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# A SET OF CATEGORIES FOR THE ANALYSIS OF SMALL GROUP INTERACTION\*

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IN A RECENT review of the state of research in the field of small groups, Edward Shils makes some remarks which aptly point up the problem to which this paper is addressed:

"Because problems are dimly 'felt,' because they are neither related to a general theory of behavior on the one side, nor rigorously connected with the categories and indices to be chosen for observation on the other, the results of the research can very seldom become part of the cumulative movement of truth which constitutes the growth of scientific knowledge. When concrete indices (and classifications) are not clearly related to the variables of a general theory of human behavior in society, they tend to be *ad hoc*. Under these conditions they are only with difficulty, applicable, i.e., translatable into another concrete situation by an investigator who seeks to confirm, revise, or disconfirm the previously 'established' proposition."<sup>1</sup>

Probably most of us have some difficulty in thinking of a session between a psychiatrist and patient, a corner boy's gang in a political huddle, and a staff conference of business executives as comparable within a single frame of reference. It is probably more difficult, for example, than thinking of the social systems of China, of Bali, and the United States as legitimate objects for comparative analysis. At least the latter three constitute full scale, and in some sense, complete social systems.

What do the former three groups have in common? They are small face-to-face groups. If we call them social systems, we shall have to say that they are partial, as

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<sup>1</sup> Edward Shils, *The Present State of American Sociology*, Glencoe, Illinois: The Free Press, 1948, p. 45.

well as microscopic social systems. To place a slightly different emphasis, it can be said that they are systems of human interaction. At this degree of abstraction there is no necessary incongruity in comparing them with each other, or with full-scale social systems. Both small groups and complete societies can be viewed as types of interaction systems, even though one is tremendously more inclusive than the other. If this point of view turns out to be excessively formal or abstract, we may have to retreat to less generalized frames of reference.

To take the more hopeful view, it may very well be that one of the main contributions of the study of small groups will be an expanding of the range of available empirical data in such a way as to force our theory of social systems to a more general and powerful level of abstraction. If the theory of social systems has been generalized and strengthened by the necessity of making it applicable to a range of full-scale social systems, non-literate as well as literate, Eastern as well as Western, then there is at least the possibility that it will be further strengthened by the necessity of making it applicable up and down the scale from large to small.

However this may be, the present set of categories was developed with this hope, and took its initial point of departure from a body of theory about the structure and dynamics of full-scale social systems. This will not be immediately apparent in viewing the set of categories, nor can it be spelled out to any satisfactory degree in this article. A manual dealing with both the theoretical and practical aspects of the method for those who may wish to apply it in their own research has recently been published.<sup>2</sup> The

<sup>2</sup> Robert F. Bales, *Interaction Process Analysis; A Method For the Study of Small Groups*, Cambridge, Massachusetts: Addison-Wesley Press, 1950.

present paper will give only a simplified introductory description of the method and some of its possible uses.

DESCRIPTION OF THE METHOD

The method is called interaction process analysis. It is a type of content analysis in the basic sense, but the type of content

descriptive of group process, and derivatively, of factors influencing that process. The set of categories as it actually appears on the observation form is shown under the twelve numbers in Chart 1. The outer brackets and labels do not appear on the observation form, but constitute a part of the mental set of the observer. The twelve

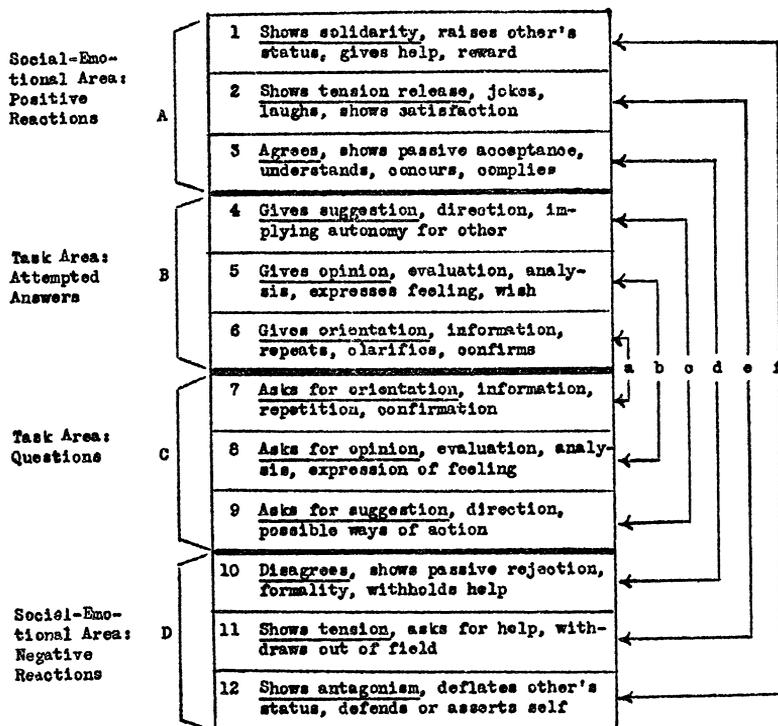


CHART. 1. The System of Categories Used in Observation and Their Relation to Major Frames of Reference.

Key:

- a. Problems of orientation
- b. Problems of evaluation
- c. Problems of control
- d. Problems of decision
- e. Problems of tension-management
- f. Problems of integration

which it attempts to abstract from the raw material of observation is the type of problem-solving relevance of each act for the total on-going process. Hence it has seemed less confusing to refer to what we are doing as "process analysis" rather than as "content analysis."

The heart of the method is a way of classifying behavior act by act, as it occurs in small face-to-face groups, and a series of ways of analyzing the data to obtain indices

observation categories are numbered from the top down, but are arranged in a series of complementary pairs proceeding from the center pair, 6 and 7, outward. The phrases and terms within the numbered categories are only catch-phrases designed to be concretely descriptive of the implied theoretical content of the categories in their usual forms. Actually there are extended definitions of each of the categories, and the central meaning of each is given by its posi-

tion in the frames of reference to which they are all related as indicated by the labeled brackets on the Chart.

The set of twelve categories (and the actual behavior which is classified under them) are brought into working relation to other bodies of theory<sup>3</sup> in terms of the frame of reference. The key assumption which provides this articulation is the notion that all organized and at least partially cooperative systems of human interaction, from the smallest to the most inclusive, and of whatever concrete variety, may be approached for scientific analysis by abstracting from the events which go on within them in such a way as to relate the consequences of these events to a set of concepts formulating what are hypothetically called "functional problems of interaction systems."

For purposes of the present set of categories we postulate six interlocking functional problems which are logically applicable to any concrete type of interaction system. As indicated in Chart 1, these are in one-word terms: problems of orientation, evaluation, control, decision, tension-management, and integration. These terms are all related to a hypothetical conception of an over-arching problem-solving sequence of interaction between two or more persons. As a concrete first approximation we may find it helpful to think of the functional problems as related in an order of "stages" or "steps" in a problem-solving sequence, as their order suggests. Actually this is an over-simplified view. However, in order to illustrate the notion of stages as they may appear under certain conditions, let us take a short description of a fictional group meeting. The same example will serve to illustrate the method of scoring with the categories.

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<sup>3</sup> More specifically, theory applying to larger social systems, and perhaps also theory applying to personality. There seems to be no particular incongruity in thinking of the personality as an interaction system, if we understand by this, not a system of "persons," but a system of interdependent acts or potential acts. This, in fact, seems to me to be the character of much of contemporary personality theory.

#### HOW THE SCORING IS DONE

Let us imagine we are observing a group of five persons who are meeting together to come to a decision about a point of policy in a project they are doing together. Three or four of the members have arrived, and while they wait they are laughing and joking together, exchanging pleasantries and "small talk" before getting down to business. The missing members arrive, and after a little more scattered conversation the chairman calls the meeting to order. Usually, though not necessarily, this is where the observer begins his scoring.

*Stage 1. Emphasis on problems of orientation: (deciding what the situation is like).* The chairman brings the meeting up to date with a few informal remarks. He says, "At the end of our last meeting we decided that we would have to consider our budget before laying out plans in greater detail." The observer, sitting with the observation form in front of him, looks over the list of twelve categories and decides that this remark is most relevant to the problem of orientation, and specifically that it takes the form of an "attempted answer" to this problem, and so he classifies it in Category 6, "Gives orientation, information, repeats, clarifies, confirms." The observer has already decided that he will designate the chairman by the number 1, and each person around the table in turn by the numbers 2, 3, 4, and 5. The group as a whole will be designated by the symbol 0. This remark was made by the chairman and was apparently addressed to the group as a whole, so the observer writes down the symbols 1-0 in one of the spaces following Category 6 on the observation form.

In this one operation, the observer has thus isolated a unit of speech or process which he considers a proper unit for classification, has classified it, identified the member who performed the act, and the person or persons to whom it was directed. If he were writing on a moving tape instead of a paper form, as we do for some purposes,<sup>4</sup>

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<sup>4</sup> Robert F. Bales and Henry Gerbrands, "The

he would also have identified the exact position of the act in sequence with all others. In practice we find that we obtain from 10 to 20 scores per minute in keeping up with most interaction, and that this speed is not excessive for a trained observer.

As the chairman finishes his remark, Member 2 asks the chairman, "Has anybody gone over our expenditures to date?" The observer decides that this is a "question" indicating that a problem of orientation exists, and so should be classified in Category 7, "Asks for orientation, information, repetition, confirmation." He so records it by placing the symbols 2-1 in a box following this category. The chairman replies, "I have here a report prepared by Miss Smith on the expenditures to date." The observer marks down the symbols 1-2 under Category 6, as an "attempted answer" to the indicated problem of orientation. As the chairman goes over the report the observer continues to score, getting a good many scores in Categories 6 and 7, but also occasional scores in other categories.

*Stage 2. Emphasis on problems of evaluation: (deciding what attitudes should be taken toward the situation).* As the chairman finishes reviewing the items on the report he may ask, "Have we been within bounds on our expenditures so far?" The observer puts down a score under Category 8, "Asks for opinion, evaluation, analysis, expression of feeling." Member 3 says, "It seems to me that we have gone in pretty heavily for secretarial help." The observer puts down a score in Category 5, "Gives opinion, evaluation, analysis, expresses feeling." Member 4 comes in with the remark, "Well I don't know. It seems to me . . ." The observer puts down the symbols 4-3 in Category 10, "Disagrees, shows passive rejection, formality, withholds help," and continues with scores in Category 5 as Member 4 makes his argument. The discussion continues to revolve around the analysis of expenditures, with a good many scores falling in Category 5, but also in others, particularly Categories

10 and 3, and interspersed with a number in Categories 6 and 7 as opinions are explained and supported.

*Stage 3. Emphasis on problems of control: (deciding what to do about it).* Finally the chairman says, "Well a little more than half our time is gone." The observer scores 1-0 in Category 6. "Do you want to go ahead and decide whether we should buy that piece of equipment or . . ." The observer scores 1-0 in Category 9, "Asks for suggestion, direction, possible ways of action." Member 2 says, "I think we should get it." The observer scores 2-0 in Category 4, "Gives suggestion, direction, implying autonomy for other." As Member 2 begins to support his suggestion, Member 3 breaks in with a counter argument, and the discussion begins to grow more heated.

The observer begins to have trouble in keeping up as the members are talking more rapidly and some remarks are left unfinished. He does not forget to keep scanning the group, however, and presently he notices that Member 5, who has said little up to this point, sighs heavily and begins to examine his fingernails. The observer puts down a score under Category 11, "Shows tension, asks for help, withdraws out of field." He enters this score as 5-y, since he has decided ahead of time to use the symbol y to stand for "self," and to use it when activity is directed toward the self, or is expressive and non-focal, that is, not directed toward other members.

Meantime, Member 3, the chronic objector, comes through with a remark directed at Member 2, "Well, I never did agree about hiring that deadhead secretary. All she's got is looks, but I guess that's enough for Joe." The others laugh at this. The observer scores the first and second remarks under Category 12, "Shows antagonism, deflates other's status, defends or asserts self." The laugh which follows is scored in Category 2, "Shows tension release, jokes, laughs, shows satisfaction." In this case the score is written 0-3, all to Member 3.

At this point Member 5 comes in quietly to sum up the argument, and by the time he finishes several heads are nodding. The

observer scores both the nods and the audible agreements in Category 3, "Agrees, shows passive acceptance, understands, concurs, complies." The chairman says, "Then it looks like we are in agreement." The observer scores in Category 6, and scores the answering nods in Category 3. Member 3, the chronic objector, who is also the chronic joker, comes in with a joke at this point, and the joking and laughing continue for a minute or two, each member extending the joke a little. The observer continues to score in Category 2 as long as this activity continues. As the members pick up their things one of them says, "Well, I think we got through that in good shape. Old Bill certainly puts in the right word at the right time, doesn't he." The observer marks down two scores under Category 1, "Shows solidarity, raises other's status, gives help, reward," and after a few more similar remarks the meeting breaks up.

#### THE POSSIBILITY OF EMPIRICAL NORMS

The foregoing is a fictional example, designed to illustrate the nature of the scoring operation, as well as a kind of hypothetical sequence of stages which may occur under certain conditions. To summarize, we might say that during the course of this meeting there were a series of "phases" portrayed, during which one or more of the functional problems included in our conceptual framework received more than its usual share of attention. The temporal order of these phases in this fictional example follows in a rough way the logical order in which we arrange the categories on the observation form in pairs from the center line outward, that is, as dealing with problems of orientation, evaluation, control, and then in rapid order, a special emphasis on final decision, tension reduction, and reintegration. Each of the major functional problems has been made into an implicit "agenda topic."

The categories of activity as classified by the present system are assumed to bear a functional relation to each other similar to the relation of the phases in the meeting just portrayed. The example has been constructed so that in its phases the relations

of the categories to each other are "written large," to borrow an idea from Plato. Hence it is relevant to ask what degree the notion of phases on the larger scale is actually to be taken as an empirical description rather than as a logical model. It is important to emphasize in answer to this question that we do not assume nor believe that all group meetings actually proceed in just this way. One of the thorniest problems in the history of thinking about the process of small groups is whether or not, or in what sense there may be a series of "steps" or "stages" in group problem solving. Data will later be published which indicate that under *certain conditions*, which must be carefully specified, a group problem-solving process essentially like that sketched above, does tend to appear. The data indicate that the sequence described is a kind of average sequence for problem-solving groups, that is, an empirical norm. It further appears that departures from the average picture can be used as diagnostic indicators of the nature of the conditions under which interaction takes place.

Similarly, it appears that there are empirical uniformities in the way activities are distributed between persons. We have some data which indicate that, on the average, if we rank order participants according to the total number of acts they originate, they will then also stand in rank order as to (1) the number of acts they originate to the group as a whole (to 0), (2) the number of acts they originate to specific other members of the group, and (3) the number of acts they receive from all other members of the group. In addition, (4) each person in the rank order series addresses a slightly larger amount of activity to the person just above him in the series than the person above addresses to him, with the top person addressing the group as a whole to a disproportionate degree. It seems likely that these uniformities can be tied together in a more comprehensive theory, and that departures from this average picture can be used as a diagnostic indicator of the nature of the conditions under which interaction takes place. Data on this problem will be published later.

Similarly, ignoring time sequence and the specific persons who initiate or receive acts, empirical uniformities appear in the gross frequency with each category of activity tends to occur. Preliminary data on these uniformities are given below.

FREQUENCY OF OCCURRENCE OF EACH  
TYPE OF ACTIVITY

We have available for this tabulation some 23,000 scores in terms of the present twelve

TABLE I. RAW SCORES OBTAINED ON ALL INTERACTION OBSERVED TO DATE, PERCENTAGE RATES, AND SUGGESTED LIMITS, BY CATEGORIES

Category	Raw Scores	Per-centage	Suggested Limits for Inspection of Profiles*	
			Lower	Upper
1	246	1.0	0.0	5.0
2	1675	7.3	3.0	14.0
3	2798	12.2	6.0	20.0
4	1187	5.2	2.0	11.0
5	6897	30.0	21.0	40.0
6	4881	21.2	14.0	30.0
7	1229	5.4	2.0	11.0
8	809	3.5	1.0	9.0
9	172	.8	0.0	5.0
10	1509	6.6	3.0	13.0
11	1009	4.4	1.0	10.0
12	558	2.4	0.0	7.0
	22970	100.0		

\* Suggested limits shown have been established for each category by use of binomial confidence limits given in Snedecor, *Statistical Methods*, 1946, p. 4, with  $p$  equal "Percentage of total" and  $n$  equal 100. This provides relatively wider ranges for the smaller values and although such conventions do not properly reflect the multinomial character of the variation, they provide a first approximation for present purposes.

categories, from observations of groups of different sizes and kinds, ranging through nursery school children, high school and college students, married couples, college faculty discussions, etc., on tasks of widely different kinds. We do not know how badly biased this collection of scores may be as a sample of something larger. They are simply all of the raw scores we have to date

on all of the groups and tasks we happen to have observed for a variety of reasons. The scorings were made by the present author. The general problems of reliability are treated in the manual mentioned above.<sup>5</sup> Very briefly it may be said that satisfactory reliability has been obtained between observers, but requires intensive training which should be regarded as an integral part of the method.

Table 1 shows the raw scores and their percentage distribution (or rates) in the twelve categories. In order to have certain conventional limits for inspection of the variability of particular profiles we have employed an external criterion rather than utilize the variance of our samples, which are known to be quite heterogeneous. Our experience indicates that when the rate for a given category on a particular profile is outside the range suggested in Table 1, we are usually able to connect the deviation with some more or less obvious source of variation in the conditions under which the interaction took place. For example, we find that a profile of nursery school children at free play is over the suggested limits on showing solidarity and showing antagonism, on giving direct suggestions and on disagreement, and is under the limits on asking for opinion, giving orientation, and giving opinion. A group of high school boys in group discussion is over the limits on laughing and joking, and under the limits on giving orientation. A group of faculty members planning a thesis problem with a graduate student is within the limits on all categories. Pending the development of a satisfactory typology of groups, tasks, and other sources of variation, and the accumulation of more experience, this arbitrary procedure for detecting "significant variations" may serve a useful purpose.

APPLICABILITY OF THE METHOD

Verbal interaction accounts for the largest part of the scores, but the categories apply to non-verbal interaction as well. Groups of manageable size for the method fall in the

<sup>5</sup> See footnote 2, above.

range between two and perhaps twenty, but there is no definitely established top limit—the top manageable size depends upon the character of the interaction. The method is most easily applied in groups where the attention of the members tends to focus in turn on single speakers or members, as in most discussion groups. Hence it might be said to apply to groups small enough so that each member potentially takes into account the reactions of each of the others.

In concrete terms, the groups which one might be able to study with the method are very diverse. They would include a series of groups concerned primarily with substantive problems external to their own process, such as discussion groups, planning groups, policy forming and executive committees, boards and panels, diagnostic councils in clinical work, seminars and classroom groups, teams and work groups, certain kinds of problem-solving groups in experimental social psychology and sociology, etc. In addition, there are certain groups with a primary focus on their own procedure in an impersonal way, for training purposes, such as those formed for training in basic human relations skills, now an important branch of small group research. In a less impersonal way, there are large numbers of

small groups which have the interaction or interpersonal relations of the members as a primary focus, whatever their concern with substantive external problems. These would include family and household groups, children's play groups, adolescent gangs, adult cliques, social and recreational clubs, and small associations of a great many kinds. Finally there are groups which might be said to have a primary focus on problems of personal content or experience of members, such as therapy or confessional groups of various kinds, and groups of two, such as therapist and patient, counselor and client, interviewer and interviewee, and a number of others in the general class of professional specialist and client.

Some of these types of groups have been studied with the present method or others similar to it. Some of them are unexplored as yet. Taken together, however, the total range of possible types of groups constitutes a challenging array. If interaction in groups of the diverse sorts mentioned can be brought within the range of a single frame of reference, and can be made to yield data by the same method of analysis, we should be some distance along toward meeting the difficulties which Shils indicates in the comments at the beginning of this paper.