whether the unstructured socializing-delinquency relationship exists independently from the socialization effect of having delinquent friends. Haynie and Osgood (2005) did not find evidence for an interaction effect between involvement in unstructured socializing and having delinquent peers, which strengthened their perspective of unstructured socializing as an 'opportunity' concept. Other studies found positive interactions and argued that the relationship between unstructured socializing and delinquency was merely explained by association with delinquent peers (Bernburg and Thorlindsson, 2001; Svensson and Oberwittler, 2010; Thorlindsson and Bernburg, 2006). The findings of the current study imply that it indeed matters who is present in a situation of unstructured socializing. However, in line with Osgood et al. (1996), we take a situational perspective in which we view the present peers as motivators and facilitators of *opportunities* for delinquency, not solely as agents of socialization. Thus, we argue that unstructured socializing is more strongly related to delinquency if delinquent friends are present, because of the deviant nature of the peer or group processes that are shaped by the presence of these friends. The current study can be considered as a first step toward specifying the characteristics of friends that contribute to increased situational influence toward delinquency. This area has thus far been understudied (Brechtwald and Prinstein, 2011: 173).

### Limitations and future research

The sociometric features of the PROSPER data linked with respondents' reports about unstructured socializing with each nominated friend make the data exceptionally well-suited for studying characteristics of the peers

present in situations of unstructured socializing. Nevertheless, the data have some limitations that will be addressed in this section.

One limitation was the absence of information about conditions under which delinquent acts occurred. Specifically, it was unknown whether the delinquency reported by respondents actually occurred in situations of unstructured socializing. Our findings therefore only concern the general risk for adolescents' involvement in delinquency that is associated with the time they spend unstructured socializing with certain friends.

A second limitation was that the data only captured information about unstructured socializing with 'best' or 'close' friends, not with distant friends or acquaintances. Respondents' involvement in unstructured socializing may therefore be underestimated. This is particularly problematic if delinquent adolescents, compared to non-delinquent adolescents, spend more time in unstructured socializing with peers who are not friends, or if unstructured socializing with distant friends is more strongly related to delinquency than unstructured socializing with close friends. Future research has to determine whether that is the case. Relatedly, we know little of the group structures or other peers that were present in situations of unstructured socializing. Respondents may hang out with just the one friend the question refers to. If they do not, we do not know who else is present in that situation. It would be interesting to study the group size and group composition with respect to, for example, age differences within the group, differences in delinquency experience, gender composition (see Lam, McHale, and Crouter, 2014), and the nature of the friendships within the group.

A methodological challenge in the study was to isolate situational influences as much as possible from socialization and selection effects. We therefore not only applied a within-individual design to extensively control for individual characteristics of the respondents, but we also conducted supplementary analyses with subsamples to control for the effects of simply having certain friends. Even so, the isolation of situational influences is not an easy task and our understanding of the proposed situational peer processes would benefit from replication in experimental designs (such as that of Dishion et al., 1996; Gardner and Steinberg, 2005; Paternoster et al., 2013).



## Concluding remarks

The current study takes the setting of unstructured socializing as a point of departure in studying short-term situational peer processes. Nevertheless, scholars need to take into account long-term effects of situational processes as well. The more often individuals are exposed to certain situations, the more likely it is that those situations will affect their moral values system. Therefore, *situational* influences may result in *socialization*.

We repeat here the arguments of Warr (2002), who stated that group dynamic explanations for the relationship between delinquent peers and delinquency cannot be interpreted separately from selection and socialization explanations. Adolescents select friends with certain characteristics and then are socialized by them in a chain of situations: They learn from the physically present peers what acceptable behavior is and is not. Socialization by peers thus cannot be viewed independently from the situations in which adolescents encounter these peers and from who else is present. Barker (1968) argued that individuals are not only influenced by a situation, but that they also are part of that situation and its ecological sphere of influence. This view on socialization and situational peer influence has often been neglected in sociology and deserves more attention.

## Appendices Chapter Seven

- Appendix 7A: Items representing each construct
- Appendix 7B: Operationalization of unstructured socializing
- Appendix 7C: Descriptive statistics for other friend characteristics
- Appendix 7D: Descriptive statistics for subsamples

### Supplementary material

*(enclosed in a separate document available from the author):*

- Appendix 7E: Results for friends' risk-seeking, attitudes and age differences
- Appendix 7F: Results using averaged measures of unstructured socializing
- Appendix 7G: Results for subsamples

## Appendix 7A

**Table 7A.1.** Items representing each construct

Variable	Number of items	Items
Delinquency	12	Stealing something worth less than 25 US dollars; stealing something worth more than 25 US dollars; beating up someone or physically fighting with someone because they made the respondent angry; purposely damaging or destroying property that did not belong to them; breaking into or trying to break into a building just for fun; throwing objects such as rocks or bottles at people to hurt or scare them; being picked up by the police for breaking the law; running away from home; skipping school or classes without excuse; carrying a hidden weapon; avoiding paying for things such as movies, rides, food or computer services; taking something from a store without paying. <i>For the past twelve months: Never (0); once (1); twice (2); three or four times (3); five or more times (4).</i>
Theft	4	Stealing something worth less than 25 US dollars; stealing something worth more than 25 US dollars; avoiding paying for things such as movies, rides, food or computer services; taking something from a store without paying. <i>For the past twelve months: Never (0); once (1); twice (2); three or four times (3); five or more times (4).</i>
Vandalism	2	Purposely damaging or destroying property that did not belong to them; breaking into or trying to break into a building just for fun. <i>For the past twelve months: Never (0); once (1); twice (2); three or four times (3); five or more times (4).</i>
Violence	1	Beating up someone or physically fighting with someone because they made the respondent angry. <i>For the past twelve months: Never (0); once (1); twice (2); three or four times (3); five or more times (4).</i>
Substance use	4	Being drunk; smoking marijuana; using inhalants to get high; using methamphetamines. <i>For the past twelve months: Not at all (0), one or two times (1); three to six times (2); seven to twelve times (3) and more than twelve times (4).</i>
Parental knowledge	2	During the day, my parents know where I am. My parents know who I am with when I am away from home. <i>'Never' (1) to 'always' (5).</i>
Risk-seeking	3	How often the respondents 'do what feels good, regardless of the consequences', 'do something dangerous because someone dares them to do it', and 'do crazy things just to see the effect on others'. <i>'Never' (1) to 'always' (5).</i>
Attitudes toward substance use	3	How wrong it is for someone the respondents' age to 'smoke cigarettes', 'drink alcohol' and 'use marijuana'. <i>'Very wrong' (1) to 'not at all wrong' (4).</i>
Willingness to act different	3	How likely the respondents thought they would 'express an opinion even though others may disagree with them', 'ask a teacher to explain something they don't understand', and 'say "no" when someone asks them to do something they don't want to do'. <i>'Definitely would' (1) to 'definitely would not' (5).</i>
Perceived social rewards from substance use	11	Respondents were asked to what extent they agreed to statements about substance use. The statements on smoking were: 'Kids/teens who smoke have more friends,' 'smoking cigarettes makes you look cool' and 'smoking cigarettes lets you have more fun'. The same statements were made about smoking marijuana and alcohol use. Additional items on alcohol use were: 'Drinking alcohol is a good way of dealing with your problems', 'Drinking helps you get along with other people'. <i>'Strongly disagree' (1) to 'strongly agree' (5).</i>

## Appendix 7B

### Operationalization of unstructured socializing

Involvement in unstructured socializing was measured by asking the respondent for each nominated friend, 'How often do you spend time just hanging out with this person outside of school (without adults around)?' Answer categories were never (0); once or twice a month (1); once a week (2); a few times a week (3); almost every day (4). These responses were summed across respondents' friends and divided by the square root of the number of those friends (range 1 to 7), following the approach taken by Haynie and Osgood (2005).

Haynie and Osgood (2005, footnote 8) argued that taking the sum of the unstructured socializing responses across friends would be inappropriate, because the measure would be too strongly correlated with the number of friends, and that taking the average across friends (dividing by the number of friends) requires the unreasonable assumption that respondents with many friends are not more often involved in unstructured socializing than respondents with few friends. Bivariate correlations indicated a pattern in line with this: The summative measure of unstructured socializing was most strongly correlated with the number of nominated friends (.413), the average measure was least strongly and negatively correlated with the number of nominated friends (-.062), and the strength of the correlation between the square root measure and the number of peers fell in between the first two correlations (.225). All models therefore controlled for the number of nominated friends. When correlating the different unstructured socializing measures (the sum, average, and square root measures) with the dependent variables (e.g., delinquency), we found that the correlations between the square root measures and the dependent variables were often stronger (more negative or more positive) than the correlations between the average measures and the dependent variables. It seemed that the larger the number of friends was, the larger the differences between these correlations. We therefore replicated all models with average measures instead of square root measures (see Table 7F.1 in the supplementary material). The model fit (based on AIC and BIC values) was almost identical for both measures, but in most cases, the models with the square root measure fitted the data slightly better than the models with the average measure.

## Appendix 7C

**Table 7C.1.** Descriptive statistics for measures of unstructured socializing with friends with various characteristics ( $N_{\max} = 40,582$  person-observations)

	Proportion of friends <sup>a</sup>	Mean	(SD)	Min	Max	ICC <sup>b</sup>
Unstructured socializing		3.674	(2.491)	.000	10.580	.355
Friends' delinquency						
with non-delinquent friends	57.067	2.666	(2.309)	.000	10.580	.295
with medium frequent delinquent friends	32.043	1.869	(1.970)	.000	10.580	.243
with high frequent delinquent friends	10.891	.719	(1.417)	.000	9.800	.193
Friends' substance use						
with non-substance using friends	81.889	3.412	(2.540)	.000	10.580	.302
with medium freq. substance using friends	7.312	.550	(1.222)	.000	8.000	.077
with high frequent substance using friends	10.799	.703	(1.428)	.000	8.940	.146
Friends' theft						
with friends who do not steal	78.101	3.326	(2.465)	.000	10.580	.319
with friends who steal medium frequently	7.586	.579	(1.237)	.000	7.500	.075
with friends who steal high frequently	14.314	.950	(1.580)	.000	9.800	.194
Friends' vandalism						
with non-vandalizing friends	82.835	3.463	(2.495)	.000	10.580	.329
with medium frequent vandalizing friends	9.051	.673	(1.331)	.000	8.000	.119
with high frequent vandalizing friends	8.114	.579	(1.274)	.000	8.980	.156
Friends' violence						
with non-violent friends	77.102	3.317	(2.444)	.000	10.580	.338
with medium frequent violent friends	12.135	.862	(1.492)	.000	9.800	.158
with high frequent violent friends	10.763	.748	(1.435)	.000	8.940	.191
Friends' risk-seeking						
with high risk-seeking friends	14.939	.989	(1.580)	.000	8.940	.170
with medium risk-seeking friends	65.578	2.956	(2.270)	.000	10.580	.305
with low risk-seeking friends	19.483	1.178	(1.693)	.000	9.800	.171
Friends' attitudes						
with highly tolerant friends	14.729	.947	(1.599)	.000	10.580	.165
with medium tolerant friends	35.429	2.023	(2.028)	.000	9.800	.225
with low tolerant friends	49.842	2.410	(2.298)	.000	10.580	.223
Age differences						
with older friends (3 months)	28.766	1.553	(2.049)	.000	10.580	.451
with same age friends (3 months)	41.561	2.251	(2.113)	.000	10.580	.351
with younger friends (3 months)	26.970	1.458	(2.033)	.000	10.580	.502
with older friends (6 months)	15.395	.922	(1.650)	.000	10.580	.431
with same age friends (6 months)	67.708	3.082	(2.393)	.000	10.580	.366
with younger friends (6 months)	14.194	.832	(1.636)	.000	10.580	.503
with older friends (9 months)	6.891	.457	(1.192)	.000	9.800	.358
with same age friends (9 months)	84.179	3.533	(2.518)	.000	10.580	.365
with younger friends (9 months)	6.227	.374	(1.157)	.000	10.580	.486
with older friends (12 months)	2.826	.198	(.788)	.000	7.760	.259
with same age friends (12 months)	91.911	3.733	(2.565)	.000	10.580	.364
with younger friends (12 months)	2.560	.146	(.760)	.000	10.580	.503

ABBREVIATIONS: SD = standard deviation; Min = minimum; Max = maximum; ICC = intra-class correlation.

<sup>a</sup>Proportion of nominated peers characterized by this feature.

<sup>b</sup>The ICCs are calculated in Stata as suggested by Hilbe (2011) and Hosmer and Lemeshow (2000). The ICCs express the percentage of the total variance that is at the individual level (versus the person-observation level).

## Appendix 7D

**Table 7D.1.** Involvement in unstructured socializing for subsamples of respondents, characterized by the variability in their friends' characteristics ( $N_{\max} = 40,582$  person-observations)

	N	Percent	Number of friends <sup>a</sup>		Unstructured socializing <sup>b</sup>	
			Mean	(SD)	Mean	(SD)
All	40,582	100.0	4.878	(1.873)	1.951	(1.249)
Respondents with...						
Only delinquent friends	4,728	11.7	3.156	(1.788)	2.235	(1.296)
Only non-delinquent friends	7,978	19.7	3.934	(2.021)	1.880	(1.326)
Only medium frequent delinquent friends	2,121	5.2	2.464	(1.471)	2.201	(1.359)
Only high frequent delinquent friends	727	1.8	2.173	(1.330)	2.456	(1.324)
Mixed friends (dq. and non-dq.)	27,876	68.7	5.443	(1.524)	1.924	(1.211)
Mixed friends (non, medium and high dq.)	7,796	19.2	5.929	(1.158)	1.973	(1.154)
Only substance using friends	1,492	3.7	2.767	(1.640)	2.410	(1.211)
Only non-substance using friends	22,529	55.5	4.597	(1.957)	1.900	(1.301)
Only medium frequent substance using friends	276	.7	1.797	(.916)	2.409	(1.354)
Only high frequent substance using friends	799	2.0	2.478	(1.548)	2.498	(1.195)
Mixed friends (use and non-use)	16,561	40.8	5.451	(1.520)	1.980	(1.168)
Mixed friends (non, medium and high use)	3,818	9.4	5.930	(1.163)	2.005	(1.090)
Only friends who steal	1,413	3.5	2.411	(1.482)	2.366	(1.309)
Only friends who do not steal	17,825	43.9	4.376	(1.980)	1.914	(1.303)
Only friends who steal medium frequently	268	.7	1.694	(.893)	2.363	(1.401)
Only friends who steal high frequently	842	2.1	2.220	(1.405)	2.377	(1.327)
Mixed friends (stealing and not stealing)	21,344	52.6	5.461	(1.516)	1.955	(1.193)
Mixed friends (non, medium and high stealing)	4,762	11.7	6.021	(1.127)	1.952	(1.136)
Only vandalizing delinquent friends	956	2.4	2.159	(1.330)	2.378	(1.367)
Only non-vandalizing delinquent friends	21,228	52.3	4.491	(1.962)	1.911	(1.291)
Only medium frequent vandalizing friends	340	.8	1.703	(.933)	2.371	(1.452)
Only high frequent vandalizing friends	399	1.0	1.837	(1.038)	2.465	(1.327)
Mixed friends (vand. and non-vand.)	18,398	45.3	5.465	(1.517)	1.976	(1.186)
Mixed friends (non, medium and high vand.)	3,735	9.2	5.963	(1.168)	1.999	(1.125)
Only violent delinquent friends	1,515	3.7	2.312	(1.415)	2.298	(1.366)
Only non-violent delinquent friends	17,369	42.8	4.454	(1.992)	1.895	(1.267)
Only medium frequent violent friends	513	1.3	1.776	(1.038)	2.281	(1.437)
Only high frequent violent friends	561	1.4	1.863	(1.051)	2.381	(1.387)
Mixed friends (violent and non-violent)	21,698	53.5	5.397	(1.541)	1.972	(1.221)
Mixed friends (non, medium and high violent)	5,694	14.0	5.936	(1.178)	2.028	(1.206)

ABBREVIATIONS: SD = standard deviation; dq. = delinquent; vand. = vandalizing.

<sup>a</sup>Number of friends who could be matched to the school roster. Note that the average number of friends for the mixed group is substantially higher, because this group only incorporates the respondent who nominated at least two friends (otherwise their nominated friends could not be mixed on particular characteristics).

<sup>b</sup>Average-measure to facilitate interpretation, instead of the squared-root measure that was used for the analyses.

**Table 7D.2.** Involvement in unstructured socializing with different friends, for subsamples with mixed friends ( $N_{\max} = 40,582$  person-observations)

	Proportion of friends <sup>a</sup>	N	Mean	(SD)	Wilcoxon signed rank test <sup>c</sup>	Spearman's rho <sup>d</sup> with type-specific delinquency
Unstructured socializing <sup>b</sup>		40,582	1.951	(1.249)		
with delinquent friends	45.542	27,876	1.913	(1.324)		.146**
with non-delinquent friends	54.458	27,876	1.893	(1.302)	-2.643**	-.019**
with substance using friends	35.371	16,561	1.952	(1.343)		.189**
with non-substance using friends	64.629	16,561	1.961	(1.236)	-2.276*	-.025**
with friends who steal	35.017	21,344	1.938	(1.360)		.119**
with friends who do not steal	64.983	21,344	1.933	(1.249)	-0.371	-.004
with vandalizing friends	32.666	18,398	1.951	(1.372)		.111**
with non-vandalizing friends	67.335	18,398	1.954	(1.237)	-1.919+	.007
with violent friends	35.844	21,698	1.944	(1.380)		.113**
with non-violent friends	64.156	21,698	1.956	(1.275)	-2.599*	.014*

ABBREVIATION: SD = standard deviation.

<sup>a</sup>Proportion of nominated peers characterized by this feature.

<sup>b</sup>Average measure to facilitate interpretation (instead of the squared root measure that was used for the analyses).

<sup>c</sup>Results of Wilcoxon signed rank tests comparing two means: Unstructured socializing with delinquent friends and with non-delinquent friends.

<sup>d</sup>Correlations are calculated with the squared root measures for unstructured socializing.

+ $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$  (two-tailed).