VOLUME 52, NO. 1 SPRING 1999

The International Journal of Action Methods

Psychodrama, Skill Training, and Role Playing

Published in Cooperation With the American Society
of Group Psychotherapy and Psychodrama

Founded by J. L. Moreno

The International Journal of Action Methods

Psychodrama, Skill Training, and Role Playing

Formerly the **Journal of Group Psychotherapy, Psychodrama and Sociometry**

Volume 52, No. 1 ISSN 1096-7680 Spring 1999

Contents

The International Journal of Action Methods: Psychodrama, Skill Training, and Role Playing (ISSN 1096-7680) is published quarterly by Heldref Publications, 1319 Eighteenth Street, NW, Washington, D.C. 20036-1802, (202) 296-6267; fax (202) 296-5149, in conjunction with the American Society of Group Psychotherapy and Psychodrama. Heldref Publications is the educational publishing division of the Helen Dwight Reid Educational Foundation, a nonprofit 501(c)(3) tax-exempt organization, Jeane J. Kirkpatrick, president. Heldref Publications is the operational division of the foundation, which seeks to fulfill an educational and charitable mission through the publication of educational journals and magazines. Any contributions to the foundation are tax deductible and will go to support the publications.

Periodicals postage paid at Washington, DC, and at additional mailing offices. POSTMASTER: Send address changes to **The International Journal of Action Methods: Psychodrama, Skill Training, and Role Playing**, Heldref Publications, 1319 Eighteenth Street, NW, Washington, DC 20036-1802.

The annual subscription rate is $80 for institutions and $48 for individuals. Single-copy price is $20.00. Add $12.00 for subscriptions outside the U.S. Allow 6 weeks for shipment of first copy. Foreign subscriptions must be paid in U.S. currency with checks drawn on U.S. banks. Payment can be charged to VISA/MasterCard. Supply account number, expiration date, and signature. For subscription orders and customer service inquiries **only**, call 1-800-365-9753. Claims for missing issues made within 6 months will be serviced free of charge.

The International Journal of Action Methods: Psychodrama, Skill Training, and Role Playing is indexed, scanned, or abstracted in *Applied Social Science Index & Abstracts, Child Development Abstracts & Bibliography, Family Resources Database, Health & Psychosocial Instruments, Innovation & Research, Linguistic & Language Behavior Abstracts, Mental Health Abstracts, Psychological Abstracts, PsychINFO Database, Sociological Abstracts,* and *Social Planning/Policy & Development.*

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HELDREF PUBLICATIONS

The Functions of Groups: A Psychometric Analysis of the Group Resources Inventory

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ABSTRACT. What do groups *do* for their members? A functional model that assumes groups satisfy a number of basic survival, psychological, informational, interpersonal, and collective needs is offered. The authors examined the comprehensiveness of the model by asking members of various types of naturally occurring groups to describe the benefits they gained through membership. Analysis of those descriptions identified 16 key interpersonal functions of groups (such as social comparison, social exchange, social control, social esteem, social identity, and social learning), and individuals' evaluations of the quality of their group were systematically related to their ratings of the group's functionality. The authors discuss possible applications of these findings for improving groups but have concluded that additional work is needed to determine the applicability of the functions model to psychotherapeutic groups.

MORENO (1934), IN HIS ANALYSIS OF THE NATURE OF GROUPS and their durability, argued that the psychological impact of a group on its members depends in large part on the group's structural integrity. He believed that groups with harmonious attraction and authority relations among the members were likely to survive and that the individuals in such groups would be more likely to prosper psychologically. Moreno also noted, however, that structure is inextricably linked to function, for one cannot accurately recommend one social structure over another without considering the group's purposes. Moreno noted, for example, that a sociometric structure that developed in a purely social grouping, such as a collection of friends or a family, may not be an adaptive one when the group finds itself in a new situation, facing new demands: "the same structure occurring in the organization of a home group and which may express little or no disturbance in the functions of this

group can express a very severe disturbance in the function of a work group, even if the same individuals are concerned in both instances" (1934, p. 112).

But what *are* the functions of groups? Prior studies of therapeutic groups, supportive groups, work groups, and other naturally occurring groups have explored the general utility of groups for their members (Mackie & Goethals, 1987). In the classic analysis of the functions of interpersonal relations, for example, Weiss (1973) argued that social relationships satisfy six basic needs: attachment, reliable alliance, enhancement of worth, social integration, guidance, and opportunity for nurturance (DiTommaso & Spinner, 1997). Shaver and Buhrmester (1983), in a more streamlined model, suggested that social needs and their corresponding social provisions fall into one of two fundamental categories: psychological intimacy and integrated involvement. The need for psychological intimacy, although often satisfied by long-term dyadic pairings, such as close friendships and love relationships, can be achieved through membership in a group that provides emotional support and nurturance. According to Shaver and Buhrmester (1983, p. 265), such groups provide members with "affection and warmth; unconditional positive regard; opportunity for self-disclosure and emotional expression; lack of defensiveness, lack of concern for self-presentation; giving and receiving nurturance; security and emotional support." Groups that provide members with integrated involvement, in contrast, provide members with (Shaver & Buhrmester, 1983, p. 265) "enjoyable and involving activities and projects; social identity and self-definition; [a sense of] being needed for one's skills; social comparison information; opportunity for power and influence; conditional positive regard; support for one's beliefs and values."

Researchers studying groups created for therapeutic purposes, such as psychotherapeutic groups and encounter groups, have also identified a number of critical functions that those groups serve for their individual members. Lakin (1972), for example, argued that the successful group must facilitate emotional expression and generate feelings of belongingness, but it must also stimulate interpersonal comparisons and provide members with the opportunity to interact with one another. Roller (1997) included universalization, differentiation, experimentation, socialization, communication, externalization/internalization, recapitulation/reparation, reorganization, sublimation, and revelation on his list of group resources. Developmentally oriented analyses of groups, such as those offered by Dugo and Beck (1997), Tuckman (1965), and Wheelan (1994), highlight time-dependent functions that groups serve, such as creating bonds between people, the stimulation of identity development, fostering productivity, and encouraging self-exploration.

Yalom's interpersonal model of group psychotherapy is by far the most comprehensive and well-researched analysis of why groups are effective (Yalom, 1995). According to Yalom, certain therapeutic, or curative, factors

underlie effective psychotherapeutic groups. Some of the factors on Yalom's list are mechanisms that are responsible for facilitating change, whereas others describe the general group conditions that should be present within effective therapeutic groups. The list includes the installation of hope, universality, imparting of information, altruism, the corrective recapitulation of the primary family group, development of socializing techniques, imitative behavior, interpersonal learning, group cohesiveness, catharsis, and existential factors. Self-understanding is also a potential candidate for the curative factors list, although Yalom has suggested that factor may be more epiphenomenon than mediator of change.

In our current work, we sought to extend the functional model of groups by examining the social functions served by groups. Drawing on the work of Weiss, Lakin, Yalom, and others, we examined 16 key provisions that groups supply their members in naturally occurring groups. This list, although based on previous analyses, differs in that it provides a more extensive listing of the interpersonal needs of group members.

Social bonding: Groups provide members with contact with other people; they create connections between people and so set the stage for the development of more intimate interactions.

Social comparison—downward: Members can compare themselves to others who, in some cases, may be experiencing problems and outcomes that are even more negative than theirs.

Social comparison—upward: Members can compare themselves to others who are coping well with their problems and situations and so are a source of hope and inspiration.

Social control: Groups provide members with opportunities to take actions to change the beliefs or behaviors of other people.

Social esteem: Acceptance by the group confirms the individual's sense of self-worth.

Social exchange: When group members pool their resources in a common effort they minimize their costs and maximize their gains.

Social expression: Groups provide members with a forum for sharing emotions and ideas with others.

Social identification: Members feel identified less as individuals when they are immersed in a group.

Social identity: Groups provide members with a sense of self-definition and collective identity.

Social influence: Groups help members manage their actions by encouraging certain actions and negatively sanctioning others.

Social learning—information: Members are given information and ideas through direct and indirect instruction by other group members.

Social learning—self-insight: Members discover information about themselves during group interactions.
Social relations: Groups create intimate, emotionally meaningful, and reliable connections between people.
Social skills development: Members can observe, practice, and model basic interpersonal skills in group settings.
Social support: Groups provide their members with tangible, emotional, and cognitive support when they encounter problems or difficulties.
Socialization: The group's normative structures provide members with norms and standards that guide their actions by instilling socially approved values.

We tested the utility of the social provision model by developing an instrument, the Group Resources Inventory, to assess the social functions of groups. We developed an extensive set of items that tapped each of the functions and, through pretesting and item analysis, narrowed the set down to 103 items. We then administered that version to members of various types of community-based groups and asked them to rate their group's capacity to make available each type of group provision. Overall, we predicted that groups that were very satisfying for their members would be rated more positively in terms of their functional utility for those members.

Method

Participants

The 251 participants (187 women, 64 men) were all members of intact community groups in a mid-sized metropolitan area. The groups ranged in purpose and longevity and included a troupe of Israeli folk dancers, a handball group, a historical reenactment group, students from a dormitory floor, women from several sororities, a Sunday school class, an Alcoholic Anonymous chapter, a group of academic colleagues, a local society for human resource management, teachers at an elementary school, a Baptist women's group, an aerobics class, a bible study group, members of the Baptist student union, a group of employees at a bank, a chapter of Weight Watchers, and a group dynamics class.

Procedure

All subjects, after completing an informed consent form, responded to 103 items that became the basis of the Group Resources Inventory (GRI). The items were drawn from extant models of social provisions (Shaver & Buhrmester, 1983), curative factors (Yalom, 1995), social support (Sarason, Pierce, & Sarason, 1990), and perceived needs (Porter, 1962). Following a phe-

nomenological approach, the GRI requires group members to describe their perceptions of the provisions their group supplies by indicating a degree of agreement with such items as "In the group, I feel accepted," "I can express my feelings in this group," "My sense of identity comes, in part, from my membership in this group," and "We group members share a common bond." (See Appendix for the list of items.) The GRI uses a checklist, 3-point response scale. The abbreviated response continuum restricts the response range and contributes to higher variability within each scale, but it increases the ease of administration. Most subjects completed the inventory in 10 to 15 min.

Respondents also rated their group, using six 9-point bipolar items suggested by Moreland and Levine's (1982; Pavelchak, Moreland, & Levine, 1986) model of member socialization in groups. The endpoints of each item were separated by a line of digits ranging from 1 to 9, with 9 always appearing closest to the endpoint with a positive connotation. Respondents circled a number from 1 to 9 to indicate their appraisal of their group. The items were "enjoyable-unenjoyable," "unrewarding-rewarding," "satisfying-dissatisfying," "worthless-worthwhile," "important-unimportant," and "I am very attracted to this group - I am not attracted to this group." We averaged the responses to these six items together to generate an overall group satisfaction index. The Cronbach alpha for this scale was .92.

Results

The items from the GRI were averaged together to create scores corresponding to the 16 a priori provision scales (see the key shown in the Appendix). Item analysis was then conducted to evaluate the psychometric adequacy of the scales, including inspection of item-to-total correlations, each item's contribution to its respective scale's internal consistency, and the amount of variance in responses to the item. That analysis resulted in the deletion of 13 problematic items that substantially decreased the internal coherence of the scales and did not add substantially to the conceptual content of the scale. The social comparison scales, social esteem, and social learning—self-insight scales lost 2 items each, whereas social control, social influence, social learning—information, social relations, and social support scales each lost 1 item.

As we indicate in Table 1, only 3 or 4 items were needed to assess relatively specific functions, such as upward and downward social comparison. Functions with a more complex content, such as social relations and social support, required as many as 10 items to tap the full range of their domain adequately. Despite the small number of items comprising several of the scales in Table 1, their internal consistency was adequate. Cronbach's alpha, as an index of internal consistency, is sensitive to the number of items included on a scale,

TABLE 1
Number of Items, Means, Standard Deviations, and Alpha Indexes of Internal Consistency for the 16 Scales of the Group Resources Inventory

Scale	# of items	*M*	*SD*	alpha
Social bonding	6	2.61	.45	.82
Social comparison–downward	3	2.54	.52	.77
Social comparison–upward	4	2.59	.45	.67
Social control	4	2.13	.54	.74
Social esteem	4	2.70	.42	.79
Social exchange	9	2.52	.41	.81
Social expression	4	2.55	.53	.82
Social identification	3	2.08	.58	.59
Social identity	5	2.56	.41	.74
Social influence	4	2.42	.51	.68
Social learning–information	6	2.65	.38	.73
Social learning–self-insight	5	2.32	.54	.78
Social relations	10	2.33	.44	.80
Social skills development	8	2.42	.52	.87
Social support	10	2.44	.44	.86
Socialization	5	2.43	.47	.67

so that alpha increases as more items are included in calculating scale scores. Hence, the Cronbach alpha coefficient was the lowest for the smallest scale (the social identification scale, $\partial = .59$) but higher for most of the other scales. Alpha coefficients ranged from .75 to .87.

Functionality and Satisfaction With the Group

Respondents, in general, considered their groups to be highly functional, with means for the scale ranging from a low of 2.08 (for social identification) to a high of 2.70 (for social esteem). The standard deviations of the scales, however, suggested substantial variation in respondents' ratings of their groups, for despite the abbreviated 3-point scale used, deviations ranged from a low of .38 (for social learning-information) to a high of .58 (for social identification). From our inspection of the means, however, we concluded that groups were most successful in providing bonding, esteem, and information (all *M*s > 2.60), and least successful in providing control, insight, intimate relationships, and decreased identifiability (all *M*s < 2.35).

Functionality was also related to the members' overall evaluation of their group. We examined that relationship by classifying participants' groups into

one of two categories through a median-split procedure. The groups that were rated as relatively unsatisfying by their members (with scores at or below the median of 5.3 on the 9-point scale) were designated as low in satisfaction, whereas those that were rated as relatively satisfying (with scores of 5.4 or more) were designated as high in satisfaction. We then examined the 16 GRI scores in 2 (group evaluation) x 2 (sex) analyses of variance that adjusted each effect for those of equal or lower order to control for the nonorthogonality of the factorial design. Those analyses consistently, across the 16 GRI scales, yielded a main effect of satisfaction. As shown in Table 2, individuals who felt that their group was a satisfying one rated the functional utility of their group more positively than did individuals who were not satisfied with their group. Of the 16 functions assessed, 13 were significantly related to satisfaction, with identity, support, bonding, upward social comparison, and influence qualifying as the most robust predictors of satisfaction. Only social control and downward social comparison were not significantly associated with satisfaction with the group.

Sex Differences and Functionality

Men and women differed, to a small extent, in their evaluations of their groups. Although those in more functional groups rated their groups as more satisfying, this main effect was qualified, in five cases, by the two-way interaction of satisfaction and sex. We show in Table 3 that the 2-way interaction reached significance for the following GRI scales: social control, social exchange, social skill development, and social support. In each case, inspection of the means indicates that men's ratings were more polarized than women's ratings. Satisfied men were more favorable toward their group than satisfied women, but men who were not satisfied with their groups were more negative than women who were not satisfied.

Discussion

Which kinds of group resources contribute to satisfaction with one's group? Following a tradition established by Charles Horton Cooley, J. L. Moreno, and Kurt Lewin, researchers have long argued that individuals satisfy a variety of basic survival, psychological, informational, interpersonal, and collective needs by joining with others in groups. But which resources contribute most directly to the evaluation of the functional utility of the group?

In our research, we stressed 16 interrelated provisions, including bonding with others, social comparison, opportunities for influence over others, enhanced self-esteem and productivity, emotional expression, freedom from evaluation, social identity, interpersonal pressure, social learning, intimacy,

TABLE 2
***F*-ratios, Significance Levels, and Means for the Main Effect of Satisfaction With Group Membership on Ratings of the 16 Scales of the Group Resources Inventory**

Provision	*F*-ratio	*p*-value	Low Satisfaction Mean	High Satisfaction Mean
Social bonding	63.49	< .0001	2.40	2.80
Social comparison–downward	1.43	*ns*	2.56	2.52
Social comparison–upward	63.74	< .0001	2.38	2.78
Social control	2.23	*ns*	2.07	2.17
Social esteem	23.98	< .001	2.57	2.81
Social exchange	47.01	< .0001	2.37	2.68
Social expression	42.48	< .0001	2.35	2.75
Social identification	13.67	<.01	2.21	2.42
Social identity	84.81	< .0001	2.36	2.75
Social influence	62.84	< .0001	2.18	2.64
Social learning–information	22.34	< .001	2.54	2.76
Social learning–self-insight	27.13	< .0001	2.15	2.49
Social relations	43.03	< .0001	2.15	2.69
Social skills development	9.45	< .05	2.31	2.51
Social support	76.34	< .0001	2.23	2.65
Socialization	16.83	< .01	2.31	2.54

Note: For all provisions, higher scores indicate more positive ratings of the group's adequacy in meeting the members' needs (*ns* = 121 & 130, respectively, for the low and high satisfaction groups).

TABLE 3
***F*-ratios, Significance Levels, and Means for the Two-Way Interaction of Group Satisfaction and Sex on Ratings of 5 Group Provisions**

			Low Satisfaction		High Satisfaction	
Provision	*F*-ratio	*p*-value	Men	Women	Men	Women
Social control	4.18	< .05	1.99	2.10	2.32	2.11
Social exchange	4.22	< .05	2.14	2.43	2.62	2.69
Social expression	4.32	< .05	2.19	2.40	2.81	2.72
Social skills development	8.61	< .01	2.17	2.36	2.69	2.45
Social support	4.32	< .05	2.10	2.26	2.70	2.70

the opportunity to learn social skills, support, and normative guidelines. All these resources are likely valued by the members, but as the findings in Table 2 suggested to us, the relationship between satisfaction and functionality was greatest when individuals felt their groups provided them with a sense of identity (social identity), provided them with support and encouragement (social support), and influenced them in positive ways (social influence). Satisfaction with one's group was not systematically related to opportunities to exert influence over other group members or to the inclusion of individuals in the group who served as targets for downward social comparison. On the basis of these findings, we suggest that the Group Resources Inventory is a useful means of measuring important features of groups, and can serve as a potential predictor of members' attitudes toward their groups (Wright & Forsyth, 1997).

We focused the current research on dynamic, face-to-face groups, but other evidence suggests that the functional approach may apply equally well to larger groups. Deaux, Reid, Mizrahi, and Cotting (1999), for example, recently made use of items drawn from the GRI to study the functions of social identity. Deaux and her colleagues investigated aspects of social identity that were derived from membership in larger social categories, such as religious affiliation (e.g, "I am a Christian"), ethnicity (e.g., "I am an Asian American"), occupation (e.g., "I am a bartender"), relationships (e.g., "I am a father"), or stigmatized groups (e.g., "I am an alcoholic"). When they asked individuals to evaluate the functions served by those social identities, they too identified functions corresponding to self-insight, self-esteem, relations and support, and downward social comparison. Their findings suggest that these larger social categories, if they are central to the individual's self-conception, may meet needs left unsatisfied by face-to-face groups.

The functional model also sheds light on the curative factors that may operate in change-promoting groups (Yalom, 1995). The current model relied heavily on prior theoretical analyses of the functions of therapeutic groups, which suggest that members of therapy groups can secure advantages and avoid disadvantages that would plague the lone individual. When group members encounter stressful experiences, such as failures or personal trauma, they can turn to the group for emotional support, advice, and guidance. Psychotherapy groups provide members with identity-confirming feedback in the form of approval and admiration. A member of a group may also enjoy the identity-sustaining benefits provided by a positive collective identity, particularly if the group is widely admired by others. Groups may also function as arenas for the development and refinement of social skills that are necessary for the positive interactions with people outside of the group. Despite the theoretical origins of the model, however, research using the GRI with psychotherapeutic groups is needed to determine its applicability in ongoing change-promoting groups.

Our findings have implications for the design of effective, adaptive groups. Just as Moreno (1934) argued that groups whose attraction and authority relationships among individual members were harmonious would be more satisfying for members, we argue that a functional model of group membership assumes that groups that satisfy members interpersonal needs are more likely to prosper. Although structurally sound social groups, communities, or countries will be more likely to survive than those with an unstable sociometric structure, a collective that fails to meet its members needs will likely also fail to survive. Moreno focused on the structure of the groups he studied, for he argued that only by paying notice to the naturally developing structural relations among members could groups, communities, and collectives be correctly engineered to sustain and support the individual. The functional approach offered here supplements his mandates by suggesting that groups should also be engineered so that they are functional for group members. Different structures are also required for groups that vary in their function. If the group, by design, is one that stresses intimate connections among members, then a relatively flat, vertically differentiated structure may be more adaptive than a hierarchically differentiated one. A group that must deal with tasks and the dispersion of duties (social exchange, control, and influence functions) may, in contrast, require a more centralized sociometric structure. Given their interdependence, structure must mesh with function.

APPENDIX
THE GROUP RESOURCES INVENTORY

Thank you for completing this inventory. It assesses your personal reactions to this group, so there are no right or wrong answers. Just indicate whether or not you agree with the statement by indicating A (Agree), D (Disagree), or N (Neutral).

1. I depend on this group.
2. I feel safe in my group.
3. I enjoy being part of this group.
4. By pooling our energies, we get more done.
5. Some people in this group are a source of inspiration to me.
6. I enjoy being able to influence people in my group.
7. In the group, I feel accepted.
8. By working together, we are able to survive.
9. I can express my feelings in this group.
10. My sense of identity comes, in part, from my membership in this group.
11. The group has changed me.
12. I learn things in this group.
13. The group meets many of my most basic social needs.

14. The group has taught me how to relate to other people.
15. I feel less "singled out" in this group.
16. My group protects me from harm.
17. The group gives me standards by which to live my life.
18. We group members share a common bond.
19. Some people in this group are worse off than I am.
20. The group gives me the strength I need.
21. I can communicate better now that I've been in this group.
22. In general, the people in this group are my friends.
23. In the group, the stronger help the weaker.
24. I get to vent my feelings in this group.
25. I'm proud to be a member of this group.
26. Some of the people in this group have had an influence on me.
27. The group is a source of much useful information.
28. The group gives me insight into who I am.
29. The group allows me to establish meaningful relationships with other people.
30. The group has helped me understand people better.
31. I'm less fearful when I'm in my group.
32. The group lets me know what I should and should not do.
33. The group members are close to one another.
34. The group supports me in many ways.
35. My group helps me get by.
36. I'm able to take charge in the group.
37. The group seems to accept me.
38. We help one another.
39. I can talk about my feelings and ideas in this group.
40. I identify with this group and its goals.
41. The group is an influential one for me.
42. I get good suggestions from the group.
43. I've gained considerable self-understanding in this group.
44. The group makes me feel less lonely.
45. The group has taken some of the mystery out of getting along with other people.
46. The group is a source of reassurance for me.
47. My group helps me set goals for myself.
48. My group is like family to me.
49. I'm doing well compared to some people in the group.
50. The group makes me want to try harder to improve.
51. I feel powerful when I'm in this group.
52. I am respected in the group.
53. Everyone gives and takes in the group.

54. I can say what I feel in this group.
55. I can identify with the people in this group.
56. The leaders of this group have caused me to change.
57. The group makes me realize how other people see me.
58. The group helps me meet people I can get romantically involved with.
59. I am able to submerge myself in this group.
60. The group has taught me how to work with others.
61. Members show their concern for one another.
62. I try to live up to my group's standards.
63. I feel a part of something when I'm in the group.
64. I'm better off than some of the people in this group.
65. I appreciate the encouragement I get in this group.
66. People in this group look to me for leadership.
67. We listen to one another.
68. The other group members let me depend on them.
69. We are very compatible.
70. We work together efficiently.
71. I learn by listening to other people's experiences with their problems.
72. The group helps me understand my feelings.
73. My group is intimate.
74. I'm more skilled socially than I was before.
75. People can share their secrets in this group.
76. I don't want to let the other people in the group down.
77. Just being with others in the group is satisfying.
78. The group makes my future seem brighter.
79. My group helps me feel good about myself.
80. Group members do favors for each other.
81. Because of this group, I understand things better.
82. The group helps me avoid self-blame and self-pity.
83. I like the group because I don't like being alone.
84. I've learned "people skills" in this group.
85. We do what we can to help each other.
86. The more fortunate members of the group help the less fortunate mem bers.
87. The group makes me feel as if I can get along with people.
88. I like the people in my group.
89. My faults are hidden when I am part of the group.
90. The group includes people I may get (have been) romantically involved with.

Note: Scales scores are calculated by taking the mean of the items keyed to each subscale. The items that correspond to each subscale follow: Social

Bonding: 3, 18, 33, 48, 63, 77; Social Comparison—Downward: 19, 49, 64; Social Comparison—Upward: 5, 50, 78, 85; Social Control: 6, 36, 51, 66; Social Esteem: 7, 37, 52, 79; Social Exchange: 4, 8, 23, 38, 53, 68, 70, 80, 86; Social Expression: 9, 24, 39, 54; Social Identification: 15, 59, 89; Social Identity: 10, 25, 40, 55, 69; Social Influence: 11, 26, 41, 56; Social Learning—Information: 12, 27, 42, 71, 81; Social Learning—Self-insight: 28, 43, 57, 72, 82; Social Relations: 1, 13, 22, 29, 35, 44, 58, 73, 83, 88, 90; Social Skills Development: 14, 21, 30, 45, 60, 74, 84, 87; Social Support: 2, 16, 20, 31, 34, 46, 61, 65, 67, 75; Socialization: 17, 32, 47, 62, 76.

Authors' Note: The measure of group provisions discussed in this article is being revised on the basis of these findings and other administrations of the index to various groups. If you are interested in obtaining information about the inventory when it becomes available, please contact Donelson R. Forsyth in the Department of Psychology, Box 2018, Virginia Commonwealth University, Richmond, Virginia 23284-2018 (e-mail: jforsyth@vcu.edu).

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Sociometry Applied to Organizational Analysis: A Review

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ABSTRACT. Sociometric procedures have wide applicability at many stages of employment, including personnel selection, information processing, decision making, performance measurement, team cohesion, and especially leadership, as well as appraisal and career development. Other areas of applicability go beyond the individual career–network analysis, specific populations, and methodological and other findings. A "SYMLOG" perspective emphasizes the importance of including sociometric criteria from several different dimensions to evaluate optimal levels of dominance, friendliness, and task orientation.

THREE OF THE MAJOR AREAS IN WHICH SOCIOMETRIC RESEARCH might be expected to prosper are (a) peer relations among schoolchildren; (b) sociodrama, psychodrama, and related therapeutic contexts; and (c) organizational studies. Among articles with "sociometric" or similar words in their titles (as logged, for instance, in the *Social Sciences Citation Index* in the 1990s), the majority are concerned with the relations among schoolchildren, and about half of those focus on general issues and the rest focus on matters that at least border on abnormality or delinquency. Additional contemporary, explicitly sociometric research focuses on therapeutic work.

Organizational and employment studies represent a third area in which sociometric traditions retain an important—but, in this case, often unacknowledged—role. In this article, we review sociometric research in that area and suggest that it might benefit from some integration with a different tradition, namely, Bales's Systematic Multiple-Level Observation of Groups (SYMLOG).

Organizational Context

Researchers have reported the increasing appreciation of the value of "360-degree feedback," whereby workers (and their organizations) benefit from the opinions of an assortment of colleagues (Church & Bracken, 1997; Tornow, 1993). Sociometric theory and research represent part of the foundation of this approach, and it is helpful to review a variety of sociometric findings that, in many cases, have not yet been widely incorporated into contemporary procedures. Sociometry, pioneered by Moreno (1934), entails the empirical study and use of people's choices of one another for different tasks or in different situations. In this review, we concentrate on findings from a variety of organizations and on laboratory studies but generally exclude findings from studies of groups of school children and of psychotherapy groups.

To provide a framework for this review, we have mainly followed the career of the individual, starting with personnel selection, then the carrying out of a job (information processing, decision making, and performance measurement), and finally the individual's relating to others (team cohesion) and to managers and other leaders. Leadership is an especially rich topic and, for some authors, is almost synonymous with "high sociometric status." As a career continues, one also needs to consider appraisal and career development.

For additional, general considerations and examples of sociometry in the workplace, readers can see Jacobs (1945), Moreno (1953, especially pp. 511–513), and Patzer (1976). For reviews of sociometry in general, but applicable to organizations, consult the reports of A. P. Hare (1976, pp. 392–393, 405–408), Lindzey & Borgatta, 1954; Lindzey & Byrne, 1968; Moreno, 1953, 1954). Some findings go beyond the individual career, and these are covered, below, under separate headings—network analysis, specific populations (such as physicians or paper-making teams), and methodological and miscellaneous findings.

In reviewing this material, our strategy, for the most part, has been to emphasize one or more exemplar studies in each area and, in many cases, to comment on the results from a SYMLOG perspective (**SY**stem for a **M**ultiple-**L**evel **O**bservation of **G**roups). The SYMLOG system emphasizes the importance of three different dimensions of values: dominance–submission, friendly–unfriendly, and accepting the task orientation of established authority vs. opposing the task orientation of established authority (see, for example, S. E. Hare and A. P. Hare, 1996, p. 2). At the behavioral level, the emphasis in the third dimension is on serious-vs.-expressive behavior (A. P. Hare, 1986, pp. 203). Ordinarily, in both traditional sociometry and SYMLOG, group members make ratings of others in their group or organization. In the heyday of sociometry, however, most researchers were concerned mainly with an *evaluation* (choose or reject) and did not investigate the multidimensional

basis for choice or rejection. Indeed, we begin our review by considering the possible relationship between sociometry and SYMLOG and then turn to the progression through an individual's career, starting with selection.

In the existing literature, researchers have suggested a variety of circumstances in which sociometric procedures have been useful. The authors have not always provided measures of effect size, and much of the research has not been programmatic across a wide variety of contexts. Therefore, findings are often suggestive, rather than definitive. We state this conclusion near the outset of the review so that readers may envision new projects in various contexts that can help set the stage for meta-analytic consideration of sociometric effects (Abelson, 1995, pp. 39–53, 150–153).

Sociometry and SYMLOG

SYMLOG is a social field theory, and the three SYMLOG dimensions are not merely related to each other in an abstract way. Rather, the social interaction is seen as taking place in a particular "region" of the three-dimensional space. For instance, a group discussion on how to deal with a new technology may be mainly located in an assertive, friendly, task-oriented region, while a minority of members may be responding in a negative, unpredictable way. Moreover, the three SYMLOG dimensions have been found to map roughly onto higher-order factors within the "Big Five" personality dimensions (Blumberg, 1997), with dominance incorporating *extraversion* and *openness,* friendliness measured by *agreeableness* and low *neuroticism,* and task-orientation represented by *conscientiousness.*

Moreno and his followers did not have a three-dimensional space clearly in mind nor did they have any way of knowing who was close and who was distant in the space. They assumed that people who chose each other had similar values but did not usually ask what those were. As an early exception, A. P. Hare and R. T. Hare (1948) asked people why they chose each other and proposed a "funnel of friendship," essentially a "cybernetic hierarchy" with values at the top (A. P. Hare, 1976, pp. 163–166). The higher the level on the cybernetic hierarchy, the closer the friendship was proposed to be. The same paradigm holds for colleagues who work together.

Sociometry asks people whom they would choose and assumes common values, whereas SYMLOG asks people about their values and assumes that those would form a basis for interpersonal choice. In his classic work at the Hudson School for Girls, Moreno asked the respondents with whom they wished to live and to work (Moreno, 1953, pp. 104, 260; summarized by A. P. Hare & J. R. Hare, 1996, pp. 74–79). That is the sociometric method that most people followed. Few went on to ask why a person was chosen on a social or work criterion.

Moreno did ask the girls at the Hudson School about their motivations for choice (1953, pp. 328–331). Although he gave a few examples, there are not enough to categorize the material according to SYMLOG's three dimensions. He provided only summary statistics concerning the number of motivations that had to do with either positive or negative choices. He was mostly concerned with finding a "social atom" for the girls who were isolates.

To learn more about individual girls, he used a "spontaneity test." He asked a girl to "throw herself into a state of emotion towards X." The emotions were anger (negative, in SYMLOG terms), fear (submissive–negative–expressive), sympathy (positive–expressive), and dominance. Thus, Moreno (1953, pp. 347–348) had intuitive feeling for the three-dimensional scheme as representing important dimensions for placing a girl in a compatible group.

To understand "pro or con evaluation" in a variety of schemes, including applications to organizational settings, it is useful to introduce a distinction between the situation itself and how one feels about it. Interpersonal relations in a particular office may be friendly and cordial, but a respondent might or might not be in favor of the situation (pro or con). Osgood's semantic differential (Osgood, Suci, & Tannenbaum, 1957) distinguishes between evaluative (good–bad) and two other dimensions of cognitions (strong–weak and active–passive), but the good or bad properties are typically a composite of an object's inherent characteristics and of how the rater feels about them.

In his research on intergroup perceptions, Peabody (1968), too, distinguished between the *evaluative* and *descriptive* aspects of ratings. For example, both Filipinos and Chinese in the Philippines agreed that the Filipinos were relatively free with money and the Chinese relatively concerned with saving, but each tended to use pejorative words (squandering and stingy) when describing the other group and complementary terms when describing themselves (generous and thrifty). Thus, the personal evaluative aspect of a rating may be implicit in the connotations of words chosen by the respondent.

For Maassen, van der Linden, and Akkermans (1997), the second dimension of sociometric status is dominance or "impact level." Bales's SYMLOG Interaction Scoring Form explicitly makes the distinction (Bales & Cohen, 1979). For each act of social interaction, there are ratings not only for where the behavior lies in three-dimensional space (including the friendly–unfriendly dimension) but also for the "Pro/Con," how the actor feels about the behavior. SYMLOG's summary rating forms, however, concentrate on a respondent's precise location of an image in three-dimensional space but do not ask for the rater's detached feelings. If respondents are asked, however, to rate their ideal values, their ratings of self-image are found to be similar to their ideals (A. P. Hare, Hare, & Koenigs, 1996, p. 189).

As a further paradigm that distinguishes between the inherent situation and how one feels about it, recent developments on the Five-Factor Personality

Theory also add two more dimensions, positive and negative valence, in addition to the inherent agreeableness that forms one of the five dimensions (Benet & Waller, 1995).

To summarize, sociometry only shows compatibility (how people feel about one another), not the part of the three-dimensional space in which the group is located. Schutz showed that individuals can be compatible if all are personal or all counter-personal—that is, essentially if they are relatively close on the friendly–unfriendly dimension, regardless of whether they are on the positive side or the negative one (Schutz, 1958; see also Lemann & Solomon, 1952).

Even though managers and most people in organizations may be in an assertive–friendly–task-oriented part of SYMLOG's three-dimensional space, some give more weight to friendly (social) considerations, and some give more weight to task matters, with important implications for how they perceive the group (A. P. Hare, Hare, & Koenigs, 1996).

Five phases in problem solving and group development can be identified. In the first phase the purpose of the group is defined; in the second phase new skills are acquired; in the third phase roles are defined and sufficient morale is developed for the task at hand; in the fourth phase the group members work at the task. Finally, there is a fifth phase, at the end of the life of a group or when it is about to begin a new task, when the meaning of the group is reassessed and, if the group is being disbanded, the relationships between the members and the group are redefined.

Each phase of problem solving and group development requires a different emphasis. Some people are barometric for each phase (Bion, 1961; Stock & Thelen, 1958). For example, in the first phase of group development, when it is necessary to secure overall agreement on the purpose of the group, members who are barometers for dependency are more likely to follow the leader than those who are barometers for "flight" and wish to withdraw from the situation. In the third phase of development, with an emphasis on role clarification and morale, those concerned with pairing are usually supportive whereas those who specialize in fight resist (see A. P. Hare, 1976, page 110 for phases in group development and page 78 for the relationship between group functions and Bion's types).

In two graduate theses in Israel, students used SYMLOG questionnaires to rate military personnel. One study, which also used the sociometric ratings routinely used in the Israeli Air Force, showed that all air force officers were rated as being in the assertive–friendly–task-oriented SYMLOG octant, but those who complete their term of service as lieutenant colonels were farther out from the neutral center of the three-dimensional space than those who finish as majors. The other thesis showed that Israeli naval instructors who are closest to an ideal profile receive higher ratings on board ship. Many other

studies also support the view that an assertive-positive-task orientation is ideal for most organizational contexts. See, for instance, Hogan's (1988) study of American managers and Bachman's (1988) study of U.S. naval commands.

Organizational Facets

Selection

Few studies have compared work groups assembled by sociometric and nonsociometric procedures, but the findings of one such study (Colarelli & Boos, 1992) are notable, albeit tentative. The participants had been formed into 88 three-person work groups, 44 of which were based on ability (one member from each of three ability levels) and 44 on personal preference (subjects orally described their backgrounds and interests to one another, and they then formed themselves into work groups). The sociometric-based groups reported higher levels of communication, task coordination, peer ratings, cohesion, and job satisfaction. These advantages could stem from either actual or perceived compatibility (cf. Blumberg, 1969). Performance (writing a group report to evaluate a personnel program in an organization of their choice) was about equal for both sets of groups—a rather remarkable finding given that all of the ability-based groups contained at least one high-ability member, whereas that was not necessarily true for the sociometric-based groups. The participants were undergraduates in a course on industrial and organizational psychology. One's confidence in the generality of the findings could be increased if the findings were replicated in occupational settings. At least they are consistent with sociometric lore, including Moreno's accounts of high group satisfaction in teams composed on the basis of members' choices.

In the study by Colarelli and Boos (1992), there is no record of how respondents rated those whom they chose. It seems likely that the sociometric-based groups were relatively homogeneous on friendly–unfriendly or warm–cold and heterogeneous with respect to dominance. That was, moreover, a group composition that could be expected to produce high satisfaction, as in the study by Schutz (1958) in which groups that were compatible as either "personal" or "counterpersonal" were more productive than groups with subgroups of both types. In each case, there was a focal person, main supporting member(s), and a set of followers (see A. P. Hare, 1976, pp. 334ff.).

Adams, Elacqua, and Colarelli (1994) noted that the standard employment interview is like sociometry on two counts—first, that often several people that interview a candidate and say how much they like the candidate, and second, even in a one-on-one interview, the interviewer is trying to judge how well the new person will fit the existing group. They called for research on how interviewers arrive at sociometric assessments of applicants.

It is not obvious that sociometric procedures could be used to decide whom to hire, apart from including judges' ratings within an actuarial selection procedure. After people have been selected to be employed, however, there may be scope for assigning people to teams on the basis of their mutual preferences. The implication from Colarelli and Boos's research is that it would be advantageous to do so. Reputedly, when soldiers in the U.S. Army during World War II were sent as replacements to infantry units in groups of friends, sociometrically chosen, they survived longer than soldiers sent as individual replacements.

Decision Making and Performance

Research seems to have focused more on the question of identifying good decision making rather than on whether people chosen for their decision-making skills actually make better decisions on the job. Decision making is not, of course, a unitary concept, and different kinds of decisions are associated with different predictors. Records of informal communication among 304 employees in the technical division of a medium-sized, medical instrument corporation were collected by Tushman and Romanelli (1983). "Internal communication stars"—those most frequently approached as discussion partners—and boundary-spanning individuals—those strongly linked to external as well as internal sources of communication—were both influential, depending on the nature of their unit's work requirements. Boundary-spanning individuals were most influential when task uncertainty was high—for instance, because the task required information about market or organizational conditions. Individuals with high formal status (managers) were influential in all circumstances.

Good decision making, then, is associated with one's position in a communications network. To be influential, one needs many within-group communication links. For tasks requiring external information, one also needs cosmopolitan links. In other words, good influential decision making typically requires individuals who have substantial internal communication links, but the nature of the task affects the relative desirability of external links. In SYMLOG terms, one needs to be fairly dominant, positive, and task oriented, and one must interact with others in a way appropriate to the job at hand.

Performance depends, of course, on a variety of features, some of them external and related, for instance, to market conditions, and others related to a variety of organizational features, such as ability and team composition, as well as to sociometric-linked properties, such as cohesiveness. Some landmark studies (e.g., Belbin, 1981) do conclude that success is predictable as a function of ability and of teams being composed of members well-placed for a variety of roles, essentially corresponding to specialized combinations of

SYMLOG dimensions. They do not, however, really consider the potential added advantages of including sociometric procedures within team-building processes.

We are not advocating the wholesale, uncritical adoption of sociometric procedures; but such procedures, particularly when they span all three of the SYMLOG dimensions, do seem to merit being tried and evaluated regularly. In 360-degree feedback, which includes sociometric-like procedures, positive results seem much more likely when used for staff development than when fed into appraisal and enforced change, and even benefits in the latter sphere obviously require psychometrically reliable, valid instruments (Fletcher, 1997, pp. 66–82; cf. Fletcher, Baldry, & Cunningham-Snell, 1998; T. H. Shore, Shore, & Thornton, 1992). Moreno appreciated the importance of using criteria that correspond to desired competencies but did not highlight the possible advantages of using feedback for development rather than for imposed changes (which may work poorly in the absence of a benevolent overseer or a cohesive group).

Particular challenges arise when 360-degree feedback is used cross-culturally (Rowson, 1998). Some difficulties may be ameliorated by avoiding such common mistakes as having no clear purpose, insufficient communication, and failure to evaluate ongoing effectiveness (Wimer and Nowack, 1998).

Shiloh and Rotem (1994) did use a sociometric approach with the specific purpose of analyzing decision making among adult Kibbutz members in Israel. Respondents' criteria for good decision makers yielded six categories: vigilance, possession of the right values, persuasive personality, experience, decisiveness, and intuition. These categories, in turn, span the three SYMLOG dimensions to yield a prototypical good decision maker as one that is—yet again—dominant (but taking into account others' needs), moderately friendly, and task oriented (but not to the exclusion of nonconforming "hunches"). That is precisely the SYMLOG profile found cross-culturally for leaders who make effective decisions. This is not to say that cross-cultural differences in leadership performance are nonexistent. For instance, Italian managers have been found to place more emphasis on task-oriented values and less on friendly values than North American managers (Isolabella & Hare, 1996).

Team Cohesion

The ideal profile for a cohesive Olympic sports team may differ from that for a hierarchical work group. In one of the still-rare studies using both traditional sociometric and contemporary SYMLOG procedures, Kalinin and Nilopets (as reported tentatively by Copeland & Straub, 1995) asked Russian respondents to select the four teammates, in order, with whom they most enjoy participating in games and any with whom they do not enjoy participating. The results were scored for sociometric status (weighted number of

choices). Optimum teams were found to have two or three leaders, a majority of supporters, a small number of isolates, and no rejected players.

Lucius and Kuhnert (1997) also found a tendency for sociometrically strong teams in a military college to perform well on a variety of criteria. Breen (1994) used sociometry in two ways, one whereby people choose a person who would like to listen to them, another whom they would nominate to play roles such as head-office person, systems thinker, honest person, and so forth. The main purpose seemed to be to give feedback on why a person was chosen, rather than to reformulate the group.

Sociometric techniques measuring a group's cohesion and other properties, especially trust, can also foster overall group development. Hoffman, Wilcox, Gomez, & Hollander (1992) described step-by-step techniques that have proved effective in organization development, thus helping to remedy previous difficulties in measuring the effectiveness of certain interventions.

On SYMLOG ratings, the optimum levels for both individual players and team totals are to be as friendly and task oriented as possible but to be average on the dominance–submissive dimension—that is, not overbearing. That is similar to the typically moderately high dominance of the ideal leader found in many organizational studies. Ironically, members of sports teams may need a moderate cap on dominance. Effective leaders in American organizations are also rated as relatively low on dominance. Both male and female managers and their subordinates rate effective leaders as several points lower on dominance than on friendliness and task-oriented values (A. P. Hare, Koenigs, & Hare, 1996).

Leadership

Leadership potential can, it seems, be rated reliably by one's peers. For example, in a study of enlisted men carrying out basic training in the American army, the men were rated in one set of groups (of approximately 16 people each), subsequently reshuffled into different groups, and later rated again by their new colleagues (Gordon & Medland, 1965; see also, Reynolds, 1966). With an overall N of 492, correlations between the average ratings received on the two occasions were about .81; this is nearly as great as the correlations of about .90 obtained for other groups that were not reshuffled but rated again by the same peers. It appears that the perceived quality of a person's leadership was largely independent of group and rater. Reliability for ratings made by supervisors (two or three platoon sergeants) was not as accurate—about .45 to .60, perhaps because the ratings were averaged across fewer raters.

Although Moreno distinguished task from social criteria, he and others did not ask about dominance versus submissiveness. As a result, some people

became sociometric stars because they were chosen as good followers and others because they were good leaders. When there was a distinction between a "task leader" and a "social emotional leader" (or "best-liked person"), the task leader typically received fewer choices than the best-liked person. As a result, not all sociometric stars are leaders, and not all active persons are stars (A. P. Hare, 1976, p. 177).

One must bear in mind that leadership can be rated with respect to a variety of qualities and roles, including both instrumental tasks and expressive social ability (Bales & Slater, 1955). Opinion leadership blends task and social elements—for example, the member of a sorority to whom one would turn for advice about clothing. Leadership can be successfully measured in ongoing groups by a variety of methods, including self-report and (formal) leader's nominations, and, perhaps most reliably, by sociometric ratings (Jacoby, 1974; Sethu Rao & Bhaskaran, 1978). How a given individual is rated is likely to be more consistent for similar categories (e.g., leadership with respect to two categories of products) than for different ones (for instance, choice of cosmetic product brand and taste in room decorations).

Even very different leadership criteria, such as ratings related to living together and working together, are likely, however, to be correlated substantially. (See, for example, some of the classic sociometric research concerned with residential groups of young girls, as reported by Jennings, 1950, pp. 218–224.) Even so, the persons scoring highest on task and social criteria are typically different.

Sociometric procedures can also be adapted as a tool for studying biases in emergent leadership, for example the effects of birth order (Eckstein & Driscoll, 1983) or of diffuse status characteristics such as gender (Gerber, 1996; Ibarra, 1997; Walker, Ilardi, McMahon, & Fennell, 1996). In one study of four-person laboratory groups, men were found to be five times more likely than women to exercise opinion leadership in initially leaderless, mixed-sex groups (Walker, Ilardi, McMahon, & Fennell, 1996). Sex differences were not present, however, when a randomly selected group member was assigned to serve as "leader," even though the group was given no instructions about the appointed "leader's" role. In a study by Sywensky, Madden, and Treadwell (1996), men and women did not differ in being viewed as effective as leaders of residence halls in either interpersonal or disciplinary situations. According to scores on the Bem Sex Role Inventory, however, it was better, regardless of sex, to have a masculine gender type—one that was more instrumental than expressive.

Most studies on sociometric determinants of leadership have drawn on only one or sometimes two of the SYMLOG dimensions—usually a friendship criterion or separate choices for task and social criteria—or else have requested global ratings of others' leadership potential (A. P. Hare, 1976, pp. 154–155).

Polley and Eid (1994) found that Norwegian naval cadets chose leaders on the basis of dominance and conformity but chose co-workers on the basis of friendliness. Given that effective leadership is known to be associated with moderately high levels of being assertive, friendly, and task-oriented, it would seem sensible advice that sociometric bases of leadership selection or evaluation should incorporate separate measures of all three dimensions.

It would be an empirical matter to establish whether people who match (generalized or specific) effective leadership profiles really do make good leaders, and to establish how well the prediction compares with selection based on other procedures such as traditional (more global) sociometric techniques and situational approaches to leadership effectiveness (see, for example, Fiedler & Garcia, 1987). One wishes to know how the best composite predictions were made from the independent and common contributions of the different approaches (A. P. Hare, Hare, & Blumberg, 1998).

Appraisal and Career Development

As a case history in which sociometric procedures were used in industrial counseling, Speroff (1956) recounted the example of a specialized industrial relations group. Unity, cooperativeness, and team spirit had been disintegrating, and interpersonal friction was threatening to destroy the creative work of the group. Although the situation had implications for the careers of all those in the unit, even the unit leader hesitated to counsel the problem individual. Sociometric data corroborated the view that the problem centered on one member of the group, who was intelligent and efficient but arrogant and argumentative. From a modern SYMLOG perspective, one might say that the problematic employee was generally assertive, unfriendly, task oriented, and intelligent—an effective profile apart, of course, from the unfriendly behavior emitted and negative evaluations received. The sociometric data provided an objective framework for counseling interviews, which could highlight an individual's valued properties and proceed to deal with constructive criticisms. Often sociometric data from others are mirrored in an individual's own estimates about how one's best friend and one's least-liked other would describe one. Without proper sampling and controls, the dramatic improvement in that particular group might be attributed to regression to the mean or simply to chance. Nevertheless, the methods described provide useful working hypotheses about potentially valuable procedures, namely to use empirical sociometric data in counseling as well as appraisal (Remer, Lima, Richey-Suttles, White, & Gentile, 1995). Even now, those have not been systematically evaluated.

Seemingly minor situational differences can affect appraisal outcomes. For instance, in keeping with expectation, ratings of a subordinate did tend to be higher when the raters had obtained favorable self-assessment ratings from

the subordinate, although the effect is moderated by the purpose of the ratings (T. H. Shore, Adams, & Tashchian, 1998). Rating context and prior self-knowledge may also be associated with differences among ratings by self, by peers, and by an assessment center (L. M. Shore, Tetrick, & Shore, 1998).

Stogdill (1956) described a number of sociometric indices, on the basis of choices of work partners, that can be used to provide global measures of individuals and teams occupying particular levels within an organization. The list, similar to the set of indexes proposed by Moreno (1953, p. 235) but without reference to the hierarchical position of those making the ratings, follows:

MG Mentions given—total number of persons mentioned
GI Mentions given *inside* own unit of organization
GO Mentions given *outside* own unit of organization
GA Mentions given to persons in echelons *above* one's own
GS Mentions given to persons in the *same* echelon as one's own
GB Mentions given to persons in echelons *below* one's own
MR Mentions received—total number of mentions received
RI Mentions received *inside* one's own unit of organization
RO Mentions received from persons in units *other* than one's own
RA Mentions received from persons in echelons *above* [one's] own
RS Mentions received from persons in *same* echelon as [one's] own
RB Mentions received from persons *below* [one's] own echelon

We need not dwell here on the specific uses Stogdill described—mainly correlations among the indices for particular groups of superiors and subordinates. Even a brief inspection of the list, however, suggests that one can use such indexes to compile an informative picture of the social structure, cohesiveness, and cosmopolitanism of the personnel units within an organization. That picture can, in turn, be used to advantage in counseling individuals about their present and prospective situations (see also Rockwell, 1987).

From a SYMLOG viewpoint, Stogdill's bare list is silent about the specific dimensions being tapped by the indexes. That depends on the criterion of nominations, and those might usefully cover assertiveness, friendliness, and task-orientation, as exemplified in Speroff's case history.

This completes the review of sociometric applications at various stages of individuals' careers. Cutting across this vertical progression are several general topics: network analysis, research with specific populations, methods, and other findings.

Network Analysis

In a relevant case example, three high-technology companies, all operating on different continents, were merged by the large multinational corporation

that owned them and placed under a transgeographical management—a process that has become increasingly frequent and is seen as necessary in a global economy. In the case example, sociometric indices were used to gauge the success of a year-long intervention for facilitating a less-hierarchical, unified leadership style (Bovasso, 1992b).

The main sociometric indexes, calculated for each individual, were density (proportion of all possible direct contacts in which a respondent participates), range (extent to which a subject is influenced by peer groups that do not influence each other, thereby helping to integrate the network), prominence (degree to which a subject is the source of influence), and elitism (extent to which an individual initiates and reciprocates only contacts with relatively prominent others). Appropriate analyses showed that differences between hierarchy levels and across geographical regions decreased over time.

The same case study provided insights into such diverse matters as leadership perceptions, social structure, contagion and anticontagion associated with social influence, and self-perception. As Bovasso (1996, p. 1421) explained, "Psychologists may be underutilizing techniques [sociometric methods of network analysis] of great benefit to their regular design and evaluation of interventions in field settings."

In addition to summary sociometric ratings, the study of transnational structures could also encompass the tabulation of communications protocols among respondents. Those include not only the direction of verbal communication (on the three SYMLOG dimensions) but also several aspects of the content of the communication, such as a description of substance and of how the respondent feels about it. For face-to-face communication, protocols could also include nonverbal behavior, where that differs from verbal behavior (Bales & Cohen, 1979, pp. 207–212). Indexes of metacommunication might co-vary with group climate and productivity. With regard to the influence of networks on innovative output in emerging technologies, the embeddedness of an organization's network was positively associated with innovation, but involvement in collaborative research and development had a curvilinear effect on innovative performance, with an intermediate range of involvement being optimal (Debackere, Clarysse, & Rappa, 1996).

In a large professional services firm, the most valued sources of communication were interpersonal ones, from a social network (Burke, 1996). Ironically, controversial innovation may diffuse more in a structured organizational network in which there is limited free movement of ideas and people (Krackhardt, 1997). Organizational transformations are typically accomplished by rapid, discontinuous changes. Improved performance follows independently from management succession and changes in executive teams (Romanelli, 1991; Romanelli & Tushman, 1994). For additional empirical studies, see Iacobucci and Hopkins (1994), McGrath, Blythe, and Krackhardt

(1997), and Stork and Richards (1992). For a review of research concerned with computer-supported social networks, see Wellman, Salaff, Dimitrova, Garton, Gulia, and Haythornthwaite (1996).

Specific Populations

Retail sales. A seemingly pure economic concept such as a firm's portion of a competitive market area has typically been determined by objective indexes such as the density of competing firms in a standard statistical area. Such definitions may ignore not only the reality of exactly which stores in an immediate area provide actual competition but also the effects of sellers' perceptions of that reality (Gripsrud & Grønhaug, 1985). One supported hypothesis, tested in an exemplar study of grocery retailing in a small Norwegian town, is as follows: One's perceived main competitor will influence marketing strategy only if that competitor is geographically the nearest competitor.

Thus, sociometric data can augment traditional economic and geographic information. Criteria of choice may be opportunistic—determining, for instance, who are the perceived competitors. In such cases, it is only if one wished further explanation of the meaning of, say, competitor that one would need to explore underlying dimensions—perhaps to find that a true competitor, in addition to being about equally accessible (geographically) and having a near-identical range of products and services, appeals to similar clientele, perhaps by projecting the same cognitive image in terms of the level of forcefulness, friendliness, and somberness–lightheartedness.

Hospital physicians. Sociometric techniques can also help in the study of relationships with patients and clients. Carmel and Glick (1996) note that compassionate–empathic physicians—those with strong devotion to the welfare of patients on socioemotional as well as scientific–technical dimensions ("both caring and curing")—are desired by patients but relatively scarce. A sociometric questionnaire filled out by 214 physicians in a large Israeli hospital was used to classify the physicians into high, medium, and low levels of compassion–empathy. Then a self-report questionnaire established that the high scorers were younger, had fewer years in medical practice, and had more prosocial, nonstereotypic attitudes toward patients. Among all three groups, empathy was considered the most important factor for being a good physician and least important for being promoted in the hospital. In SYMLOG terms, the optimal level of physicians' task-seriousness appears to be lower from the patients' point of view than from that of the hospital. The authors concluded that it might be worth introducing into the medical system formal recognition and professional rewards for compassion–empathy, as well as screening med-

ical school applicants accordingly. To take a different example that makes a similar point: Reputedly, in military units, those in the high ranks want F subordinates (task–oriented) and those in low ranks want P leaders (friendly orientation). Sociometry clearly has a part to play in the evaluation of desirable and undesirable personality characteristics for particular professions, including the optimal task-social balance in different contexts.

Other populations. Kadushin (1995) studied the antecedents and correlates of friendship among the innermost circle of the French financial elite. Being part of that circle depended on whether one had graduated from the top French school for administration and, to a lesser extent, on social prestige, political party membership, and residence.

Other authors have used sociometry to study a wide variety of groups and topics, such as the nature of cooperation among Scandinavian ice-hockey players (Salminen & Luhtanen, 1994), dominant coalitions among executive officers of small banks (Pearce, 1995), social relationships and the underuse of competence in paper-making teams (Tuominen, 1996), ratings of child-care staff (Beglen, 1983), housewives wishing to re-enter the work force (Bilaniuk, 1988), miners (Reimer & Spanhel, 1983), religious vocationers (Imoda & Rulla, 1978), scientific workers (Nidek, Rosenbaum, & Rosenbaum, 1991), and teachers (Musil, 1976). In some of the above cases, sociometric techniques suggested the value of fine-tuning the optimal dimensional profile of workers in a particular context. In other research, the procedures were mainly useful as a tool in uncovering other findings, such as the curvilinear relationship between external collaboration and innovation.

Methodological and Miscellaneous Findings

Although it is not within the scope of this review to summarize all the methods, techniques, and caveats involving sociometric measurement, some specific pitfalls and other findings merit mention. Indexes of a person's overall sociometric status are typically quite reliable, and the researcher often pools ratings made on several criteria so that distinctions are lost (A. P. Hare, 1976, p. 155). People usually make more choices for working together than for friendship, but often they choose the same people for both. Indeed, many groups have members who score high on sociometric status for both criteria. Also, some respondents choose according to their own interpersonal needs—for example, achievement vs. affiliation motive—regardless of the criterion suggested (French, 1956). People who choose each other sociometrically on the criterion of want-to-work-with might actually be choosing people they prefer to have fun with and not work too hard with, like the group at the back of the Bank Wiring Room at the Western Electric Plant (Roethlisberger & Dickson, 1939; also Homans, 1950).

Improved understanding of organizations can be achieved by linking variables from a variety of levels and methods (Anderson, Payne, Ferguson, & Smith, 1994; House, Rousseau, & Hunt-Thomas, 1995; Rousseau, 1997). One near-artifact merits particular attention. Individuals who give low ratings to others will thereby elevate their own sociometric status, which has not been tainted by the low ratings that they themselves emit (Riedesel, 1974). The effect may be artifactual (if an individual gives out artificially low ratings) or genuine (if the others actually merit lower ratings than the rater does). Therefore, using rankings instead of ratings is not an appropriate solution because it simply removes the effect, regardless of whether it is justified by true differences. If groups are reasonably large, one can deal with the problem by dividing a group into two random or equivalent panels for the purposes of data analysis, and considering only those ratings for which the rater and ratee come from different panels.

The following references deal with additional methodological matters. Loomis and Pepinsky (1948) reviewed classical sociometric methods, and Mouton, Blake, and Fruchter (1955a, 1955b) presented extensive reviews of studies considering reliability and validity of sociometric measures. Other studies were concerned with consistency of ratings (Fiske & Cox, 1960), normative expectations (Titscher, 1995), reasons for choices (Pluckhan, 1973), and social power (Frost & Stahelski, 1988). Formulas for various indexes were reported by Doreian, Kapuscinski, Krackhardt, and Szczypula (1996); Sapin-Lunel (1991); and Smucker (1949). Other methodological points were also investigated (Brugha et al., 1987; Gazda & Mobley, 1994; A. P. Hare, Blumberg, Davies, & Kent, 1994, pp. 285–286; Hurley & Ketai, 1993; Treadwell, Stein, & Leach, 1989).

For additional research bearing on sociometry in organizational and community settings, see Bovasso (1992a); Burns and Wholey (1993); Chevalier, Dedobbeleer, and Tremblay (1995); Clarysse, Debackere, and Rappa (1996); Hart and Nath (1979); Muir (1994); Nakao (1987); Rogers (1974); Stern, Craig, La Greca, and Salem (1976); Davison and Jones (1976); and Teevan, Diffenderfer, and Greenfeld (1986).

Conclusions

Although feedback from a variety of quarters is now fairly widely incorporated into appraisal systems, the advantages of active use of sociometric data, for example, in assigning people to work groups, have not of late been widely researched nor apparently used, despite Moreno's recommendations and the support of such practices provided by earlier studies. Nonetheless, sociometric procedures can be used advantageously in many aspects of organizational activity. Those include assigning people to teams on the basis of their

mutual preferences, encouraging communication links within a group and (where appropriate) externally, selecting leaders at least partly on the basis of multicriteria sociometric ratings, and using empirical sociometric data in counseling and appraisal.

Moreno recognized that sociometric data would be more valid, for both appraisal and action, if respondents rated themselves and others using specific, appropriate task or social criteria. Nevertheless, it is only recently that the likely benefits of explicit use of three aspects of those criteria (the SYMLOG dimensions) have become clearer. Ratings need to be based not only on a summary evaluative (pro–con) criterion but also on dominance (indexed by the amount of social interaction), friendliness, and the acceptance of task orientation.

Authors' Notes: The authors wish to thank Clive Fletcher for comments on an earlier version of the manuscript.

The address for the SYMLOG web site is www.symlog.com.

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BOOK REVIEW

Handbook of Psychodrama, edited by Marcia Karp, Paul Holmes, and Kate Bradshaw-Tauvon. London: Routledge, 1998.

In 1973, Marcia Karp moved from America to England, where she and her husband, Ken Sprague, established the first ongoing training institute there. By 1980, her first students were being graduated, and they formed the core of what became the British Psychodrama Association. Since then, seven other training programs have been formed. In the early 1990s, Karp began a fruitful collaboration with Paul Holmes, a London psychiatrist, editing anthologies of papers on psychodrama.

In the 1998 volume, the authors of the various chapters are all her former students, who show considerable expertise in writing about a wide range of issues. In addition to covering practical aspects, the fifteen chapters communicate something of the vitality of psychodrama in the United Kingdom.

After an introduction by the editors and a general overview of the method by Karp, Peter Haworth discusses the historical background of pshchodrama, and that is followed by Bradshaw-Tauvon's review of the method's basic principles.

Susie Taylor's discussion of the process of the warm-up is rich in practical suggestions. John Casson's discussion of the stage and of aspects of staging is especially notable, and I appreciated his mentioning those considerations that contraindicate the use of a formal stage.

In Chapter 6, Kate Bradshaw-Tauvon addresses aspects of working with the protagonist and offers several clinical examples. The device of presenting brief vignettes in shaded boxes is employed throughout this book, and is most helpful.

I was pleased to read the way Anne Bannister considers a number of facets of group dynamics, because that dimension is insufficiently emphasized. Many aspects of group function and the processing of events are not generally addressed by Moreno's own writings. Professionals need to be informed of the wider field of which psychodramatic group work is only a part.

As part of his chapter on the auxiliary ego, Paul Holmes discusses his integration of psychodrama with the object–relations school of psychoanalysis, which he wrote about in an earlier book, *The Inner World Outside* (Routledge,

1992). He then goes on to address a number of practical aspects regarding the use of this basic element in the process.

To her discussion of the director's role, Marcia Karp adds some comments on Moreno's theological ideas, linking them with the themes of creativity and responsibility and, in turn, joins those with the challenges of facilitating a protagonist's own self-creation while at the same time staging the production. The end of that chapter contains a transcription of a discussion between Marcia and Anne Ancelin Schützenberger, one of the earliest pioneers of psychodrama in Europe. The magic of the process comes through in that dialogue.

In her chapter on sharing, Gillie Ruscombe-King shows the ways that that phase of psychodrama then extends to a more effective use of the work for everyone in the group. Issues of de-roleing, vignettes of reactions to the group-as-a-whole, and other aspects are thoroughly treated.

Jinnie Jefferies's chapter on processing follows. She goes beyond sharing to address two other issues not sufficiently dealt with in the general psychodrama literature. She notes that we should not assume that the optimal degree of insight may be gained in the classical psychodramatic process. Although some protagonists, following an intense enactment, need time away from further intellectual reflection, others are warmed up to a further working through, and for them, an extended discussion helps to consolidate their gains. Even those who would be overloaded by an immediate processing after their enactment often enjoy an opportunity for further integration in a subsequent session.

Jefferies also addresses the reality that many psychodramas are conducted by directors in training, and they and the group (some or all of whom may be in training also) need some analysis of the proceedings because cognitive integration is part of their overall goal. She even notes the trainer's need to deal with unfinished business.

In Chapter 12, Olivia Lousada discusses the use of doubling, role reversal, and mirroring as key psychodramatic techniques. She presents a variety of observations about actual practice in the "mid-game" phase, a guide for that point when the choice of options can seem overwhelming.

Following that, Chris Farmer describes psychodrama's use in the treatment of depression. In several vignettes, the family dynamics are noted. Her restatement of the value of psychodrama in that aspect is important because, however well the new antidepressant medicines work, there is also a need to address the underlying attitudes and circumstances that tend to provoke a relapse.

Sociodrama is an unfolding field with a goodly number of variations, from working on problems in businesses to attitudes toward current social or ethical problems to facilitating groups considering problems of international relations. Ken Sprague's chapter on that facet of psychodrama offers several

vignettes of different uses of sociodrama, including ways of dealing with hidden issues in an ongoing group.

Another related approach is dramatherapy—written as one word in the U.K.—and its relationship to psychodrama. Areas of similarity and difference are discussed next by Dorothy Langley. This is important because of the significant potential for mutual influence, and I was delighted to have this chapter included.

In the penultimate chapter, and also in the spirit of building bridges to related methods, Kate Bradshaw-Tauvon discusses ways in which psychodrama might have certain areas of overlap with group-analytic psychotherapy. Bradshaw-Tauvon effectively expands on the ideas raised previously by Bannister about group dynamics and by Jefferies on processing. Psychodynamic issues do need to be kept in mind so that issues that too often are overlooked in ordinary discourse may be addressed openly.

As an epilogue, Anne Ancelin-Schützenberger sums up her views on the essence of psychodrama in a provocatively succinct mini-chapter.

The scholarship in an anthology often varies, and that is true here, with some digressions and some essential references having been overlooked. Nevertheless, as a whole, the *Handbook of Psychodrama* is an outstanding contribution to the field. Amid the wealth of clinical illustrations interspersed throughout the text, readers will find a fair amount of theory and specific suggestions related to method, all of which add to the book's practical applicability. In summary, I consider this anthology to be one of a relatively small number of books that can deliver near-authoritative information about our field.

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MOVIE REVIEW: *The Game*

The Game: (1997). PolyGram Filmed Entertainment, directed by David Fincher, starring Michael Douglas, Sean Penn, Deborah Kara Unger.

Have you ever thought about just how far you would go to provide a client with the most powerful catharsis? Suppose you had a rich client and money was no issue. You could hire as many auxiliary egos and buy as many props as you wished, having the resources to direct a psychodrama that extends for several days and moves to different locations.

That is roughly what happens in *The Game*. Billionaire Nicholas Van Orton (a moving performance by Michael Douglas) receives a birthday gift from his brother who has enrolled him in a "game" facilitated by Consumer Recreation Services (CRS). The corporation promises to provide its client with some "fun" experiences, after thoroughly testing him psychologically. What makes the game interesting is that the client never knows when and where those experiences will occur. In the words of CRS Vice President Jim Feingold: "Think of it as a great vacation, except you don't go to it—it comes to you." As the plot unfolds, viewers recognize that the directors at CRS will stop at nothing to provide their client with the most intense experience, even forcing him to face death.

Some of the most profound catharses have been induced by near-death experiences. A range of positive effects of such encounters with death has been reported (see Farthing, 1992, pp. 70–72 and Elsaesser Valarino, 1997). Are there ways to bring about such an experience deliberately and safely? If the therapist tells a client about the plan, then the near-death experience will be less authentic and powerful because the client knows that he or she will return. Moreover, is it ever ethical to bring someone to a near-death experience without telling that person in advance, assuming that one has a sure way of bringing the client back to life? According to research ethics committees at universities and hospitals (Farthing, 1992, p. 72), that is never ethical. So for now, we can explore such an idea only in fiction.

Although today psychodrama is usually done in a confined and controlled setting, Augusto Boal has experimented with *Invisible Theatre,* in which actors go into community settings and galvanize the enactment of a certain scene that can serve as a learning experience for the unsuspecting onlookers

who happen to be at the place of performance. For example, Boal (1992, pp. 6–9) presented a description of actors who sexually harass each other on the Paris Métro, thus provoking the "spectators" to intervene.

Is invisible theatre unethical—always, sometimes, or never? What if the protagonist has signed a consent form (as Michael Douglas's character did)? That would have to be a general consent—if the protagonist knew when and where the enactment takes place, then by definition it could not be invisible.

The Game also contains all the elements of great film-making: truthful acting, splendid cinematography, brilliant screen-writing, breath-taking suspense, complex characters, dark humor, and a cathartic surprise ending. Like any good piece of art, *The Game* raises many pertinent questions without giving easy answers. Here is a brain twister: "Discovering the object of the game IS the object of the game." Psychodramatists and other practitioners of action methods, such as Boal's theatre techniques, can use this film as a source for profound, imaginative, and humorous discussions or, for the creatively inclined, enactments. Practitioners, however, are cautioned against using any of the techniques shown in the movie.

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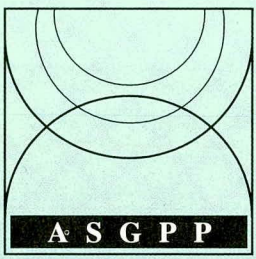

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