Sociometry Reconsidered: The Social Context of Peer Rejection in Childhood

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ABSTRACT. The author describes the theoretical foundations and current applications of sociometric measures to peer-relations research. The author also critically evaluates the conversion of the sociometric test from an assessment of group interactions to a measure of individual popularity. He portrays modern sociometric concepts of preference and inclusion as constructs that lack reference to explicit elements of behavior. He endorses social network analysis as a measure of affiliative activities and as a method for defining homogenous reference groups. He discusses implications for intervention and prevention. The developmental model is represented to account for the multiple determinants of competence in peer relations.

Key words: peer relations, social networks, sociometric rejection, sociometry

> [A person] has as many social selves as there are individuals who recognize him and carry an image of him in their mind[s]. . . . But as the individuals who carry the images fall into classes, we may practically say that he has as many different social selves as there are distinct groups of persons about whose opinions he cares.—William James, 1890, p. 294

DEVELOPMENTAL LITERATURE ON PEER RELATIONS is divided by least two theoretical perspectives. According to one view, genetic disposition and the quality of maternal attachment in infancy are thought to govern affiliative behaviors and later social competence (Ainsworth, 1969; Moffitt, 1993). From that standpoint, proficiency in peer relations and acceptance by peers reflects inherited characteristics coupled with the early internalization of behavioral constraints, values, and social norms. Harris (1995) proposed that peer relations should be considered solely in interaction with genetic influences and that maternal or familial interactions count for little in social development. An alternative perspective holds that affiliative relations are primarily an expression of ongoing adaptive processes. Understanding the

dynamics of those processes requires scrutiny of individual behavior over time, in the context of tangible social connections (Bronfenbrenner, 1944a; Cairns, 1979). In this review, I explore the evolution of sociometry in peer-relations research as a reflection of those differing viewpoints.

I do not intend to question the many contributions of sociometry to our understanding of social development. Rather, my goal is to illustrate how differences in theoretical perspective have produced concomitant changes in sociometric methods and interpretation as applied to developmental research. The analysis suggests that present-day incarnations of sociometric measurement represent a significant departure from the foundational work in that area. Sociometric measurement has shifted from a means of analyzing group interactions to an assessment of individual adjustment. Researchers have assessed the impact of that shift. Bukowski and Cillessen (1998) noted that recent advances in sociometry represent a return to the principles espoused by J. L. Moreno and his contemporaries. I describe recent advances and discuss the importance of linking contextual information to measures of social inclusion.

Sociometry Then: The Primacy of the Social Group

Moreno traced the roots of sociometry to the publication of his book *Das Stegreiftheater* in 1923 (Moreno, 1934/1953). His magnum opus on the subject came in 1934 with the publication of *Who Shall Survive? A New Approach to the Problem of Human Interrelations.* Moreno attributed the theoretical foundations of sociometry to the work of J. M. Baldwin, social behaviorist G. H. Mead, C. H. Cooley, W. I. Thomas, and particularly John Dewey. Also influential in Moreno's thinking were the work of Darwin and the neo-Darwinian view of natural selection. Sociometry was developed in concert with Moreno's interest in psychodrama, group psychotherapy, and group dynamics. As such, it is a method intended to measure certain tensions: the conflict between existing and desired configurations of groups and the frictions among individuals within the group. The measurement employed by Moreno was called the *sociometric test.* He described the test as "an instrument which examines social structures through the measurement of the attractions and repulsions which take place between the individuals within a group" (1934/1953, p. 93). Moreno did not consider that an individual's situation within a single group or function (such as school, home, or work) was necessarily reflective of that individual's overall status. To the contrary, he wrote, "It was found that chosen relations and actual relations often differ, and that the position of an individual cannot be fully realized if not all the individuals and groups to which he is emotionally related are included" (pp. 93–94).

Moreno's sociometric test was not a test in the usual sense. It was actually a nomination procedure that involved asking participants to identify the individ-

uals with whom they are connected, and with whom they wish to be connected, relative to a specific circumstance. For example, a participant might be asked, "With whom do you work in proximity?" and "With whom do you wish to work in proximity?" From the responses to those questions, a sociogram can be constructed, which "depicts by means of a set of symbols the two-way or interpersonal relations that exist between members of a group" (p. 719).

Two points are noteworthy about Moreno's conception of the sociometric test. First, choices were always based on a specific criterion, or particular situation, such as "work with, study with, live with, play with, etc." The choice situation must be "*meaningful* and *interesting* to the subjects" (Bjerstedt, 1956, italics in original). The choice was never open-ended, such as, "Whom do you like (or dislike)?" Gronlund (1959, p. 44) described the open-ended choice as a near-sociometric procedure, of "doubtful value" when employed for the pragmatic purpose of determining individual acceptance and group structure in a specific setting, such as in a classroom.

The sociometric test was intended to reveal information about individuals in their relationships to groups, in the context of their mutual activities. Followers of Moreno cautioned against using sociometry as a diagnostic tool. As Northway (1952/1967) observed, "Whether a score obtained in one group predicts the score which would be obtained in another group would have to be determined by giving tests to different groups to which an individual belonged . . . and discovering the constancy of his status" (p. 34). In reviewing comparisons of the sociometric test to results obtained from the Rorschach and Rosenzweig tests, Northway (1952/1967) noted that "sociometric status should not be interpreted as a direct measure of adequacy of *personality structure* or *inner psychological health*" (p. 37, italics in original).

Second, Moreno (1934/1953) recognized the cleavage between sociometric status, which he defined as the number of times an individual is chosen by other individuals for their mutual activities, and position within the group (p. 720). To Moreno, the social roles occupied by nominee and nominator(s) were an important factor in the assessment of an individual's adjustment within a group. That is, not every choice or nomination was equal in weight or importance.

In sum, the sociometry of Moreno was concerned with the frictions and tensions that might exist between individuals and within groups under particular conditions. Moreno expected to find conflict in groups and believed that the appropriate alignment of people in proximity to one another reduced that conflict. The sociometric test was intended to measure individual acceptance in the context of group structure. The status of individuals as depicted in sociograms (i.e., diagrams of the social linkages between participants in two-dimensional space) was perceived to be their status in an explicit situation, and not necessarily reflective of their social adjustment.

Attention to sociometry declined with the onset of World War II (Renshaw,

1981). As that war waned, Bronfenbrenner (1944a) tackled several issues related to "experiment and inference" in sociometry. One important aspect of that discussion was Bronfenbrenner's observations about sociometric neglect, rejection, and stardom. In general, his comments were a response to the dangers of rigid classification of low choice (neglected/sociometric rejected) as well as highly nominated individuals (stars). He concluded,

> The proper evaluation of social status and structure requires the envisagement both of the individual and the group as developing organic units. Piecemeal analysis, fixed in time and space, of isolated aspects and attributes is insufficient and even misleading, for the elements of social status and structure are interdependent, organized into complex patterns, and subject both to random and lawful variation. (1944a, p. 75)

Another influential publication of the time was Northway's (1944) "Outsiders: A Study of Personality Patterns of Children Least Acceptable to Their Age-Mates." In that 2-year longitudinal study, Northway selected the children who fell into the lowest quartile on the sociometric test. She labeled those children "outsiders." Northway identified not one but three subcategories of outsider: the "recessive" children, the "socially uninterested" children, and the "socially ineffective" children (Northway, 1944).

Two important assumptions are reflected in Northway's investigation. Her first and most significant assumption was that one could use the sociometric status of children to place children into categories of personality type (e.g., recessive, socially uninteresting, socially ineffective). This conversion of the test into a measure of typology seemed to be less than consistent with Moreno's original intentions. The second assumption was that sociometric status is an enduring quality and that low status requires early intervention "by which personalities in their still plastic stages may be guided towards better social integration" (Northway, 1944, p. 10).

Gronlund: "Dubious Procedures and Hasty Generalizations"

In 1957, Gronlund and Anderson published *Personality Characteristics of Socially Accepted, Socially Neglected, and Socially Rejected Junior High School Pupils.* That investigation attempted to distinguish the characteristics of the socially neglected and rejected pupils, as defined by the sociometric test. In that work, Gronlund and Anderson made explicit the modern definition of sociometric rejection—that rejected-status children are distinguished by being actively disliked.

Gronlund returned to the association between behavioral characteristics and social acceptability in his 1959 book, *Sociometry in the Classroom.* In that lucid treatment of the subject, Gronlund described the test and its application in detail, including the construction of the matrix table and sociogram, on the basis

of Northway's and Bronfenbrenner's refinements of Moreno's original work. As Gronlund observed, the sociogram has the advantage of presenting "all of the mutual relations . . . at once, and the otherwise complex process of attraction and repulsion among group members becomes readily apparent" (p. 72).

In his discussion on the limitations of the sociometric procedure, Gronlund (1959) reiterated the cautions expressed by Moreno, Northway, and others. He identified three such (highly correlated) limitations. First, Gronlund warned that inferring behavioral characteristics to individuals on the basis of sociometric status is "at best a dubious procedure" (p. 24). Second, Gronlund said it was inappropriate to equate sociometric isolation with personal maladjustment in the absence of supporting evidence. Third, Gronlund strongly objected to the "hasty generalization" of characterizing the highly rejected individual as a "person of doubtful character or undesirable personal qualities" (p. 24). He said,

> Rejection by peers may be due to lack of personal grooming, lack of social skill, the social position his family holds in the community, membership in a minority group, or similar factors not directly related to his personality. An individual may also be rejected if he has the courage to take an individual position which is opposed to the values and beliefs of the group. As with the isolate, equating the sociometric position of the rejectee with preconceived notions of the characteristics of rejected individuals is extremely dangerous. Supplementary data are essential for adequate interpretation of the basis for rejection by peers. (pp. 24–25)

In the 1960s, researchers turned their attention to peer relations in adolescence, consonant with the developmental demographics of the baby boomer population. Roff (1961) provided early support for the proposition that childhood peer-group interactions are an effective measure of adolescent and young adult adjustment among young men. Although Roff did not use sociometric measures, his work did receive some attention by later proponents of the method (e.g., Coie & Dodge, 1983; see also Wanlass & Prinz, 1982). According to Roff (1961), under circumstances in which "there is sufficient mutual exposure to permit thorough acquaintance, appraisal by peers is very effective in predicting subsequent [adjustment]" (p. 336).

Roff, Sells, and Golden (1972) described a massive investigation employing sociometric status measures. Their study initially included over 34,000 children in Texas and Minnesota but had only 4,940 participants at the end. The authors published the results of the 5-year longitudinal study in *Social Adjustment and Personality Adjustment in Children*. Like Northway (1944) and others, Roff et al. recognized that there is a difference between being accepted (or rejected) by one's peers and merely being overlooked. On that basis, they decided to use a measure of dislike in their research. Concluding that the term "dislike" would displease parents and administrators, the inves-

tigators posed the question, "whom do you like least?" to the students in their study. Students could nominate four others as liked most (LM) and two others as liked least (LL). The researchers eliminated such condition-specific questions as "Who is your best friend?" and "With whom do you like to study?" Roff et al. contended that such questions are "ordinarily highly intercorrelated" (p. 13).

Roff et al. (1972) explored at length the use of matrices in obtaining scores. A common approach in sociometric testing had been to construct a square matrix, with all participants identified on each axis. Such a matrix made it possible to identify who was nominating whom. The standing argument in favor of the matrix approach was that it preserved information about the level (status) of the choosers in evaluating the choices given to an individual. Roff et al. performed 864 separate correlations to support their decision to forego matrices. The correlations were based on the possible combinations of LM, LL, and LM–LL scores of chooser and chosen, gender, four school grades, and four socioeconomic levels. Very low values were found—below $r = .20$ in all cases. On that basis, Roff et al. took a strong stand against the use of matrices, contrary to the suggestion by Busk et al. (1973) that such matrices contain important information about both popularity and friendship.[1]

From Sociometric to Psychometric

The methods in *Social Adjustment and Personality Adjustment in Children* (1972) were far removed from the sociometrics of Moreno (1934), Bronfenbrenner (1943, 1944a, 1944b), Gronlund (1959), and others. Gone were the sociograms and other indices of social inclusion (such as the chooser–chosen matrices). The use of negative nominations was in place, despite little investigation of the ethical or practical consequences of asking children to identify the classmates they dislike (this question would be touched upon in later research).[2] The choice situation was no longer context specific (e.g., "Who do you like to play with, to study with, to sit beside in class?"), regardless of Gronlund's view that out-of-context choices were of "doubtful value" (1959). By discarding social inclusion measures and other contextual information, Roff et al. could not test the proposition that sociometric rejection in the school classroom is equated with social isolation or the proposition that such isolation drives later maladjustment.

Those propositions were addressed by Gottman (1977), who used sociometric status measures and naturalistic observation, in an effort to define social isolation in children. Gottman found no relationship between the relative frequency of peer interaction and sociometric measures of acceptance. Gottman asserted that some sociometric-rejected children are rejected precisely because although they do interact with peers, they interact ineffective-

ly. He therefore defined both low interaction and low acceptance as two dimensions of social isolation.

Current applications of sociometric status tests use various modifications similar to those found in *Social Adjustment and Personality of Children* (see Asher & Coie, 1990; Hallinan, 1981; Hymel, 1983). The use of standardized scores is now commonplace, in lieu of nomination matrices and in aid of "more appropriate research designs and more powerful statistical techniques" (Hallinan, 1981, p. 92). Peery (1979) suggested an important refinement to sociometric classification, based on two dimensions described by Dunnington (1957). Peery proposed that one could determine the sociometric score by relating individual scores to two dimensions of social choice—social impact and social preference. This method of calculating sociometric scores has been widely adopted (Coie & Dodge, 1983; Coie, Dodge, & Coppotelli, 1982; Putallaz & Wasserman, 1989; see also Terry & Coie, 1991). Where permitted by parents, school officials, or both, negative nominations are commonplace. The present-day sociometric test identifies five characteristic typologies of children. These include children who are well liked and not disliked (popular status), children who are not nominated (neglected), children who are well liked by some and strongly disliked by others (controversial), children who are generally liked and infrequently disliked (average), and children who are disliked and are not nominated as liked—the so-called "rejected" children.

In contemporary use, sociometric status—especially rejected status—is frequently used as a diagnostic of individual adjustment (Parker, Rubin, Price, & DeRosier, 1995). The measure continues to enjoy widespread application (e.g., Brendgen, Little, & Krappmann, 2000; Cillessen & Bellmore, 1999; Leff, Kupersmidt, Patterson, & Power, 1999; Maszk, Eisenberg, & Guthrie, 1999; Matza, Kupersmidt, & Glenn, 2001; Phillipsen, 1999). The current view of sociometrically rejected children is that they are improperly socialized, either as a result of some underlying defect or because they have failed to internalize appropriate social norms (Coie, 1990; Parker & Asher, 1987).

Parker and Asher (1987) described two of several possible pathways to sociometric rejection. In their first model, sociometric rejection was considered a response by peers to inappropriate behavior. In a self-sustaining manner, such social disapproval itself engenders further deviance. This is a peer-mediated model of influence on status. In their alternative model, low peer acceptance was held to be incidental to an underlying disturbance that lead to both unpopularity and deviant behavior. Both of these models presuppose individual characteristics as the source of dislike. The tendency to treat popularity as characteristic of an individual may be traced directly to seminal behavioral investigations by Jenkins and associates (Jenkins & Glickman, 1946; Jenkins & Hewitt, 1944; Lorr & Jenkins, 1953). Those models are consonant with the view that peer acceptance reflects inherited characteristics and

early internalization of behavioral norms. Parker and Asher described the weaknesses of those respective models in some detail and called for a more comprehensive design.

This is not to suggest that sociometric research routinely ignores the contextual conditions that affect the behavior of children or that researchers using the sociometric test necessarily agree that sociometric status is a personal characteristic of the child. Nevertheless, modern sociometric theory is rooted in that view. As Coie (1990) said, "During the emergence of rejected status the behavior of the child is primary and the behavior of the peer group is secondary" (p. 367). Coie raised the question at the heart of the theoretical disparity described earlier: Is behavior primarily the product of early and formative events, or is behavior constantly modified and updated in response to the social context?

Whatever the source, rejected status is equated with significant difficulties in present and future social adjustment (Asher & Coie, 1990; Asher & Parker, 1989; Kupersmidt, Coie, & Dodge, 1990; Putallaz, 1983). Specifically, rejection by peers is considered an indicator of a child at risk for long-term negative consequences including school dropout, criminality, and adult psychopathology (Parker & Asher, 1987).

Accordingly, there has been a metamorphosis in sociometric status, as applied to child development. Moreno (1934/1953) was concerned with the specific connections each individual had to others within the context of a group that was defined by particular affiliative activities. Over time, the sociometric test has been transformed from a means to measure group cohesiveness and interactions within a social network to a *psychometric measure*. The test has become a mathematical index of popularity that is presumed to be a marker for current and future maladjustment. A price has been paid for this renovation of the sociometric test. With the elimination of chooser–chosen matrices and other context-specific questions, it is no longer possible to know precise patterns of social attraction and interaction. As Rubin, Bukowski, and Parker (1998) have noted,

> *Popularity* is both an individual—and a group-oriented phenomenon. . . . In this regard, popularity is a group construct and the processes of rejection and acceptance are group processes. Yet, despite this reality, most peer researchers treat popularity as characteristic of the individual. (p. 627, italics in original)

In particular, the modern sociometric test fails to capture information about the milieu to which children typically owe close allegiance—their own peer clique. The peer clique, or naturally occurring peer group, figures into measures of popularity and affiliation in some important ways. The peer group is a logical level of analysis for assessment of social inclusion. It is a level of interaction above the friendship dyad and is distinct from peer subcultures,

such as "nerds" (Kinney, 1993) and "athletic stars" (Brown & Lohr, 1987). To adumbrate one conclusion of this review, inconsistency between sociometric status and observable behavior arises when the context and conditions that define acceptance and inclusion are not specified. Thus, the individual who is disliked in the larger community (sociometrically rejected) may be liked and respected by members of his or her own affiliative group. As detailed below, the emerging literature on the properties of peer groups reveals that the naturally occurring group is an influential mediator of individual conduct.

Sociometry Reconsidered

In the years since Peery's 1979 refinement to sociometric classification and with the addition of controversial status by Coie, Dodge, and Coppotelli in 1982, sociometric testing has been widely used as a measure of childhood adjustment (see Asher & Coie, 1990; Bukowski & Cillessen, 1998; Hartup, 1983; Parker & Asher, 1987; Rubin, Bukowski, & Parker, 1998 for reviews). The measure has enjoyed widespread popularity for good reason: It is simple, easily administered, reliable, and has a certain intuitive appeal. Sociometric testing is clearly an effective means of identifying children who are distinguished from one another on such important constructs as likeability and acceptance. The cautious investigator may use the modern sociometric test to great effect, in consideration of two important limitations.

First, the measure provides few clues about the features that are characteristic of likeability and acceptance. Rejected-status children are identified by the fact that they tend to lack popularity or general inclusion or favor from the prevailing few. What are undefined are the features present in the child or in the environment that initiate and maintain disliking by others.

Are children rejected because of their own cognitive characteristics and behavioral activities or because of social and reputation factors outside of their control? As Putallaz and Gottman (1981) said,

> While sociometric tests are useful for . . . identification of problems such as social isolation, they do not supply any information that would aid in the identification of the origin of the problem or in the detection of those factors currently maintaining the problem. (p. 117)

In other words, there are no explicit, unitary attributes of behavior that define sociometric rejection, neglect, or popularity. In their seminal discussion of construct validity, Sears, Whiting, Nowlis, and Sears (1953) cautioned that a useful construct must provide consistent antecedent–consequent relationships (if *x*, then *y*) by referral to unitary attributes of behavior. For example, firestarting and physical assaultiveness are unitary attributes of behavior, but juvenile delinquency is not. Construct validity requires a "nomological net" of

observable properties that point to the construct and to which the construct makes explicit, public inference (Cronbach & Meehl, 1955, p. 290).

And just as sociometric constructs have no explicit referent, it is similarly unclear as to how acceptance and preference interact to fix the limits of status. As Rubin et al. (1998) wrote,

> *Rejected and popular* children differ along the dimensions of acceptance and rejection: if one were to observe differences between the outcomes experienced by these two groups of children, it would be difficult to know which of these two dimensions would account for the differences. (pp. 651-652, italics in original)

Sociometry Now: Is the Child Likable, or Is the Child Liked?

The second limitation of current-day sociometric testing concerns the definition of the appropriate reference group. In modern school-based sociometric testing, the reference group is defined by the investigator as the classroom(s), grade, or school in which the test is given. Although friendship information is often obtained, local networks of peer affiliates are typically ignored. The classroom, grade, and school constrain the parameters for student interaction but do not determine students' affiliative choices. From the perspective of this review, an important pitfall in modern sociometric classification is the absence of contextual (i.e., affiliative) information at the level of the peer group. Sociometric nominations by classroom or grade reveal little about the affiliative characteristics of the participants. With whom does the child associate, and what are the characteristics of those associations?

In the study *Social Networks and Aggressive Behavior: Peer Support or Peer Rejection?* (1988), Cairns, Cairns, Neckerman, Gest, and Gariépy revisited an issue that had been brewing beneath the surface in the sociometric literature since Gottman (1977). Cairns et al. explored the social networks of a set of 40 children who had been identified as highly aggressive, compared with 40 matched controls. Those researchers concluded that the aggressive children were no more likely than their prosocial counterparts to be excluded from social groups. They found that aggressive peers tend to cluster together and that similarity on that dimension may be a basis for peer affiliations, consistent with findings from Giordano, Cernkovich, and Pugh (1986). Cairns et al. (1998) concluded, "recent methods for identifying 'social status' on the basis of pooled ratings of how peers like, dislike, or ignore the subject typically reveal little about the person's placement in a network of relationships" (p. 822).

Since the time of the Cairns et al. (1988) study, there have been a number of investigations to corroborate the fact that sociometric rejection is not equivalent to social isolation or friendlessness (Bagwell, Coie, Terry, & Lochman, 2000; Bukowski & Hoza, 1989; Bukowski, Pizzamiglio, Newcomb, & Hoza, 1996, Gest, Graham-Bermann, & Hartup, 1991; Kupersmidt, DeRosier, &

Patterson, 1995; Parker & Asher, 1993). There is indication through their self-reports that rejected children do not consider themselves friendless. In a recent investigation of the relationship between being sociometrically rejected and having friends among 227 fifth- and sixth-grade children, George and Hartmann (1996) were able to identify reciprocated friendships among a substantial majority of "unpopular" children. All of the unpopular children in the George and Hartmann study named friends from their school, church, neighborhood, and so forth. The unpopular children named an average of 12 friends each. When examined from the perspective of group network analysis, aggressive, low-popularity children have been found to have friends; to participate in groups; to form groups; and even, on occasion, to be situated in central or leadership roles within those groups (Cairns & Cairns, 1994; Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988; Farmer, Stuart, Lorch, & Fields, 1993; Rodkin, Farmer, Pearl, & Van Acker, 2000).

Any discussion of social inclusion, isolation, rejection, or neglect seems to demand information about the peer clique (Hartup, 1996). Among other things, the naturally occurring peer clique provides homogeneity of a kind that meets a central assumption of the research process (Magnusson & Bergman, 1990; Richters, 1997). This is the purpose of social network analysis—to identify naturally occurring peer cliques. Social network analysis permits the assessment of within-group similarities or between-group differences. Individuals and groups can be situated in relation to the greater social sphere. Supplemental measures allow objective evaluation on such dimensions as academic competence and aggressive behavior, for each participant in the social group and as a frame for comparison with other individuals and groups.

Social Networks and the Context of Relationships

Although Moreno was interested in the *tele*, that is, the thoughts and desires underlying affiliations (Kindermann, 1998), his own methods and more recent social network measures provide a clarified picture of a child's objective "status." Social network measures, either through direct observation or by peer nomination, provide the social linkages among affiliates in a classroom, school, or other social milieu (see Cairns, Leung, & Xie, 1998, for description of recent empirical studies using social network analysis). Factors such as aggressive behavior (Coie, Lochman, Terry, & Hyman, 1992; Farmer, Van Acker, Pearl, & Rodkin 1999; Xie, 1995); academic competence (Kupersmidt et al., 1995); attractiveness and maturational status (Cairns & Cairns, 1994); delinquency and familiarity with gangs (Cadwallader & Cairns, in press; Thornberry & Krohn, 1997); substance use (Dishion, Capaldi, Spracklen, & Li, 1995; Urberg, Shyu, & Liang, 1990), socioeconomic sta-

tus (Kupersmidt et al., 1995); and race, gender, and sexual orientation (Clark-McLean, 1996; Neckerman, 1992) have all been shown to characterize the composition of peer groups.

Social networks may be identified by a variety of methods (e.g., Alba, 1972; Cairns, Gariépy, & Kindermann, 1991; Heil & White, 1976; Kindermann, 1998; Moreno, 1934; Richards & Rice, 1981). The feature common to these various methods is the ability to identify the interrelationships among individuals in groups and subgroups, based on consensus observations of social interactions. Because of the link to observable behavior, social network analysis avoids the paradox of characterizing as rejected youth that are firmly enmeshed in a system of peer associations.

As Bukowski and Cillessen (1998) noted, "The irony in current sociometric research is that recent advances have been achieved by going back to constructs originally developed by Moreno" (p. 3). Nevertheless, it would be a mistake to interpret "recent advances" as merely a renewed focus on the composition of social groups. There are many ways to define social networks, and mathematical algorithms for testing the validity of group structure can be quite sophisticated (Frank, Komanska, & Widaman, 1985; Wellman, Frank, Espinoza, & Lundquist, 1992). From a developmental perspective, construction of the social group is not an end in itself. Rather, the relevance of social network organization is in what it reveals about developmental processes. For example, social group analysis plays a key role in investigating the adoption of behavior through reciprocal interchanges (Cairns, 1979; Xie, Cairns, & Cairns, 1999).

In sum, Moreno's sociometric was not intended to be diagnostic of pathology, and individual status was considered to be flexible and contextual. In Moreno's view, individual social behavior might vary from group to group, leading to variations in status. Malloy, Albright, Kenny, Agatstein, and Winquist (1997) have reminded us that "both sociocultural . . . and symbolic interactionist . . . theories predict that distinct social identities may emerge in different social groups" (p. 393). These theories are consistent with Moreno's position. Our actions may vary from group to group, and with that variation comes differences in the manner in which the group perceives and responds to us. We become, in effect, as many "different social selves as there are [distinct] groups" with whom we associate (James, 1890, p. 294).

Rejected status does not mean that a child is isolated or without friends. In a similar vein, measures of individual inclusion relative to classmates, grademates, or schoolmates lack the specificity needed to assess the nature and extent of children's affiliations. Thus, the meaning of sociometric status becomes increasingly opaque as individual differences such as race, social class, gender, and age multiply (Bronfenbrenner, 1944a; Giordano, personal communication, April 1999). The emerging trend of increasing focus on the

individual in a social network context is a necessary return to a method grounded in observable elements of behavior.

Implications for Intervention and Developmental Considerations

A model of peer adjustment based solely on sociometric measures of preference and social impact is a deficit model, leaving undefined the characteristics that lead to popularity or rejection. Reliance on that kind of theoretical framework in fashioning intervention strategies has had important consequences. Although a few intervention programs have generated promising results, overall, programs based on a deficit-focus model have produced a "lean harvest of positive outcomes" (Cairns & Cairns, 1997, p. 1). According to Giordano, Cernkovich, Groat, Pugh, and Swinford (1998),

> The strategy of deriving a peer preference score from classmate reports has been criticized because it produces a measure of popularity or rank among classmates, rather than an assessment of the nature of youths' friendships. This becomes problematic when researchers assume that low status youth are in fact friendless and then develop interventions designed to teach the child friendship-making strategies and other social skills. While this may be beneficial with some youths, it may not be appropriate for others. (p. 65)

Social rejection may be the transient product of a normal developmental sequence, or it may be an expression of a child's failure on multiple levels to become engaged in normal social activity. Rejection may be the correlate of mental disturbance, unattractiveness, nonconformity, minority status, or active involvement with deviant peers. However one defines the term, the experience of rejection can be highly variable and strongly dependent on the circumstances of the social environment. Rejection comes in many forms, and rejection comes from many sources. The concentration on peer rejection, although logical and well intentioned, may ignore the true basis of rejected status (by any definition of the word). Rejection by adult caretakers and authorities is as likely a source as it is a consequence of displeasing and disruptive behavior. As Cairns and Cairns (1994) have observed, the assumption that disruptive children are themselves hostile, rejecting, and friendless provides an easy explanation for the failure of teachers and other authorities to connect with such youth. Over time, such children are increasingly set aside and limited in their opportunities to interact with peers that are more normative—they are put in special classrooms and special schools, and, ultimately, are incarcerated.

In the opening paragraphs of this review, I described a theoretical partition in the peer-relations literature. The interactionist view that social competence is highly variable and contextual contrasts with the neoanalytic perspective that social skills are the product of inherited characteristics coupled with internalized norms. In the latter case, it is assumed that adolescent and adult

behaviors are held to be predisposed by genotypic biases operating in concert with maternal affect and other formative experiences in childhood (Scarr-Salapatek, 1976; Waddington, 1968). Support for the idea that sociometric status is a consensus measure of enduring individual characteristics comes from that theoretical perspective.

The view that behavior is predisposed has its roots in investigations of sensory and motor activities. The sensitive periods and structural changes that characterize infant and childhood maturation provide an "implicit model of cessation" when applied to behavioral development (Cairns, personal communication, October 1999). This translation of structure to process is misleading and reductionistic. To understand the role of peers in the development of deviance, disaffection, and alienation, it is necessary to look beyond individual psychopathology and into the dark side of social synchrony. In the final analysis, the same principles of behavioral reciprocity and conformity that are expressed in the constitution and maintenance of popular groups are at work in the organization of deviant and delinquent social networks (Cairns, Cadwallader, Estell, & Neckerman, 1997).

One provocative hypothesis to explain deviant and assaultive behavior is the "Lord of the Flies" effect (Cairns & Cairns, 1994). This hypothesis suggests that conditions of rejection and isolation at the level of the social group exert a powerful influence on individual adaptation. That is, the events that put a child at risk are not merely or inevitably the product of individual pathology. Rather, delinquency and violence are characteristics nurtured and encouraged through involvement in peer networks that are themselves isolated and cut off from mainstream social influences. Like their less obnoxious peers, unpopular and disruptive children are capable of great loyalty and affection — even if only to one another (Clark-McLean, 1996; Giordano, Cernkovich, & Pugh, 1986). Given firm direction and a greater wealth of social opportunities, rejected, isolated, hurt, and angry children may learn to opt for more normative social roles.

NOTES

1. This use of product moment correlations is frankly confusing and potentially unsuited to the data. When participants are being nominated for selection to a set, the data are usually dichotomous (i.e., nominated/not nominated). Roff et al. (1972) standardized scores (in effect, transformed a dichotomous variable into a continuous measure) and then attempted to correlate those scores. A more appropriate test, such as the phi coefficient for nominal (dichotomous) data, based on the chi-square distribution of LM and LL nominations for choices given and received, would likely have produced more interpretable results.

2. Two empirical investigations have directly responded to this question (Bell-Dolan, Foster, & Sikora, 1989; Hayvren & Hymel, 1984). In part fueled by concern for the issue, some investigators (e.g., Asher & Dodge, 1986) have developed alternative

rating scale measures that produce equivalent results, without having to ask children to name disliked peers.

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