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Teachers' Perceptions as They Relate to Children's Current and Future Sociometric Status

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Subjects in this study were 762 elementary school children who were pretested on teacher, peer, and self-report trait rating scales. Sociometric ratings of these children and their classmates were also obtained at that time. Sociometric questionnaires were adminis-tered five years later to almost half the original sample. Canonical analyses revealed that pretest sociometric rating can be predicted by peers' trait ratings. Other canonical analyses revealed that pre-test sociometric ratings predicted a small but significant amount of variance in posttest sociometric ratings. The inclusion of pretest trait ratings substantially improved the prediction of posttest sociometric status. Sociometric pretesting predicted only a small percentage of variance, and most sociometric status shifts that did occur were not marked, with initially unpopular or popular chil-dren occupying average status upon posttesting.

Although the study of children's friendships has been of concern to psychologists and educators for many years, it has taken on even greater significance in recent years as a result of two factors. First, data have accumulated on the long-term adverse effects of social rejection during childhood. Social rejection during childhood has been related to psychiatric problems during adulthood (Cowen, Pederson, Babijian, Izzo, & Trost, 1973; Strain, Cooke, & Appoloni, 1976), juvenile delin-quency (Roff, Sells, & Golden, 1972), bad conduct discharge from the military (Roff, 1961), and dropping out of school (Ullmann, 1957).

A second reason for the invigorated interest in children's friendships is that, as a result of federal legislation, namely the Education for All

Handicapped Children Act of 1975, eligible handicapped children are being educated in regular classrooms with nonhandicapped peers. Many handicapped children are likely to be either socially rejected or isolated by their nonhandicapped classmates (Semmel, Gottlieb, & Robinson, 1979). We are thus confronted with a situation in which many children are being enrolled in classrooms where the likelihood of their social rejection increases. This experience is associated with a variety of adjustment problems during adolescence and adulthood.

Attempts to reverse the social rejection, which often occurs early in the child's school career and continues over time (Gronlund, 1959), would be easier if the children could be identified quickly. The identification of socially rejected children is often accomplished by asking children's teachers and/or peers to indicate which children possess undesirable traits. Research is available which has indicated that teachers—as well as peers—are able to identify and differentiate between socially accepted and socially rejected children (Gottlieb, Semmel, & Veldman, 1978). Yet Eaton, Bonney, and Gazda (1978) reported in their study that teachers were poor predictors of sociometric status, although they did make more accurate predictions of pupils with low status than of those with high status.

The majority of research, however, on peers' and teachers' ability to identify socially rejected children has focused on the rejected children's *current* sociometric status; far fewer studies have related peers' and teachers' perceptions to children's *future* sociometric status. The closest research in this area has been done by Cowen et al. (1973), who reported not only that early sociometric rejection was related to appearance on psychiatric registers during adulthood, but also that 8- and 9-year-old peers were better predictors than their teachers of later psychiatric difficulty. That peers were more accurate than teachers at identifying children who would have adjustment problems later in their lives is surprising in view of other data that indicated that teachers were more sensitive than children at identifying the reasons for children's current sociometric status (Gottlieb et al., 1978; Yellot, Liem, & Cowen, 1969). The present investigation was intended to replicate the study by Cowen et al. (1973) and to extend it by indicating specific behavioral domains in which teachers' and peers' perceptions predict current as well as future sociometric status. That is, it is not enough to indicate that teachers or peers are better predictors of the current and/or future status of children with low sociometric status. We wished to isolate teachers' and peers' perceptions of behavioral traits that may be associated with future sociometric status.

The second purpose of this research was to examine the stability of children's sociometric position over time. Although previous data indicate that sociometric status is relatively stable over time (Gronlund, 1959), little information is available on the degree to which children shift markedly in their sociometric positions. We were interested in the extent to which children who are initially popular become unpopular, and conversely, the extent to which children who are initially unpopular become popular.

Method

A: First Testing

Subjects

The sample for this investigation consisted of 762 children enrolled in 65 classrooms in two small midwestern towns. Children were about equally divided between high, average, and low sociometric pupils using the procedures indicated below. At the time of the first data collection in 1974, all subjects were enrolled in third through sixth grade classrooms in 12 different elementary schools. The vast majority of subjects were white and came from lower, upper lower, and lower middle-class families.

Instruments

Sociometric scale. A sociometric questionnaire was administered to about 1,900 students in 65 classrooms during the spring. On this questionnaire, students were asked to nominate three classmates with whom they would most and least like to sit, work, and play. The number of choices each class member received on the three positive questions and on the three negative questions tallied. These scores were then converted for each pupil into three indices:

- *a choice status* calculated as
$$\frac{\text{No. of persons choosing within the class}}{N\text{-}1} \times 100$$
- *a rejection status* calculated as
$$\frac{\text{No. of subjects rejecting within the class}}{N\text{-}1} \times 100$$
- *combined score*, i.e., choice minus rejection status.

On the basis of the combined score, 4 high status (popular), 4 medium status (average), and 4 low status (rejected) children in each of

the 65 classrooms were identified. In 6 classes, with smaller enrollment, 3 high, 3 medium, and 3 low status children were selected. High status children were those who received the highest combined scores, i.e., the most positive choices from their peers and the fewest negative choices. Low status pupils received the lowest combined score, i.e., the most negative choices and the fewest positive choices. Medium status children received combined scores approximately in the middle of the distribution.

Peer nomination test. In addition to completing a sociometric scale, every child in each of the 65 classes completed a peer nomination test that was adapted from Tryon (1939) and which has been used extensively by other investigators (Cunningham, Elzi, Hall, Farrell & Roberts, 1951; Sears & Sherman, 1964). The scale consisted of 13 pairs of bipolar adjectives. Each class member was asked to indicate the three class members who best fit each adjective. As an example, class members were asked to indicate three children who were *friendly* and three children who were *not friendly*. Other adjectives included popular, happy, shy, bossy, and so forth. Scoring for this instrument was the number of choices a child received to each positive adjective minus the number of choices he or she received to the opposite or negative member of the adjective pair.

The scores were then converted into percents by dividing the score each child received on each of the adjective pairs, into N − 1 (N = number of pupils in the classroom) and multiplying by 100. In this fashion a child received 13 scores (percents): his or her classmates' ratings of each pair of bipolar adjectives.

Teacher rating scale. Each of the 65 classroom teachers was asked to complete a 14-item Likert scale for each child in the class. Thirteen of the 14 items had the same content as those completed by the classmates on the peer nomination test. That is, teachers were asked to indicate independently the extent to which they agreed that a child was popular, friendly, bossy, and so forth, thus enabling us to determine the level of agreement between peer and teacher ratings. Scoring was done for each item on a five-point basis with the high score reflecting the item name. In the case of negative adjective traits, the scaling was reversed.

Self-ratings. All students in each of the 65 classrooms were asked to complete a questionnaire consisting of the same 13 pairs of adjectives as the ones on the Peer Nomination Test. This time, however, students were asked to indicate the extent to which they perceived themselves to be bossy, shy, friendly, and so forth. A student received a + 1 on a pair for friendly and a − 1 for not friendly. The total score on the questionnaire was the arithmetical summation of the positive and negative scores on all 13 pairs of adjectives.

B: Final Testing

Subjects

During the spring of 1979 a follow up of those pupils identified in the 1974 phase was conducted. With the cooperation of the two school districts an effort was made to locate the whereabouts of eight pupils in each of the 65 classes who were now enrolled in grades eight through eleven in six different junior high and high schools in the same two school districts. Of the eight children per class who were identified, four had been initially unpopular, two had been average in their popularity rating, and two had been popular.

Because of absenteeism, uncertainties about first and last names on tests, and movement out of the districts, data on the posttest sociometric test were now available for 136 children classified earlier as popular, for 108 children classified earlier as rejected, and 129 children classified earlier as average, making a total of 373 children from the total original group of 762 children (49%) and 73.4% of the 508 children who were identified for posttesting. A chi-square test indicated that there was no significant difference in subject attrition as a function of initial sociometric status (X^2 = 3.84).

Procedure

The sociometric instrument was the only one administered during the final testing. The instrument was similar to the one employed earlier. Subjects were asked to name three students in their grade level with whom they would like to sit and socialize and three with whom they would rather not sit and socialize. Approximately 250–300 children were enrolled in each of the grades.

Rather than identifying all the children who could be classified on the posttest as popular, average, or rejected, as had been done on the pretest, our focus now was on only those children for whom we had pretest data.

Results

Statistical Analysis

The analysis proceeded in two stages. First, in order to determine the nature of the relationships between the various rating scales and in-

itial sociometric status, a canonical correlation analysis was conducted with the 40 first testing ratings (14 teacher ratings, 13 self-ratings, and 13 peer ratings) comprising one set of variables, and first testing choice status and rejection status comprising the other set. Second, canonical correlation analyses were done using the first testing data as one set of variables and the final testing data as the second set in order to study the stability in the social position of the children during the five-year period between first and final testing.

First Testing

For the purposes of initially identifying subjects for inclusion, a single combined sociometric score was used, as defined previously. Subsequent analyses, however, utilized both the actual choice status and rejection status score. Thus, the canonical correlation analysis for the first testing data was based on 40 variables in Set A (all of the ratings) and 2 variables in Set B (choice and rejection status). Table 1 presents the results of this analysis that yielded two significant canonical correlations (p < .001). Each is discussed and interpreted separately.

Canonical correlation I (Table 1, left column). The first canonical correlation accounted for approximately 78% (i.e., Rc_I^2) the variance shared by the linear composites of the Set A and Set B variables. An examination of the standardized coefficients (not presented in the table) indicates that the composite of the rating scales is dominated by relatively few variables, while the two sociometric scores are about equally weighted on their composite. Because of the intercorrelations among the variables, however, substantive interpretation of the nature of the relationships can be made more meaningfully by examining the structure coefficients or loadings (i.e., the correlations of the original variables with the canonical variates). Looking first at the various rating scales, these reveal that 11 of the 13 peer ratings have meaningful loadings (> .40), the most important being popular, showing leadership, being tidy, friendly, fair, and full of fun. Of the teacher ratings, 9 of the 14 have meaningful loadings, although for the most part they are of a lower magnitude than the peer ratings. Teacher ratings of popularity, however, are one obvious exception. With the exception of self-rating of popularity, none of the self-ratings have meaningful loadings. It appears, therefore, that the nature of this composite can best be described as popularity and its correlates. The structure coefficients for the sociometric scores (the variables of Set B) indicate that both choice and rejection are highly meaningful and of about equal importance, although inversely.

Canonical correlation II (Table 1, middle column). The second canonical correlation accounts for approximately 17% (i.e., Rc_{II}^2) of the

Table 1—Canonical Analysis of Ratings with First and Final Sociometric Status

| | Structure Coefficients | | |
| | First Testing | | Final Testing |
	Canonical Correlation I	Canonical Correlation II	Canonical Correlation I
Teacher Ratings:			
Popularity	0.744	0.172	0.588
Friendliness	0.610	− 0.269	0.440
Leadership	0.542	0.363	0.386
Active in games	0.291	0.288	0.123
Helpfulness	0.587	− 0.021	0.419
Fairness	0.580	− 0.323	0.363
Happiness	0.490	− 0.136	0.391
Tidiness	0.547	− 0.091	0.455
Bossy	− 0.164	0.505	− 0.122
Talkative	− 0.115	0.433	− 0.096
Quarrelsome	− 0.428	0.526	− 0.379
Show off	− 0.306	0.521	− 0.475
Fighting	− 0.419	0.412	− 0.422
Shy	− 0.033	− 0.455	0.138
Self-ratings:			
Friendly	0.067	− 0.217	− 0.092
Not talkative	− 0.007	− 0.076	− 0.102
Leader	0.120	0.192	− 0.070
Not quarrelsome	− 0.012	− 0.060	− 0.027
Not bossy	0.045	− 0.180	− 0.073
Tidy	0.113	− 0.062	0.165
Doesn't fight	0.102	− 0.037	0.076
Not bashful	0.057	0.088	0.118
Popular	0.407	0.096	0.362
Not a show off	− 0.003	− 0.204	− 0.114
Fair in games	0.039	− 0.081	0.061
Full of fun	0.158	0.027	0.393
Active in games	0.183	0.331	0.133
Peer ratings:			
Friendly	0.779	− 0.235	0.693
Not talkative	0.279	− 0.595	0.216
Leader	0.872	0.146	0.637
Not quarrelsome	0.668	− 0.426	0.509
Not bossy	0.563	− 0.460	0.423
Tidy	0.848	− 0.057	0.681
Doesn't fight	0.602	− 0.415	0.492
Not bashful	0.135	0.548	0.117
Popular	0.938	− 0.034	0.721

(table continues)

Table 1—Canonical Analysis of Ratings with First and
Final Sociometric Status

| | Structure Coefficients | | |
| | First Testing | | Final Testing |
	Canonical Correlation I	Canonical Correlation II	Canonical Correlation I
Not a show off	0.506	– 0.441	0.451
Fair in games	0.773	– 0.222	0.583
Full of fun	0.709	0.305	0.569
Active in games	0.468	0.630	0.283
First Testing			
Choice status	0.876	0.482	0.597
Rejection status	– 0.880	0.475	– 0.651
Final Testing			
Choice status			0.736
Rejection status			– 0.715
N	731		359
Rd[a]	.603	.039	.147
Rc[b]	.885	.412	.527
Λ	.181	.831	.612
X^2	1213.002*	131.676*	164.960*
df	80	39	84

Note. First Testing: Set A = Teacher Ratings, Self-ratings, and Peer Ratings; Set B = first testing choice status and rejection status. Final Testing: Set A = first testing choice status, rejection status, Teacher Ratings, Self-ratings, and Peer Ratings; Set B = final testing choice status and rejection status.
*$p < .001$.
[a]Redundancy of Set A given Set B.
[b]Canonical correlation.

shared variance in the second pair of linear composites. Meaningful structure coefficients emerged for ratings that reflect more specifically the type of social interaction involved (e.g., bossiness, talkativeness), while both choice and rejection status are about equally important.

Since the sociometric scores can be viewed as criterion measures, the redundancy coefficients for Set B given Set A (i.e., the proportion of variance of Set B that is predictable from Set A) were calculated. The overall redundancy (the sum of the two separate ones) indicated that 64% of the variability in choice and rejection status can be predicted from the ratings, with the bulk of this (60%) attributable to the first canonical correlation.

Final Testing

Two separate analyses were conducted on the final testing data. In the first, the first testing sociometric scores (choice and rejection) served as the predictors, while the final testing sociometric scores constituted the criterion variables. The results of this analysis are presented in Table 2. Both canonical correlations (i.e., $Rc_I = .361$, $RC_{II} = .139$) are significant ($p < .01$), although only the first can be considered meaningful, accounting for 13% of the variance (i.e., $Rc_I^2 = .361^2 = .130$). The structure coefficients associated with the first canonical correlation indicate that the variables that are important in Set A and Set B are first testing choice status and final testing choice status, respectively. The redundancy coefficient is very low, indicating that only 7% of the final testing sociometric status is predictable from first testing sociometric status.

In order to investigate whether the inclusion of the first testing ratings improves predictability, an additional analysis was performed. The results of this analysis are presented in the right column of Table 1. Set A variables in this analysis consisted of the first testing ratings

Table 2—Canonical Analysis of First Testing Sociometric Status with
Final Testing Sociometric Status ($N = 371$, with incomplete statistical
analysis data on two subjects)

| | Structure Coefficients | |
	Canonical Correlation I	Canonical Correlation II
SET A: FIRST TESTING		
Choice Status	.887	– .461
Rejection Status	.134	.991
SET B: FINAL TESTING		
Choice Status	.989	.146
Rejection Status	– .206	.979
Rd[a]	.067	.009
Rc[b]	.361	.139
Λ	.853	.981
X^2	58.580*	7.139**
df	4	1

*$p < .001$.
**$p < .01$.
[a]Redundancy of Set B given Set A.
[b]Canonical Correlation.

and first testing sociometric scores, while Set B consisted of the final testing sociometric scores. Only the first canonical correlation (i.e., Rc_1 = .527) is significant (p < .001), with the first composite pair sharing 28% of the variance.

Although somewhat smaller in magnitude, the structure coefficients for the ratings (presented in Table 1, right column) reflect a pattern similar to those previously presented. Moreover, the coefficients for the first testing choice and rejection status are also meaningful. Once again, the loadings for final testing choice and rejection status are of about equal magnitude. Apparently, measures of initial popularity are related to follow-up status. The redundancy coefficient indicates that approximately 15% of the follow-up choice and rejection status is predictable from initial measures. This small percentage, nevertheless, is an improvement over the redundancy of .07 when only the first testing choice and rejection status were included as predictors.

Another way to investigate the relative stability of sociometric status is to inspect the patterns of change in status from first testing to final testing. This inspection has revealed that of the individuals initially classified as popular, 42.5% could be classified as popular on the follow up, 41% as average, and 16.5% as rejected. Of those initially classified as rejected, 53% could be classified as rejected on the final testing, 34.6% as average, and 11.5% as popular. The initially classified average group was more or less evenly divided on the follow up with 30.1% being popular, 33.3% being rejected, and 36.6% average. Thus, while shifts can be seen, for the most part they are to or from average status with few extreme shifts occurring.

Discussion

The results of this investigation reveal that the combination of peer, teacher, and self-ratings yields two composites, one dealing with a general measure of popularity and the second dealing with manifest social skills. Of the two composites, the former correlated more highly with traditional measures of sociometric status that are also measures of popularity. Interestingly, peers' ratings of traits correlated more highly than did teachers' ratings with sociometric status. These data contradict to some extent prior findings that teachers' ratings were better predictors than peers' ratings of sociometric status among children (Gottlieb et al., 1978; Yellot et al., 1969), but replicate those of Cowen et al. (1973). A major distinction between the research here and that of Gottlieb et al. (1978) was that in the prior investigation, teachers and classmates knew that the children they were rating had been classified by the schools as educable mentally retarded (EMR), and this fact may

have had some influence on the trait and sociometric ratings of the target children.

The importance of peers' and teachers' ratings can be estimated from the second set of analyses that were conducted on sociometric status five years later and its relation to initial trait ratings. A relatively small (7%) percentage of posttest variance in sociometric status was predictable from a knowledge of only first testing sociometric position. When trait ratings gathered during the first testing are added to the equation, a total of 15% of the variance in posttest sociometric status is predicted. This finding indicates that the sociometric status at the first testing, coupled with initial ratings, can account for a meaningful, albeit small, proportion of the variation in later sociometric status. Although these sociometric data were not especially stable over time, the fact is that they were collected in different school settings, elementary school and high school, and this difference may have contributed in part to the lack of stability of the sociometric scores.

The sociometric shifts that did occur were primarily from popular to average or from unpopular to average. There were relatively few extreme shifts in sociometric status; few initially unpopular children became popular five years later, and similarly few popular children became unpopular as adolescents. Thus, although the data indicate that sociometric final testing scores cannot be predicted very well from knowledge of their first testing scores alone, the shifts in sociometric position that did occur were not marked or extreme shifts. Because we were unable to administer the trait rating scales during final testing data collection we have no way of knowing whether the shifts in sociometric position that did occur coincided with corresponding changes in trait ratings by teachers and peers.

The importance of being liked during childhood, or at least not actively disliked, has important long-term implications for children's future life adjustment, as we illustrated earlier. Our data do not suggest that children who are initially unpopular are destined to remain that way. Furthermore, given the increasing amount of recent literature demonstrating the success of various techniques at achieving increases in children's sociometric status (e.g., Ballard, Corman, Gottlieb, & Kaufman, 1977; Leyser & Gottlieb, 1980), there is an increased likelihood that over time some of these techniques will find their way into the elementary school curriculum, enabling unpopular children to increase their sociometric position within their peer group. To the best of our knowledge, the students in our sample were not involved in any systematic intervention that was designed to improve their sociometric status. The significant relationships we observed among ratings of

traits associated with social skills provide additional support for this approach to improving children's being liked by their peers, a sizable literature for which has already appeared (Gresham, 1981).

A final point for consideration is the serendipitous finding that all children (N = 8) who were sent to special education classes during the interval between pre- and posttesting were from the group that was initially rejected. Although this is not an especially surprising finding, given that special education youngsters often occupy inferior positions in the peer-group hierarchy, these are the only data of which we are aware that identified the sociometric status of children in naturally occurring circumstances prior to their entry into special education. The issue of who gets referred to special education is an increasingly important one as the special education rolls swell while the regular education rolls decline. School systems are actively searching for criteria on which to make a determination that a child requires special education. Possibly, one factor that should receive more attention than it has to date is the extent to which the child is actively rejected by the peer group.

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