Toward a Definition of Social Isolation in Children

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GOTTMAN, JOHN M. *Toward a Definition of Social Isolation in Children.* CHILD DEVELOPMENT, 1977, **48**, 513–517. There are 2 separate definitions of social isolation in existing literature, 1 based on low frequencies of peer interaction and 1 based on low levels of peer acceptance using sociometric measures. 113 children in 8 Head Start classrooms were assessed using sociometric measures of acceptance and rejection and observational measures of behavior when alone, when interacting with peers, and when interacting with the teachers. There was no relationship between peer acceptance and the relative frequency of peer interaction, suggesting that these 2 measures of social isolation do not tap the same dimension. A direct cluster rotation analysis resulted in 5 orthogonal clusters of children which defined 5 pure types. These types were: (1) sociometric stars, (2) sociometric rejectees, (3) children who had highly negative interactions with the teacher, (4) children who interacted frequently with peers, and (5) children who were frequently "tuned out" or off task when alone. Of these 5 groups, the tuned-out children also had the lowest means on peer acceptance and were high on a set of shy, anxious, and fearful behaviors coded "hovering." This group seems to best fit the construct of the shy, socially anxious child who also is neither accepted nor rejected, but rather is ignored by peers.

The purpose of this paper is to construct a classification system for describing socially isolated children. There has been a great deal of recent interest in socially isolated children, but an important issue of definition needs to be resolved. Some investigators have conceptualized the problem of isolation as "social withdrawal," defined as low relative frequencies of peer interaction (e.g., O'Connor 1969, 1972). Other investigators have conceptualized isolation as low levels of peer acceptance or high levels of peer rejection, using sociometric measures (e.g., Gottman, Gonso, & Rasmussen 1975).

It is unclear whether social isolation is a unitary construct. The two definitions have produced entirely separate literatures on intervention with social isolates. Efforts to increase the relative frequency of peer interaction with "withdrawn" children have been promising (O'Connor 1972; Evers & Schwarz 1973). Unfortunately, investigators who have studied low frequencies of peer interaction have failed initially to assess whether a low frequency of peer interaction is a problem which should, in fact, be ameliorated. It is not obvious that children should all interact with one another at a specified rate or that children whose relative frequencies are well below average are somehow at psychiatric risk.

On the other hand, there are data to suggest that children who are rejected or not accepted by their peers are at risk and that sociometric measures are predictive of later social functioning (Cowen, Pederson, Babigian, Izzo, & Trost 1973; Roff, Sells, & Golden 1972). However, despite the potential importance of modifying a child's sociometric status, intervention effects on sociometric status have shown that initial effects are ephemeral upon followup longer than 2 weeks after postassessment (Asher, Oden, & Gottman, in press).

Unfortunately, none of the investigators who have studied modeling effects has used sociometric measures as part of the evaluation of the intervention. These investigators have also tended to assume that low peer interaction rates are equivalent to being "with-

drawn," by which they presume that these children are socially anxious, fearful, or socially unskillful and that these children would like to, but are actually unable to, make friends with peers.

There is probably some proportion of low-peer-interaction children who are in fact anxious to make friends but not sure how to go about the task. However, we currently know very little about the behavior of low-peer-interaction children. Coding systems used by O'Connor and his associates have coded the frequency of the interaction but not its quality. The present investigation was designed to classify children by using both sociometric measures of peer acceptance and rejection and naturalistic observations of both the frequency and quality of peer interaction. Also, since the concept of a "withdrawn" child brings to mind a cluster of shy and fearful social behaviors, a second coding system was designed. This coding system was based on a set of behaviors that McGrew (1972) found to be characteristic of new children entering a nursery school. The behaviors of McGrew's new children were called "hovering" in the present investigation.

Method

Subjects
    One hundred thirteen preschool children from eight Head Start classrooms in Bloomington, Indiana, participated in the study. Subjects ranged in age from 3 to 5 years; there were 56 males and 57 females in the study.

Procedures
    Observations.—Two separate coding systems were used by two separate sets of observers. One system measured the frequency and quality of peer interaction, and the other system measured the frequency of shy behaviors called hovering in the present investigation.

    1. One coding system provided information about the child's peer interaction as well as interaction with the teacher, and time spent alone, either on task or off task (see Gottman et al. 1975). Four coders used this observation category system. Clipboards with a 6-sec auditory click and light-emitting diode (for reliability checking) were used. Coders were undergraduate psychology students who were trained with a manual and two videotapes designed to teach coders to use this system. Following the Thomson, Holmberg, and Baer

(1974) sequential time sampling procedure, a child was located, observed for 10 6-sec intervals, and then the next child on the list was located. After one sheet of observations was obtained (1 min for each child), observers returned to the top of the list to continue to observe children for a total of 8 min per child. Observers returned to observe children who were absent. The categories were: (*a*) alone and on task, (*b*) alone and off task (daydreaming, staring out into space, tuned out), (*c*) initiating interaction with teacher, (*d*) teacher interaction positive, (*e*) teacher interaction negative, (*f*) teacher interaction neutral, (*g*) peer interaction positive, (*h*) peer interaction negative, (*i*) peer interaction neutral. For the peer interaction codes, the same behavioral descriptions of the codes were followed as outlined by Hartup, Glazer, and Charlesworth (1967), with the addition that whispering was coded as neutral interaction.

Following Reid (1970), an independent observer made random spot reliability checks. Reliability, calculated as the agreement to agreement-plus-disagreement ratio, was maintained at a minimum of 85% and averaged 90% over all codes. Variables computed from the coded data were: (*a*) the relative frequency of peer interaction, (*b*) the proportion of time alone that was "tuned out," (*c*) the proportion of teacher interaction that was negative, and (*d*) the proportion of peer interaction that was negative. Reliabilities for the four variables derived from this coding system were calculated separately as the correlations between observers for each of the four variables. These reliabilities were as follows: (*a*) relative frequency of peer interaction, .96; (*b*) the proportion of time alone that was tuned out, .93; (*c*) the proportion of teacher interaction that was negative, .90; and (*d*) the proportion of peer interaction that was negative, .94.

    2. The Hartup et al. (1967) procedure was followed. Anecdotal observations were made by three observers in each classroom, or 24 observers in all. Observers were graduate and undergraduate psychology students. Following Charlesworth and Hartup (1967), the observer recorded the following information: "The child's name and the names of the other children and adults engaged in the same activity or in parallel activity; the activity in which the child was engaged; a detailed running account of the child's behavior and the behavior of any child with whom he interacted" (p. 995). Approximately 12 3-min segments were

recorded for each child. Observers watched a child for 3 min, recorded the information above, and then returned to observe the same child for a total of approximately 36 min. The written anecdotal accounts were then combined into episodes. An episode was an account in which the activity and the children engaged in the activity did not change. The 24 observers using this coding system were able to observe 99 of the 113 children. There were a total of 600 episodes recorded, or 6.06 per child; because the number of episodes ranged between one and 16, it was necessary to use a cutoff criterion of five or more episodes to have confidence in the stability of the observations. Sixty-two children were retained for analysis on this variable. The coders tallied the number of episodes in which an anecdotal description involved behaviors characterized by "hovering." The proportion of episodes tallied was the variable used to assess hovering. Hovering was created from the following categories of McGrew (1972):

1. Face: Pout, sad face, cry, eyes dart about, wide eyes, blink, eyes closed.
2. Head: Chew lips, gaze fixated, stare, grind teeth, weep, yawn, chin in.
3. Gestures: Automanipulate, digit suck, hold hands out, point, reach.
4. Leg, posture, and gross motor: Shuffle, sway, hover at a distance, arms akimbo, fall, trip, flinch, lean back, shrug, crouch, immobile.
5. Locomotion: Step back, be chased, flee, crawl, sidle.
6. Voice: Whine, talk like baby, complain.

The total number of hovering incidents was calculated for each subject. Intercoder agreement calculated as agreement to agreement-plus-disagreement ratio was .93 for hovering.

All observations were made in mid-November to mid-December. Children had been together for 10 weeks.

Sociometric measures.—The picture sociometric procedures used by Hartup et al. (1967) were employed in this study. Pictures of each child were made with a Polaroid camera and mounted on index cards on a board in random order, with the order shifted after every interview. The subject was asked to correctly name each child, to give three positive choices ("Now I want you to look over the pictures and find someone you especially like at school—remember, someone you especially like"), and to give three negative choices ("Now I want you to find someone you don't like very much at school—remember, someone you don't like very much"). The sociometric measures were obtained by a team of five assistants who were not observers. The total number of children who picked a child was the acceptance score and the total number who rejected a child was the rejection score.[1] Teachers were not informed of either the sociometric or the observational data.

Results and Discussion

The six variables for the linear typal analysis were acceptance and rejection, the relative frequency of peer interaction, the proportion of peer interaction that was negative, the proportion of teacher interaction that was negative, and the proportion of alone time that was tuned out. Table 1 presents the intercorrelation of these six variables. The moderate negative correlation between acceptance and rejection is typical in research with sociometric measures (e.g., see Roff et al. 1972). There is no relationship between the relative frequency of peer interaction and acceptance. Hence, the children selected by modeling studies (O'Connor 1969, 1972) who are low on peer interaction are not equivalent to children who would be selected as low in peer acceptance. The two definitions of social isolation may be tapping two fundamentally different constructs. The significant relationship between rejection and negative peer interaction is consistent with the findings in one of two classrooms studied by Hartup et al. (1967). The correlation obtained between a child's being tuned out when alone and rejection by peers was positive. There are peer sanctions for this behavior. However, the cor-

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[1]Hartup et al. (1967) used an ad hoc weighting of their sociometric data. First choices were given a weight of 5, second choices a weight of 3, and third choices a weight of 1. This procedure was not followed in the present investigation for two reasons. First, predictive validity has been established only for unweighted sociometric data (for example, Roff et al. 1972). Second, the correlations between weighted and unweighted acceptance scores in the present study ranged from .66 to .94 with a mean of .86; for rejection the correlations ranged between .47 and .94 with a mean of .74. The weighted data would therefore have contributed little new information, and they require the assumption that the child's first acceptance choice is the better friend and that the first rejection choice the greater enemy. Since this is not part of the sociometric instructions, it seems an unwarranted assumption.

TABLE 1

CORRELATION MATRIX FOR THE SIX VARIABLES

Variables	1	2	3	4	5	6
1. Acceptance.............	...					
2. Rejection...............	−.31**	...				
3. Peer interaction.........	−.17	.33***	...			
4. Peer negative...........	.06	.30**	.28**	...		
5. Teacher negative........	−.08	−.02	−.09	.00	...	
6. Tuned out.............	−.01	.21*	.01	.15	−.28**	...

* $p < .05$.
** $p < .01$.
*** $p < .001$.

relation of tuned out and teacher negative was negative. This behavior thus avoids teacher sanctions but is related to peer sanctions. The more a child interacts with peers, the greater the proportion of peer interaction that is negative, and the greater the child's rejection by peers.

Table 2 presents the results of a linear typal analysis. The algorithm used is direct cluster rotation (Overall & Klett 1972, pp. 207–211).[2] The analysis identified five types. Type 1 is disruptive to the teacher. Type 2 has been called a sociometric "star" (Gronlund 1959), namely, a child high on peer acceptance and low on peer rejection. Type 3 has also been identified as a sociometric "rejectee" (Gronlund 1959), namely, a child high on rejection and low on acceptance. Note that the

star is far less negative to the teacher than the rejectee, but not less negative to peers. Type 4 has a profile elevation on tuned out. Type 5 has a profile elevation on peer interaction.

Types 1 and 4 are below the median for the total sample (3.0 acceptances and 3.0 rejections received) and would be classified as "neglectees" in the literature on sociometry in classrooms. The coding results on the hovering variable may provide further description of these two neglectee types. Table 3 presents the means of hovering for the five types of the 62 children who had anecdotal records of more than four episodes; those children were selected from the five clusters whose B-matrix loading was .70 or greater. The B-matrix "contains a distinct set of weighting coefficients $b_1, b_2, \ldots, b_r$ that specify the relative contributions of the r pure types to each of the n individuals" (Overall & Klett 1972, p.

TABLE 2

PROFILES OF CLASSIFICATION ANALYSIS CALCULATED AS MEANS FOR EACH CLUSTER

	PURE TYPE PROFILE				
	1	2	3	4	5
VARIABLE	Teacher Negative	Star	Rejectee	Tuned Out	Mixer
Acceptance.	2.86	4.52[a]	1.77	2.22	2.78
Rejection...	1.83	2.08	4.63[a]	2.95	3.07
Peer interaction......	0.10	0.07	0.12	0.15	0.36[a]
Peer negative......	0.09	0.13	0.09	0.14	0.19
Teacher negative.....	0.89[a]	0.25	0.61	0.18	0.22
Tuned out..	0.02	0.07	0.03	0.25[a]	0.06

[a] Profile elevations.

TABLE 3

PERCENTAGES OF HOVERING FOR THE FIVE TYPES (TYPES ARE NAMED USING PROFILE ELEVATIONS; SD IN PARENTHESES)

Type	Hovering Percentage	N
1. Teacher negative........	27.33	6
	(15.59)	
2. Star....................	11.17	6
	(12.72)	
3. Rejectee................	20.25	8
	(18.45)	
4. Tuned out..............	27.00	4
	(34.13)	
5. Mixer..................	22.75	8
	(9.41)	

[2]Data were analyzed by John E. Overall using a computer program written in the Psychometric Laboratory at the Department of Psychiatry, the University of Texas Medical Branch, Galveston, Texas 77550. This program used a subroutine called QMULT, which is similar to DMULT in Overall & Klett (1972, p. 171).

221). Thus, only the 32 children whose classification was clearly in a particular cluster were included in this analysis. A univariate analysis of variance resulted in $F(4,35) = 3.52, p < .05$. Using the pooled mean square error term from the analysis of variance to perform unplanned comparisons, there were three levels of hovering: the stars ($\bar{x} = 11.17$) are distinctly lower than the rejectees and mixers ($\bar{x} = 21.50$), who are lower than the tuned-out and teacher-negative types ($\bar{x} = 27.17$). There are thus two groups of children who would be classified as sociometrically neglected by peers (types 1 and 4) who are higher than other groups of children on hovering (types 3 and 5), who in turn are higher than the sociometric stars. The tuned-out child (type 4) was significantly less accepted by peers than the teacher-negative (type 1) child, $t(44) = 3.27, p < .01$.

To summarize, this paper presented a classification of children using behavioral observations and sociometric data. Five types of children were identified. There was no relationship between acceptance and peer interaction, and the five clusters provided no support for describing a low-frequency peer interaction as a withdrawn child. The two literatures on social isolation are not describing the same types of children. There were, however, two groups of unaccepted children high on the relative frequency of hovering, a behavioral dimension that seems to be logically related to the concept of social withdrawal. The least accepted neglectee (type 4) was also high on hovering behaviors. There may be something very distinct about the tuned-out, unaccepted, hovering child, and it may be important to obtain a more detailed description of this child's behavior.

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