At your own risk

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CHAPTER 4

Reconsidering Delinquency in Peer Processes: Examining Selection and Influence for Overall Delinquency and Specific Delinquent Acts Using a Two-Mode Network Approach*

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Abstract

Interacting and spending time with delinquent peers is one of the strongest predictors of adolescents' own delinquency. With the increasing number of studies examining peer influence in delinquency, one aspect that remains unclear is whether adolescents are influenced in a general range of delinquency or in more specific delinquent acts. Research on selection and peer influence processes in delinquency implicitly assumes these processes to work for delinquency in general rather than for specific delinquent acts. This study tests this assumption by examining both processes with a collapsed measure of different delinquent behaviors versus specific delinquent acts as a two-mode network using longitudinal social network analysis (RSIENA), in a sample (N = 1,309, M_{age} = 13.19, boys = 50.1%) from the SNARE study. Selection was found for delinquency in general, but not for same delinquent acts, whereas influence was found for both overall delinquency and same delinquent acts. These findings reveal that selection processes might be best understood by looking at delinquency in general, whereas influence also pertains to same delinquent acts, thus increasing our knowledge of how selection and influence processes in adolescent delinquency work and how they relate to the theories about those processes.

Research has shown that delinquency often occurs in adolescence with the majority of individuals confining their delinquent behavior to this life phase (e.g., Gottfredson & Hirschi, 1990; Hirschi & Gottfredson, 1983; Moffitt, 1993) and peers play a significant role in the origins of this delinquency (Rubin et al., 2006). The introduction of longitudinal social network modeling (stochastic actor-based models) (SIENA models Snijders et al., 2010) has rapidly increased the number of studies specifically examining peer selection and influence processes, to get a better understanding of the effect that peers have on one another (for an overview see Veenstra et al., 2013). These studies reveal that adolescents both select peers based on their level of delinquency (e.g., Knecht et al., 2010; Osgood, Feinberg, & Ragan, 2015; Svensson et al., 2012; Tilton-Weaver et al., 2013) and are influenced by peers in their delinquent behavior (e.g., Burk et al., 2008; Kerr et al., 2012; Osgood et al., 2015; Svensson et al., 2012; Tilton-Weaver et al., 2013; Weerman, 2011).

What all these studies share is the use of a collapsed, overall measure of delinquency containing a wide variety of behaviors, such as theft, vandalism, or violence, each tapping into distinct delinquent acts. When considering selection and influence processes, the underlying assumption is that these processes pertain to delinquency in general rather than to specific delinquent acts. Thus, those who have a high level of delinquency tend to associate with each other or influence others who are not (so) delinquent, without distinguishing the delinquent acts the adolescents are engaged in exactly. The question is whether this assumption is correct or whether selection and influence processes are restricted particularly to the same delinquent acts committed. To our knowledge this study is the first to test this assumption, and to test it rather innovatively by examining delinquency as a two-mode network, thereby deepening our understanding of peer processes in the realm of adolescent delinquency.

Adolescents are likely to affiliate with others with whom they share similar levels of delinquency, but the delinquent acts they commit in common has never been examined. This is surprising, as selection processes are often understood by using the similarity attraction theory (Byrne, 1971). This theory assumes that individuals prefer to associate with similar others (homophily), because they are more predictable, can communicate with less effort, and find trust and belongingness with each other. Although studies on selection processes in delinquency describe homophily as the result of attraction to those who show similar levels of delinquency, one could argue that this similarity attraction principle

should apply particularly to specific, identical, delinquent acts rather than to delinquency in general.

Likewise, an important assumption in research on peer influence is that adolescents are influenced by the delinquency of their peers irrespective of the exact delinquent behaviors their peers engage in. Most studies examining peer influence in delinquency use differential association theory and social learning theory to explain this influence (e.g., Burk et al., 2008; De Cuyper et al., 2009; Haynie et al., 2014; Knecht et al., 2010; Weerman, 2011). According to Sutherland's (1995) differential association theory, individuals learn delinquency and adopt delinquency-favorable attitudes through interacting with delinquent others. Social learning theory adds to this by emphasizing that behavioral modeling and reinforcement of delinquency play important roles in one's own delinquent behavior (Burgess & Akers, 1966). The question than is, if influence in delinquency works mainly through modeling and imitating peer behavior, what behaviors are then mimicked exactly. If one learns from others by observing and copying their behavior, it stands to reason that adolescents copy the same behaviors. For example, it would be more likely that adolescents mimic shoplifting peers by stealing something themselves rather than by vandalizing something. The implication is that peer influence processes do not necessarily pertain to delinquency in general, but to specific delinquent acts, meaning that adolescents imitate same delinquent behavior.

Hence, for a more stringent test of theories on selection and influence processes one should examine these processes for specific, same delinquent acts rather than delinquency in general. We hypothesize that both selection and influence processes in adolescent delinquency apply particularly to specific delinquent acts. Thus, adolescents select peers who show the same delinquent acts (Hypothesis 1) and are influenced by peers with whom they associate in the same delinquent acts (Hypothesis 2).

We test our hypotheses using stochastic actor-based modeling (RSIENA; Ripley et al., 2014; Snijders et al., 2010) in a large longitudinal sample of adolescent boys and girls. Similar to previous research, we first examine selection and influence processes for a collapsed measure of delinquency. Next, we test selection and influence processes for specific delinquent behaviors, by examining delinquent behaviors not as a collapsed measure, but as a two-mode network. In this novel approach delinquent acts are dummy-coded and subsequently treated as a network (Lomi & Stadtfeld, 2014). That is, respondents could either engage in a specific

delinquent act (represented by a relation between respondent and the delinquent act) or not (represented by the absence of a relation between respondent and delinquent act). When respondents who have nominated the same item (both committed the same delinquent act) associate with one another at a later time point, this is considered selection. When peers with whom one associates nominate a specific delinquent act and respondents also nominate this same act over time, this is considered to be influence. Note that if respondents are connected with peers who engage, for instance, in weapon carrying, but they themselves start to engage in theft, this is not considered as influence in a two-mode network. That is, in a two-mode network influence as well as selection are only counted as such when they pertain to the exact same type of behavior. Hence, with this approach, we can actually test similarities between related adolescents for the same delinquent acts with effects that truly correspond to the theory.

Method

Participants and Procedure

Data stem from the SNARE (Social Network Analysis of Risk behavior in Early adolescence) project; a longitudinal project on the social development of early adolescents with a specific focus on adolescents' involvement in risk behavior. Five school locations participated in the SNARE study. Subsequently, all first- and second-year students from these locations were approached for enrollment in SNARE (2011-2012). A year later (2012-2013) all new first year students were again approached for participation in the study. All eligible students and their parents received an information letter inviting the students to participate. If students or their parents wished to refrain from participation, they were asked to send a reply card within ten days. In total, 1,786 students participated in SNARE (83.9% Dutch), and 40 students (2.2%) declined to participate.

For the present study we used data of the first three regular waves (October, December, and April) of both first- and second-year students of the first cohort, a subsample of 1,309 students (50% boys), with a mean age of 13.19 (ranging from 11 to 15, *SD* = .71). Of the participants, 39.4% followed pre-vocational education (VMBO) and 60.6% followed pre-university/senior general secondary education (HAVO/VWO). During the assessments a teacher and research assistants were present. The research assistant briefly introduced the questionnaire, containing both self-reports as well as peer nominations, which the students filled in on the computer in class. Data were collected with CS socio software (www.sociometric-

study.com) developed especially for this study. The assessment of the questionnaires took place during regular lessons in approximately 45 minutes. Any students absent on the day were assessed within a month, if possible. The anonymity and privacy of the students were guaranteed. The study was approved by the Internal Review Board of one of the participating universities.

Measures

Peer networks (T1/T2/T3). Peer networks were derived from unlimited friendship and group-membership nominations in school locations, across classes and grades, on the items 'Who are your best friends?' and 'Who are part of the group you hang out with the most?' The nominations for both questions were summed per individual and a total score of 2 was recoded into 1, which were used to construct networks per school location. By using both questions we could construct networks that include individuals with whom adolescents have a close relationship and we consider as the most influencing factors. Furthermore, by asking respondents not only about class members, but also about their friends and 'group' members outside of class, we could identify important peers both in and outside their class. For the sake of clarity we refer to "peer group" or "peer group members" when discussing the results regarding network dynamics.

Delinquency (T1/T2/T3). Self-reports were used to assess delinquency (11 items) (Nijhof et al., 2010; Van der Laan et al., 2010). We asked respondents how often they had been involved in theft, vandalism, aggressive acts, weapon use and carrying, truancy, fare dodging, and had contact with the police in the last month. The internal consistency of this measure of delinquency ranged from $\alpha = .82$ to .92. Answer categories were measured on a five-point scale, running from never (0), 1-3 times (1), 4-6 times (2), 7-12 times (3), to more than 12 times (4). Answers were dummy-coded into no (0) or yes (1) and summed to construct a variety score that measured the extent to which adolescents had been involved in each delinquent act. Subsequently, these scores were categorized into no acts (0), one act (1), two acts (2), and more than two acts (3) in the last month, because SIENA does not allow for the use of continuous dependent variables (Ripley et al., 2014). The average level of delinquency ranged from .48 to .58 across all school locations (*SD* range from .92 to 1.02).

To create the two-mode network of delinquency, we dummy-coded the separate items into no (0) and yes (1), and created a matrix of items (columns) and respondents (rows). This network was then entered in the models as a dependent network, whereby it is possible to share a common relationship through delinquent

acts. Parameters regarding the two-mode network then have the ability to detect involvement in the delinquent acts (items) as a result or consequence of a relationship (tie) in the peer networks.

Analytical Strategy

Longitudinal social network modeling (RSIENA, version 1.1.286; Snijders, Lomi, & Torló, 2013) was used to examine similarities between befriended adolescents for a collapsed measure of delinquency and the same delinquent acts. RSIENA models the co-evolution of social networks and behavior over time (Ripley et al., 2014; Snijders et al., 2010). Specifically, changes in individual behavior are modeled as the result of behaviors of related peers (influence effect) and changes in relationships are modeled as the result of pre-existing similarities in behavior (selection effect). The network of relations and the (network of) behavior of individuals are two dependent variables that can have an effect on each other. As a result, in RSIENA it is possible to untangle influence processes (behavioral dynamics) from selection processes (network dynamics) regarding delinquency.

Network Effects

In our models, we added network effects to capture the peer group structure and optimize the GoF of the model (RSIENA; Ripley et al., 2014; Veenstra et al., 2013). These effects were: *outdegree/density* (tendency to create relations with peer group members), *reciprocity* (tendency to reciprocate a group-membership nomination), *transitive triplets* (tendency to nominate a group member of a group member as one's own group member), *transitive reciprocated triplets* (tendency for triads to reciprocate group-membership nominations), *three cycles* (tendency for a (non-)hierarchical structure), *indegree popularity* (square root; tendency for receivers of many group-membership nominations to receive even more group membership nominations), *indegree activity* (activity of popular individuals; nominating others as group member when often nominated oneself), *outdegree activity* (activity of active individuals; nominating more others as group member when already often nominating oneself), and *truncated outdegree* (sinks; individuals who nominate no one).

We also controlled for selection effects by examining whether boys nominate (*gender ego*) and were nominated (*gender alter*) more often than girls, and whether respondents of the same gender (gender homophily; measured with the *same-gender effect*) were more likely to select each other as group members. Similarly, we examined whether respondents in the same grade (grade homoplily;

measured with the *same-grade effect*) or same class (class homophily; measured with the *same-class effect*) selected each other more often than respondents residing in different grades or classes, whether more delinquent respondents nominate (*delinquency ego*) and were nominated (*delinquency alter*) more often than less delinquent respondents.

To examine hypothesis 1, we first tested whether there was a tendency for respondents to select each other when they had similar levels of delinquent behavior (delinquency homophily measured with the *ego x alter selection effect*) (see Table 4.2). Second, in the models with delinquency as a two-mode network, we tested whether adolescents who nominated the same item formed a relationship at a later time point (delinquency homophily based on the *from agreement effect*) (see Figure 4.1).

Behavioral Effects

The *linear shape* effect models the overall tendency toward delinquency, whereas the *quadratic shape* parameter models the feedback effect of delinquency on itself, resulting in either regression to the mean (negative parameter) or polarization by a tendency to the extremes of the scale (positive parameter). In the behavioral part of the models we controlled for the tendency that boys were more likely than girls to score highly on delinquent behavior (*effect from gender*), and that respondents in higher grades were more likely to score highly on delinquent behavior than respondents in lower grades (*effect from grade*).

For the two-mode network models, each item of a delinquent act was treated as a nomination. Delinquency is thus modeled as a network, whereby we controlled for the tendency to nominate delinquent acts (*outdegree/density*), the tendency for individuals to share indirect relations through shared delinquent acts (*four cycles*), the tendency for delinquent acts that receive many delinquency nominations to receive extra nominations (*indegree popularity*), the tendency for those who nominate many delinquent acts to nominate extra delinquent acts (*outdegree activity*), and the tendency for individuals not to nominate any delinquent acts (*truncated outdegree*; sinks). In the two-mode network models we also controlled for the tendency that boys were more likely than girls to nominate delinquent acts (*effect of gender*), and that respondents in higher grades were more likely to nominate delinquent acts than respondents in lower grades (*effect of grade*).

To test hypothesis 2, we first examined the *average alter effect* in the delinquency scale analyses, reflecting the general tendency for influence in delinquency (see Table 4.2). The tendency for influence in same delinquent acts was estimated by the *to agreement effect* in the two-mode network analyses, which reflected whether individuals tend to nominate the exact same item as their peer(s) (see Figure 4.1).

We combined the outcomes of the separate analyses per school location in a meta-analysis using the siena08 function in RSiena (Ripley et al., 2014; Snijders & Baerveldt, 2003). Examining the goodness of fit (GoF) of our models in all five school locations allowed us to test whether the observed scores at the end of a period were congruent with simulated values for the end of that period (Lospinoso, 2012; Ripley et al., 2014). This way, we could see whether structures in the peer group network and behavioral network are properly captured with the fitted models. We assessed the indegree distribution, outdegree distribution, geodesic distribution, and triad census for the peer group networks. For the two-mode delinquency networks, we assessed the indegree and outdegree distributions. When the GoF of models with a given set of parameters was poorly estimated, we included additional parameters to obtain a better fit. We also removed parameters that did not add significantly to the model to see how that affected the GoF. Going back and forth, including and excluding parameters, we tried to end up with a parsimonious model that showed the best possible fit (GoF statistics per school location and fit plots available upon request). The results of the overall GoF estimation across all five school locations showed a good fit of models for the indegree and outdegree distributions of the peer group networks (p = .39 and .35, respectively), but a poorer fit for the geodesic distributions (p = .04). Triadic structures were even more difficult to fit properly fit ($p < .01$), but current models

From delinquency agreement (selection) *To delinquency agreement (influence)*

Figure 4.1. Graphical representations of selection and influence effects in a two-mode network SIENA model (circles are individuals; squares are specific delinquent acts; an arrow represents engagement in the delinquent act; a line represents a relation between individuals).

offer the best possible fit for the data. For the two-mode networks, the indegree distributions across the five school locations showed a good fit (p = .36), but the outdegree distributions showed a less good fit (p = .01).

Results

Descriptive Statistics

As Table 4.1 shows, about half of the sample were boys, with 52 percent of the respondents in the second grade. Adolescents nominated between 8.62 and 9.13 peers (*SD* ranging from .90 to 1.13) as peer group members, and were nominated as peer group members by between 8.32 and 8.83 (*SD* ranging from .94 to 1.18) peers. The density of the peer network was relatively low; about 4% of all adolescents at their school location were nominated as peer group members across the three waves, and across time points the percentage of reciprocated relations was 56%, 51%, and 63% respectively. The Jaccard index indicated that about half of the relations between peers were stable.

The distribution of delinquency was quite skewed, with most adolescents not committing any delinquent act (about 70%). The degree to which peers showed similar delinquent behaviors was relatively low, but positive (*Moran's I* = .08, .10, and .08, *SD* = .05 respectively). Delinquency among adolescents was in general also quite stable (70%). For delinquency as a two-mode network, Table 4.1 shows that respondents on average 'nominated' between .71 and .99 (*SD* ranging from .17 to .26) delinquent acts (item) and that delinquent acts were committed by between 9.49 (*SD* = 3.58) and 14.64 (*SD* = 5.44) respondents. The average degree (density) of the two-mode network indicated that adolescents 'nominated' between 4% and 6% of the delinquent acts. The Jaccard index for delinquency as a two-mode network indicated that about 20% to 24% of the nominations of delinquent items was stable.

Network Dynamics

Table 4.2 shows the results of the SIENA meta-analyses for the models with delinquency as a scale and with delinquency as a two-mode network. For both analyses we found a low density in the peer network (*outdegree*; b = -2.01 and b = -1.93, $p < .01$ respectively), indicating that respondents were selective as to who they nominated as belonging to their peer group. Respondents also tended to reciprocate peer nominations (*reciprocity*; b = 2.23 and b = 2.25, $p < .001$ respectively), nominated peer group members of peer group members as their own peer group members (both models b = .41, $p < .001$), and tended not to reciprocate

Table 4.1. Descriptive Statistics of the Sample, Network Characteristics, and Delinquency in Delinquency as a Scale and as a Two-Mode Network

	Time 1 (Fall)	Time 2 (Winter)	Time 3 (Spring)
	Est. (SD)	Est. (SD)	Est. (SD)
Sample			
Boys	49%	49%	49%
Age	13.22 (.71)	13.45 (.76)	13.78 (.76)
Grade 2	52%	52%	52%
Peer network			
Nominations given (Mean, SD)	8.79 (1.00)	9.13 (1.13)	8.62 (0.90)
Nominations received (Mean, SD)	8.67 (0.94)	8.83 (1.18)	8.32 (0.95)
Density (proportion)	.04 (.02)	.04 (.01)	.04 (.01)
Reciprocity (proportion)	.56 (.06)	.51 (.07)	.63 (.08)
Missing (proportion)	.01 (.01)	.03 (.02)	.04 (.02)
Delinquency as a scale			
0	71%	70%	69%
1	14%	13%	13%
2	6%	7%	5%
3	9%	11%	13%
Missing	4%	6%	8%
Network autocorrelation			
Moran's *I*	.08 (.05)	.10 (.05)	.08 (.05)
Delinquency as a two-mode network			
Nominations received on delinquency items (Mean, SD)	.71 (.26)	.84 (.20)	.99 (.17)
Number of times a delinquency item has been mentioned (Mean, SD)	9.49 (3.58)	12.22 (4.44)	14.64 (5.44)
Density	4%	5%	6%
Missing	4%	6%	6%
Transitions/Change	Fall – Winter	Winter - Spring	
Peer network relations			
Distance	1483 (945)	1494 (977)	
Jaccard	.52 (0.03)	.50 (.04)	
Delinquency as a scale			
Decrease	13%	14%	
Increase	17%	16%	
Stable	70%	70%	
Delinquency network relations			
Distance	234 (65)	269 (109)	
Jaccard	.20 (.04)	.24 (.06)	

Note. ** $p < .01$.

Table 4.2. RSIENA Meta-Analysis of Peer Group Network and Delinquency Dynamics for Delinquency as a Scale and for Two-mode Network Models

	Delinquency scale	Two-mode network
	b (*SE*)	*b* (*SE*)
Peer group network dynamics		
Density	-2.01** (.45)	-1.93** (.45)
Reciprocity	2.23*** (.09)	2.25*** (.10)
Transitive triplets	.41*** (.02)	.41*** (.02)
Transitive reciprocated triplets	-.29*** (.01)	-.29*** (.01)
Three cycles	-.09*** (.01)	-.09*** (.01)
Indegree popularity (sqrt)	.03 (.05)	.03 (.05)
Indegree activity (sqrt)	-.77*** (.10)	-.82*** (.12)
Outdegree activity (sqrt)	.06 (.04)	.06 (.04)
Truncated outdegree	-2.23*** (.40)	-2.18*** (.41)
Gender alter (receiver effect)	.06 (.05)	.06 (.05)
Gender ego (sender effect)	-.09 (.07)	-.09 (.07)
Gender homophily	.69*** (.11)	.70*** (.11)
Grade homophily	.38** (.10)	.38*** (.10)
Class homophily	.73** (.19)	.72** (.19)
Delinquency alter (receiver effect)	-.01 (.02)	
Delinquency ego (sender effect)	.02 (.01)	
Delinquency homophily[a]	.07** (.02)	.06 (.07)
Delinquency dynamics		
Linear shape	-1.61*** (.14)	
Quadratic shape	.67*** (.03)	
Density		-3.17*** (.21)
Four cycles		-.004* (.001)
Indegree popularity (sqrt)		.25*** (.05)
Outdegree activity (sqrt)		.54*** (.03)
Truncated outdegree		-2.58*** (.10)
Effect from/of gender on delinquency (boy = 1)	.21*** (.06)	.17*** (.03)
Effect from/of grade on delinquency	.14** (.03)	.10** (.02)
Delinquency influence[b]	.43** (.14)	.17** (.05)

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. [a] Delinquency homophily is measured with the "egoXaltX" interaction effect in regular SIENA models and measured with the "from delinquency agreement" effect in two-mode network models. [b] Delinquency influence is measured with the "average alter" effect in regular SIENA models and with the "to delinquency agreement" effect in two-mode network models.

nominations in triads (*transitive triplets*; both models b = -.29, p < .001). There was also a tendency for hierarchical ordering in the network (*three cycles*; both models b = -.09, p < .001), a tendency in those often nominated to nominate few others (*indegree activity*; b = -.77 and b = -.82, p < .001 respectively), and of not nominating anyone (*truncated outdegree*; b = -2.23 and b = -2.18, p < .001 respectively). Furthermore, the gender-homophily effect indicated a tendency for boys to select boys as peer group members, and girls to select girls as peer group members (b = .69 and b =.70, p <.001 respectively). Similarly, respondents in the same grade (*grade homophily*; b = .38, p < .01) or same class (*class homophily*; b = .73 and b = .72, p < .01 respectively) were more likely to select each other as peer group members than respondents not in the same grade or class.

For our main variables of interest, in the models with delinquency as a scale, respondents with higher levels of delinquency were not nominated more often than peer group members and did not nominate more peer group members. With regard to hypothesis 1, we found that respondents with similar levels of delinquency were more likely to be peer group members than respondents who had different levels of delinquency (*homophily effect*; b = .07, p < .01). In contrast, we found no homophily effect of delinquency in the models with delinquency as a two-mode network. Although hypothesized, there was no tendency for respondents who nominated the same delinquent act to become peer group members over time.

Delinquency Dynamics

With regard to the delinquency dynamics of the models with delinquency as a scale, meta-analysis showed a low tendency toward delinquency (*linear shape*; b = -1.61, p < .001), but respondents with a higher score on delinquency were more likely to have higher scores for delinquency over time, and vice versa (polarization; *quadratic shape*; b = .67, p < .001). The two-mode network models also showed a low density in the delinquency network (*outdegree*; b = -3.17, p < .001), indicating that respondents had a low tendency to nominate delinquent acts. There was a negative tendency for individuals to share a relation through a delinquent act (*four cycles*; b = -.004, p < .05), indicating a tendency to be unique in one's behavior. There was also a tendency for those who received many delinquency nominations to have extra delinquency nominations over time (*indegree popularity*; b = .25, p < .001), a tendency of those who nominated many delinquent acts to nominate extra delinquent acts (*outdegree popularity*; b = .54, p < .001), and a tendency for individuals not to nominate any delinquent acts (*truncated outdegree*; b = -2.58, p <

.001). Furthermore, boys tended to score higher on delinquency than girls (*effect from gender*; $b = .21$, $p < .001$), nominated more delinquent acts over time (*effect of gender*; $b = .17$, $p < .001$), respondents in higher grades had a stronger tendency to score higher on delinquency than those in lower grades (*effect from grade*; $b = .14$, $p < .01$), and nominated more delinquent acts over time (*effect of grade*; $b = .10$, $p < .01$).

Lastly, Table 4.2 shows a positive delinquency influence effect in both models with delinquency as a scale ($b = .43$, $p < .01$) and delinquency as a two-mode network ($b = .17$, $p < .01$). As expected in hypothesis 2, respondents' delinquency appeared to be influenced by peer group members' delinquency in general, but also for specific delinquent acts.

Discussion

With the increased knowledge of the importance of peers for delinquent behavior, a growing number of studies has examined peer selection and influence processes with regard to adolescent delinquency (e.g., Burk, Steglich, & Snijders, 2007; Burk et al., 2008; Kerr et al., 2012; Svensson et al., 2012; Tilton-Weaver et al., 2013; Weerman, 2011). All of these studies focus on delinquency as a collapsed measure of different types of delinquent acts. However, one could wonder whether selection and influence processes in delinquency take place on a general level or perhaps on a lower level with regard to specific same behaviors. This study, therefore, examined the general tendency for selection and influence in delinquency as well as selection and influence in same delinquent acts using a relatively novel approach within a SIENA framework, which treated involvement in delinquent acts as a tie (nomination).

We expected that selection in delinquency would concern same delinquent acts, because the theory argues that adolescents tend to select each other the more similar they are. Homophily (Byrne, 1971) is a central aspect of the theory underlying peer selection in delinquency, and it is argued that adolescents are attracted to and will associate with peers who show similar levels of delinquency. Adolescents would be most similar to each other when they engage in the same delinquent acts. However, contrary to our expectations, the analyses showed that adolescents who already behaved delinquently generally tended to associate with each other over time (selection effect), but adolescents did not necessarily hang out with others who displayed the exact same delinquent acts. Selection processes do

not appear to take place on the behavior-specific level, but on the overall deviancy level.

Furthermore, it was expected that influence in delinquency would not (only) be general, but also specific, because mimicking behavior of peers is central to the assumed mechanism of peer influence. Adolescents learn favored acts by observing and mimicking peers' delinquent behavior (Burgess & Akers, 1966; Sutherland et al., 1995). Our study showed that if peers were delinquent, adolescents themselves were indeed more likely to behave delinquently over time as well. However, in line with the theory and our expectations, when looking closer at specific delinquent acts, the results showed clear evidence for influence in same delinquent behaviors. Adolescents indeed tended to mimic identical delinquent acts of peers who were considered best friends or members of the peer group. This finding shows that, although one could consider delinquency a latent construct, influence in delinquency might take place on a more specific level, that is, on the level of specific delinquent acts.

While our findings showed that influence concerns same delinquent acts, it is still possible that adolescents are also influenced by other (types) of delinquent acts. Future research might focus on comparing selection and influence processes in same delinquent acts compared to different delinquent acts in a two-mode network approach. This way, one could test whether adolescents select peers and are influenced by peers in other as well as same delinquent acts. Such effects cannot be tested in the current SIENA framework but would be informative.

Another interesting next step in research would be to examine why, contrary to influence processes, selection processes do not appear to take place for specific same delinquent acts. One explanation is that if adolescents do not have a relationship with peers they will have less information on those peers' behavior. The observation of behavior may be based on the overall perception one has about the behavior of others. This reasoning becomes even clearer when taking the context in which delinquency occurs into account. It is argued that individuals are more likely to engage in delinquency when they find themselves in a context that also offers opportunities for engaging in delinquent acts (Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996). That context often consists of time spent in unstructured socializing with peers without the presence of authority figures. In this context adolescents learn from peers how to engage in delinquent acts, because deviance in this setting is easier, more rewarding and adolescents have time to spare due to the lack of structure. Going back to peer selection, not being part of

this context makes it unlikely that adolescents know what behaviors others are engaged in exactly, but they can form an idea about others' behaviors based on their reputation. Adolescents form ideas about their peers' behavior not only by observation, but also by interacting and communicating with others (Cialdini et al., 1991). Thus, it is possible that selecting peers will be based mostly on others' reputation or an overall perception regarding their behavior, while peer influence happens more on a behavior-specific level. In future research, examining how adolescents perceive their peers to behave could prove fruitful for gaining a better understanding of how peer selection and influence processes work.

To conclude, the implications of this study not only address adolescent delinquency, but might also suggest studying other behaviors on a more specific level. This could apply to other forms of negative externalizing behaviors, such as substance use, but could also apply to for example health-related behaviors, where selection and influence might take place with regard to specific behaviors. For example, selection and influence processes have shown to be relevant for sports or other physical activities (e.g., De la Haye, Robins, Mohr, & Wilson, 2011; Gesell, Tesdahl, & Ruchman, 2012; Shoham et al., 2012; Simpkins, Schaefer, Price, & Vest, 2013). Studies on these topics might profit from using a two-mode network approach, for examining selection and influence processes and test whether adolescents select on and learn from specific behaviors of peers. An important take-home message is therefore also, that examining behaviors as a network, on the item level, could be applied to a wider range of behavior, depending on the research question at hand.