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ABSTRACT

The purpose of this study was first to map the functional communication structure of a 142-member formal organization, then to analyze that structure to identify work groups (cliques) and interlinking liaison role persons, and finally to describe certain differences between liaison persons and nonliaison members of the work groups as perceived by each of their immediate nonliaison contacts. The findings in this study provide beginning evidence that the liaison communication role does have meaning to members of a formal organization in at least one of several possible ways. Another consequence of this study is the demonstration of the effectiveness of a conceptual schema, communimetrics, which appears to have several advantages when applied to the examination of total organizational communication structures. (RB)

LIAISON ROLES IN THE COMMUNICATION STRUCTURE OF A FORMAL ORGANIZATION: A PILOT STUDY

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INTRODUCTION

In spite of general consensus in the literature on the importance of communication as an organizational process, there is a poverty of empirical research on organizational communication. Perusal of the few communication studies conducted within "real" organizations suggests two major reasons why the field has not been advanced substantially: (1) the bulk of the research has maintained a "machine theory" orientation which encourages a clinical, therapeutic result and (2) little attention has been paid to the development of methodology for analyzing the total extant communication structure of an organization sans the formal, imposed hierarchial structure.

In regard to the first point -- maintaining a machine theory viewpoint -- the focus of most previous research generally has been on the formal structure of the organization. The usual study has attempted to determine how communication operates, or fails to operate, in terms of vertical or horizontal relationships between hierarchial levels or formally structured task units. Often the underlying goal of the research has been to devise remedial action for practicing organization members; i.e., a therapeutic approach. While the importance of this essentially applied research cannot be denied, it is argued that a basic conceptual limitation prevents "machine" oriented research from contributing substantially to inclusive theory-building: by encompassing only adjacent hierarchial levels in the research frame and by treating superior-subordinate dyads as atomistic units, this approach consistently ignores both the static and dynamic properties of the total organizational communication structure. Most notably, little research attention has been paid to the impact of the informal communication structure[1] on formally prescribed relationships. The result of maintaining the machine orientation has been studies which yield only partial analyses with restricted generalizability, findings with limited utility for theory building and pragmatic solutions restricted to traditional organizational designs.

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1 With a machine theory orientation, the usual definition of the formal structure has been in terms of the imposed hierarchy. The informal structure has been implicitly defined as a residual category.

One approach for correcting some of the previous inadequacies calls for a conceptual shift from the machine theory orientation to a more inclusive view of organizational communication as the structure and process of a total network of interpersonal relations within which the formally prescribed network is but one aspect. This shift calls for approaching an organizational study population without initial regard for the formally designed or prescribed interaction network. Instead, the membership of the organization is envisioned as an identifiable social system in which exists a relatively stable network of interpersonal linkages through which flows information affecting the goal-oriented productivity and maintenance of the system and its subsystems. The starting point in this approach involves mapping the actual who-with-whom interaction network or networks in the form of a total organizational sociogram. Operationally, the linkages between members might be identified on the basis of specific categories of message content or function yielding separate types of networks with or without overlapping membership, or the generic communication structure might be extracted on a content-free basis. For either specific or generic networks the resulting sociogram would be derived from some record of message transactions between members of the organization in order to identify all the regularized dyadic linkages making up the fabric of the network. These topological maps would permit locating any given member of the organization at the focal point of a unique set of information vectors (Thayer, 1967); i.e., his set of previous message transaction linkages with other members of the organization. The second stage in this approach calls for functional analysis of the dynamics of information flows through the total network. One specific type of functional analysis would involve determing the "meaning" of a given individual's location within his set of information vectors. For increased generalizability, such analyses would benefit from the development of descriptive concepts such as Jacobson and Seashore's (1951) "liaison role" or Walton's (1962) "magnetic centers."

The second criticism of previous organizational communication research -- lack of attention to methodology for analyzing total communication structures -- is a chicken-egg paradox. The lack of readily available methods may partially explain the lack of attention to a broader conceptual framework; on the other hand, it may be the lack of a broader framework which has hindered development of new methodology. One major problem is a shortage of methods for efficient analysis of large sets of sociometric data. Another problem, already mentioned, is a scarcity of organizing concepts for application to the large sociograms which are typical of organizations.

A second-stage methodological problem is imposed by the independent random sampling assumption necessary to most statistical models. In the machine theory tradition, individuals or dyads easily can be randomly selected from one or several organizations, but a random selection of dyads does not permit relational analysis (Coleman, 1964) of a total social system. Relational analysis requires a census of the members of the system (saturation sampling).

Some specific data-collection problems also hinder methodological development. For example, the heterogeneity of content or function and the temporal nature of message transactions pose unique challenges when the research frame extends beyond the formal transactional structure. In the first instance, there is need for a viable taxonomy to cope with message content heterogeneity. In the second, the temporal or non-continuous nature of message transactions poses the question of whether message transactions should be sampled or censused and, in each case, over how long a time period to establish a reliable parameter for the existence of a stable dyadic linkage. These specific operational problems relating to message transaction heterogeneity and non-continuity are inherent in each of the four major data-collection methods which appear in the literature. The four methods are: (1) sociometric techniques (e.g., Jacobson and Seashore, 1951), (2) tracing a given message after it diffuses through the organization (e.g., Davis' ECCO technique, 1953a, b), (3) the communication log or audit wherein a census of message transactions is recorded by members over a given time period (e.g., Burns, 1954), and (4) a timed random sampling of message transactions (e.g., Hinrichs, 1964).

Although the approach to organizational communication research argued for in this paper appears laden with problems, some first-approximations are feasible. The following pilot study represents such a first approximation. It was developed around existing concepts and methods, specifically Jacobson and Seashore's liaison communication role concept and Weiss and Jacobson's (1955) method of sociometric analysis.

THE RESEARCH CONTEXT: LIAISON ROLES

The focus of this study was first to map the extant functional communication structure of 142 member formal organization, then to analyze that structure to identify extant work groups (cliques) and interlinking liaison role persons, and, finally, to describe certain differences between liaison persons and non-liaison members of the extant work groups as perceived by each of their immediate non-liaison contacts.

The primary structural type examined was the liaison communication role. Individuals who function in a liaison role have interlinking communication contacts with two or more sociometrically-defined work groups (cliques) in the organization. With the exception of bridge contacts (defined as a single linkage between two members of two separate work groups), when liaison role persons are removed from the sociogram of communication contacts the groups to which they are connected separate. Clearly, the liaison role, which is a conceptual analogue to the articulation point in graph theory, is a critical location in a communication network for at least two reasons: (1) the static property of the role implies a gatekeeper function (Katz and Lazarsfeld, 1955) for the various work groups; (2) the contacts maintained by liaison persons among the separate groups are the essential interconnecting fabric which creates the total organizational structure such that the removal of liaisons "destroys the connected unity of the organization" (Ross and Harary, 1955).

These structural concepts are illustrated in Figure I.

It should be noted that the conceptual definition and operational procedure for differentiating the sociogram into liaison persons and clique groups is a departure from the usual sociometric definition and identification of

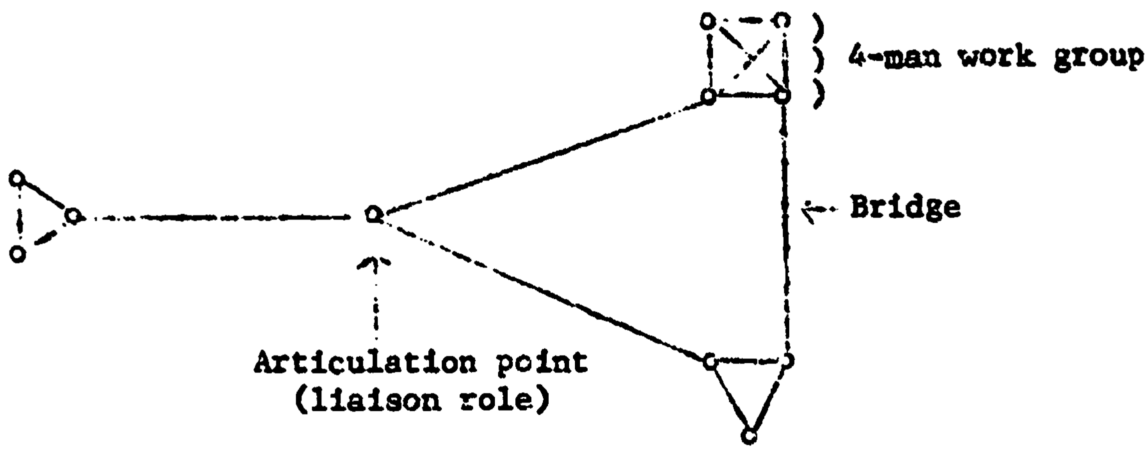

Figure I. Graph theory representation of liaison communication role, bridge contact, and work group (clique).

cliques. Normally, cliques are isolated by algebraic methods in terms of the degree or density of their interconnectedness. In the approach utilized here, however, cliques (extant work groups) were identified in terms of their separateness from each other (Weiss and Jacobson, 1955); i.e., in terms of a group-external rather than a group-internal criterion. Specifically, it is the removal of tentatively identified liaison persons from a matrix of the sociometric data which yields the separate cliques. Internally, these cliques may be either strongly or loosely connected.

METHODS

The organization selected for this study was a College within a large midwestern university. All of the 142 professional staff of the College (faculty and administrators) who were officed in a single building served as the study population. Each staff member was asked to complete (1) a short biographical questionnaire, (2) a Personal Contact Checklist on which they listed all of their regular, work-related communication contacts of a frequency of once per week or more often, and (3) Personal Contact Questionnaires for each person named on the checklist as a daily or more often contact. Each Personal Contact Questionnaire contained 21 scale items plus 10 semantic differential scales operationalizing the hypothesis-testing variables. All instruments and data-collection procedures were pretested among a faculty sample from a different College in the same university. Pretest and main study scale items were analyzed for unidimensionality using McQuitty cluster analysis (1957).

Sociometric Analysis

In preparation for differentiating the communication structure of the organization into topological types, information from the Personal Contact Checklists was utilized to determine reciprocation of contact (mutual choice) among members of the organization. The topological and empirical analysis was based upon reciprocated contacts only on the assumption that this procedure would provide more reliable sociometric data. From a population of 142 members with a potential total of 10,011 dyads, 225 reciprocal pairs were found, or approximately 50 percent reciprocation of the 895 reported contacts. These reciprocated contacts were cast into a sociomatrix and, using procedures described by Weiss (1956, pp. 88-108), analyzed to yield identification of 22 liaison role persons, 18 isolates, and 102 non-liaison persons who had sociometric membership in 29 separate work groups varying in size from 2 to 8 members. The resulting sociogram of the total communication structure of the organization is shown in Figure II. Figure III graphically illustrates the breakdown of the communication structure when all liaison contacts between groups are deleted.

Sampling Model

Data for tests of the hypotheses were taken from the Personal Contact Questionnaires completed by respondents for their regular communication contacts of a frequency of once or more often per day. Thus the hypothesis-testing data was of a phenomenological nature and was aimed at determining differences between liaison role persons and non-liaison persons as perceived by their direct non-liaison contacts. The nature of the procedure demanded that different respondents serve as the sampling units and sources of data. All of the liaison persons on whom a Personal Contact Questionnaire had been completed by one or more of their non-liaison contacts made up the sampling unit and each of these questionnaires became the source of data for the liaison sample. Seventeen of the 22 liaison persons met this criterion and a total of 30 questionnaires were available on these 17 liaisons. A random sample of 17 non-liaison persons was drawn and all 21 questionnaires completed on them by their non-liaison contacts became the source of data for the non-liaison sample[1].

FINDINGS AND DISCUSSION

Based on information given by respondents in the biographic questionnaires, the liaison and non-liaison persons evaluated in each sample were comparatively similar in terms of age, sex, academic rank, degrees held, administrative positions, years employed by the university, percentages of time allotted to teaching, research, consulting, administration and committee work, number of committee memberships at various levels, number of articles published recently and appointment time basis. The two samples did differ in

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1 The word sample cannot be interpreted as a random sample for the liaison data because the population of questionnaires completed on liaisons was used as the source of data. The non-liaison sample is partially random because the 17 non-liaisons were randomly selected although the population of questionnaires completed on these individuals was the source of data. Consequently, the application of statistical tests in the study was done in a heuristic sense.

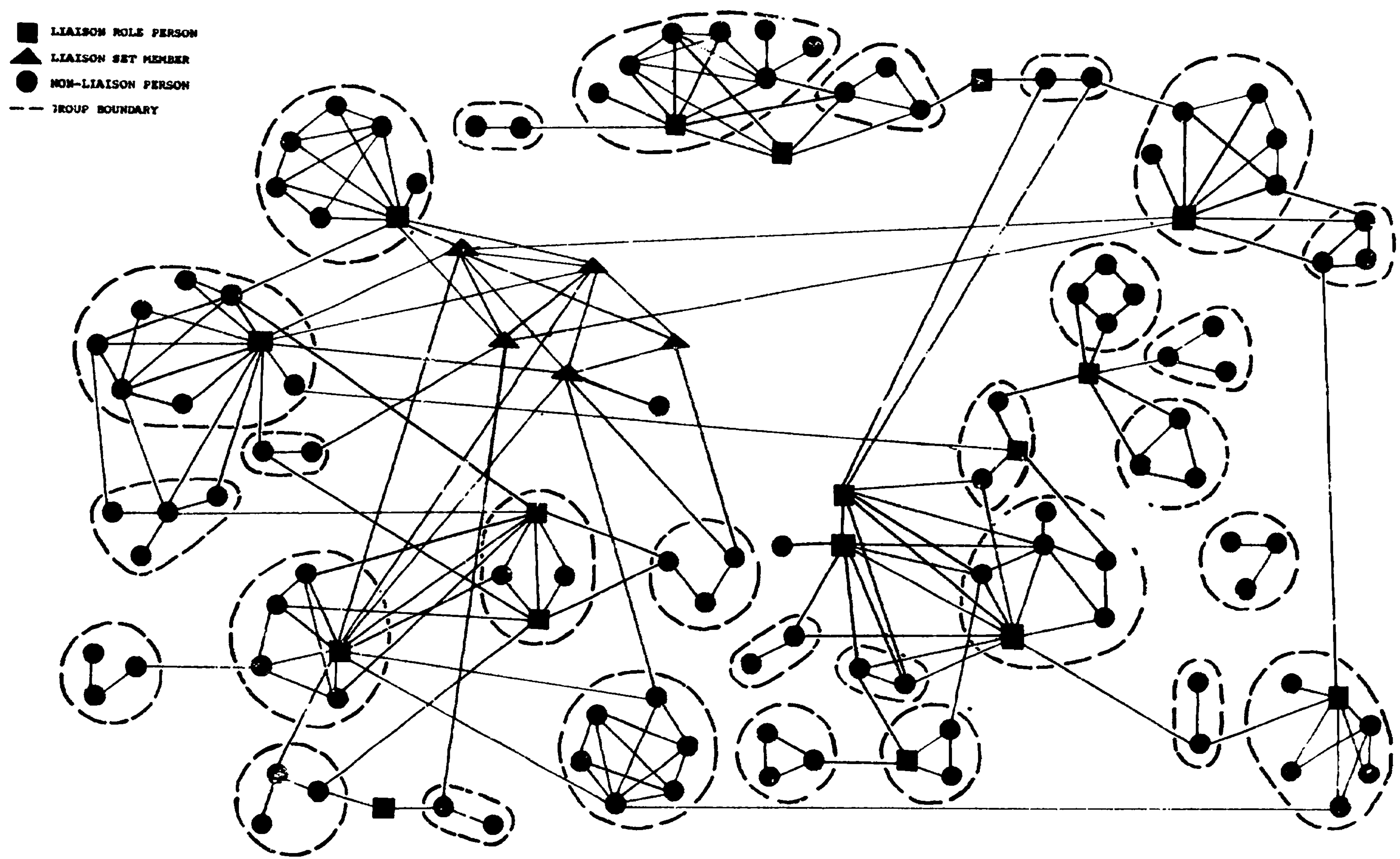

Figure II. The extant communication structure of the organization

Lines connecting individuals represent weekly or more often communication contacts. The 18 isolates are not included.

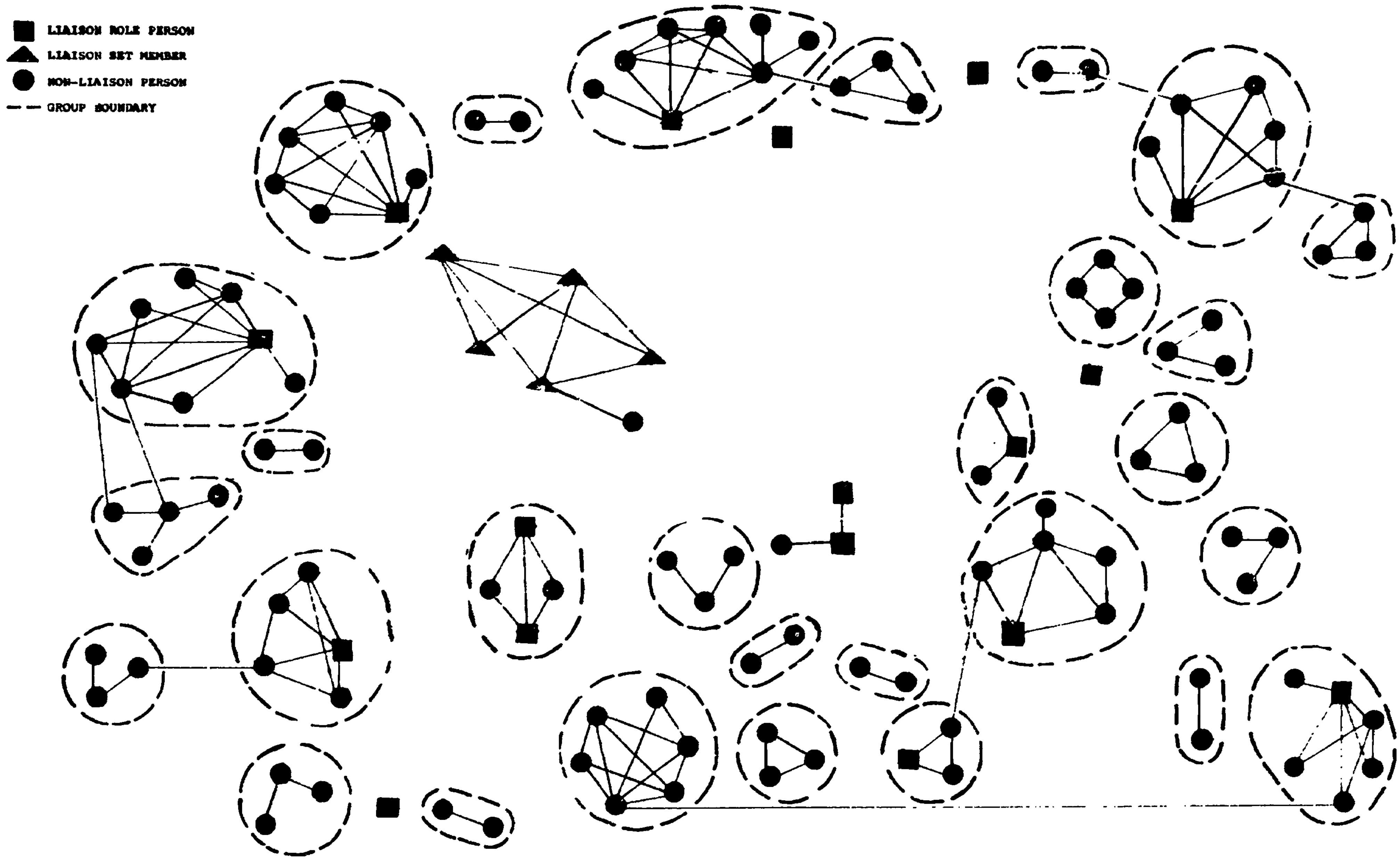

Figure III. The extant communication structure of the organization with inter-group liaison contacts removed.

the average number of reported committee meetings per month (0.05 level, two alternative "t" test, df=28) with liaison persons reporting a higher mean number of meetings, and in the average span of communication contacts (0.001 level, two alternative test, df=16 and 16 for Cochran and Cox formula) with liaisons having the larger mean number of contacts (7.29 vs. 3.53).

A summary of demographic information reported by the population of respondents in the organization is presented in Tables I and II. Consideration of these characteristics of the population of responding liaison (N=21) and non-liaison (N=96) persons suggests heuristic descriptions of individuals in the two topological classes.

Data from the tables indicates liaisons to be slightly older than non-liaisons (46 years vs. 42) and to have slightly longer tenure at the university (9.9 years vs. 7.3). Considering the four usual categories of academic rank, exactly two-thirds of the liaisons were full professors while the non-liaisons tended to be more evenly distributed throughout the four categories of rank.

Administrators were more strongly represented in the liaison group as indicated by the larger number holding some administrative title (67 percent of the liaisons vs. 34 percent of the non-liaisons) and reporting a greater percentage of their time devoted to administrative work (an average of 41 percent among liaisons vs. an average of 17 percent among the non-liaisons). Although one might expect all administrators in the organization to emerge as liaison persons because of their location in the formal structure, these data plus findings reported by Jacobson and Seashore (1951) do not support that assumption. The data suggest that being an administrator may be a sufficient but not a necessary condition for assuming a liaison communication role.

In committee work, liaisons reported an average proportion of time devoted to committees nearly double that reported by non-liaisons (11 percent vs. 6 percent), a larger number of committee memberships (4 vs. 2.5), and nearly twice as many committee meetings in a typical month (7 vs. 4). There was an apparent tendency for liaisons to have membership in an increasing number of committees as the administrative level of the committee increased from departmental level to university level. These findings do not, however, reveal a causal relationship. It may be that individuals develop liaison contacts as a result of greater participation in committees but it is also possible that being a liaison makes one more visible to those who create the committees. More evidence is needed before assuming that manipulation of committee assignments will create liaison-like contact patterns for an individual.

There were only minor differences between liaisons and non-liaisons in publication rate, with non-liaisons holding a slight edge over liaisons. Differences were also slight in terms of appointment basis, highest earned degree, and sex.

On the Personal Contact Checklist, liaisons listed nearly twice the average number of total contacts as non-liaisons (11.7 vs. 6.1) and received more than twice the mean number of choices as non-liaisons (12.1 vs. 5.8). No liaison person received fewer than five choices, while 45.1 percent of the

Table I. Characteristics of members of the study population by type

Variable	Liaisons a. Mean b. St. dev. (N=21)	Non-liaisons a. Mean b. St. dev. (N=96)
Age	a. 46.24	a. 42.33
	b. 10.26	b. 10.04
Number of years at university	a. 9.90	a. 7.34
	b. 6.43	b. 7.29
Percentage of time allotted:		
1. Teaching	a. 26.52	a. 47.13
	b. 33.02	b. 43.60
2. Research	a. 15.00	a. 22.17
	b. 29.30	b. 25.97
3. Consulting	a. 6.95	a. 7.32
	b. 7.34	b. 13.61
4. Administrative duty	a. 41.14	a. 16.80
	b. 37.31	b. 29.60
5. Committee work	a. 10.52	a. 5.54
	b. 22.38	b. 8.37
Number of committee memberships:		
1. Departmental level	a. 1.95	a. 1.61
	b. 1.66	b. 1.59
2. College level	a. 1.05	a. 0.61
	b. 1.53	b. 0.81
3. University level	a. 0.95	a. 0.32
	b. 1.20	b. 0.24

Variable	Liaisons a. Mean b. St. dev.	Non-liaisons a. Mean b. St. dev.
Total number of committee memberships	a. 3.95	a. 2.55
	b. 2.65	b. 2.34
Number of committee meetings in a typical month	a. 7.38	a. 4.41
	b. 4.95	b. 5.09
Number of articles published or read in past two years	a. 3.62	a. 4.00
	b. 2.06	b. 4.66

Table II. Characteristics of members of the study population by type.

Variable	Liaisons N	Liaisons %	Non-liaisons N	Non-liaisons %
Academic rank				
1. Instructor, lecturer	1	4.76	17	17.71
2. Assistant professor	4	19.05	25	26.04
3. Associate professor	2	9.52	25	26.04
4. Professor	14	66.67	29	30.21
		100.00		100.00
Administrative title				
1. Head or assistant head of academic or research unit	10	47.62	11	11.46
2. Head or assistant head of special units or projects	4	19.05	22	22.92
3. None	7	33.33	63	65.63
		100.00		100.00
Highest earned degree				
1. Doctorate	19	90.48	81	84.38
2. Masters	2	9.52	13	13.54
3. Bachelors	0	-----	2	2.08
		100.00		100.00
Appointment basis				
1. Twelve months	16	76.19	63	65.63
2. Nine months	5	23.81	33	34.38
		100.00		100.01*
Sex				
1. Male	18	85.71	82	85.42
2. Female	3	14.29	14	14.58
		100.00		100.00

* Rounding Error

non-liaisons received less than five choices. Considering only reciprocated contacts, the overall mean number of reciprocated contacts for the 142 members of the study population was 3.17; however, breaking the number of reciprocated contacts down by classification reveals that liaisons had nearly two and one-half times the average number as did non-liaisons (7.14 vs. 2.87).

Tests of Hypotheses

Nine hypotheses predicted differences between liaison and non-liaison persons in terms of certain communication behavior and personal attributes perceived by their reciprocated non-liaison contacts. Each hypothesis was evaluated by a two-alternative "t" test for independent sample means with degrees of freedom equal to 49 in each case. Discussion of the five supported hypotheses follows.

The first two hypotheses dealt with awareness of actual structural attributes of liaisons and non-liaisons by their contacts. Hypothesis 1 stated that liaison role persons would be perceived to have greater structural diversity of communication contacts in the organization than would non-liaison persons. By definition, the liaison role person does have greater structural diversity of contacts among sociometrically defined groups. Since these groups are determined only through analysis of sociometric data and may not be concretely visible to members of the organization, the question was whether or not individuals who have contact with liaisons and non-liaisons are aware of the actual pattern of contacts. The obtained means were in the hypothesized direction and the difference between the means was significant at the five percent level. Hypothesis 2 was also a reality testing hypothesis and stated that liaison role persons would be perceived to have a larger number of communication contacts than non-liaisons. The obtained means were in the direction hypothesized and the difference between means was significant at the five percent level. The evidence of these two findings indicates that individuals who are in direct, regular contact with liaisons and non-liaisons are aware of span and diversity of contact differences between the two even though these characteristics may not be objectively visible in the course of day-to-day relations.

The third hypothesis concerned the perceived importance[1] of individuals other than the respondent (secondary contacts) with whom liaisons and non-liaisons were thought by the respondent to have direct contact. The expectation was that liaisons would be perceived to have more important secondary contacts than would non-liaisons. The obtained means were in the predicted direction and the difference significant at the 0.001 level. Findings from the Jacobson and Seashore study (1951) indicated that liaisons and their reciprocated contacts generally report each other as important contacts. The present study provides evidence that, looking beyond the immediate dyad,

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1 Operationally defined in terms of access to the "power structure" and individuals knowledgeable of activities in the organization.

non-liaison contacts of liaisons attribute greater importance to the other contacts of the liaison than do the contacts of non-liaisons for his other contacts. This finding extends the evidence reported by Jacobson and Seashore and suggests a reason why the liaison himself is considered an important contact. The finding supplements the Katz assertion (195[illegible], pp. 74-5) that an individual may be valued by a group not only for what he knows, but also for whom he knows outside of the group.

Related to the above finding is support for hypothesis 4 which predicted that liaison persons would be perceived to be more influential within the "power structure" of the organization than would non-liaisons. The obtained means were as predicted and the difference significant at the five percent level. The importance of secondary contacts scale (hypothesis 3) included reference to having access to members of the power structure. Linking these two findings[1] extends the Katz assertion to include that an individual, in addition to being valued by a group for whom he knows outside the group, may be of even greater importance for how much influence he has, or is perceived to have, with particular outside contacts. This finding implies another reason why the liaison is considered an important contact. The exact meaning respondents had for the term "power structure" is unknown, but the findings of hypotheses 3 and 4 provide some definition of phenomenologically important substructures within a formal organization and of the perceived linkages among those substructures within the extant communication network of the organization. Clearly, the liaison role has meaning to organizational members within this context.

The findings reported above give some descriptive perceived characteristics of liaison role persons, but do not provide concrete evidence of their <u>function</u> within the communication network. The final hypothesis concerned a specific information dissemination function and stated that liaison persons would more frequently serve as the <u>initial source</u> of organization-related information[2] for their contacts than would non-liaisons for their contacts. The obtained means were in the predicted direction and the difference between them was significant at the one percent level. The finding leads to the interpretation that liaisons are "early knowers" who are also "early disseminators" within the organization's information relay network. Whether or not this function is related to the apparent motivational bases Davis (1953b, p. 46) suggested or simply the result of the unique structural location of the role cannot be detected from the present data. What is supported is the fact that not only is the liaison person in a potentially important fixed location in the extant communication network, he functions to provide early dissemination of certain information through the network.

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1 Without the related items in the two scales, the influence in the power structure finding could be artifactual. If an individual was not perceived to be linked to the power structure he likely would not be perceived as influential within that structure.

2 Operationally defined as information relating to changes or new ideas being proposed or discussed, or new developments which have occurred in the organization.

A PERSPECTIVE

The present study provides some beginning evidence that the liaison communication role does have meaning to members of a formal organization -- meaning at least in the sense of their awareness of the structural characteristics of the role, the perceived importance of the role incumbent's linkages within the communication structure, an aspect of the role incumbent's perceived influence potential, and one facet of the liaison person's function in the organizational information-relay network. The consequence of this exploratory study is to establish an empirical rationale and highlight a need for additional research on the liaison communication role. A more detailed description of actual and perceived characteristics of liaison role incumbents, the broader functional meaning of the role, and the in-depth implications for development of organizational communication theory remain to be uncovered.

A second consequence of the study is the demonstration of a conceptual and methodological schema, which we will refer to as communimetrics,[1] which appears to have several advantages when applied to examination of total organizational communication structures. The first advantage is an assumption undergirding the approach which holds that the most definitive understanding of organizational processes may be arrived at by study of total extant communication networks in organizations as opposed to more limited analyses based on elements of only the formal structure.

A second advantage is the provision, based on graph theory concepts, of objectively determined, discrete categories for classification of topological properties as a prelude to descriptive or functional analysis. The categories are discrete in the same sense as utilized in the analysis of formally prescribed topological properties (e.g., superior, subordinate) but offer the advantage of admitting facets of the informal communication structure into the analytical frame. In addition, the categories are objectively defined as opposed to the arbitrary definition of constructs based on unvalidated criteria; e.g., the definition of an opinion leader as one who receives some minimum number of sociometric choices within a given social system.

Third, the communimetric approach is of major advantage because it permits partitioning interpersonal relationships and data on a number of different dimensions such as other topologically-defined roles, formal roles, various contact-frequency categories, directional flow of messages, and so forth. The approach would appear to have special pragmatic utility for studying the congruence between the formal design of an organization and the actual pattern of information flows.

Finally, one of the more intriguing possibilities of communimetrics is the potential establishment of a bridge between small group communication

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1 Defined here as an area of sociometry which utilizes <u>only</u> a criterion of communication contact for operationalizing social system topologies, thus differentiating it from sociometrics based on attraction, leader choices, etc.

network research and organizational research. The topological definition of an organization can be utilized as a preliminary step toward identification of various configurations in natural small groups within the organization and for the comparative study of group structures within natural social systems, or between natural social systems and contrived experimental small groups.

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