

The Rediscovery of Sociometry

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IT IS RARE for a systematic discipline to fade from view after having demonstrated its value as a field of scientific inquiry while simultaneously showing its practical utility in terms of providing guidelines for improving processes of living. Yet such is the case with sociometry. In the past 2 decades, it appears to have fallen from favor despite its increasing and great prominence throughout the forties, fifties, and sixties. We can provide something of a measure of how lost to management and human resource professionals sociometry has become.

We randomly selected 80 management books on human resource utilization in business and industry, all published since 1980, and examined how the authors dealt with sociometry for assessing interactions among corporate members apart from chain of command. Ninety percent had no single reference to sociometry, to Moreno, or to stars or isolates. Not a single one summarized a primary source of research pertinent for understanding the dynamics underlying choice and rejection. Of the remaining 8, 1 mentioned "isolate"; 2 mentioned "star network" and had accompanying diagrams; and 2 provided a brief discussion on sociometry. Only 3 mentioned Moreno's name in connection with sociometric work.

Sociometry is no longer used as a category for grouping interrelated articles in *Psychological Abstracts*, and only a few references find their way into *Sociological Abstracts*.

In an examination of the literature available from the University of Texas library in terms of articles and books published in the last 10 years, we ascertained the following. Although the depth and focus of concentration is essentially absent in the adult world of business and industry, there has been a continuous stream of activity using sociometry with pre-school and grammar school children, up through the teen years and also including the mentally retarded and handicapped. We believe these areas to be in reasonable shape. The void is in sociometry's use to explain the dynamics of industrial relations.

An invaluable collection of original writings on sociometry is available in *The Sociometry Reader* (Moreno et al., 1960), and the most comprehensive update available that reviews sociometric applications in industry is by Hart (1979). It constitutes an excellent substantive review that is of intrinsic value to anyone interested in this field. By and large, the literature he quotes provides a review of industrial applications since *Who Shall Survive?* (Moreno, 1934). No mention of the computer as a tool for sociometric applications was included in that update.

The comments that follow should be evaluated with the understanding that neither of the authors is an expert who has concentrated on sociometry as a lifelong focus. Dr. Blake, however, knew Moreno in a quite personal way and also did considerable research and published frequently in the fifties and sixties on sociometric matters.

Blake met Moreno at the Tavistock Clinic in London in the forties and observed the respect and admiration he enjoyed, which was significantly more than in the United States at that time. Two years later, when on an extended project in the New York area, Blake spent many Friday nights at the Psychodrama Theater. Here is the typical sequence of a Friday evening. The psychodrama would get underway, with Moreno responsible for the warm-up. Then, after the enactment got started, Blake and Moreno would retire to Moreno's rumpled office, there to spend 2 or 3, or sometimes more, hours engaged in the deepest deliberations as to the scientific and professional trends and implications of the developments for that day and beyond. Penetrating, fascinating, exciting, and after a few moments, these discussions were quite fair-minded.

These were momentous occasions and Blake loved them. They influenced his professional life in significant ways, as they did the lives of many others. Remembering them provides a perspective for comparing the then with the now.

The one observable trend in the industrial field has been to push back the boundaries of what can be approached by sociometric techniques. At one extreme, we find dream sociometry and the study of intrasociology. At another extreme is the entrapment of the fellow peddling drugs on the local street corner and criminal surveillance for influence connection considered more generally. The range is diverse.

The key factor to this expansion lies in modern technology using the computer, which can be expected to lead to a wide use of sociometry for applied purposes.

Sociometry is again on the upswing, and much promise can be attached to the great contribution—scientific, human, and operational—that can be anticipated from this rebirth in the years ahead. Let us summarize some of these important contributions for the organization of tomorrow.

What Is Sociometry?

J. L. Moreno discovered and created sociometry, publishing some of the first sociograms in 1934. These proved to be significant because they told people what was going on in a social setting that either was previously not known or, if known, was unrecognized. Early industrial applications soon began to appear. For example, one involved plotting the emotional (both positive and negative) sociometric networks among coworkers. These led to experiments in which the respect that employees had for one another was studied. In the experimental group, employees chose work partners. When evaluated on performance criteria of job satisfaction, turnover, labor cost, and materials cost, this group proved to be superior in every way to the control group. These early experiments were critical in showing that greater productivity was attached to assignments based on colleague selection (Van Zelst, 1952).

At the most basic level, sociometry deals with human social choices and judgments, with a sociogram usually detailing the emotional network within some setting such as the workplace, the classroom, the hospital staff, or the club. With the rediscovery of sociometry, methodologies for analyzing any kind of data that characterize patterns within a given interacting system, not limited to human social choice data, have been developed. One of these is Netmap[®], designed by John J. Galloway.

Formerly, data gathering for research such as the above was extremely tedious and time consuming from an analysis point of view. The energy expended in achieving the results often caused people to turn away. As we approach the end of this century, however, we are equipped with an amazing new tool, previously unavailable—the computer. It's a whole new ball game for sociometry.

The enormous potential through the utilization of the computer in conjunction with sophisticated software packages promises to be unbelievably rich. It permits data to be analyzed, evaluated, summarized, and interpreted in ways that were never before possible. The computer, with a massive database program, provides a visual display of the fine inner workings of an organization, not in terms of a rigidly structured organization chart, but rather in terms of the "actual" organization. It shows what truly motivates, or fails to motivate, people to work together in a productive way. Such visualization is certainly one of the richest sources of comprehension.

Software for Sociometric Applications

Netmap is a software package licensed to some of the world's top management firms. During the past 10 years, we have twice visited John Gallo-

way, creator of this sociometric methodology, to learn about applications of the system. Galloway's firm is Netmap International Pty. Ltd., 99 Walker Street, North Sydney, N.S.W. 2060, Australia, and there are branch offices in San Francisco, New York, London, and Montreal.

The Netmap system is not only a revolutionary approach, it is also the most advanced computerized database program to provide instantaneous results for storing, analyzing, and displaying color-graphic sociometric patterns and connections. Many of the examples we cite are drawn from Netmap's work with organizations in both the public and private domain and are presented with permission. COMPSOC, with its home base in West Chester University, Pennsylvania, is another sociometric endeavor. Thomas Treadwell (1987) is at the center of that network, which is about to publish its own software package. There are one or two others, but those have non-adult, non-business, and non-industrial emphases.

The Standardization of Sociograms

The availability of the computer and the opportunity to create comparisons across vast amounts of sociometric data compel an examination of how best to present data with some degree of standardization. Standardization permits meaningful comparisons across different studies; for this reason, considerable importance has been attached to developing standardization at an early point. Northway (1940) made important early contributions in this direction, as did Criswell (1946), Moreno and Jennings (1938), and others. But the most advanced standardization is that of Netmap.

The Netmap technique serves as a model of application. As a preliminary step congruent with standard sociometric approaches, questionnaires are usually administered to a selected population of an organization with instructions to rank on a scale of 1 to 5 the frequency, importance, and content of interactions. This serves to establish "links" between organization members. A fairly high degree of objectivity can be maintained because divergent data, where rankings between two parties are not mutual, can easily be disallowed by the operator.

Networks are an inherent part of any functioning organization. In most cases, they receive formal structural and rational definition through the organization chart. This formal chart is then relied upon as the baseline for comparing other sociometric displays with it. However, it is also universal for informal network systems to arise, either to compensate for an area missed within the more formal system or, alternatively, as the result of poor working relationships within the rationally structured organization. In the former case, these unofficial networks may prove benefi-

cial; in the latter, they are clearly symptomatic of organizational inefficiency because they represent ways to work around the system rather than to resolve the underlying problems that prevent the system from working well.

Sociometry offers a methodology for seeing these informal networks and evaluating this impact on the organization's overall performance. Change steps can then be formulated to bring the system into alignment with a corporation's strategic objectives.

A number of perspectives can be applied in developing sociometric data, either through questionnaires or other data-gathering means, that indicate direct preferential choice and rejection. They include, but are not limited to, such items as judgments about the actual situation as it prevails today and how it compares with planned activity. We ask such questions as What if we did this? or What is the ideal situation? or What would be rejected as unacceptable?

Netmap has developed a copyrighted display system that is circular in format, allowing a clear view of sociometric relationships. The data are displayed in large circles, similar to pie charts, and cut up into unconnected wedges, each of a different color and representing a particular unit or department. Each wedge, in turn, comprises a number of "slices," designating the head of that department, shown as the first slice with his or her immediate subordinates ranked in descending order as subsequent slices in each wedge, i.e., department.

Links can be shown between all the departmental wedges as well as between the members of each department. The latter relationships are displayed in small satellite circles outside the main larger circle.

Linkages between people are shown by lines. A small gap appears at either or both ends of the line analogous to an arrowhead. This can be used to signify flow of information or influences or who initiates the contact. Those with many linkages are identified as key points of influence in the organization, referred to as "bleeders" because of the great number of ink-fused lines of color emanating from them, while those points with few or no links are the isolates or rejected members.

This particular program can coordinate up to 50 different variables ranging from age and educational background to rank, salary, gender, and so on. Netmap's conventions for computer display will no doubt become more prominent in the years ahead.

Modern-Day Sociometric Applications in Industry

Though mostly unpublished, applications in today's business and industrial world are accelerating at a rapid pace. To test the possibilities,

we offer but a few of the current examples from industry with which we are personally familiar.

First, it might be worthwhile to state briefly what we mean by a sociometric application. The term as it was used originally by Moreno meant perceptual estimates of sociometric connections. In this context, some of the examples offered may appear marginal. The issue, however, is not so much whether sociometry is depicted solely in its classical form as it is that the methodology be drawn from sociometry and be "sociometric-like," developing perhaps into allied, unrelated disciplines. Yet the latter could be anticipated to result in a mutual enrichment of sociometry and industry. The richness of technique for studying how things happen is not always directly visible to those doing the work. From a study of general systems theory (von Bertalanffy, 1968), it is apparent that it is sometimes difficult for people to "see" systems all at once. The sociometric method of representation permits this to happen, i.e., people are enabled to grasp the whole system in one glance.

Implementing Sociometry for Understanding the Macroeconomic Environment

Starting with a broad application of sociometry, we can examine a study using sociometric theory to explain socioeconomic level in modern Western society. The "big picture" implication is that sociometric status and socioeconomic level are interconnected, probably in a cause-and-effect relationship ($x + y$). Think of "being chosen" as sociometric (emotional) income; then think of "dollars earned" as socioeconomic (financial) income. The connection is this: Sociometric income and socioeconomic income are directly correlated, and to a high degree. Highly chosen people are on the top of the economic heap; the unchosen are on the bottom. Is this cause and effect? Yes is the author's conclusion.

Being chosen means a person exists in a network of supportive relations. He or she "belongs," has a wide circle of friends and acquaintances. Those who are unchosen are isolated, unconnected, passed over, rejected, "out of it." The former have the connections to make it in life; the latter do not.

So what is the solution? Throwing money at poverty? This has been tried many times and in many ways, but poverty persists. Or perhaps increasing minimum wage? Except as a stopgap measure, this has proved equally unsuccessful.

So what is the answer? We believe that emotional education for belonging, designed to raise individual sociometric income, is the key for unlocking this gigantic social tragedy. A program such as Headstart,

which deals with children beginning at an early age, is one example of application. There are a thousand other potential points for intervention, too. But they will be effective only if based on a sound diagnosis of the problem and of the cause and effects of the relationships that account for its existence (Hart, 1970, 1971).

On a somewhat smaller scale, generalization is also particularly pertinent for corporations. By learning to understand how the development of feelings of corporate identification are keyed to releasing innovation and creativity of corporate members, it may be possible to stimulate contribution beyond the expected. If sociometric wealth is increased for isolated individuals, then greater productivity may follow, with benefits reaped by both individuals and organizations as a parallel growth in corporate wealth ensues.

Planning for Succession

Sociometric methodology has been used as a means for planning for succession by determining stars and isolates in order to identify who wields the influence in an organization. In one company described by Galloway in 1989, the CEO had been a strong, domineering, hands-on fellow. In anticipation of his retirement later that year, he began to think in terms of a likely successor. A younger manager with an MBA background but without sociometric-measured respect had been groomed for the top slot and was expected to step into this role. In order to test the soundness of this decision, a sociometric mapping of the organization was undertaken. The results clearly indicated that the younger manager approached situations with a quite different managerial style than that of the presiding CEO. For the younger manager to move into the top slot would have sent definite shock waves throughout the organization, in terms of power and authority relationships. It was further ascertained that a number of better candidates, not previously seen but enjoying a wider basis of respect, were available for promotion. Galloway noted that, as a result of the study, the decision was reformulated, and an alternative selection for succession to the top executive position was made.

Team Building

Sociometry provides a quick and useful background source for assessing the status or acceptability of team members in their reactions to each other and their relationship to the team as a social system. Appreciation of the dynamic issue of how the team actually functions is fundamental in designing steps to improve team operations. Sociometry can provide a

foundation for a team-building expert or consultant to gather and offer these data to the team for self-examination in selecting members for special assignments and projects.

In the future, human resource departments may include sociometric divisions to lead activities such as those illustrated here. That division might form task forces and project teams based on sociometric analysis. Each could provide a far sounder rationale for group composition than traditional reliance on selection by superiors. Similarly, work partners might be chosen on the basis of selected criteria. For example, in the Saturn project, General Motors proposes to build a car from start to finish, thus creating a sense of emotional ownership in the ultimate product. The approach rests on the selection of teams based on those individuals who are most likely to work together in a productive manner; a kind of interview sociometry; working together. This is a radical departure from the past assembly-line approach to automobile manufacture. The new work team is designed to have only self-selected members. Sociometric techniques are readily applicable as a means of composing high performance teams.

Strategic Organization Change

Planning change is most soundly undertaken when it is known how well organization-opinion leaders can be expected to support a new direction and the corporate character likely to result from the expected changes. All this becomes directly quantifiable through sociometry.

Galloway offered the following illustration to show how a sociometric approach can be used to evaluate the impact and current status of a major reorganization effort. This project took place in the manufacturing division of a large telecommunications firm. The primary thrust involved shifting from a technologically driven company to one that was more market oriented. The company's conventional change approach had been structural, i.e., create a marketing department and beef up the sales organization to solve the problem. The result? Nothing happened. The marketing thrust remained nonexistent, and sales were not increasing.

Sociometric methodology was employed to answer the question: Is the company still more engineering oriented or has it become more market centered? Organization networks were studied to reveal the organization's true microstructure by examining task-related interactions among the top 101 executives drawn from a staff of 2,500. The results were startling.

Essentially, what had been done was the hiring of a lot of sales and marketing people. . . . There were 100 of them for each ten engineers—that looked very impressive on an organizational chart. But the way the company actual-

ly worked hadn't changed at all. It was still engineering-driven. (Madlin, 1987, p. 60)

It was apparent that the technical/engineering department still played the primary functional role and that the expected shift to sales/marketing had not taken place. Part of the reason for this was that, as in the past organization, members continued to rely upon and go to the engineering people for the accomplishment of task-related objectives. This included the CEO, whose primary advisors continued to be drawn from the engineering group. Not only was there little or no communication between marketing and engineering, but marketing was also isolated from other departments. The sociometric analysis revealed that few or no ties existed between marketing and finance, indicating that pricing, for example, was taking place in a vacuum. Furthermore, little communication of any sort, Galloway noted, was occurring between sales and marketing or between either of these and the production people.

Formal organization structure failed to resemble what was actually transpiring in terms of interdepartmental interaction. The results permitted this CEO to comprehend the underlying dynamics and to rectify the problem. What before had defied explanation now led to a change of strategy, based on a sophisticated degree of knowledge about how the patterns of interaction needed to change to bring about the desired reorientation.

Customer Service

Customers are seen as the key to success in business today, and customer satisfaction has become a vital element in corporate survival. Unfortunately, many companies, although perhaps serving a customer well in the initial go-round of sales, are unable to create customer loyalty by providing after-sales service. This may be due to poor management, a faulty reading of customer expectations, or an organization infrastructure ill equipped to deal with demands placed upon it by its customer base.

Sociometric data can be used to establish the empirical links between the customer and organization members, thereby showing how efficiently customers are being serviced—how often, by whom, in what manner, and with what reaction. Once this has been clearly defined, it is possible to take another look at how resources are being deployed.

In one example, 142 insurance personnel and agents engaged in a sociometric study to examine the support system being provided by the company to its agents. Only 12% of the company personnel supported the agents who brought in over 65% of the business. The results showed extensive overservicing to a segment of agents of low annual worth in terms of company yield, whereas minimum attention was being provided for

the high producers. As a result, specific agents were targeted for immediate customer service to ensure contact with those customers of highest priority to the company. Overall contact was improved through the institution of a program promoting face-to-face contact, replacing the inadequate telephone network. The company reported to Galloway that the result was a significant improvement in sales.

Communications

The study of communications provides endless examples of how sociometry has been extended into a range of sociometric-like uses. Patterns of communication characterize relations between directly interacting individuals, but such analysis may be extended to study areas of communication, which include contact across networks, banking systems, and other specialized traffic areas, as well as the printed word. Although these patterns do not fit into the traditional meaning of sociometry, based on human social choice or judgment à la Moreno, they still provide valuable insights for conducting ongoing business as well as for designing organization change.

A study was undertaken in an international shipping and forwarding agency in which all systems of communication for one specific region of the organization were placed under sociometric scrutiny. Sociometry proved to be the only vehicle to gain a database of information capable of providing a clear understanding of how the organization actually operated in the area of communications.

Initial interviews indicated a general level of dissatisfaction with the current communication structure. The study illuminated the fact that communication was not as widespread as initially envisioned, nor as would be desirable. A number of breakdowns in the communication system were made evident. With this knowledge in hand, the management put steps into place that resulted in significant cost savings to the company and an improved level of satisfaction of its members.

Intelligence Operations

All of these examples portray industrial applications, but consider what can be done when using sociometry to plot the activities that take place within the criminal community, e.g., drug and crime networks. The applications here are endless. Sociometry proves to be an invaluable tool in the area of intelligence as the vast amount of information and knowledge available continues to expand.

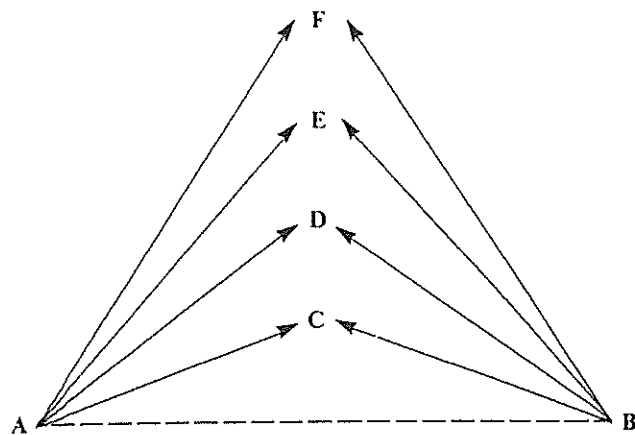
The sources of evidence are provided through wire taps, license plates

seen by frequency at each site location, interviews, interrogations, and informants. These permit investigators of illicit activity to locate the agents of influence, to establish who the middlemen are, and to identify probable contacts between people who communicate with one another only indirectly. This permits police to take legal actions to counteract the illicit activities. The application of sociometric methodology to intelligence networks has been emerging rapidly on the international scene, according to Galloway.

Whereas most applications of sociometry are indicative of an effort to build up and strengthen an organization, this application to international law enforcement is intended to control, weaken, or destroy an organization. The same procedure can be used to study any system of interdependencies, whether to understand a criminal organization, an organization formed in the interest of national security and defense, or a business.

In Figure 1, an analysis of communication of a criminal organization, no direct contact exists between A and B. However, A is in contact with C, D, E, and F, as is B. It takes no Sherlock Holmes to divine that something probably is going on between A and B. Indeed, they may be the kingpins, and C, D, E, and F the carriers, couriers, middlemen, or legmen. The inferred linkage between A and B becomes the likely target for surveillance. If the kingpins can be taken out of the picture, the foundation crumbles. Observers are not necessarily looking for strong ties that are immediately apparent because these may not be the desirable target points for destroying the criminal organization. This illustration is based on a conversation with John Galloway.

FIGURE 1. Sociometric Connections Between Two Individuals



Our focus in this example is on a criminal network, but the same connections are true for military, national, and commercial intelligence networks. A central ingredient of any intelligence organization lies in useful information about what people are doing. This is a case in which computerized application of sociometry truly becomes an example of how to see patterns and make logic and order out of data that are otherwise of limited use because they are so indigestible in raw form. The data can be manipulated in an infinite variety of ways to provide insight into the patterns and networks of the organization under study. Key aspects also include the speed and validity with which the information can be delivered to the user.

A magnitude of data is available, but the problem is making sense of it. This is where sociometric methodology comes into play, deriving mainly from general systems theory of von Bertalanffy (1968). Sociometric methodology takes mountains of raw data from a very complex organization and systematizes the interdependencies between units of that organization in an organized way. If order can be added to this by defining the networks, it then allows the system to be described in more holistic terms rather than just focusing on individuals.

Opinion Surveys and Polls

Gallup and Roper have dominated the field of opinion polling for many years with the concept of extrapolating from a statistical sample to project the trends of thought characteristic of the population from which the sample is drawn. Hundreds of interviews are needed to represent a large community, and even then, the probability of predicting the outcome leaves much to be desired.

By comparison, sociometry can be relied upon to identify opinion leaders, who themselves can be regarded as representative of the majority point of view. They can be drawn together to serve as focus groups from whom much can be learned regarding thinking characterizing the broader community and to test reactions likely for several probable courses of action. These individuals can be reconsulted to provide access over and over again for fast and accurate operational data for a number of areas (Hart, 1988).

Such information acquisition can be equally important in terms of sales and marketing, goal setting, project development and assessment, public relations, and a number of other decision-making areas. In *Network Technology*, Hart (1988) has used such in-depth interviewing to identify and select individuals who function as stars within their sociometric groups. By virtue of their interactions with others, they are "in

the know" about the attitudes, opinions, and concerns of others and therefore have the ability to characterize the prevailing attitudes in the population they represent.

Increasing Organization Efficiency

Sociometric analysis of the human infrastructure establishes a sound basis for decision making in terms of how to organize a company's activities—manufacturing, warehousing, and distribution—to serve its potential customers.

The following study of the operational system of a major chemical firm serves as an illustration. The objectives of the study were to determine areas of expansion and consolidation and to pinpoint areas that might better be serviced by external agents.

Data were gathered according to the following criteria: routing from factory to warehouse to client; product volume in terms of weight or number of units; time period from start to finish; related costs; nature of the product, and any special considerations.

Evaluation of this distribution network revealed a violation of the principle of economies of scale: many small deliveries were being shipped to distant locations and small loads were traveling the same path, but at different times throughout the day. As a result, steps were taken to consolidate certain deliveries into larger ones, to cut down on the number of long-distance deliveries, and to contract out less-traveled routes to external agents. Galloway pointed out that significant cost savings showed in the bottom line, along with an increase in customer satisfaction.

Galloway described a second example in which sociometric techniques were employed at the Pentagon to assess the top 200 staff positions in order to analyze work practices. A primary objective was to ascertain how the system had been designed to work (according to the formal organization chart) compared with how it actually worked in practice. The study was conducted on the basis of who communicated with whom on a day-to-day basis. As a result of this evaluation of office management, a number of recommendations for increasing efficiency while maintaining civilian control were made, and a number of these changes were implemented within the Pentagon.

Organization Diagnosis

This application considers the broader organization in terms of change along an evolutionary scale of change. It may be useful to describe the underlying theory before presenting complementary sociometric implications for testing the theory.

This theory depicts the principal stages through which corporations pass over time as they seek to achieve profitable growth. The three recognizable stages usually commence with an entrepreneurial beginning. Successful transition beyond this state leads to emergence into a mechanistic era. As the organization continues to develop, it may undergo transformation into the dynamic stage. The latter represents the highest level of evolution, that which produces the greatest capacity for problem solving, productivity, and profit, along with the greatest satisfaction and the fewest adverse side effects. These three stages, and the transitions and transformations in between, do not constitute an inevitable and arbitrary sequence. They do, however, constitute the stages through which most great companies have evolved. GM, IBM, Sony, P&G, Merck, Digital Equipment, and Exxon are only among the more visible. Furthermore, it has been shown that a company can be launched in dynamic terms and maintain its integrity in that mode (Blake et al., in press).

The exercise of leadership is all-critical in determining whether any corporation starting with an entrepreneurial base can make the transitions from this early stage of development into the higher stages of corporate evolution. This is where sociometry comes in.

By using sociometry to get a reading of the operation of the organization in actual practice and comparing this with operations based on the formal organization chart, it becomes possible to determine the corporate stage of evolution. One dominating figure who makes all decisions, large and small, characterizes the entrepreneurial firm. Sociometric data clearly reveal connections from the CEO to every organizational unit, regardless of level. By comparison, adherence to the formal chart is likely to be indicative of a mechanistic organization with greatly increased contact within the informal organization, which serves no "obvious" function. One of the dominant features of a bureaucracy is reliance on the grapevine to supplement the formal communication channels, probably because communication within formal channels is likely to be nominal and impoverished. The grapevine keeps people abreast of who is doing what to whom; forthcoming but unannounced events, liaisons, and so on exist because of at least two considerations. Communications within the line system are inadequate for keeping people informed about their legitimate interests. Equally important, underemployed people tend to search for current events that not only interest them but also keep them occupied.

In the dynamic organization there is a high degree of interaction among organization members that is functional in character and not necessarily along the lines of the formal hierarchical structure. The latter is likely to be reinforced by a high degree of mutuality in choices and a minimum number of isolates and rejects.

The importance of such information is that, until it is known, steps cannot easily be taken to move the corporation forward along its evolutionary course. Problems are more likely to be misdiagnosed, with band-aid solutions applied to specific organizational areas instead of comprehending the big-picture view of organizational culture. Sociometry therefore provides an excellent tool for organization diagnosis.

Dream Sociometry

At an opposite extreme of standard sociometry is "intrasociology," which offers an indirect means for assessing a person's subjective choices and rejections among work associates. As its name implies, it relies on analyzing key aspects of personality that manifest themselves in dreams. A number of specific dimensions, including behavioral, emotional, and attitudinal, become available sociometric data that show a direct correlation with industrial applications.

For example, based on the premise that interpersonal conflicts are fundamentally extensions of intrapersonal dilemmas, this intrasociology can be used to identify situations of potential conflict arising within members before the conflicts grow to the proportions at which they are projected onto others and acted out, with the corporation providing the battleground. This method of anticipatory conflict resolution can aid individuals in examining options and identifying courses of action for improved working relationships with organization members with whom they interact with some degree of frequency.

Another illustration of dream sociometry lies in sales, the idea being that one must sincerely believe in a product or service to convey a true sense of commitment to the ultimate user. Through incubation and processing of sociometric feedback, it becomes possible to reveal underlying attitudes toward a product and obstacles to full commitment in terms of supporting it and, therefore, to identify ways to overcome or reduce psychodynamic barriers to supporting it. This is a relatively new field that is only now undergoing development (Dillard & Krippner, 1988).

Advantages and Limitations of Sociometry in Business and Industry

The advantages of using sociometry with the new analysis, summarization, and display technology made possible by the computer include the following:

1. The situation being analyzed can be graphically displayed in ways that clearly bring meaning to the data as opposed to evaluating the situation by searching a hand-drawn sociogram for connections and poring over tables of numbers.

2. Real time data analysis is made possible, with real time being a matter of hours or, at most, a few days, compared with the weeks and weeks needed for tedious manual compilation.

3. The face validity is immediately apparent, i.e., this is what people actually said, or what they actually do; it is not hypothetical. Most computer programs compensate for skewed data by throwing them out.

4. Unrecognized links in the chains of influence can be recognized, i.e., middlemen who are in direct contact with primaries but who are only indirectly connected to each other can be identified.

5. Key figures become apparent, e.g., a star or an isolate can have vastly different influences on the success of an operation.

6. The data available in the files of industry and government are often unintelligible because there is no logical basis for integrating them into a unified story form that permits conclusions to be reached. Sociometric technique provides this basis for giving order and permitting one to see how the system really works, enabling the user to visualize how systematic change might also operate.

The limitations are few. One lies in the reluctance of people to answer questions that might be seen as too personal, private, or unfair. Unfortunately, these generalizations frequently appear when data about feelings are the basis of collection. Nevertheless, such data may be the most valuable from the standpoint of making basic decisions about people.

A second limitation is also evident but in many ways is subject to reduction. What is desired in human organizations of today is openness and candor rather than "closedness," which may be encouraged by indirect sociometric reporting. This distinction is one of whether the data are treated in a rational way or in dynamic terms. Sociometry uses an indirect means of data gathering as contrasted with open, direct, confrontational, candid, face-to-face data production. This limitation may be overcome by getting people together to analyze the data and to discuss why they reveal what they do. In this way, the norm of roundabout reporting and statistical derivation can be overcome and replaced with one that is significantly more honest and direct.

Available statistical formulae for summarizing sociometric data have not changed much beyond the situation of many years ago. This represents another limitation. With the computer at hand, however, it should now be possible to summarize vast amounts of data and to present these

summaries, not only in sociograms, but in terms of statistical coefficients. These would significantly enrich insights into what is actually going on among people in operating situations, and such insights might set the stage for the planning and introduction of change.

A fourth limitation is that, to some degree, sociometric data are unreliable because of the changeable nature of human feelings. Although feelings tend to be relatively constant at the extremes where strong choice or rejection is felt, it is more likely that fluctuation in terms of choice or rejection will be experienced when these feelings lie closer to the neutral zone (Mouton, Blake, & Fruchter, 1955).

Summary

This overview offers a few suggestions about current uses primarily in the area of industrial application. It also suggests some future applications of sociometry. The computer and associated software technology may provide the needed breakthrough, making it possible to eliminate the unacceptable labor-intensive burden involved in hand analysis. The future is bright for the contribution that can be made by this rediscovered scientific discipline, which had its origins in the work of Jacob L. Moreno.

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