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ABSTRACT

The purposes of this study were to learn about: (1) ways of identifying children not accepted by their peers, (2) the behavioral correlates of peer acceptance, and (3) strategies of teaching social skills to isolated children. Sociometric assessment, behavioral observations, and teacher and peer interviews were obtained in eight 3rd-, 4th-, and 5th-grade classrooms. Within each classroom, three isolated children were selected. One child was instructed in social skills, using a standardized coaching procedure; another child received a more individualized version of coaching based upon the child's style of relating to peers; and the third child received no coaching. Results from the assessment phase of the experiment indicated that scores from a 1-5 rating scale, by means of which children rated each of their classmates, correlated highly with both a positive peer nomination measure and a negative peer nomination measure. This suggests that the rating scale method may be a way of identifying rejected, as well as accepted, children without focusing on negative evaluation of peers. Data on behavioral correlates of peer acceptance were contrary to expectations. Behavioral observations in the classroom revealed no significant differences between children receiving high versus low sociometric ratings. Results from the intervention phase of the experiment suggest that individualized coaching is more effective than the standardized coaching procedure. (Author/BF)

ASSESSMENT AND TRAINING OF ISOLATED CHILDREN'S SOCIAL SKILLS[1]

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Much of the research on children's friendships and peer relations has used sociometric measures. The sociometric methodology has excellent psychometric properties. First, children's sociometric scores are highly reliable even over a two-or three-year period (Busk, Ford, & Schulman, 1973; Roff, Sells, & Golden, 1972). In fact, Bonney (1943) found that scores received on a sociometric measure are as stable as scores received on achievement tests. Second, children's sociometric status appears to predict later social adjustment. Low sociometric status is related to a number of problems in later life including mental health problems (Cowen, Pederson, Babigian, Izzo, & Trost, 1973), conduct discharges from military service (Roff, 1961), dropping out of school (Ullman, 1957), and juvenile delinquency (Roff, Sells, & Golden, 1972).

The peer nomination sociometric has been used in the majority of studies on children's peer relations (e.g., Hartup, Glazer, & Charlesworth, 1967; Gottman, in press, a, b; Gronlund, 1959; Moreno, 1934; Roff, Sells, & Golden, 1972). In the nomination sociometric a child names a specified number of peers according to some sociometric criterion such as friends, seating companions, play companions, etc. A child's score consists of the number of nominations received from peers. Using a peer nomination technique, Gronlund (1959) found that about 6% of third through sixth grade children had no friends in their classrooms. Another 12% had only one friend. One of the purposes of the present study is to update Gronlund's findings by determining the number of children who are identified as socially isolated using a more recent sample of children and a variety of different sociometric measures.

Although Moreno (1934), the originator of the sociometric technique, favored the use of positive sociometric criteria (e.g., name three classmates you especially like), the peer nomination technique has also been used with negative criteria (e.g., name three classmates you don't like very much). Originally the positive and

negative choice sociometrics were thought to be unidimensional--that low scores on one meant high scores on the other. Such an inverse relationship would be indicated by a highly negative correlation between the two scores. However, research has consistently found this not to be the case. Positive and negative nomination scores are only moderately negatively related (Moore & Updegraff, 1964; Roff, Sells, & Golden, 1972) or not related at all (Hartup, Glazer, & Charlesworth, 1967). Thus a number of researchers have concluded that the two different types of sociometric criteria yield different types of information and identify different types of children (McClelland & Ratliff, 1947; Moore, 1973; Moore & Updegraff, 1964; Roff, Sells, & Golden, 1972).

These findings point out the problem of interpreting the social status of children at the lower end of the popularity continuum. Of the children who receive few or no positive nominations from peers some are, at the same time, rejected by peers (children who also receive a large number of negative peer nominations) and others are neglected or ignored by peers (receiving few or no negative peer nominations). Thus, in order to differentiate between these two subgroups of low accepted children, both positive and negative sociometric criteria must be used (Moore & Updegraff, 1964).

One problem with this position, however, is the ethical question of whether or not to use negative sociometric questions. Roff, Sells, & Golden (1972) discuss the problem of using negative choice sociometric questions in that "many people of all ages resist making derogatory or even mildly negative statements about their fellows" (p. 14). Similarly, Moore (1973) has pointed out that "this procedure contradicts the adults' usual disposition to discourage children from making rejecting statements about their companions"(p.3). Many researchers, however, have weighed these disadvantages against the above mentioned advantage of using negative sociometric choices and have chosen to include negative criteria in their sociometric assessments.

The roster and rating sociometric questionnaire is an alternative sociometric methodology which has been used in recent studies of peer relations. Originally developed for use with junior and senior high school students by Roistacher (1974), the rating scale sociometric has been adapted for use with elementary school children by Singleton and Asher (1976) and by Oden and Asher (in press). Children are provided with an alphabetized list of all their classmates in which each name is followed by the numbers one through five. Children circle the number which best describes how much they like to play with (or work with) each classmate at school. A rating of five indicates that they "like to alot" and a rating of one indicates that they "don't like to." A child's score consists of the average rating received from peers.

This rating scale technique has the advantage of each child being rated by all of his or her classmates, thus providing an indication of the child's acceptance by all of the group members. It also has the advantage of including both positive and negative sociometric criteria in a single measure. Because children can rate classmates anywhere along the scale, this sociometric method does not force children to choose peers according to negative criteria, thus eliminating to some degree the ethical problems described in using negative nomination sociometrics. The rating scale may, therefore, provide an alternative technique to positive and negative nomination sociometrics for identifying socially isolated children. The present research focuses on this possibility by examining the relationship between scores on the rating scale sociometric and on positive as well as negative nomination sociometrics.

Finally, in terms of sociometric assessment procedures, the present research focuses on the test-retest reliability of the various sociometric measures. A few studies have compared the reliability of positive and negative nomination measures and have found that positive nomination scores are more reliable than negative nomination

scores (Hartup, Glazer, & Charlesworth, 1967; Roff, Sells, & Golden, 1972). One study (Oden & Asher, in press) has presented data on the relative stability of rating scale versus positive nomination measures. The median correlation over 11 different classrooms for a "play with" rating scale sociometric was .82, and for a friendship nomination sociometric was .69, suggesting that the rating scale sociometric may be a somewhat more reliable sociometric. Previous studies have not, however, compared all three measures with the same sample of children. This comparison was made in the present study.

Another objective of the present research was to learn more about the effectiveness of various intervention strategies designed to increase peer acceptance of socially isolated children. A number of different techniques have been used to successfully increase children's social interactions and/or peer acceptance, including shaping procedures (e.g., Allen, Hart, Buell, Harris, & Wolf, 1964). Peer pairing procedures (e.g., Chennault, 1947), and modeling procedures (e.g., O'Connor, 1969, 1972).

In a recent study by Oden and Asher (in press) a coaching technique was used to successfully increase the peer acceptance of socially isolated children. The coaching procedure, based on work with adults by McFall and Twentyman (1973), contains three components: (1) the verbal transmission of strategies or rules of behavior, (2) opportunities for practice of those strategies, and (3) review of the strategies after the practice session. Socially isolated third and fourth grade children were assigned to one of three conditions: coaching, peer pairing, or control. Children in each of the conditions participated in six different sessions with six different partners over a period of about 4 weeks. Children in the coaching condition were "coached" on four social skills: participation, cooperation, communication, and validation-support. These skills were selected because they were found in previous research to correspond to social behaviors which correlated highly with peer acceptance (e.g., Asher, Oden, & Gottman, 1977; Hartup, 1970).

A peer pairing condition was employed to control for the effects of simply being paired with a more accepted peer for participation in a special activity (e.g., Chennault, 1967; Rucker & Vincenzo, 1970). Like the coached children, children in the peer pairing condition participated in six game sessions with the same six partners but they received no instructions or review from the coach at any time. Finally, a control group of children participated in six game sessions with the same six classmates. These children did not interact; they played solitary games. Control children received no coaching at any time.

Posttest sociometric results indicated that children who were coached made significant gains on a "play with" rating scale sociometric. Furthermore, follow-up sociometric measures obtained 1 year later indicated that coached children continued to improve in sociometric ratings while peer pairing and control children did not show such gains. Replication of this study is needed to further investigate the usefulness of the coaching procedure.

The present study compared a general coaching procedure which places equal emphasis on the four concepts with an individualized coaching procedure based on extensive pretraining assessment of the particular skill deficits of each isolated child. Assessment of individual problems was based on four different sources of information: sociometric ratings, behavioral observations, interviews with teachers, and interviews with peers. In addition to an individualized coaching condition and a general coaching condition, a peer pairing condition was also employed as a control for possible effects of simply being paired for play sessions with a more popular peer. It was hypothesized that the individualized coaching procedure would be more effective than a general coaching procedure in increasing children's peer acceptance. In addition, both individualized and general coaching procedures were expected to result in greater gains in peer acceptance than the peer pairing condition.

METHOD

Subjects

Third, fourth, and fifth grade children (N=205) in eight different classrooms in Champaign-Urbana, Illinois, participated in the sociometric assessment phase of the study. On the basis of sociometric results, 24 low accepted children (11 females, 13 males) were selected for participation in the intervention phase.

Sociometric Assessment

Three different sociometric measures were used in this phase of the study to assess children's sociometric status within their classrooms. The measures were a positive choice peer nomination sociometric, a negative choice peer nomination sociometric, and a rating scale sociometric questionnaire.

For the positive peer nomination sociometric, each child was given a list of all their classmates, in alphabetical order, and asked to circle the names of three children whom they "especially like at school." The children were provided with a class roster in order to avoid the possibility that a child would not be nominated because he or she was temporarily forgotten. A child's score on this measure consisted of the number of nominations received from same-sex peers. Only same-sex nominations were used since previous research has shown that children of this age group typically give low ratings to opposite-sex peers (Criswell, 1939; Singleton & Asher, 1976).

For the negative choice peer nomination sociometric, each child was given a list of all their classmates, in alphabetical order, and asked to circle the names of three children whom they "don't like very much at school." A child's score consisted of the number of nominations received from same-sex peers.

For the rating scale sociometric, children were asked to give ratings to each classmate on a 1 to 5 scale in answer to the question, "How much do you like to play with this person at school?". A rating of 1 indicated that the child did not like to play with that classmate very much; a rating of 5 indicated that the child liked to play with that classmate a lot. Children were provided with an alphabetized list of their classmates on which each name was followed by the numbers 1, 2, 3, 4, and 5. Children were asked to circle the number which best described how much they liked to "play with that person at school." Prior to completion of the play ratings, the children were taught how to use the scale. To help children remember the meanings of the numbers on the scale, a series of five faces were provided, corresponding to each point on the scale. The faces ranged in expression from a frown (corresponding to a rating of 1) to a broad smile (corresponding to a rating of 5). A child's score on the play rating consisted of the average rating received from same-sex peers.

All three sociometric measures were administered in each classroom individually by an adult male experimenter who said he was interested in how children get along together at school. Children were assured that their individual ratings would be kept confidential.

Identification of Low Accepted Children

In each classroom, three children who were low in sociometric status were selected for participation in the intervention phase of the study. Selection was based on two criteria: (1) that the children received one of the three lowest average ratings from same-sex peers on the play rating, and (2) that the children received one or no nominations from same-sex peers on the positive choice nomination sociometric.

The three lowest rated childen in each classroom were randomly assigned to one of three intervention conditions: individualized

coaching, general coaching, or peer pairing. To ensure that children in the three intervention conditions were of similar sociometric status, children were assigned such that each condition contained no more than three children rated lowest, three children rated next to lowest, or three children rated third lowest.

Intervention Conditions

Prior to the first intervention session, the experimenter (first author) was introduced in each classroom by the teacher as someone who would ask children to try out some games. All 24 low status children participated in six different game sessions over a period of about 4 to 5 weeks. As much as was possible, given absenteeism and special school events, children participated in two sessions per week on 2 nonconsecutive days. Each session involved playing a game for about 10 minutes with an average status classmate of the same sex as the low accepted child.

For all 24 children, regardless of condition, the first game session involved just playing the game. Beginning with the second session, the intervention procedures were begun. They differed depending on the experimental condition to which each child had been assigned.

Standardized coaching. Children in the standardized coaching condition received coaching on four social skill concepts: participation, cooperation, communication, and validation-support. Prior to the second game session the coach instructed the child on each of the four general concepts using the following steps in sequence: (1) the coach proposed that the concept is important in helping make games fun, (2) the coach asked the child what the concept means and/or helped the child understand what the concept means, (3) the coach probed the child's understanding of the concept by asking for specific behavioral examples of the concept with respect to the game

played in the previous session (the coach provided an example if the child could not), (4) the child was asked for specific behavioral examples of opposite types of behavior (e.g., not participating), (5) the child was asked to evaluate how important the concept is for making the game fun to play, (6) the coach asked the child to try out the ideas in the game session to follow, and (7) the coach asked the child to restate each concept, and restated the concepts which the child could not remember. The coach then told the child that they would talk more about the ideas after the game session.

The child was then given an opportunity to practice the ideas in a 10 minute game session with a peer partner. The child played a different game with a different peer partner each session. After the game session was completed and the peer partner had returned to the classroom, the coach reviewed the game session and the concepts with the target child. The coach asked whether the child had gotten a chance to try out each concept and whether it had helped make the game fun. The child was then asked if he/she would like to talk more and try out another game the next time the coach came. All children responded positively each time.

In the last two or three sessions, the coach focused on concepts the child had problems remembering. However, all four concepts were reviewed each time and each of the four concepts was given equal emphasis to the extent possible. Once the child appeared to have mastered all four concepts, the coach focused on how these same concepts might be used in the classroom. Again, behavioral examples of opposite behaviors were requested. The child was then asked to try out the ideas in the classroom to see if they would help make class activities more fun.

Individualized coaching. Children in this condition received coaching based on individual assessment of each child's peer relation difficulties. Information on each child came from four major sources: negative sociometric scores (whether the child was "neglected" or

"rejected"), behavioral observations (to be described) and structured interviews with teachers and with peers concerning specific behaviors displayed by each child in peer interaction.

In general, individualized coaching followed the same procedures as the general coaching. The major difference between the two was that once the child learned the four general concepts (in about the third or fourth session), the coach began to focus on concepts which the assessment data had shown to be particularly relevant for that child. For instance, for a relatively nonverbal child emphasis would be placed on the concept of communication and the importance of talking with others when children play together. For a highly aggressive child the focus would be on cooperation, with discussion of such things as alternatives to fighting for solving problems. As in the general coaching, focus was shifted from game sessions to applying principles to classroom activities during the last two or three sessions. Again, however, the discussion centered on behaviors particularly problematic for the child as determined by assessment data.

Peer pairing condition. Children in this condition participated in six game sessions, playing a different game with a different peer partner in each session. The children were asked how they liked the games but received no coaching before or after the game sessions.

Behavioral Observations

Behavioral observations of children during regular classroom activities were obtained before and after the intervention. Observations obtained prior to the intervention were used to assess possible problems of low accepted children. Pre- and postintervention observations were compared in order to learn whether or not children's behavior changed as a result of intervention. Two groups of children were observed in each classroom: the three low status

children and a comparison group consisting of the two most popular children (one male, one female). These popular children had received the highest average play rating from same-sex peers in their classrooms.

Behavioral observations were conducted by six paid undergraduates who were unaware of the purposes of the observations and the types of children who were being observed. Each of the five children in each classroom was observed for a total of 20 minutes both before and after intervention. Five minutes of observations were obtained on each of four regular school days. Observers recorded the duration of time each child was engaged in the following behaviors: (1) alone, (2) observing, but not interacting with peers, (3) interacting with teacher, (4) interacting with peers. To gain more information about the types of peer interaction behaviors displayed, frequencies of the following behaviors were recorded during the periods of time in which the child was engaged in peer interaction: (1) cooperative behavior, (2) showing affection, (3) noncompliance behaviors, (4) derogation, and (5) attack.

Interrater reliability was obtained by pairing two of the six observers at random on one of the 4 days of observation. Reliability was calculated separately for the duration and frequency measures. The reliability formula was: agreements/agreements plus disagreements. For the preintervention observations, reliability for the duration measures averaged 75.8%, ranging from 72% to 79% between different pairs of observers. For the frequency measures, reliability averaged 85%, ranging from 75% to 91% between different pairs of observers. For the postintervention observations, reliability for the duration measures averaged 79.5%, ranging from 71% to 89% for the different pairs of observers. For the frequency measures, reliability averaged 85%, ranging from 71% to 100%.

Posttraining Assessment

Two weeks after the completion of the interventions, the positive peer nomination, the negative peer nomination, and the play rating sociometric were again administered in each of the eight classrooms by the same person who administered the pretest sociometrics.

Follow-Up Assessment

Long-term follow-up sociometric assessment of the children who participated in the intervention phase of the study was made about 7 months after intervention had been completed. At the time of follow-up, 21 of the original 24 children remained in the school district. Of these, eight were from the individualized coaching condition, six from the general coaching condition, and seven from the peer pairing condition. The three sociometric measures were administered by a male experimenter who was previously unconnected with the project and who did not know which children had been involved in the interventions.

RESULTS

Sociometric Assessment

A frequency count of the number of children receiving various numbers of positive nominations at the first sociometric testing is presented in Table 1. About 11% of the children received no nominations as "especially liked" from same-sex peers, and another 22% received only one nomination. These percentages are quite similar to those reported by Gronlund (1959). The slightly higher percentages in the present study can be accounted for by the fact that children were limited to three peer nominations. In the Gronlund study, children could nominate five of their peers.

TABLE 1

Distribution of Positive Peer Nominations

Number of Possible Nominations	Number of Children Receiving this Number	Percent of Total Sample (N = 205)
0	23	11%
1	44	22%
2	48	23%
3	34	17%
4	23	11%
5	11	5%
6	10	5%
7	8	4%
8	2	1%
9	1	0.5%
10	1	0.5%

The use of both positive and negative sociometric criteria can be used to discriminate between neglected and rejected children. Of the 23 children who received no positive nominations from same-sex peers, 11 also received no negative nominations from peers (Table 2). These children can be classified as neglected; they are neither liked nor disliked. Seven of the 23 children received two or more negative nominations. These children can be classified as rejected; they are not accepted by peers and are also openly rejected. A less strict criteria of receiving one or no positive nominations from peers would classify 67 of the 205 children as low accepted. Of these, 40

TABLE 2

Number of Children Classified by
Positive and Negative Nomination Scores
(N = 205)

Number of Negative Choices Received from Same-Sex Peers	Number of Positive Choices Received from Same-Sex Peers: 0	1	2 or more
0	11	15	82
1	5	9	39
2 or more	7	20	17

received one or no negative peer nominations and could be classified as neglected. Another 27, who received two or more negative nominations, could be classified as rejected by peers.

Table 3 presents the classification of children on the basis of both the positive choice peer nominations and the play rating sociometric. Eleven children who received no positive nominations from peers actually received rather favorable play ratings (ratings above 3.00). Although these children are not chosen as "especially liked" by peers, they are, in fact rated fairly highly. Use of only the positive peer nomination sociometric as a means of identifying socially isolated children would classify these children as socially isolated when, according to the play ratings, the children are seen favorably by same-sex peers. Similarly, if only play ratings are used to identify socially isolated children (e.g., a criteria of a play rating of 3.00 or less) then 12 children would be identified as socially isolated who, in fact, receive positive nominations from

TABLE 3

Number of Children Classified
by Positive Nomination and Play Rating Scores

		Number of Positive Nominations Received from Same-Sex Peers		
		0	1	2 or more
Average Play Rating Received from Same-Sex Peers	between 1.00 and 2.00	3	2	0
	between 2.01 and 3.00	9	20	12
	between 3.01 and 4.00	10	19	68
	between 4.01 and 5.00	1	3	58

two or more same-sex peers. Thus, use of multiple sociometric measures is necessary to accurately identify children who are socially isolated in their classrooms. When both play ratings (a score of 3.00 or less) and positive nominations (receiving one or no nominations) are used as criteria for identifying socially isolated children, 34 children, or 17%, are identified as socially isolated.

Classification of children using all three sociometric measures is presented in Table 4. As shown in the table, inclusion of peer ratings is particularly important for accurate identification of isolated children. Rejected children tend to receive fairly low play ratings. Of the seven children who received no positive and two or more negative nominations, only one child received an average play rating above 3.00. However, neglected children are found to receive either low or fairly high play ratings. Of the 11 children

TABLE 4

Number of Children Classified by Positive Nomination, Negative Nomination, and Play Rating Scores

		Number of Positive Nominations								
		0			1			2 or more		
		Number of Negative Nominations			Number of Negative Nominations			Number of Negative Nominations		
		0	1	2 or more	0	1	2 or more	0	1	2 or more
Average Play Rating	between 1.00 and 2.00	1	0	2	0	0	2	0	0	0
	between 2.01 and 3.00	5	0	4	3	4	13	2	3	7
	between 3.01 and 4.00	4	5	1	9	5	5	33	25	10
	between 4.01 and 5.00	1	0	0	3	0	0	47	11	0

who received no positive and no negative nominations, six received play ratings below 3.00, but five received play ratings above 3.00. In fact, one neglected child received a play rating above 4.00. Thus, only six of the 11 negelected children would be classified as socially isolated using a criterion of a play rating below 3.00. The peer rating sociometric, then, provides for a more accurate means of classifying socially isolated children, removing from that classification children who receive favorable peer ratings, but receive no positive nominations.

Correlational analyses were performed to learn how the various measures interrelated. As in previous research (e.g., Hartup, Glazer, & Charlesworth, 1967; Roff, Sells, & Golden, 1972), only a moderate negative correlation was found between sociometric scores, $r(203) = -.28$, $p < .01$. The average play rating sociometric, however, was found to be significantly related to the positive nominations, $r(203) = .63$, $p < .01$, and significantly and negatively related to the negative peer nominations, $r(203) = .63$, $p < .01$. This finding suggests that the rating scale sociometric provides information similar to that obtained by the positive and negative nomination sociometric without forcing children to choose peers according to negative criteria.

The stability of the three sociometric scores was examined by correlating scores received at the first and second times of testing. These two times were separated by a 4-month interval. These correlations are presented in Table 5, for each classroom and for the total sample. The sample size is somewhat reduced (N=188) due to children moving between testing dates. In general, scores were fairly stable over the 4-month interval. The median correlations for the positive nomination, negative nomination, and play ratings were .72, .49, and .77, respectively. This tendency for the play rating to be somewhat more reliable than the positive nomination scores replicates an earlier finding (Oden & Asher, in press). The greater stability of positive nomination data compared to negative nomination data also

TABLE 5

Correlations for Positive Nomination, Negative Nomination, and Play Rating Scores Between Two Times of Testing by Classroom and All Classrooms Combined

Classroom	Positive Nominations	Negative Nominations	Play Ratings
1 n = 18	.70*	.30	.60*
2 n = 24	.52*	.23	.72*
3 n = 24	.66*	.77*	.82*
4 n = 22	.53*	.66*	.76*
5 n = 25	.74*	.60*	.90*
6 n = 21	.84*	.69*	.86*
7 n = 33	.83*	.37**	.72*
8 n = 21	.80*	.33	.77*
All Classrooms Combined n = 188	.72*	.48*	.75*

* $p < .01$

** $p < .05$

replicates earlier findings (Hartup, Glazer, & Charlesworth, 1967; Roff, Sells, & Golden, 1972).

Effects of Intervention on Sociometric Status

The next set of analyses tested for changes in sociometric status as a result of the various training conditions. The first analysis is based on sociometric measures obtained for the 21

children participating in the intervention phase of the study who were available at follow-up testing. Between posttesting and follow-up, children had progressed in grade level, and classroom groups did not remain the same. Thus, the isolated children from the original sample were rated at follow-up by peers who were not their classmates at pretest and posttest. These changes could affect sociometric ratings in a number of ways. Since the children are rated by different peers at follow-up, children in the different classes may have used the rating scale differently. Also, children from each of the three conditions were no longer equally represented in each classroom.

Therefore, for each time of testing, nomination scores and play ratings received by the 21 isolated children were converted to Z scores ($Z=X - \bar{X}/SD$). These scores provided information on isolated children's relative peer status in their classrooms at each time of testing. A 3 (Condition) X 3 (Time) analysis of variance was performed on these Z scores for each of the three sociometric measures. A source table for these analyses is presented in Table 6. For each measure the main effect of time was significant, with children regressing toward the class means over time. This finding is similar to the effect obtained in the Oden and Asher (in press) work. More important are potential effects of condition and condition X time. As seen in Table 6 neither of these effects were significant for any of the three measures. Thus, in contrast to earlier findings, coaching does not appear to have been more effective than peer pairing alone.

One focus of this study was on the effect of individualization of the coaching procedure. Even though evidence for individualization effects are not demonstrated in the overall results, an analysis of individual changes in sociometric scores was made. Analyses of change in play ratings received for each isolated child were made using a method presented by Gottman, Gonso, and Schuler (1975). Each peer rating received by each child is treated as a single observation.

TABLE 6

Analysis of Variance for Each of the Sociometric Measures

Positive Peer Nominations			
Source	df	MS	F
Between subjects:			
Condition	2	1.623	1.029
Error	18	1.578	
Within subjects:			
Time	2	6.159	3.643*
Condition X Time	4	1.370	.810
Residual	36	1.691	

Negative Peer Nominations			
Source	df	MS	F
Between subjects:			
Condition	2	5.921	.982
Error	18	6.027	
Within subjects:			
Time	2	12.444	4.924*
Condition X Time	4	.864	.342
Residual	36	2.527	

Play Ratings			
Source	df	MS	F
Between subjects:			
Condition	2	1.224	2.142
Error	18	.571	
Within subjects:			
Time	2	1.273	5.660*
Condition X Time	4	.215	.955
Residual	36	.225	

* $p < .05$

Comparison of these individual ratings from pre- to posttesting, using a one way analysis of variance, provides an indication of change in play ratings over time for each child. This analysis was not possible with follow-up ratings because the peers providing ratings had changed from pretest to follow-up. Thus, individual analyses are based only on pre- to posttest ratings.

As seen in Table 7, no child in either the general couching condition or in the peer pairing condition showed any significant changes in play ratings received, nor any trends approaching significance. In the individualized coaching condition one child decreased significantly and one child improved significantly. Two other children improved to a degree that approached significance. These individual data suggest that any changes as a result of intervention were found in the individualized coaching condition.

Behavioral Observations

A one way analysis of variance was performed on pretest observations to learn whether isolated and popular children initially differed in their behavior. No significant differences between isolated and popular children were found on any of the behavioral measures. Another one way analysis of variance was performed to learn whether neglected and rejected children differed in observed behavior. The sample size for this analysis was small; only six of the 24 children could be classified as neglected and 18 as rejected. No significant differences were found between neglected and rejected children on any of the behavioral measures.

In order to learn whether children in each of the three intervention conditions changed in observed behavior from pre- to posttest observations, a 3 (Condition) X 2 (Time) analysis of variance was performed on each of the behavioral measures. No significant main effects or interactions were found for any of the behavioral measures.

TABLE 7

Individual Analyses for Play Ratings Received from Same-Sex Peers at Pre- and Posttest for the Three Intervention Conditions

Individualized Coaching Condition					
Subject	Grade	Average Play Rating Received		df	F
		Pre	Post		
1	3	2.20	3.40	(1,18)	3.600**
2	3	2.25	3.44	(1,30)	5.554*
3	4	2.50	2.31	(1,25)	.124
4	4	1.50	1.55	(1,21)	.011
5	4	3.33	4.08	(1,22)	2.902***
6	4	2.62	1.79	(1,25)	2.942**
7	5	2.92	2.67	(1,22)	.220
8	5	2.13	1.88	(1,14)	.093
General Coaching Condition					
Subject	Grade	Average Play Rating Received		df	F
		Pre	Post		
1	3	2.45	2.80	(1,19)	.256
2	3	2.13	2.12	(1,30)	.008
3	4	2.55	1.86	(1,16)	1.844
4	4	2.54	1.83	(1,23)	1.254
5	4	1.80	2.00	(1,16)	.072
6	4	2.00	1.50	(1,16)	.790
7	5	2.75	2.75	(1,22)	.000
8	5	2.88	2.86	(1,13)	.005
Peer Pairing Condition					
Subject	Grade	Average Play Rating Received		df	F
		Pre	Post		
1	3	1.92	1.90	(1,20)	.008
2	3	2.80	3.59	(1,30)	1.641
3	4	2.79	2.23	(1,25)	1.276
4	4	2.69	2.42	(1,23)	.166
5	4	3.11	2.00	(1,16)	2.410
6	4	2.42	2.62	(1,23)	.118
7	5	2.75	3.08	(1,22)	.311
8	5	2.75	3.57	(1,13)	.758

* $p < .05$
** $p < .10$
*** $p < .11$

The behavioral observation data thus showed no effects of training on observed behavior across condition or time.

DISCUSSION

The present study updates Gronlund's (1959) findings on the proportions of children who are socially isolated in their classrooms. Considering the fact that early social isolation is predictive of later adjustment problems (e.g., Cowen et al., 1973; Roff et al., 1972), the finding that 11% of the children in this sample lack friends in their classrooms points to the need for developing strategies for helping these children learn to interact more effectively with peers.

Results of the study also provide information on procedures for identifying socially isolated children. First, the data indicate that multiple sociometric criteria are needed. Much of the previous research has relied on positive and negative nomination scores as criteria for identification of socially isolated children. The results of the present study point out the importance of including peer ratings in order to accurately identify socially isolated children. Ideally, all three types of sociometric criteria are needed. However, as pointed out previously, there are ethical problems associated with the use of negative nominations.

Can sufficient information be obtained by using only positive nominations and peer ratings? We think that there are two important elements in defining a socially isolated child. One is that the child lacks friends and the other is that the child is not generally accepted by peers. A socially isolated child can be distinguished from two other types of children. One is a child who lacks friends but is generally well liked; another is a child who is generally disliked but, in fact, has friends. The combined use of positive nomination and rating scale measures provides a basis for discriminating among these different types of children. The number of positive nominations a child receives reflects, we believe, the number

of friends a child has. The average rating score seems to provide an overall index of the child's acceptability or likeability. In the present study and in future research, we plan to use both these types of measures for selecting isolated children. It seems that work in this area can proceed without relying upon negative nomination measures.

One interesting finding that replicates earlier research is the greater stability of positive than negative nominations. Perhaps a child gives negative nominations to those peers who have recently been aversive, irritating in some way, or who perhaps did something that hurt the child's feelings. The particular "offenders" may vary somewhat from day to day, decreasing the reliability of the measure. Positive nominations, however, may reflect long term relationships (i.e., friendships) and as such be less affected by day-to-day events.

The stability of the play rating measure also replicates earlier findings. This measure is probably so stable because each child's score is the average of ratings received from all same-sex peers. Fluctuations in the ratings given by one classmate to a child will have little effect on a child's score since that rating is only one of perhaps 10 to 15 other ratings.

The observation system used in the present study was an attempt to combine both duration and frequency measures in a single coding system. Observations were made over a number of days and for substantial periods of time for each child. Interrater reliability was rather high. It is interesting, therefore, that behavioral observations did not differentiate between isolated and popular children. Oden and Asher (in press) also reported no differences between observed behaviors of isolated and popular children observed during initial game sessions with peers. These game sessions were part of the intervention procedure and were designed to optimize positive peer interaction. Thus, one possible explanation for the Oden and Asher findings was that the observations did not provide a

typical picture of peer interaction. In the present study, behavioral observations were conducted in the classroom during regular class activities in an attempt to obtain a picture of the interaction behaviors of isolated and popular children under classroom conditions. Even so, no differences were found.

These results are surprising in light of other research which has reported significant relationships between observed behavior and sociometric status (e.g., Gottman, Gonso, & Rasmussen, 1975; Hartup, Glazer, & Charlesworth, 1967; Marshall & McCandless, 1957a, b; McGuire, 1973; Moore & Updegraff, 1964). One possible explanation for the findings in the present study is that a more complex observational system including a greater variety of positive behaviors may be needed to detect these differences.

Finally, sociometric assessment of children at posttest and follow-up indicated no overall differences in sociometric status as a result of the different intervention procedures. Thus, the present study failed to replicate the findings of Oden and Asher (in press) on the effectiveness of the coaching intervention procedure. One possible explanation is the differences in the ages of children included in the two studies. The present study included children in the third, fourth, and fifth grades while only third and fourth grade children were included in the Oden and Asher study. As can be seen in the individual analyses presented in Table 7, children in the fifth grade showed no changes in sociometric status in any of the conditions. The one child who showed significant gains in sociometric status was in the third grade, and the two children who showed some increase in peer acceptance were in the third and fourth grade.

It may be that the coaching technique is more effective with younger children. Some supportive data for this notion comes from four second grade children who were coached by the first author in piloting the individualized coaching procedure. Three of these children made substantial gains in sociometric status and the other child remained the same.

There are a few reasons why younger children might be more affected by coaching. One possibility is that because the peer group is less stable at this age (Horrocks & Buker, 1951), it is easier for a child to gain acceptance from classmates. Further research is being carried out to test the effects of social skill training at different ages. A study in progress with third through sixth grade children will provide additional information.

FOOTNOTE

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A detailed description of the coaching procedure is available from Shelley Hymel, Department of Educational Psychology, 210 Education Building, University of Illinois, Urbana, Illinois 61801.

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