

CHAPTER 3

PEER INFLUENCE PROCESSES WITHIN CLASSROOMS: THE ROLE OF TEACHERS' EMOTIONAL SUPPORT IN CONTAGION OF DISRUPTIVE BEHAVIOR

Classrooms are highly social places. Students in elementary school spend much of the school day interacting with their friends and peers in classrooms. Students have on-going and dynamic relationships with peers in classrooms. Students make choices about who to become friends and hang around with, and their friends play an important role in the development of achievement beliefs and behaviors in the classroom. Students tend to select friends with similar attributes but above and beyond initial similarity, friends matter for changes in students' engagement across the school year. Having classroom friends who are themselves highly engaged promotes engagement whereas having classroom friends who are themselves disengaged dampens engagement over time (Altermatt & Pomerantz, 2003; Kindermann, 1996; Molloy, Gest & Ruilson, 2011).

However, most research on peer influence on engagement of students has ignored the fact that students and their peers are nested within classrooms. The context varies greatly between classrooms, and this variability matters for students' academic and social adjustment (Hamre & Pianta, 2005; Chang, 2004; Jonkmann, Trautwein, & Lüdtke, 2009; Sentse, Scholte, Salmivalli, & Voeten, 2007; Stormshak et al., 1999). It is highly likely that variations in classroom context would also matter for peer selection and influence processes. The extent to which students choose similar others, and are attracted to friends with certain attributes might vary by classrooms. Further, the magnitude of friends' influence would also vary by classroom depending on the nature of the context.

The purpose of this study is to examine how peer selection and influence processes vary

by classrooms with a focus on disruptive behaviors. Disruptive behaviors such as talking out of turn, getting out of one's seat, disrespecting others has been acknowledged as a growing problem and serious concerns of teachers (Elam, Rose, & Gallup, 1996; Kaplan, Gheen, & Midgley, 2002). Given the importance of teacher's emotional support for many aspects of students' social and academic adjustment, I investigate if classrooms with different levels of emotional support from the teacher have different patterns of peer selection and influence of disruptive behavior. To build my rationale for the study, I first discuss peer selection and influence processes in general and then in relation to disruptive behaviors. Next, I review prior research examining classroom variations in peer relations and academic behaviors. Finally, based on prior research findings I propose how different levels of teachers' emotional support are likely to be associated with early adolescents' peer selection and influence processes on disruptive behavior.

Peer Selection and Influence Processes in Classroom

At the beginning of the school year, students forge relationships and find their social role in the complex and multi-faceted peer ecologies within classrooms and schools (Farmer, Lines & Hamm, 2011). In the classroom, students make choices about how to behave and who to interact with that affect the formation of friendships in the classroom. Social interactions and the negotiation of friendships are ongoing and dynamic processes in classrooms (Farmer et al., 2011; Tenney, Turkheimer & Oltmanns, 2009). Emerging out of these interactions and negotiations is a tendency for students to be friends with similar peers. This phenomenon of similarity amongst friends is known as homophily and is seen on a variety of characteristics including academic characteristics (Brown, Bakken, Ameringer & Mahon, 2008). Contributing to homophily is both *selection*, the extent to which peers with similar attitudes and behavior seek one another as affiliates, and *influence*, the degree to which affiliates become more alike in attitude and

behavioral tendencies because of their frequent interaction (Veenstra & Steglich, 2012). Students may select friends who are similar to them in classroom behaviors as it may meet their goals and be consistent with their prior behavioral tendencies. Most theory and research concerning peer relations has assumed that students select similar others for friends (e.g., Altermatt & Pomerantz, 2003; Kindermann, 1996; Molloy et al., 2011; Ryan, 2000). However, in Study 1 we found selection did not play as pervasive a role as previously assumed although students did select similar others in regards to academic self-efficacy and G.P.A.

Whether or not students select similar friends they may become more similar over time via socialization. Friends are theorized to socialize adolescents' academic behaviors through such processes as information exchange, modeling, and reinforcement of peer norms and values (Kindermann & Gest, 2009; Ryan, 2000). Observing others perform a particular behavior or voice a certain belief can introduce an individual to new behaviors and viewpoints and also inform an individual of the consequences of such behaviors and opinions. Depending on the consequences, observation of a model can strengthen or weaken the likelihood that the observer will engage in such behavior in the future (Bandura, 1971; Masters & Mokros, 1975, Sagotsky & Lepper, 1982; Altermatt & Brody, 2009). Social reinforcement is presumed to be a mechanism (Berndt, 1992; Prinstein & Dodge, 2008). Behaviors that are discouraged or received negatively by friends are less likely to be displayed again by an individual. Conversely, behaviors that are encouraged or positively received by the friends are more likely to surface again in the presence of one's friends.

Research has demonstrated that when students are placed in classrooms that contain many problem behaviors, they tend to display more problem behaviors over time, moving toward the group average (Kellam, Ling, Merisca, Brown, & Ialongo, 1998; Thomas, Bierman, & the

1995; Silver, Measelle, Armstrong, & Essex, 2005) by providing students with positive behavioral supports and teaching appropriate behaviors. Students may be more motivated to learn academically appropriate behaviors with peers when they have emotionally supportive teachers (Hamre & Pianta, 2001). Further, teachers who are more sensitive to students' academic needs would be more responsive to acts of disruptive behaviors and try to impede those behaviors. When students observe teachers intervening in disruptive behaviors, teachers' actions may model ways to intervene disruptive behaviors and different norms of academic behaviors are established in which disruptive behaviors are less tolerated in that classrooms (Hamm, Farmer, Dadisman, Gravelle, & Murraray, 2011).

I draw on these research findings to propose that teachers' emotional support would be associated with early adolescents' peer selection and influence processes on disruptive behaviors. I predict that when teachers are emotionally supportive, students not only display lower level of disruptive behaviors themselves, but also prefer to make social connections with peers who do not display disruptive behaviors. Students who display disruptive behaviors would be less attractive and appealing as friends in classrooms where teachers provide higher level of emotional support. I also predict that friends' peer influence on disruptive behaviors would be less salient in classrooms where teachers provide higher level of emotional support. Students would be less likely to adopt their friends' disruptive behavior and become more similar over time while students would be more likely to learn and become similar to friends' disruptive behavior in classrooms where teachers do not provide adequate control and needed support.

Overview

In Study 2, I examine how peer selection and influence processes vary across classes, and associated with teachers' emotional support. Peer selection and influence processes on disruptive

Measures

Friendship Networks. Adolescents' friends within classrooms were measured by asking students to nominate their closest friends, further described to students as "the friends you hang around with and talk to the most". Class roster was provided and students were told to check off names of friends they want to nominate. On average, students nominated 7.78 friends at wave 1, and 8.47 friends at wave 2. Based on the friendship nominations in twenty-seven classrooms, friendship networks were calculated for each classroom. The number of participants in each of the twenty-seven friendship networks ranged from 11 to 27. There were some turn-around in the participants across time so we analyzed the networks including 478 participants present at wave 1 and 458 participants at wave 2.

Disruptive Behavior. Students' disruptive behavior in class was assessed using a measure developed by Kaplan (e.g., Kaplan & Maehr, 1999). Sample items are "I behave in a way that annoys my teacher" and "I get into trouble in class". All items were rated on a 5-point scale (1 = not at all true of me, 3 = somewhat true and 5 = very true of me). Scale had 4 items and was found to be reliable in our sample (Cronbach's alpha for disruptive behavior = .75 and .82 for waves 1 and 2, respectively). The validity of the disruptive behavior measure has been demonstrated in research finding that the more children report their behavior as disruptive, the more official discipline referrals children received (Kaplan & Maehr, 1999). All items for disruptive behavior were averaged, and then rounded up to the nearest integer to receive the original scale with 5 categories (1 = not at all true, 5 = very true).

Observed Teaching Practices. Teachers' teaching practices in the classroom were observed using the Classroom Assessment Scoring System (Pianta, La Paro & Hamre, 2008). This measure is well established for elementary grades and it has recently been extended to the

girls, and African American and European American in classes with low, average, and high emotional support classes.

In the second panel of Table 3.1, an initial description of the network structure is provided. Average number of ties and average out-degree (average number of friend nominations) indicates that the number of friendship nominations increased over time. The density indicates that respondents nominated around 40-50% of their classmates as friends over the two waves. The reciprocity parameter shows that respondents reciprocated more than two thirds (70-80%) of the friendship nominations they received from the classmates by also nominating those classmates as friends. Transitivity is the ratio of the numbers of actually by potentially transitive triplets (60-70%), reflecting the tendency of respondents to befriend the friends of friends.

The Third panel of Table 3.1 shows the development of disruptive behavior over time. In low emotional support classrooms, average disruptive behaviors increased from 1.94 to 2.16. ($p < .01$). In average and high emotional support classrooms, average disruptive behaviors stayed about the same level (1.99 to 2.05 and 1.79 to 1.73, respectively). The last panel of Table 1 also shows the changes of students' disruptive behavior. In low and average emotional support classrooms, students in average level of disruptive behavior decreased and students in high level of disruptive behavior increased. On the other hand, in high emotional support classroom, students in average level of disruptive behavior increased and students in high level of disruptive behavior decreased.

To assess whether assessment of the co-evolution of disruptive behavior and friendship nominations is feasible, we calculated Moran's I (the network autocorrelation coefficient) to assess the degree to which friends display similarity in disruptive behavior (Veenstra & Steglich,

2012). The positive Moran's I values in our data show that friends tend to exhibit similarity in academic adjustment attributes. The Jaccard index (fraction of stable friendship nominations among the new, lost, and stable ties between observed data points) indicates the amount of stability and should be more than 0.3 to permit complex selection dynamic modeling in SIENA with adequate statistical power (see Veenstra & Steglich, 2012). The Jaccard index in our networks was 0.44-0.47 so there was sufficient stability and change.

Network Structure, Gender, and Race

The results of the SIENA analyses are presented in separate models in Table 3.2. I first present the results of the analysis in which all 27 classes were included (Model 1). I then present the results for classes with low, average, and high emotional support (Models 2 through 4). Because the results of the network effects were similar in all models, I discuss the network effects based on Model 1.

Density describes the tendency of actors to have outgoing ties (i.e., the degree of dyadic connection in a network). As expected, the density parameter was significantly negative, indicating that adolescents do not tend to nominate just anyone as a friend. *Reciprocity* describes the tendency for actors to reciprocate a relationship and *transitive ties* describes tendency for adolescent friendships to form cohesive peer group structures. Both parameters were significantly positive. Positive reciprocity parameter indicates that adolescents prefer to reciprocate friendship nominations and positive transitive ties parameter indicates that adolescents have a tendency to befriend the friends of their own friends, representing these dyadic relationships are embedded within cohesive, triadic (and larger) peer group structures (peer group, cliques). Taken together, the network effects imply that participants had a tendency to reciprocate friendship, keep the friendship networks closed and form peer group structures in

friendship networks, and this tendency did not vary across classes with low, average, and high emotional support.

Friendship Selection for Disruptive Behavior

For disruptive behavior, the alter effect was not significant in any type of classes. Apparently, students were not attracted to friends based on the level of disruptive behavior. However, the ego effect was significant in all classes indicating disruptive students nominated more peers as friends. The selection similarity effect was highly significant in all classes (Model 1). However, when the analyses were separated across classrooms with a low, average, and high emotional support classes, we see that the selection similarity effect is marginally significant in classes with low and average emotional support (Model 2 and 3), and significant in classes with high emotional support (Model 4).

Selection dynamics for gender and race were similar across classes. Gender similarity effect was highly significant in all classes (Model 1). When the analyses were separated across classrooms with a low, average, and high emotional support classes, we see that the selection similarity effect is still significant in classes with low and average emotional support (Model 2 and 3), but is not significant in classes with high emotional support (Model 4). Race similarity effect was not significant in all classes (Model 1). When the analyses were separated across classrooms with a low, average, and high emotional support classes, we see that the selection similarity effect is only significant in classes with average emotional support (Model 3).

Friendship Influence for Disruptive Behavior

The linear shape effect was negatively significant in all classes (Model 1) indicating that across the school year students' disruptive behavior was decreasing. However, this trend was not

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and influence occur in relation to academic motivation, engagement, and achievement for early adolescents.

In Study 2, given that students and their peers are nested within classrooms and the context varies greatly between classrooms, I examined how peer selection and influence processes vary by classrooms and are associated with level of teachers' emotional support with a focus on disruptive behaviors. Results indicate that friends' influence on early adolescents' disruptive behaviors were more salient when teachers provide lower level of emotional support in classrooms. Early adolescents select friends with similar level of disruptive behaviors and then adopt friends' disruptive behaviors; thus increased level of disruptive behaviors of themselves over time. However, this pattern was not found in classes where teachers provide higher level of emotional support. Even though students tend to select friends with similar level of disruptive behaviors, students did not adopt friends' disruptive behaviors and become more similar over time when teachers provide higher level of emotional support. Findings of Study 2 suggest that peer influence processes vary across classes, and are associated with teachers' emotional support.

Both of these studies used the longitudinal social network analysis techniques to advance our understanding of early adolescents' academic adjustment. In addition to estimating both selection and influence processes, this analytic technique allowed to estimate and control for structural features of friendship networks. This contributes to knowledge about the nature of early adolescents' friendships in the classroom setting. There was a significant tendency among early adolescents to create reciprocated friendship ties and cohesive transitive ties structures, meaning that early adolescents prefer reciprocated friendships rather than unilateral ones and cohesive peer group structures rather than dyadic structures. Friendship was more likely between students of the same gender and race. Collectively, these results suggest that early adolescents'

friendship networks are characterized by reciprocity, transitivity, and homogeneous tendencies to nominate friends with same gender and race. Importantly, these features were controlled in analyses, ruling out the possibility that changes in structural features of friendships could account for the selection and influence effects on similarity in academic adjustment of early adolescents.

An important direction for future research is to consider multiple contexts of adolescents' peer relationships and incorporate the quality of the friendships. The measure of friendship networks of two studies was limited to students' classrooms. While this is a reasonable choice given that students in elementary school spend most of the day with the students in their classroom, it is still likely to miss some of students' friends that are not in their class (e.g., friends in another class at the school or friends from activities that do not go to their school). Examining friendships in grade level, and extracurricular activities would provide additional insights into the nature of adolescents' peer relations and influence on their academic adjustment. Further, the measure of friend does not attend to the fact that friendships vary in strength and quality. I treated each friendship tie as equivalent in both analyses. Future work that incorporates the duration and quality of friendships would be helpful in understanding the nature and extent of peer influence on academic adjustment.

Another potentially important direction for future research is to consider different types of peer relationships and different facets of classroom contexts. In Study 1 and 2, I focused on selection and influence effects among friends. However, there are many other important social dynamics in classrooms that should be considered to understand the role of peers in academic adjustment. First, students are likely to be influenced by classmates other than friends, too. For example, students may be assigned to different reading or math groups in the class and those peers may not be friends but may be influential for academic adjustment. Or there may be

students that are leaders in the class whose characteristics impact many students in a classroom. Second, social status dynamics that unfold in classrooms such as students' popularity and rejection by peers are related to selection and influence as well as academic engagement and achievement (Buhs, Ladd & Herald, 2006; Logis, Rodkin, Gest & Ahn, 2013). Further, there are other important facets of classroom context that should be considered in addition to the level of teachers' emotional support. For example, teachers vary in how much they encourage mastery and developing their academic competence among students or emphasize competition to motivate students to achieve (Ryan & Patrick, 2001; Wentzel, 2009). Selection and influence of friends does not happen in isolation but amid all of these social dynamics. Theoretical and empirical work that integrates different facets of students' social experiences in classrooms with different academic and social contexts would provide a more comprehensive understanding. This is also likely to be important to advance the implications of work in this area for teachers since they must contend with all aspects of peer relationships in the classroom (Farmer et al., 2011).

Conclusion

In conclusion, by taking advantage of recent developments in longitudinal social network analysis this dissertation made several contributions to the literature. Friends play an important role in students' academic adjustment through peer selection and influence processes. While selection is an important process driving similarity between friends in regards to self-efficacy and G.P.A., influence plays a more expansive role in similarity between friends in regards to value, engagement and achievement in the classroom setting. Further, peer selection and influence processes vary across classes, and are associated with teachers' emotional support. By providing higher level of emotional support, teachers establish more positive academic context in which disruptive behaviors are less contagious. Findings of this dissertation demonstrate the

need to pay attention to peer influence processes and the intersection of students' peer interactions and teachers' practices to have more complete understanding of early adolescents' peer relationships on academic adjustment.

Chapter 4. References

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