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## Social Ecology of Supervised Communal Facilities for Mentally Disabled Adults: II. Predictors of Affiliation

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At the time of publication, author Daniel Romer was affiliated with the University of Illinois-Chicago Circle. Currently, he is the Research Director at the Institute for Adolescent Risk Communication at the Annenberg Public Policy Center, University of Pennsylvania.

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## Social Ecology of Supervised Communal Facilities for Mentally Disabled Adults: II. Predictors of Affiliation

### Abstract

The behavior of 304 mentally disabled adults was observed in five settings (one residence, four sheltered workshops) during periods when they were free to affiliate with peers. Regression analyses using settings, personal traits (age, sex, IQ, and diagnosis), and mediating variables (e.g., physical attractiveness, desire for affiliation, and length of institutionalization) were conducted to predict various aspects of affiliative behavior. Settings accounted 16 to 63 percent of the predictable variation independent of personal and mediating variables. Although older and mentally ill clients affiliated less extensively, neither degree of retardation, length of previous institutionalization, use of medication, or other physical disabilities appeared to affect affiliation independent of other variables. In general, clients who were physically attractive desired affiliation, and had intelligent peers in their programs affiliated more extensively and intensively with peers. In total, the findings indicate that the variables most predictive of affiliation in the present community settings were also the ones most amenable to personal or environmental change.

### Disciplines

Communication | Social and Behavioral Sciences

### Comments

At the time of publication, author Daniel Romer was affiliated with the University of Illinois-Chicago Circle. Currently, he is the Research Director at the Institute for Adolescent Risk Communication at the Annenberg Public Policy Center, University of Pennsylvania.

# Social Ecology of Supervised Communal Facilities for Mentally Disabled Adults: II. Predictors of Affiliation

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The behavior of 304 mentally disabled adults was observed in five settings (one residence, four sheltered workshops) during periods when they were free to affiliate with peers. Regression analyses using settings, personal traits (age, sex, IQ, and diagnosis), and mediating variables (e.g., physical attractiveness, desire for affiliation, and length of institutionalization) were conducted to predict various aspects of affiliative behavior. Settings accounted for 16 to 63 percent of the predictable variation independent of personal and mediating variables. Although older and mentally ill clients affiliated less extensively, neither degree of retardation, length of previous institutionalization, use of medication, or other physical disabilities appeared to affect affiliation independent of other variables. In general, clients who were physically attractive, desired affiliation, and had intelligent peers in their programs affiliated more extensively and intensively with peers. In total, the findings indicate that the variables most predictive of affiliation in the present community settings were also the ones most amenable to personal or environmental change.

This paper is the second in a series concerned with the affiliative behavior of mentally disabled adults in community-based sheltered-care settings. Although life in the larger community implies greater independence and self-sufficiency, friendship and affiliation between handicapped people probably continues as an important aspect in their lives (Berkson & Romer, 1980). In a previous paper, we described the methods and preliminary findings in our study of naturally occurring affiliation among mentally disabled adults. In the present paper our purpose is to report in more depth the characteristics and predictors of the social affiliation that we observed.

Research on the determinants of human sociability and affiliation has typically been focused on personal traits such as sex (cf. Maccoby & Jacklin, 1974), age (Ekerdt, Rose, Bossé, & Costa, 1976), and level of retardation (Landesman-Dwyer, Berkson, & Romer, 1979). With the exception of

Landesman-Dwyer et al., these researchers have viewed affiliative behavior as a trait (e.g., sociability) that is invariant across social contexts. The ecological approach to social behavior (e.g., Barker & Gump, 1964) suggests an additional assumption, that affiliation is also dependent upon the social environment in which individuals are located. Landesman-Dwyer et al. found support for this assumption when they observed that affiliation is more strongly predicted by the size of an individual's group home and other characteristics of the residents in the home than by personal traits (sex, age, and intelligence). One purpose of the present research, therefore, was to extend the investigation of personal traits for predicting affiliation and to determine the relative importance of these traits in relation to the social context. This was done by observing individuals in one of five settings (four workshops and one residence) with some persons observed in both their workshop and residence.

## *Trait Predictors of Sociability*

In a field where stereotypes abound, there is perhaps none stronger than the one

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that women are more sociable and have a higher need for affiliation than do men (Maccoby & Jacklin, 1974). Although some research with nondisabled adults supports the stereotype (Latané & Bidwell, 1977), Maccoby and Jacklin, in their review of research with nondisabled children, noted that considerable evidence contradicts the hypothesis. A second stereotype, that older adults are less sociable than are younger ones, has been less heavily researched. Nevertheless, consistent with Newgarten's (1977) disengagement hypothesis, Ekerdt et al. (1976) found that nondisabled adults saw themselves as less likely to socialize the older they were. In testing these stereotypes, no systematic observations of either nondisabled or mentally retarded adults have been performed. We were interested, therefore, in determining the validity of these stereotypes with our present sample and methods.

What little evidence we have on the relation between level of retardation and affiliation suggests that intelligence is only weakly related to sociability (Landesman-Dwyer et al., 1979; Romer & Berkson, 1979). With the exception of profoundly retarded people, nearly equal sociability has been observed. In community settings for handicapped individuals, there are many clients of both average and below average intelligence who are diagnosed as mentally ill. Since this type of handicap might be associated with lowered sociability, the relation between intelligence and sociability might be reduced. It was important, therefore, to control for this variable in testing for the social correlates of intelligence.

#### *Mediators of Sociability*

In addition to the previously discussed personal traits, we also studied variables that might mediate relations between these traits and sociability. In particular, research with normal adults suggests that individuals differ in desire for affiliation (Edwards, 1954; Mehrabian & Ksionzky, 1974; Murray, 1938). To measure this desire, we administered a nonverbal preference inven-

tory for social activity. Another variable considered to be important in social behavior is physical attractiveness. Research with normal children and adults indicates that attractiveness is a source of social status (cf. Berscheid & Walster, 1974) that by implication should be associated with greater affiliation. We measured attractiveness by asking staff members to rate clients along this dimension; although staff judgments may not coincide with client perceptions, they do provide information about culturally defined attractiveness.

In handicapped populations, older clients are likely to have been institutionalized prior to community placement. Although institutionalization effects are varied (Zigler & Balla, 1977), this earlier experience might continue to affect affiliation in the community. Any relations between personal traits and sociability might also be mediated by other disabilities (e.g., communication handicaps) or by medications that clients frequently receive. Finally, length of attendance or residence in a setting should mediate affiliation. Exposure to others is an important source of attraction that could be sufficient in and of itself to produce affiliation (Harrison, 1977; Zajonc, 1971).

#### *Dimensions of Affiliation*

Previous research with mentally retarded adults (Landesman-Dwyer et al., 1979; Romer & Berkson, 1979) has revealed two independent dimensions of affiliation: the first, called *extensity*, refers to the number of different groups a person affiliates with, and the second, called *intensity*, refers to the amount of time (or proportion of observations) a person spends in any particular group. Extensity corresponds to the tendency to spend time with many different people, the characteristic most often associated with sociability. Intensity, however, corresponds to the tendency to form more intimate and close relationships with particular people, the characteristic most often associated with intimacy. We anticipated that the same factors would appear in the present studies and that predictors of affiliation might differ depending upon the di-

mension studied. In addition to extensity and intensity, we analyzed the tendency to be seen in aggregate with others while engaged in the same behavior but not actively in communication with them. We thought that this characteristic ("aggregation") could be an additional type of social behavior with its own correlates.

Finally, we interviewed as many clients as possible concerning their friendship choices and asked staff members to name friendships that they were aware of. These more traditional sociometric measures served as additional indices of sociability and affiliation.

### Method

#### *Subjects and Settings*

The present analyses are based on the same sample of 315 clients described by Berkson and Romer (1980). Nearly all clients (95 percent) were served by a single agency that provided sheltered-workshop training and programs at four separate facilities. A large number of these clients (81) also resided in a single intermediate-care living facility that was within walking or commuting distance of the various workshops. Observations were performed in all four workshops and in the residence.

Most of the clients were diagnosed as mentally retarded (67 percent) or mentally retarded with mental illness (14 percent). Eleven clients who were not diagnosed as mentally disabled were not included in the present analyses. Since some clients were observed in both their home and work setting (one subject was observed in two workshops), the total number of cases in the present analyses was 386. Sixty-six percent of these clients were male; their mean IQ was 58 (standard deviation [*SD*] = 23), and their mean age, 41 years (*SD*) = 13).

#### *Affiliation Indices*

Clients were observed during lunch (30 minutes) and breaks (15 minutes) at the workshops and during meals and free time in the residence (a complete description of the observation procedure is contained in

Berkson & Romer, 1980). Clients were observed an average of 106 times, which included an average of 94 observations of behavior and 12 absences from the setting. Each client's affiliative behavior was summarized in terms of the frequency (or proportion of observations) of occurrence of various kinds of behavior. For present purposes, the most important of these frequencies was the proportion of observations that a client spent in a particular group. This measure defined the intensity of the group. The number of groups a client was seen in for at least 3 percent of the observations measured the extensity of that client's affiliation.

Use of this 3 percent criterion ensured that a subject was seen in a group more than once or twice and thereby excluded encounters that could have occurred by chance. Since most of the observed groups were dyadic, this measure was virtually identical to the number of people a client was seen with ( $r = .97$ ). The average size of these nonchance groups served as a second indicator of extensity. A subject's overall intensity of affiliation was measured by the average intensity of the subject's nonchance groups and the intensity of the subject's most frequent group.

We also included several global measures that reflected (a) a subject's tendency to affiliate (percentage of observations involving affiliation), (b) the ways in which this affiliation was distributed over differently sized groups (proportion of observations alone and in dyads, triads, quartets, or larger sized groups), (c) the tendency to initiate affiliation (proportion of types of affiliative behavior that were initiated by a subject), (d) and the average and *SD* of the distance to the closest person. We expected these variables to correlate with one or both of the extensity and intensity factors.

To measure "aggregation," we decomposed the types of nonaffiliative behavior into those involving close proximity to others who were involved in the same activity (e.g., watching TV, eating) vs. complete solitude. The proportion of nonaffiliative behavior performed in aggregate served as the measure of aggregation.

### *Sociometric Questionnaires*

As many clients as possible were interviewed (74 percent). Clients who were deaf, had unrecognizable speech, or did not wish to be interviewed were not interviewed. These clients were somewhat less intelligent (IQ = 54 vs. 59), more likely to be mentally ill (17 vs. 12 percent), and male (80 vs. 62 percent) than those who were interviewed. The interview consisted of several questions concerning the people clients liked to spend time with and whom they regarded as close friends. The critical items for the present report were "whom do you like to talk to" (in the setting) and "who is your best friend," "next best friend," etc. The number of unique individuals who were named in response to these questions and who were present in the workshop or home setting served as the measure of client sociability.

Staff members in the workshop and residence completed a questionnaire in which they were asked to list (for every client they knew) the names of other clients with whom they were known to interact. In addition, the staff members were asked to rate each friendship pair along a 5-point scale, where 1 indicated that the pair were "definitely not friends" and 5 that the pair were "definitely friends." The number of people listed whose average rating, over staff members, was greater than or equal to 3.5 served as the measure of sociability perceived by staff members.

### *Attractiveness Ratings*

Ratings of physical attractiveness were obtained in two workshop settings (WI and WE) for a total of 176 clients. Four or five staff members and observers in each setting were asked to rate "each client as if (they) were seeing him/her for the first time (for example, walking down the street)." They were also asked to make their judgments disregarding their "knowledge of the client's disability." Ratings were made using an 8-point scale ranging from 1 ("very unattractive") to 8 ("very attractive").

Factor analyses of these judgments revealed that from 62 to 69 percent of the variation in each workshop was attributable

to a single dimension, and so subsequent analyses were based on the mean rating over staff members.

### *Desire for Affiliation*

Many researchers have postulated a need or desire for affiliation by normal populations (e.g., Murray, 1938; Mehrabian & Ksionzky, 1974). We were interested, therefore, to determine whether a similar motive existed for our mentally disabled sample. Because many clients could not complete the typical personality inventories that measure this motive, we constructed a scale more appropriate for this population. The Social Self-Concept Scale is composed of 10 line drawings showing an adult male or female (depending upon the client's sex) in various situations. The situations vary in their degree of social involvement from a person sleeping or watching TV alone to a person talking to friends or attending a party. All possible pairs of the situations ( $n = 45$ ) are presented to subjects, individually, and they are asked to choose the activity they would prefer to engage in (e.g., what would you rather do: watch TV or have lots of friends?). Preferences for the various activities are determined by totaling the number of times each activity is chosen.

Nearly all clients (80 percent) completed the scale without difficulty. A heterogeneous subsample of 15 clients was retested a week later to provide reliability information. A factor analysis and varimax rotation revealed three interpretable factors accounting for approximately 40 percent of the total variation. The first factor reflected a desire to "help other people" and to "have lots of friends" vs. a distaste for "watching TV" and "eating alone." The second factor was highly similar except that on this dimension, clients most preferred to "go to parties and dances" and least preferred to "do things alone." The third factor reflected various preferences among nonsocial activities and for having "other people help me." This factor seemed to have little bearing on sociability.

Although the first two factors were orthogonal, the factor scores were highly correlated ( $r = .60$ ); therefore, we used the

scores from the first factor to measure the desire for affiliation and to predict the various affiliation tendencies. Scores from this factor were found to be highly stable by the test-retest measure of reliability ( $r = .89$ ).

### *Other Client Characteristics*

A number of client characteristics were obtained from the Agency's files. In particular, medications that the client received were noted, as were important physical disabilities, length of time the client had spent in institutions prior to community placement, and the amount of time the client had been in the present workshop or residential setting. These pieces of information were recorded directly as they appeared in the files and were summarized later by computer analysis. Medications were later grouped into nine categories (anticonvulsants, antipsychotics, antidepressants, lithium carbonate, minor tranquilizers, medications to control side effects of antipsychotics, sleeping medications, stimulants, and other medications such as vitamins or laxatives.) The most frequent medications were antipsychotics (30 percent) and other medications (26 percent), but 25 percent of the sample were known to receive no medication whatsoever.

Physical disabilities were divided into six categories: motor (7 percent), visual (6 percent), auditory communication (9 percent), cosmetic (6 percent), seizure (7 percent), and other defects (2 percent). When clients had one of the disabilities or received medications, they received a score of 1 in the appropriate category, otherwise their scores were 0.

Approximately 60 percent of the sample had been institutionalized for an average of 17 years. Fifteen clients had entered institutions for brief but unknown periods and were scored as having no institution time; however, to distinguish them from clients who had never been institutionalized, we scored noninstitutionalized clients as having a time score of -1.

Tenure in the present workshop or home setting was calculated in months. Because exposure to new settings is often related logarithmically to affective and social re-

sponses (Harrison, 1977; Zajonc, 1971), we took the log (base 10) of the time measure plus 1 as the index of tenure in the setting. Clients had spent an average of 23 months in their settings at the time of observations.

### **Results**

Means and *SDs* of the various behavioral indices are shown in Table 1. A principal axis factor analysis followed by varimax rotation (of factors with eigenvalues greater than 1.0) produced the three factors in Table 1. The first factor, which contains loadings from percentage of affiliation, number of groups, and average group size, corresponds to the extensiveness of affiliation. It is noteworthy that the tendency to affiliate in larger sized groups (triads and quartets) loaded almost as heavily as did the tendency to affiliate in dyads. The large loading from the initiation variable indicates that persons who were seen in many groups tended to initiate rather than receive affiliation.

The second factor, which contains loadings from both average and highest intensity, represents the intensity of affiliation. Unlike extensity, dyads were the only group size to load on this factor, and the zero loading of the initiation variable suggests that persons were no more likely to initiate than to receive intense affiliation. It is encouraging that the number of observations performed on subjects did not correlate with either intensity or extensity and, therefore, that variation in these tendencies was independent of subject observability.

Although the intensity and extensity factors replicated the findings of our earlier research (Landesman-Dwyer et al., 1979; Romer & Berkson, 1979), additional measures (distance and aggregation) formed a third factor independent of the other two. This factor represents the tendency of clients to aggregate with others at close range even though they were not actively affiliating at the time. It contains a moderate loading (.40) from number of observations, suggesting that subject observability was related to this tendency. Further analysis indicated that, in fact, clients observed in their residence had, on the aver-

TABLE 1  
MEANS, SDs, AND VARIMAX ROTATED FACTOR MATRIX OF AFFILIATION INDICES

Variable	Extensity	Intensity	Aggregation	Mean	SD
General affiliation (%)	.90	.35	.20	39	23
Time alone (%)	-.90	-.37	-.19	55	26
Time dyads (%)	.71	.49	.14	32	18
Time triads (%)	.79	.15	.22	9	8
Time quartets (%)	.65	.00	.19	4	5
Number of groups	.82	.12	.09	2.6	2.4
Average size of groups	.61	.40	.06	1.8	.4
Average intensity (%)	.15	.93	.12	5.7	6.3
Largest intensity (%)	.38	.80	.17	9.1	9.7
Distance (mean)	-.38	-.26	-.79	3.1	1.4
Distance (SD)	-.19	-.10	-.87	2.7	1.7
Initiation (%)	.41	.07	.02	82	15
Aggregation (%)	.15	.10	.57	81	16
Number of observations	-.03	-.01	.40	106	29
% of total variance	28	16	15	—	—

age, fewer absences and were less likely to aggregate than clients who were observed in their workshops. Although this bias deserves mention, the distortion that it might produce does not seem to be serious.

### Predicting Affiliation

In conducting the analyses, we selected the variables that loaded most heavily on each of the respective factors and that best represented the dimension measured. We were interested to see whether the five settings in which clients were observed differed in the affiliative dimensions. As seen in Table 2, the facilities differed in terms of percentage of affiliation (extensity), average intensity (intensity), and average distance (aggregation) ( $F_s = 22.10, 3.23, \text{ and } 44.62$ , respectively,  $4/377 \text{ dfs}$ ,  $ps < .01$ ). It is

TABLE 2  
MEAN AFFILIATION SCORES ACROSS SETTINGS

Setting	Extensity	Intensity	Aggregation
Workshop			
WA	37.51	5.12	4.57
WI	29.13	4.67	2.45
WH	44.18	6.42	3.12
WE	53.54	7.54	2.14
Residence	29.48	4.88	3.52

Note. Extensity = percentage affiliation, intensity = average intensity of groups, and aggregation = average distance of closest person.

not clear, of course, whether these differences were an artifact of differential placement of more sociable people in certain settings or of effects that settings have either in interaction with or independent of personal traits; therefore, four kinds of predictors of affiliation were considered: (a) personal traits (sex, age, intelligence, and diagnosis), (b) context variables that correspond to the settings in which clients were observed, (c) interactions between personal traits and contexts, and (d) variables that might mediate the prediction of the personal traits (e.g., physical attractiveness).

Table 3 shows the intercorrelations of the various personal traits and mediating variables with each other and the three dimensions of affiliation. In the case of medications and physical disabilities, we only included variables that were correlated at all with any dimension of affiliation. For medications, use of antipsychotic drugs was the only potential mediator that was included. We were surprised to find no significant correlates of affiliation for the physical disabilities; however, we included communication disabilities because they seemed to be most germane to affiliation and were marginally related to intensity ( $r = .08$ ). All of the variables—with the exception of communication disabilities, time in the setting, and use of antipsychotic drugs—correlated significantly with all three dimensions of affiliation. Because the pre-



TABLE 3  
CORRELATION MATRIX OF AFFILIATIVE BEHAVIOR AND PERSONAL AND MEDIATING VARIABLES

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Extensity													
2. Intensity	.48	—											
3. Aggregation	-.58	-.37	—										
4. Sex	.17	.09	-.20	—									
5. IQ	.24	-.09	-.20	.06	—								
6. Age	-.40	-.18	.39	-.08	-.15	—							
7. Diagnosis	-.37	-.13	.26	-.02	.27	.24	—						
8. Attractiveness	.12	.14	-.09	-.13	.24	-.18	.11	—					
9. Sociability desire	.35	.22	-.29	.15	.32	-.15	-.15	.06	—				
10. Time	.04	.03	-.09	.01	-.22	.15	-.13	-.17	-.07	—			
11. Disability	-.04	.08	.03	-.05	-.13	.03	-.09	-.04	-.06	-.06	—		
12. Institution	-.27	-.12	.31	-.19	-.38	.49	-.03	-.08	-.37	.11	.22	—	
13. Medication	-.23	-.11	.09	.04	.05	.21	.46	.04	-.12	-.06	-.03	.05	—

dictors were intercorrelated, however, regression analyses were needed to determine the ones that truly predicted affiliation independently of other variables. In performing these analyses, we entered the predictors sequentially so that changes in prediction could be noted; personal traits were entered first, followed by context variables, and their interactions with traits, and then mediating variables.

*Extensity.* The results of the analyses for percentage of affiliation presented in Table 4 indicate that personal traits alone account for 34 percent of the variation. Although each of the predictors was significant, the results may be misleading because the analysis at this stage ignores the contribution of context and other mediating variables that might be confounded with the trait predictors. The second stage of analysis, incorporating context predictors, produced a large increase in prediction (12 percent); however, sex as an individual characteristic was no longer significant. Apparently, sex was a predictor only because more females were seen in more sociable settings. The settings that seem to account for this finding were Workshops WA, WH, and WE, each of which had more extensive affiliation than average. A striking feature of this analysis is the relative absence of Trait  $\times$  Context interactions. Only IQ in setting WI appeared to predict extensity differently from other settings. Actually, in that setting, IQ was slightly negatively related to extensity ( $r = -.26$ ).

Thus, the analysis suggests that the influence of context was largely independent of the influence of personal traits and that the setting differences we observed were not attributable solely to the personal characteristics of the clients in the settings.

The final stage of the analysis increased prediction only moderately (5 percent) but shows that some of the previous prediction of personal traits was attributable to mediating variables. In particular, amount of time in the setting, desire for affiliation, and physical attractiveness added significantly to prediction; however, intelligence no longer predicted.

Supplementary analyses indicated that holding just attractiveness and context variables constant was sufficient to eliminate IQ as a predictor. This result was somewhat surprising, because attractiveness was not strongly related to extensity ( $r = .12$ ): however, in one of the two settings in which attractiveness was measured (WI), IQ was negatively related to extensity. It seems that this negative relation actually attenuated the correlation between attractiveness and extensity: therefore, when the Setting  $\times$  IQ interaction for WI was held constant, the stronger relation between attractiveness and extensity emerged. Thus, not only was IQ an inconsistent predictor of affiliation across settings, but its relation to extensity was largely attributable to its confounding with physical attractiveness and with differences between settings.

To obtain an estimate of the relative pro-

TABLE 4  
REGRESSION ANALYSIS OF EXTENSIVENESS

Variable	Stage 1 <sup>a</sup>		Stage 2 <sup>b</sup>		Stage 3 <sup>c</sup>	
	Beta	F	Beta	F	Beta	F
Sex	.12	8.37**	.00	<1	-.02	<1
IQ	.30	71.71**	.29	11.19**	.14	2.65
Age	-.25	44.04**	-.28	12.19**	-.27	11.83**
Diagnosis	-.38	32.26**	-.29	9.30**	-.34	13.02**
WA			.12	5.46*	.16	10.00**
WI			-.05	<1	-.01	<1
WH			.25	25.13**	.27	32.20**
WE			.23	14.00**	.30	23.22**
Sex × WA			.01	<1	.02	<1
Sex × WI			.03	<1	.05	1.17
Sex × WH			.04	<1	.04	<1
Sex × WE			.10	2.22	.10	2.96
IQ × WA			.06	1.26	.10	3.75
IQ × WI			-.14	6.02*	-.15	6.62*
IQ × WH			.04	<1	.04	<1
IQ × WE			.01	<1	.01	<1
Age × WA			.08	2.65	.08	2.61
Age × WI			.08	2.13	.08	2.75
Age × WH			-.07	<1	-.07	2.00
Age × WE			.00	<1	.00	<1
Diagnosis × WA			-.03	<1	-.03	<1
Diagnosis × WI			.04	<1	.09	2.04
Diagnosis × WH			-.04	<1	-.04	<1
Diagnosis × WE			-.03	1.40	-.03	<1
Attractiveness					.17	15.57**
Sociability					.15	12.42**
Time in setting					.12	7.95**
Medication					.05	1.49
Disability					-.03	<1
Institution time					.06	1.56

<sup>a</sup>  $R^2 = .34$  (381 *df*).

<sup>b</sup>  $R^2 = .46$  (361 *df*).

<sup>c</sup>  $R^2 = .51$  (355 *df*).

\*  $p < .05$ .

\*\*  $p < .01$ .

portion of variation accounted for by settings vs. individual difference predictors, we calculated the variation attributable to settings and to all other predictors that were significant (see Cohen & Cohen, 1975, for details on this procedure). For extensity, settings accounted for 49 percent of the predicted variation.

*Intensity.* The analysis of average intensity of clients' affiliation contrasted sharply with the results for extensity (Table 5). Diagnosis and age were the lone predictors in the first analysis, with only 6 percent of the variation predicted at all. The inclusion of context increased prediction to 9 percent, but no setting predictor was signifi-

cant. When mediating variables were added, prediction increased to 15 percent, with the desire for affiliation and attractiveness significant (communication disabilities were marginally significant). Apparently, intensity is difficult to predict except for the influence of these variables. This result would not be surprising if intensity were a less reliable dimension than extensity; however, the test-retest reliability of intensity ( $r = .66$ ) was not substantially lower than that for extensity ( $r = .73$ ). It appears, therefore, that other variables are more important for predicting intensiveness of relationships than the ones we have studied. Furthermore, the relative prediction due to

TABLE 5  
REGRESSION ANALYSIS OF INTENSIVENESS

Variable	Stage 1 <sup>a</sup>		Stage 2 <sup>b</sup>		Stage 3 <sup>c</sup>	
	Beta	F	Beta	F	Beta	F
Sex	.07	2.03	.07	>1	.09	>1
IQ	.09	3.03	.10	>1	-.06	>1
Age	-.13	6.44*	-.10	>1	-.05	>1
Diagnosis	-.12	5.06*	.14	1.28	-.15	1.53
WA			.01	<1	.05	<1
WI			-.03	<1	.00	<1
WH			.10	2.46	.13	4.42*
WE			.10	1.52	.15	3.18
Sex × WA			-.02	<1	-.02	<1
Sex × WI			.00	<1	.00	<1
Sex × WH			.01	<1	.00	<1
Sex × WE			-.04	<1	-.05	<1
IQ × WA			.03	<1	.07	1.01
IQ × WI			-.02	<1	.00	<1
IQ × WH			-.02	<1	.01	<1
IQ × WE			-.05	<1	.01	<1
Age × WA			.04	<1	.03	<1
Age × WI			.02	<1	.04	<1
Age × WH			-.05	<1	-.08	1.51
Age × WE			-.06	<1	-.07	<1
Diagnosis × WA			.01	<1	.04	<1
Diagnosis × WI			.02	<1	.06	<1
Diagnosis × WH			.05	<1	.08	1.18
Diagnosis × WE			-.03	<1	.02	<1
Attractiveness					.18	10.51**
Sociability					.17	8.11**
Time in setting					.08	1.96
Medication					-.02	<1
Disability					.12	4.90*
Institution time					.00	<1

<sup>a</sup>  $R^2 = .25$ , 381 *df.*

<sup>b</sup>  $R^2 = .09$ , 361 *df.*

<sup>c</sup>  $R^2 = .15$ , 355 *df.*

\*  $p < .05$ .

\*\*  $p < .01$ .

settings was only 16 percent, a proportion that was considerably lower than that for the prediction of extensity.

*Aggregation.* The analysis of average distance to others shown in Table 6 produced considerable prediction at each stage. All four traits were significantly related to aggregation and accounted for 25 percent of the variation. At the second stage, IQ no longer predicted; however, the equation accounted for 46 percent of the variation, with each setting differing from average. As with the analysis of extensity, there was little evidence of interaction between settings and traits (IQ was less related to aggregation in Workshop WA). When mediating variables were entered, personal

traits remained significant, but the desire for affiliation, attractiveness, and time in the setting added to prediction. Aggregation was the behavior most sensitive to settings, with 63 percent of the predicted variation attributable to settings.

#### Questionnaire Indices

Perhaps the most striking finding in the analysis of affiliative behavior was the absence of any prediction for intelligence once context and mediating variables are held constant. We were interested to see whether this result would also obtain with the questionnaire measures of affiliative choice. The number of friends whom clients

TABLE 6  
REGRESSION ANALYSIS OF AGGREGATION

Variable	Stage 1 <sup>a</sup>		Stage 2 <sup>b</sup>		Stage 3 <sup>c</sup>	
	Beta	F	Beta	F	Beta	F
Sex	-.16	12.72**	-.21	7.81**	-.19	6.35*
IQ	-.21	19.50**	-.06	<1	.07	<1
Age	.29	36.91**	.23	8.83**	.21	6.74*
Diagnosis	.24	24.37**	.28	8.81**	.34	12.69**
WA			.20	14.74**	.16	10.18**
WI			-.27	30.92**	-.30	37.43**
WH			-.13	6.49*	-.14	8.83**
WE			-.37	38.29**	-.43	45.87**
Sex × WA			.02	<1	.01	<1
Sex × WI			.02	<1	.00	<1
Sex × WH			.05	1.16	.06	1.26
Sex × WE			.07	1.44	.06	<1
IQ × WA			-.11	3.89	-.14	7.07**
IQ × WI			.04	<1	.04	<1
IQ × WH			-.04	<1	-.06	1.51
IQ × WE			.05	<1	-.01	<1
Age × WA			-.03	<1	-.03	<1
Age × WI			-.05	<1	-.06	<1
Age × WH			-.01	<1	.01	<1
Age × WE			-.06	<1	-.05	<1
Diagnosis × WA			.05	<1	.03	<1
Diagnosis × WI			-.06	<1	-.11	2.54
Diagnosis × WH			.01	<1	-.01	<1
Diagnosis × WE			-.04	<1	-.09	2.01
Attractiveness					-.15	11.15**
Sociability					-.14	9.92**
Time in setting					-.10	5.28*
Medication					-.08	3.21
Disability					.02	<1
Institution time					-.02	<1

<sup>a</sup>  $R^2 = .25$ , 381 *df*.

<sup>b</sup>  $R^2 = .46$ , 361 *df*.

<sup>c</sup>  $R^2 = .50$ , 355 *df*.

\*  $p < .05$ .

\*\*  $p < .01$ .

named was significantly correlated with observed extensiveness ( $r = .28$ ), suggesting that the indices are partly overlapping. No trait or mediating variable came close to predicting client friendship choice across settings, however. The only significant predictors were settings.

The frequency of friendship namings by staff members was uncorrelated with client namings ( $r = -.10$ ) but significantly related to the observations ( $r = .33$ ). There was a tendency for staff members to think that more intelligent clients had more friends ( $F = 4.74$ , 1/355 *df*,  $p < .05$ ), and they appeared to feel the same way about more attractive and mentally retarded (vs. mentally ill)

clients ( $F_s = 13.82$  and 6.69, respectively, 1/355 *dfs*,  $p_s < .05$ ). There was considerable variation in namings across the settings, with more friendships stated by residential staff members. Furthermore, in the residence older clients were seen as having fewer friends; this was not true in the workshops.

These analyses suggest that client and staff judgments about client affiliation are not necessarily congruent with each other or with observational indices. Nevertheless, client judgments of sociability were again not predicted by intelligence, whereas staff members saw intelligence as a correlate of sociability.

### Popularity and Mutual Choice

One reason for the absence of any effects of intelligence upon sociability is the possibility that the friendship lists obtained from the three sources of information (observations, clients, and staff) do not reflect mutually reciprocal choices. To explore this possibility, we analyzed the extent to which clients were named as friends (by each of our sociometric methods), a measure usually associated with popularity and status. Because the observations were obtained randomly, observational popularity should be highly correlated with the number of people clients were seen with; and indeed this was the case ( $r = .67$ ). As with the observational measure of extensity, therefore, intelligence was uncorrelated with observational popularity.

The staff index of popularity was also highly correlated with the respective index of sociability ( $r = .69$ ). It was not surprising, therefore, that staff members thought that intelligent clients were more popular ( $F = 9.11, 1/355 \text{ df}, p < .01$ ).

Popularity based on client judgments was only marginally correlated with the client index of sociability ( $r = .20$ ). Again, however, intelligence was uncorrelated with popularity. The only predictors were settings, time in the setting, and physical attractiveness.

In addition to popularity, we calculated the number of friendships that were reciprocal for each sociometric method. As with the popularity measures, observation and staff estimates were highly correlated with their respective indices of sociability ( $r_s = .70$  and  $.80$ , respectively), whereas client mutual namings were less strongly related ( $r = .29$ ). None of the mutuality indices was related to intelligence, however. The only individual difference predictor that was significant for all three indices was length of time in the setting. The desire for affiliation was important for clients, but attractiveness and age were important for staff.

### Influence of Setting

The present behavioral analyses demonstrated that from 16 to 63 percent of the

predictable variation in the affiliation dimensions could be explained by context as opposed to individual difference variables. These findings suggest that the setting in which individuals are located is a strong predictor of affiliative behavior. One might still argue, however, that other traits not included in the analysis might account for the variation predicted by setting. To evaluate this hypothesis, we analyzed data for the subset of 81 subjects who were observed in both their workshop and residence (see Figure 1). If prediction due to context were still possible, then it would be unlikely that individual traits would account for the variation. Indeed, even if sociability were completely stable across setting, the overall level of affiliation could

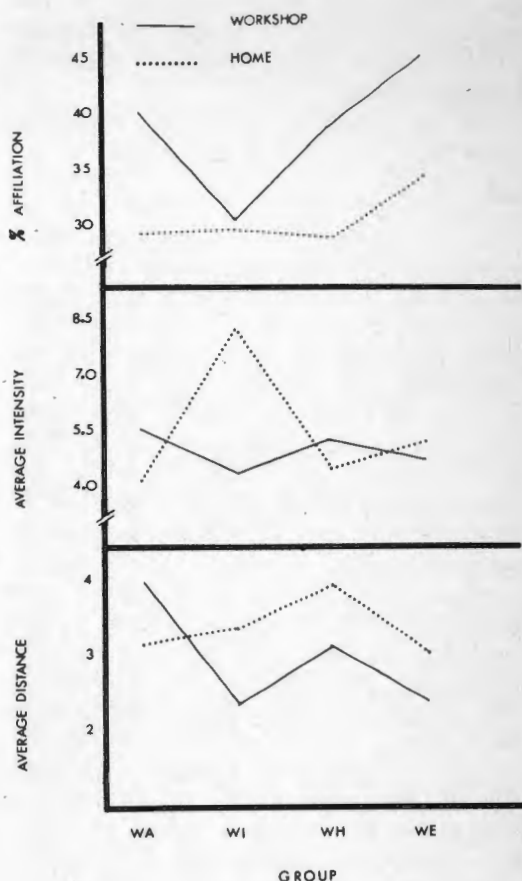


FIGURE 1. Affiliative behavior at home (the residence) vs. at the workshop for three dimensions of affiliation.

still be affected by context. This was apparently the case for extensity, which was correlated .80 across home and workshop settings. Nevertheless, the data shown in Figure 1 substantiate the power of the setting. Clients affiliated more extensively in the workshop setting ( $F = 29.20$ ,  $1/77$  *df*,  $p < .01$ ), but the interaction was nonsignificant ( $F = 2.42$ ,  $3/77$  *df*,  $p < .08$ ). Intensity of affiliation, which was less stable across settings ( $r = .47$ ), was not uniformly greater in the workshops, but the Group  $\times$  Setting interaction approached significance ( $F = 2.63$ ,  $3/77$  *df*,  $p < .06$ ). Finally, the workshop setting produced more aggregation in all cases except Workshop WA ( $F = 8.36$ ,  $3/77$  *df*,  $p < .01$ ). The effect of context was most pronounced on this behavior, but individual stability was lowest ( $r = .24$ ). These results suggest that whether individual stability was high (extensity) or low (aggregation), the social context affected social behavior independent of individual characteristics.

*Setting characteristics.* The preceding analyses show that both individual and setting variables are important in predicting sociability and affiliation. What has not been reported are the environmental characteristics that might predict the sociability of a setting. Landesman-Dwyer et al. (1979) found that average IQ of group home residents predicted sociability more than did individual IQ. Persons who were surrounded by others of high IQ were more sociable no matter what their own IQ. This result was also true in the present five settings; average setting IQ was correlated .31 with extensity and .12 with intensity, holding individual IQ constant. Unfortunately, average setting IQ was correlated .97 with proportion of females in the setting, so that disentangling these variables was virtually impossible. Nevertheless, we determined the average characteristics of clients who were most likely to socialize within the various settings. For example, we subdivided the residence by floors and the workshops by programs when possible. This subdivision reduced the confounding between sex and intelligence substantially ( $r = .19$ ). We also calculated the average age, diagnosis, desire for affiliation, and

attractiveness of clients in these programs and entered these variables along with the corresponding individual predictors in a stepwise regression. The only program characteristic to predict affiliation was average client IQ, which accounted for 14 percent of the predictable variation in extensity ( $F = 35.67$ ,  $1/376$  *df*,  $p < .01$ ) and 18 percent of the predictable variation in intensity ( $F = 17.66$ ,  $1/378$  *df*,  $p < .01$ ). It appears, therefore, that the average intellectual composition of clients in a setting is a potent predictor of the affiliative behavior of those clients.

### Discussion

The present results provide information about the factors that underlie affiliation and the variables that predict these dimensions in community settings for handicapped people. Consistent with our expectations, extensity, intensity, and aggregation were identified as separate affiliation tendencies. Although several predictors of these tendencies were isolated, the variables that were unrelated to these tendencies are perhaps most notable. First, intelligence was unrelated to affiliation and did not seem to be important in predicting the frequency of clients' own friendship choices. Second, although many of the clients we observed were once institutionalized, received drugs, and suffered other disabilities, none of these factors appeared to affect affiliation when other variables were controlled. Apparently, individuals adapt socially despite the potentially inhibitory effects of these factors. Of course, it is not appropriate to generalize these conclusions beyond affiliation within a mentally disabled population. If affiliation between mentally disabled and nondisabled adults were observed, prediction for some of these variables might be more apparent.

The two personal traits that predicted affiliation most consistently were age and diagnosis. Older and mentally ill persons were less likely to affiliate extensively and to aggregate with others. Although the precise mediation of these relations is unclear, the findings are consistent with the notion that older adults are inclined toward with-

drawal from all activity (Ekerdt et al., 1976; Newgarten, 1977). Furthermore, mental illness as a disability is perhaps partly defined by an unwillingness to engage in "normal" social relationships; however, a behavioral definition of mental illness is a goal yet to be reached (McLemore & Benjamin, 1979), so these conclusions remain to be investigated and refined in future research. Indeed, the present results suggest that observational measures are a promising approach to the definition of diagnostic categories (cf. Rosen, Tureff, Daruna, Johnson, Lyons, & Davis, in press).

It is also evident, however, that age and diagnosis are not powerful predictors of the intensity of affiliation. This finding suggests that although older and mentally ill people have fewer relationships, the ones they do have are no less intense than those of younger and non mentally ill people. Furthermore, the frequency of friendship namings by these clients was virtually identical to those of other clients.

Neither sex nor IQ was a potent predictor of extensity, intensity, or frequency of friendship naming. These findings support previous research that has found either no prediction for IQ (Landesman-Dwyer et al., 1979; Romer & Berkson, 1979) or conflicting findings for sex (Maccoby & Jacklin, 1974). The results are particularly encouraging regarding IQ because they suggest that individuals over a broad range of ability can be equally successful in forming and maintaining interpersonal relationships. Whether these relationships are as rich or complex as they might be is a question, of course, that remains to be investigated.

Physical attractiveness and desire for sociability appear to be important mediators of affiliation not only because they predicted both extensity and intensity but also because they are potentially subject to alteration. Although physical attractiveness was correlated with cosmetic disabilities ( $r = -.28$ ), the latter variable did not predict any of the affiliation dimensions. This suggests that, if other relatively plastic aspects of personal appearance (makeup, hairstyle, and clothing) could be improved, sociability might increase. The

importance of attractiveness is clearly recognized for nondisabled adults and has been a potent predictor of social behavior in children and adults (Berscheid & Walster, 1974). Increasing the desire for affiliation may be less straightforward, but the possibility deserves attention in future research.

The results suggest that neither client nor staff estimates of sociability completely mirror the observational measures. Furthermore, staff and client estimates appear to reflect different aspects of sociability. The most striking discrepancy concerns the tendency of staff members to attribute greater sociability to more intelligent clients. Since staff members also provided us with estimates of client attractiveness, the possibility exists that they used client intelligence as a cue for their attractiveness estimates. If this were true, then statistically controlling attractiveness could eliminate intelligence as a predictor of sociability. This explanation seems to be unlikely, however, because although attractiveness was correlated with intelligence ( $r = .24$ ), IQ was actually a poorer predictor of both intensity and extensity (in fact, it was negatively related to extensity in WI). Furthermore, attractiveness predicted popularity as determined from client judgments even though IQ was not related to this popularity measure. Analyses to be reported in Romer and Berkson (1980b), the third paper in this series, indicate that attractiveness also behaves quite differently from IQ as a predictor of friendship choice. Thus, it appears that attractiveness possesses discriminant validity as a predictor of sociability and friendship.

Despite the obtained differences among the three sources of information, settings and amount of time in the settings were consistent predictors for all measures. Furthermore, the results suggest that client perspectives on their own sociability (sociometrics and desire for affiliation) are important sources of information for predicting sociability. In a subsequent report we examine these sources of information in more detail and explore possible reasons for their similarities and differences.

An important finding is the influence of context upon affiliation. The overall regres-

sion analyses suggest that context influenced affiliation independently of personal and mediating variables; and the more sensitive analysis of 81 clients in two settings indicated that context could affect affiliation even when individual characteristics were held relatively constant. Both of these findings are congruent with the ecological approach to social behavior (e.g., Barker & Gump, 1964), which places emphasis upon the potent influences of the social environment. Persons involved in the planning and design of community settings, therefore, should be sensitive to these influences upon the social adaptation of mentally disabled people.

Consistent with Landesman-Dwyer et al.'s (1979) findings, our results suggest that the average intelligence of peers was important in determining how affiliative individuals will be in a setting. They also suggest that settings in which less intelligent clients are segregated from others may decrease their sociability. Our present results do not indicate why this should happen or what other factors might produce setting differences. In Romer and Berkson (1980b) we examine the preferences that individuals have for social partners and provide more information about determinants of setting differences. It is clear, however, that future researchers should focus on the environmental variables that determine sociability in community settings for handicapped people.

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