Most, if not all, cultures have found it useful to give children’s education a formal structure that organizes their educational experiences in a way so that designated teachers and fellow students participate at the same time. The benefits of teaching children in groups appear to extend beyond economic considerations. Students’ interactions with agemates enhance their learning over and above the provisions of adult educators. In fact, many children appear to go to school or to like school (better) precisely because their peers and friends are there.

This chapter follows the idea that students’ peer relationships at school are an integral feature of their learning environments. Historically, attention to factors that foster academic development has mostly focused on teachers and parents. However, peers make children’s time at school tolerable and enjoyable. They provide companionship, entertainment, feelings of belonging, help, personal validation, and emotional support (Hamm & Zhang, 2010). Overall, it does not seem to be the case that peer influences necessarily occur at the expense of learning. Instead, they may foster learning, and this chapter explores the idea that one way in which peers may benefit students is by promoting their academic motivation.

CENTRAL ISSUES AND RELEVANT THEORY

The notion that peer relationships are important for children’s development has always been central in developmental psychology (Cairns & Cairns, 1994). Peers are essential for social development, for learning how to get along with others, for juggling individual needs with the needs of a larger social structure, as well as for learning how to receive help and support, for aligning oneself to the larger peer culture, and for making it through a year when things get tough. Peers are also considered important for cognitive, affective, and behavioral development, and they have been described as crucial for identity development and for experimenting with possible selves during adolescence (Wentzel, 2005).
Although there has been much research on peers’ negative influences (e.g., Dishion, McCord, & Poulin, 1999), this chapter focuses on their positive influences for development related to academic motivation. The goal is to organize research on the role of peers in academic development according to their provisions for the main aspects of motivation, focusing on four central issues. First, there is the question of which aspects of motivation should be open to peer influences. Perhaps all aspects are susceptible, but it may also be that some are not. Secondly, there is the question about which kinds of peers are most influential; not all agemates will be similarly important. The third question is about the conditions under which correlational evidence can actually demonstrate peer influences. Finally, the question of future research is addressed, especially taking into consideration how studies can capture configurations of peers and examine the mechanisms through which social influences from peers occur in the real world.

**Peer Relationships and Motivational Constructs**

By its nature, motivation is an intrapsychic construct and resides within an individual. Such internal motivation is greater to the extent that children feel efficacious, view the goals of school as focused on learning and improvement, attribute failures to effort, harbor positive academic emotions and feelings of competence and self-esteem, expect success, value school, and find academic tasks worthwhile (Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006). For that reason, all of these facets of appraisals and beliefs have been studied as parts of motivation.

At the same time, motivation also shows on the outside. Academically motivated students like and enjoy learning in school, persist in academic tasks, participate in school activities, and believe that school is important (Finn & Zimmer, 2012). Motivated students are visible to teachers and peers. In fact, all major motivational conceptions rest on engagement and disaffection as key components of how motivation manifests itself in the classroom and is communicated to teachers, parents, and peers (Skinner & Pitzer, 2012). Engagement is usually defined in terms of its constituent constructs (behavioral, emotional, and cognitive engagement; Fredricks, Blumenfeld, & Paris, 2004; Skinner, Kindermann, Connell, & Wellborn, 2009), but the term is also used as a broader marker of the extent of students’ involvement in general school activities (e.g., participation in extracurricular activities; Juvonen, Espinoza, & Knifsend, 2012).

Decades of research on academic motivation, both its intrapsychic markers and its manifestation in engagement, suggest that the construct may best be conceived not as a fixed characteristic but as a malleable state that is the product of interactions among a host of internal and external factors. For children, social relationships are prominent among the external factors (Martin & Dowson, 2009). Across all major conceptualizations of the motivational system (see Wigfield et al., 2006), it appears that (nearly) all components can be affected by interactions with peers.

Theoretical and empirical attention to peers has been paid with regard to students’ academic and social goals (Hamm, Farmer, Lambert, & Gravelle, 2014), expectations for success and failure (Wigfield & Tonks, 2002), self-system processes (Deci, La Guardia, Moller, Scheiner, & Ryan, 2006), attribution processes (Hareli & Weiner, 2002) and self-efficacy (Schunk & Meece, 2006), as well as course preferences (Crosnoe, Riegle-Crumb, Field, Frank, & Muller, 2008), and affective reactions and feelings of self-worth (Covington & Dray, 2002). It is plausible to assume that most of the components of the motivational system are open to peer influences. The following section discusses
how different kinds of peer relationships may be influential and perhaps for different aspects of motivation.

**Locating Sources of Peer Influences: Which Relationships Are Influential?**

The peer worlds of childhood and adolescence are more complex than many adults may suspect. There are many different kinds of peers in a school, and many of these overlap with one another. Figure 3.1 provides a schematization of five prominent traditions. The first two take the entire school, a grade, or a classroom as their setting of reference; peer influences emerge from outside children’s groups. Sociometric approaches have evolved from Moreno’s (e.g., 1934) method and examine children’s standing among peers by identifying sets of children who are preferred as social partners (i.e., accepted), disliked, or neither. The typical setting is the whole classroom, and classmate influences are thought to occur differently for accepted versus disliked children. In comparison, Social Crowd approaches examine children’s reputations among all of their peers at school. The goal is to identify social categories: for example, crowds of “brains” or “nerds.” Members of different crowds have different reputations and different peer experiences. Overall, crowd approaches follow classic social-psychological thinking and focus on children’s proclivity to establish and follow group norms, often in relation to notions of peer pressure.

Both approaches assume that the most important social influences are consequences of a child’s belonging to a specific group or category but that they do not directly emerge from the other members of that group (i.e., members of the crowd of “nerds” may not even know each other; rejected children may not interact much with one another). Children do not self-select into these kinds of groups; their membership is the result of a social verdict. Members are expected to be treated differently based on their group assignment, and the differential treatment likely comes from a wide range of very different peers.

The second set of approaches (proximity groups, friendship groups, and interaction groups) focuses on influences that emerge from within children’s social groups (denoted by arrows). These follow Moreno’s postulate that knowledge about

![Figure 3.1 Five typical forms of peer groups and their pathways of influence from peers](image)
students’ affiliations would make it possible to forecast how well students would do over time. Most prominent are studies that identify children’s friends (e.g., Berndt, 2004). Friendships are intimate relationships between partners who help each other, like each other, enjoy being together, share details about their private lives and their views about the world, and value each other. Friends are typically identified using reciprocal nominations, in which two children separately indicate they are friends with each other. The large majority of social network approaches follows a friendship perspective, during childhood as well as adulthood (e.g., Borgatti, Mehra, Brass, & Labianca, 2009). An alternative approach is Socio-Cognitive Mapping (SCM; Cairns & Cairns, 1994). SCM approaches aim to capture children’s frequent interaction partners among peers. Thus, whereas friendship approaches assume that close relationships are the most important predictors of development, SCM assumes that it is frequency of interaction (over and above relationship quality) that is the driving force; proponents typically point out that frequent interactions can lead to friendships. To identify groups, children participate as “expert” observers and provide their knowledge about existing peer groups in their classroom, their grade, or their school.

Finally, there is a small emerging research direction that combines Moreno’s postulate with Bronfenbrenner and Morris’s (1998) assertion that frequent face-to-face interactions are the “engine of development” (p. 6). Physical proximity in the classroom is seen as most important because it enables interactions (van den Berg, Segers, & Cillessen, 2012). Children spend probably most of their time each day interacting with classmates who sit next to them, so classroom seating charts are used to assess physical distances. There are no reports about the extent to which proximity is motivationally relevant, although teachers tend to believe so.

These five kinds of peer relationships differ on many dimensions: self-selection vs. assignment, size, frequency of interaction, closeness and intimacy, and presumed prioritization of the mechanisms of influence. One way of thinking about their differences is through the use of Bronfenbrenner’s levels of contexts: Friendships can be thought of as dyadic microsystems, peer groups as mesosystems that include multiple dyadic relationships (some of whom are friends), and crowds and sociometric groups can be thought of as exosystems because, although children are affected by the social verdicts, they do not necessarily interact with many of them on a daily basis. Several research groups have become interested in contrasting and comparing influence processes from different kinds of peer relationships (e.g., Gest, Moody, & Rulison, 2007; Hamm et al., 2014; Kindermann & Skinner, 2012; Rodkin & Ahn, 2009, Urberg, Degirmencioglu, & Halliday-Scher, 1995). Likely, group-internal influences will be different from external influences, and it will be interesting to see whether accounts of multiple interconnected peer systems can heighten the levels of accuracy for estimates of peer influences. In the following section, the relevance of peer group affiliations for motivational development will be discussed.

REVIEW OF THE RELEVANT LITERATURE: MOTIVATIONAL CORRELATES OF PEER RELATIONSHIPS THAT SUGGEST PEER INFLUENCES

Studies on the various kinds of peer relationships suggest that it is likely that peers shape children’s academic development and school motivation. Most of the studies do not claim that they are able to identify peer influences, but they point out various
avenues through which the presence of peers at school can become beneficial for academic and motivational development.

Studies on peer acceptance demonstrate that social status in the classroom is related to feelings of belonging in school, academic engagement, and achievement (e.g., Cillessen & van den Berg, 2012; Ladd, Herald-Brown, & Kochel, 2009). From kindergarten to post-secondary education, when students experience rejection from their peers, this limits their participation in classroom activities (Flook, Repetti, & Ullman, 2005; Véronneau, Vitaro, Brendgen, Dishion, & Tremblay, 2010). Conversely, when children are accepted by their peers and feel included, this fosters motivation and learning in school (for a review, see Juvonen et al., 2012). Popularity seems to be different from peer acceptance; when children aim to become popular, this goal can be detrimental to their achievement (Kiefer & Ryan, 2008).

Convergent findings result from studies on perceived peer support (Murdock, 1999), on students’ feelings of belonging (Hamm & Faircloth, 2005), and on support in schools’ peer cultures (Lynch, Lerner, & Leventhal, 2013). Note that findings on correlations among acceptance, belonging or support, and academic outcome variables (like GPA) are overall very similar to the findings about motivation (Véronneau & Vitaro, 2007).

Indications of peer influences from social crowds at school are likewise consistent. Studies focus on peer pressure with regard to academic orientations, especially during pre-adolescence (Brown, Mounts, Lamborn, & Steinberg, 1993). For example, students known as “Brains” exhibit highest levels of academic competence and have more academically oriented friends (La Greca & Prinstein, 2001). Again, findings on relations between crowds and achievement are compatible with motivational influence processes (Steinberg, Dornbusch, & Brown, 1992).

Studies on friendships have similarly shown that peer characteristics are connected to children’s decisions for academic versus non-academic activities during class time and beyond (Kilian, Hofer, Fries, & Kunle, 2010), to engagement with schoolwork (Donna, Laursen, Kiuru, Nurmi, & Salmela-Aro, 2014), as well as to their ability attributions for success and failure, and their values of academic standards (Altermatt & Pomeranz, 2003), their academic aspirations (Hallinan & Williams, 1990), classroom participation, school involvement, and overall adjustment to school (Berndt & Keefe, 1995; Hamm & Faircloth, 2005). Overall, the relations with academic achievement seem consistent with that view (Ryan, 2001).

Similarly, studies on smaller cliques and peer networks of students who frequently interact with one another (SCM groups) have also shown that the characteristics of a child’s group members are related to that child’s motivation. Thus, early adolescents’ peer group affiliations are connected to their tendencies to drop out of school (Cairns, Cairns, & Neckerman, 1989), their engagement in the classroom (Kindermann, 2007) and in school (Wentzel, 2005), as well as their academic achievement (Chen, Chang, Liu, & He, 2008).

How Close Are We to Demonstrating Actual Peer Influences?

For a long time, conclusions about social influences from children’s peers were based entirely on correlations using concurrent data, assuming that similarity between individuals and those peers was partly a product of social influence (Kandel, 1978). However, with correlational data, important alternative explanations are based on peer selection effects (homophily) or on reciprocal effects: Friends may have become friends.
because they had similar values or interests already; better-liked children may perform better in school because children who do well in school are better liked; crowds of “Brains” may have simply found a home for themselves and are not particularly influenced academically by their likewise “brain-y” peers.

Experimental designs can provide evidence of causal influence, but the potentially influential features of peers, such as liking, friendships, crowd reputation, or peer group membership, cannot be randomly assigned to children. Experimental manipulations, in which peers are instructed to behave in specific ways, show that with existing friends, crowd, or peer group members, causal influences can be demonstrated (e.g., Prinstein, Brechwald, & Cohen, 2011). But then, being able to make individuals or their friends do specific things in a lab setting does not necessarily mean that these effects mirror naturally occurring peer influence processes (see an insightful discussion in Rutter, 2007). One study that examined causal influences from friends experimentally was conducted by Berndt, Laychak, and Park (1990). Students discussed vignettes with their friends (about whether to do a homework assignment or to go to a rock ’n’ roll concert). Although the findings showed only small influence effects, the study demonstrates how socialization influences can be investigated in an ecologically valid naturalistic scenario.

Most studies on peer influences rely on correlational designs. For such studies, four recommendations can be made to heighten the chances that actual influence effects are identified: Peer influence effects can be approximated if studies are longitudinal, if peer selection effects can be separated from influence effects, if aggregate scores of peer group antecedents can be formed that have inter-individual differences, and if time windows for examinations are consistent with the nature of the target phenomenon under study. Multilevel analyses are preferable because of interdependencies between the individual and peer data.

**Longitudinal Designs**

Explorations of natural effects rely on longitudinal designs, in which individual change in motivation over time is predicted from the characteristics of children’s antecedent peer groups, using individuals as their own controls and controlling for initial peer selection effects. Socio-cognitive mapping and friendship studies adopted longitudinal analyses early in order to come closer to identifying peer influences (Berndt, Hawkins, & Jiao, 1999; Kindermann 1993, 2007; Kindermann, Mccollam, & Gibson, 1996). Today, it is almost impossible to think about capturing socialization influences without examining how social influences create change. Figure 3.2 gives a schematization of the basic model for examining peer influences over and above preexisting similarities. The model can be seen as a part of Kenny’s Actor-Partner-Independence Model (Kenny, Kashy, & Cook, 2006). It has been used in regression analyses of peer and friend influences as well as Structural Equation (SEM) analyses.

In detail, the correlation between individuals and their peer groups at Time 1 denotes the extent of initial person-to-group similarity and is the indicator of peer selection processes. The prediction from initial peer group characteristics to individual Time 2 scores is the estimate of socialization effects. Note that same expectation is examined in SIENA analyses (Simulation Investigation for Empirical Network Analysis; Snijders, Steglich, Schweinberger, & Huisman, 2007; SIENA is based on logistic regression and requires categorical variables). The advantage of SEM analyses is that intra-individual change is examined over and above stability, whereas SIENA simulates changes from
cross-sectional slices of the data without attention to stability. The advantage of SIENA is that peer selection estimates are sampled over time, and not just at the beginning of a study. This can have advantages when selection processes change over time.

In these models, children who are initially with highly motivated peers (and tend to be motivationally similar; homophily) are expected to increase (or remain stable) over time, whereas children who are initially with less motivated peers would decrease. Note that this expectation is different from models that hypothesize increased similarity as the primary outcome of peer influences (as in SIENA “average similarity” models).

**Peer Group Profiles**

How can antecedent peer group characteristics be captured? Nearly all regression-based studies have used averages of the members of each child’s peer group on the variable of interest, such as academic engagement, as the indicator of group characteristics. The assumption is that the average levels of the members of a group (such as their mean levels of engagement) would, through social interactions, lead to changes in the individual himself or herself. Note that the use of averages gives up on the notion that there would be well-defined non-overlapping “groups” that exist as distinct entities; each child is seen as having his or her own peer group “sphere,” consisting of the members that he or she is connected with (friends or frequent interaction partners). Although averages are poor descriptors of the groups’ central tendencies, to define “groups” as individual spheres of partners has the advantage that the peer contexts differ inter-individually; the same strategy is used in SIENA “Average Alter” models.

**Multilevel Models**

An elegant approach to the study of peer influences is multilevel modeling, a strategy introduced to the peer literature by Ryan (2001; see also Chen, Chang, Liu, &
He, 2008). The approach is promising for two reasons. First, since there are typically large mean differences between groups, distinguishing a group level of analysis from an individual level can lead to more accurate estimates. Secondly, socialization estimates are also likely to differ across groups. Even when individuals serve as their own controls over time, when peer influence effects can be estimated separately for different groups, this should have advantages. However, traditional hierarchical linear modeling approaches work only with non-overlapping groups (so that individuals are in only one group). A promising development for overlapping groups (friendship or peer groups) are cross-classification strategies that have been developed for data in which children attend several schools at the same time (e.g., Fielding & Goldstein, 2006).

**Controls for Sample Imbalances**

When individuals serve as their own controls over time (see Figure 3.2), effects of sample imbalances (e.g., biased distributions of gender, intelligence, transitivity, reciprocity) will be much less severe than they would be in concurrent analyses. There are, however, controls that still need to be considered. For example, girls tend to do better in school, and by middle school, they tend to be in peer groups with mostly other girls. If over time, girls show enhanced patterns of motivational change, the conclusion that this is due to their (also better functioning) peer groups can be misleading. Statistical controls are needed that account for gender effects. Self-selection into peer groups (homophily) can also exist for other characteristics, like intelligence or ethnicity, and respective controls would also need to be included. In addition, SIENA proponents argue for additional controls of network characteristics: for example, reciprocity (if friendship data are used; SCM observation data are always reciprocal affiliations) and transitivity (so that indirect effects from friends-of-friends are controlled).

**Time Windows**

When longitudinal designs include only one measurement point per school year, there is a question of whether the time window is ecologically valid. In most school systems, the composition of classes changes over years, which leads to changes in peer selection processes. In addition, when teachers change over the years, their ratings of student outcomes (e.g., grades, or teacher-rated engagement) will also change. If cross-year changes are analyzed without considering ecological changes, peer effects will be misestimated. SIENA seems most appropriate to analyze cross-year peer influences because changes in peer group composition are included. However, changes in classroom composition and in teachers are typically not, and this can lead to misestimating influence effects when measurements occur just once in a school year.

The most sensible approach seems to be to assess peer group influences within a given year (i.e., from fall to spring, when students have the same teacher and are with the same peers), and then to augment these findings with results on sequential changes across years. Usually, it can be expected that selection effects are larger at the beginning of a school year, when peer relationships reorganize. Thus, the magnitude of peer selection can be expected to decline across the year, whereas socialization effects can be expected to accrue over the same period.
Controls for Extraneous Simultaneous Influences

In an insightful essay in 1947, Max Weber cautioned networks researchers that “if at the beginning of a shower a number of people on the street put up their umbrellas at the same time, this would not ordinarily be a case of action mutually orientated to that of each other, but rather of all reacting in the same way to the like need of protection from the rain” (p. 114). Gest and Kindermann (2012) used the term “contextual confounds” to describe configurations in which overarching influences in a setting influence all members of a peer network in the same way, impersonating peer group influences.

Because school is organized by teachers, changes that appear to be peer influences can instead be a (confounding) effect of teacher influences. If the teacher treats all members of a peer group similarly (e.g., because they are all similarly disaffected), effects would be misinterpreted. The same can hold true for parents as well, even if they are not present in the classroom. For example, children of the same class and ethnicity who share a group may develop similarly because of their parents’ similarities in school involvement. Recently, several studies have begun to examine such confounding effects in more detail. Burke and Sass (2013), in their longitudinal data of all public schools in Florida, point out that estimates of peer influence effects become considerably smaller as soon as teacher effects are also considered. Kindermann and Vollet (2014) reanalyzed data on an entire cohort of sixth graders in a small town, and the strength of peer group influences also differed depending on simultaneous adult influences. Students who saw their teachers or their parents as very much involved with them in their activities at school showed almost no influences from peer groups on classroom engagement. The largest peer effects were found for students who saw their parents or teachers as comparably uninvolved.

FUTURE DIRECTIONS FOR THEORY AND RESEARCH

Peer group structures in school are complex, and cause-and-effect relations with regard to their influences on academic characteristics can only be approximated. Two directions of future research can be distinguished. First, because of the correlational evidence of influences on motivation, even though it has become increasingly longitudinal, perhaps the most promising avenue for further substantiating causal claims are studies that focus on the specific interactional mechanisms through which peers exert influences in the real world. A second promising path is the study of peer cultures that form as combinations of the basic kinds of peer groups.

Mechanisms of Peer Influences

Peer influences are outcomes of social interactions, and studies can aim to identify the psychological pathways by which the influences occur. The field has recently begun to take up the question of mechanisms, and there have been increasing numbers of studies in recent years. Studies can roughly be sorted into those that examine cognitive mechanisms, behavioral mechanisms, and socio-emotional mechanisms.

Potential Cognitive Mechanisms of Peer Influence

With regard to cognitive mechanisms, researchers have examined social-cognitive processes, such as social comparison, through which individual’s self-evaluations or
actions are shaped by their interpretation of the behavior and accomplishments of their peers. Cohen and Prinstein (2006) used chatroom experiments in which individuals’ responses to hypothetical scenarios were observed when people were in the presence of peers with low versus high social status. Because peers were randomly assigned, changes indicate actual social influence. Brechwald and Prinstein (2011) reviewed similar studies and concluded that influences were mainly directed toward behavior that matched the norms of a valued or desired group, toward behavior that contributed to a favorable self-identity (e.g., nonconformity), or toward behavior that was reinforced by peers.

Naturalistic studies on social comparisons tend to focus on school-wide comparisons or on comparisons within different kinds of friendships. For example, Herbert Marsh’s studies (Marsh et al., 2008) on the “big-fish-little-pond” effect indicate that students tend to compare themselves to the overall achievement culture in their schools. Thus, adolescents who attended schools in which peers were academically highly achieving, tended to show lower academic self-concepts than students with the same levels of academic ability who attended lower-ranked schools.

When it comes to specific relationships, similarity and closeness among partners seem to be the main criteria for choosing comparators (Huguet et al., 2009). Thus, most social comparison studies on specific relationships looked at friendships, and these studies are usually more detailed, capturing how comparisons actually occur (e.g., glances at classmates’ progress, evaluative comments, performance comparison comments, peer progress inquiries, sharing success; Altermatt, 2012). Altermatt and Pomeranz (2005) examined the role of social comparisons for children’s self-concepts within friendships and found that when reciprocal friends were achieving above children’s own levels, children showed higher levels of achievement over time but also lower levels of academic self-concept, compared to children with similar initial achievement levels who were affiliated with lower-achieving friends.

It seems important to point out that cognitive processes, like social comparison, do not necessarily have to rely on notions of competition (see also Brophy, 2005), which may lead to early termination of the friendship. For example, Tesser, Campbell, and Smith (1984) differentiated between arenas that are central to one of the friends’ self-definition and secondary arenas. Friends tend to compare themselves favorably in their central arena and less favorably in others. Altermatt (2011) highlighted the cognitive processes through which students benefit from friends’ accomplishments, by sharing and enjoying each other’s successes. It may be that the social comparison approach, if it continues to broaden its scope, may come to include more than ranking and competition and so move toward a concept like social tuning.

Potential Behavioral Mechanisms of Peer Influence

Studies on behavioral mechanisms focus on peer discussions (persuasion), communication (e.g., of goals), reinforcement, and observational learning. For example, Berndt and colleagues (1990) studied the effects of persuasion among friends in discussions of academically related vignettes. Peer reinforcement has been studied much since Patterson’s work on behavioral mechanisms in the development of aggression; a key example is Dishion’s work on peers’ deviancy training of problem behavior (Dishion et al., 1999). With regard to school motivation, Sage and Kindermann’s (1999) study on natural peer reinforcement processes in classrooms identified differential reinforcement patterns for on-task and off-task behavior instigated by different interaction
partners, namely, from members of children’s peer groups versus from non-members or from the teacher.

Observational learning mechanisms have also been discussed in terms of their relevance for motivational development but have not yet been studied much in the real world. In principle, peers can act as models for the development of academic behavior, for example, when children observe similar peers who demonstrate successful ways to cope with failure (Altermatt & Broadie, 2009). Although less emphasized, provisions of help and assistance among peers can have very direct influences on subsequent performance; help seeking shows clear relations to changes in achievement (Ryan, Jamison, Shin, & Thompson, 2012). Resource control strategies should also be mentioned as a possible influence mechanism (Hawley, Little, & Pasupathi, 2002); perhaps, forms of bribery can be included in this category. Brute force and coercion are probably best discussed in the bullying literature as mechanisms of peer influence (e.g., Salmivalli & Peets, 2009). Identification mechanisms, despite their long history in the psychological literature, have received little explicit empirical investigation; an exception is a study by Taylor and Graham (2007) on peers whom students admired. Finally, peer contagion may be another mechanism, but for reasons of clarity in definition, it is likely best to reserve this term for situations in which it can be directly observed. For example, the term seems well suited for contagion of engaged emotions, like enthusiasm for an activity or topic, but it should not be used when cognitive mechanisms (e.g., social comparison) or reinforcement provide clearer explanations.

**Potential Motivational Mechanisms of Peer Influence**

Finally, one can conceive of a set of motivational mechanisms through which peers can influence each other. These focus on the premise that motivation has an energizing function and can give behavior a direction. Peer relationships can be seen as relationships that have the potential to provide motivational provisions, such as emotional support, warmth, security, a sense of belonging, and autonomy support. Note that this makes motivational mechanisms different from mere contagion. The simple presence of peers is energizing and enjoyable to children, and it can guide the direction of their behavior. Kindermann’s studies (1993, 2007) are based on the premise that being affiliated with peers who are more or less engaged is an influential factor for children’s own motivational development, over and above their initial motivation. Such basic energization may also provide a resource foundation for all other kinds of peer influence mechanisms (e.g., instrumental help, feedback, social comparison, reinforcement). Note that if self-selected peers have such an energizing motivational function, experimental simulations with randomly assigned peers may not provide an accurate estimate of the actual amount of influence that can occur.

Peer relationships, because children largely select their partners themselves, are also likely to support autonomy—and so they provide space for children to be themselves and may foster exploration and experimentation with possible academic identities to a greater extent than relationships with partners who are culturally assigned (teachers) or genetically and/or culturally assigned (parents). It is worth noting, however, that this perspective leads to conceptual friction with classical notions about the role of peer groups: In essence, members of peer groups would not necessarily need to become more similar to one another. Instead, they could become more different from one another through autonomy supportive influences among members of a group.
The Social World of Schools: Multiple Peer Relationships and Multiple Relationships

Although the different strands of research on sociometric acceptance, crowds, friendships, and peer networks have been followed for decades along separate pathways, there seems to be an emerging trend to integrate and realign conceptualizations, in order to combine their virtues for understanding the complexity of children’s peer relationships (e.g., Wentzel & Caldwell, 1997). Nearly all studies that examine interconnections among different kinds of peers point to similarities and overlap among the groups captured by the respective traditions (e.g., friends and interaction groups show about 50% overlap; correlations between group characteristics and academic variables are comparable). Nevertheless, some studies suggest that there might be different processes that emerge from different relationships. One example is a study by Urberg and colleagues (1995) that showed that social crowds and friendship groups were differentially related to substance abuse. Another example is a study by Gest, Graham-Berman, and Hartup (2001) that examined sociometric status (rejection), SCM networks (centrality), and friendships. Each aspect was associated with distinct profiles of prosocial and antisocial behavior.

Recently, Hamm and colleagues (2014) used the term Peer Cultures as a construct that encompasses multiple aspects of peer relationships. They examined the roles that (SCM) peer networks and social prominence (nominations for being cool, a leader, and popular combined, roughly indicators for acceptance) play in students’ academic effort, valuing of school, and achievement, by comparing schools that participated in an intervention aimed at enhancing academic and social processes at school with control schools. Social prominence appeared to accompany effort and valuing of school; (injunctive) behavioral norms were found in peer groups that were high in effort and achievement. Molloy, Gest, and Rulison (2011) examined differential effects from reciprocal friends, overlapping (SCM) peer groups, and non-overlapping peer nominated groups in fifth and seventh graders. Strongest peer socialization effects in terms of changes in engagement were found for reciprocal friends; SCM groups showed smaller effects. However, SCM groups showed the strongest indications of social comparison processes as mechanisms of peer influence. The differences may be sample specific; Kindermann and Skinner (2012) reported that the engagement levels of children’s reciprocal friends and of members of (SCM) groups showed about the same amount of influence on changes in classroom engagement.

In looking ahead with regard to combinatorial studies, it seems most promising to consider children as active participants in relationships that will influence them over time. Thus, the active role of peer selection could be contrasted with peer contexts that are more culturally or socially assigned (e.g., social crowds or teacher-assigned proximity, see Figure 3.1), and both can be examined in terms of the resulting influences from peers. There is some need to overcome “passive” socialization assumptions because children always influence each other reciprocally.

One way to sort out some of these findings would be to consider the particular functions that different forms of peer relationships may have. Broadly categorized, acceptance/popularity may be most closely linked to appearance, status, and reputation. Social crowds may be similarly related to appearance and reputation. For both, social comparison processes, peer pressure, and social norms may be the most important mechanisms. In contrast, for friendships, because of their intimate nature, felt security and secure base-exploration (identity) may be most important functions. Hartup's
(1992) findings on the heightened prevalence of conflict among friends may also suggest that friendships are a place for authentic exploration of (differences in) genuine opinions and goals. Alternatively, (SCM) interaction groups would be characterized by comfort, enjoyment of shared activities, and perhaps constitute the “playground” in which children delve into alternative developmental scenarios. Finally, classroom proximity could be most connected to adult-supervised learning and work on tasks. Of course, it may be possible that all different kinds of peers have comparable amounts of influence on academic motivation and behavior overall, but it seems likely that they would differ in their patterns of influence—different kinds of peer relationships may differ in the strengths, mechanisms, and motivational targets.

Larger Social Worlds of School

The chapter should not end without mentioning that peer relationships at school play out under the “invisible hand of the teacher” (a term used by Urie Bronfenbrenner; see Farmer, McAuliffe, & Hamm, 2011), and that parents may have a similarly “invisible hand” in children’s development at school (Kindermann & Vollet, 2014). Even further, attention to classroom structure and composition may need to be included (Capella, Kim, Neal, & Jackson, 2013; see also the chapter by Patrick, Turner, and Strati in this volume). All would need to become part of efforts to capture classroom or school ecologies.

EPILOGUE

This chapter started out with the expectation that peer relationships at school are complex and multilayered, and that their influences on academic motivation and achievement would be important and perhaps varied as well, partly with different motivational influences from different peer relationships. There is some support for this notion. However, more research is needed, especially studies using designs that analyze changes over time, focus on multiple kinds (or combinations) of peers, and consider multiple (perhaps alternative) mechanisms. Peers seem to be a permanent and integral part of school contexts, whose effects on academic and motivational development are largely positive, and if children can find ways to negotiate these multifaceted social worlds (which include their teachers and parents as well), peer researchers should also be inspired to continue to incorporate some of these complexities in their ongoing empirical efforts.

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REFERENCES


