

# **Breakthrough in Organization Development**

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This article describes how behavioral science concepts of team learning form a link between individual learning and total organization development. The link is important because it suggests some answers to a long-standing problem in industry: how to test and demonstrate the large-scale usefulness of human relations research and teaching. In the process, the article also describes a rather new approach to management development and, more broadly, to organization development.

# **Barriers to Success**

Strangely enough, large-scale organization development is rare, and the measurement of results is even rarer. Even though management has sought for years to grasp and implement the important findings of behavioral science research, the task has proved more difficult than it first seemed. Many findings are subtle and complex. Other findings relate to individual insights or knowledge which is hard to build into the organization's life stream. In addition, most behavioral scientists do a better job of communicating technical findings to each other than they do of communicating the relevance of their research to practicing managers.

There have been many earnest attempts to make the behavioral sciences useful to business, government, and service institutions. But, because of the complexities, success has been elusive. Consider:

- Within many organizations, pockets of human relations enthusiasts form. They typically find themselves bucking a complacent or skeptical management. The enthusiasts retaliate by overselling their beliefs (which simply generates more skepticism) or by withdrawing from accusations of being "soft" on workers, profits, and tough-minded traditions of management.
- Selected executives are sent to management development programs which feature human relations concepts. Quite often, companies send "those who need it most." Particularly in "sensitivity training"-type programs, these men are placed under considerable strain. Though psychiatric problems rarely occur, they are a source of concern for staffs and faculties of such programs. Companies sometimes inadvertently send men with histories of previous mental illness. Under these conditions, psychiatric problems can occur and program effectiveness decrease for all concerned.<sup>1</sup>
- Other executives return from human relations programs highly enthusiastic. In at least some of these cases, there does seem to be real evidence of increased insight and individual learning. The problem for these men is one of implementation. Unless they have considerable organizational influence and/or a new, supportive climate, they will probably be forced back into old behavioral patterns and relationships.
- Occasionally, a total working group or department will be given human relations training within a company. At best, these efforts generate high morale and productivity within the group. At worst, the "chosen" group becomes the target or scapegoat of others in the organization, and the intergroup difficulties increase.<sup>2</sup>
- Most typically, in-company human relations training programs are established for foremen or other lower level managers. The almost universal response of participants in these programs is, "I wish my boss could learn what I've been learning." Then, as in the famous study of the International Harvester training program, most trainees go back to the job and apparently conform to their bosses' expectations, often at the expense of human relations concepts set forth in the program.<sup>3</sup>

# Authors' Split Roles in Grid Study

Dr. Blake's and Dr. Mouton's work went into the earlier design stages of the Managerial Grid concepts and teaching materials, and in Part I of the article (following the introduction, which represents the combined thinking of all four authors)

they describe briefly the six phases of a Grid program in organization development.<sup>\*</sup> Then an actual program, carried out by the Sigma plant's line management with minimal help from Blake and Mouton, was independently evaluated by Dr. Barnes and Mr. Greiner, as set forth in Part II of the article. Because of this description-evaluation split, the two pairs of authors have deliberately restricted their roles in the article, just as they sought to avoid influencing each other's interpretations of company developments as they were taking place. In this sense, Barnes and Greiner are the independent auditors of a program originally designed by Blake and Mouton.

\* For a far more complete development of the theory and phases, see Robert R. Blake and Jane S. Mouton, *The Managerial Grid* (Houston, Gulf Publishing Company, 1964).

In short, the overall results of human relations and behavioral science training are questionable, at best, for on-the-job practitioners. Individual benefits are thought to be great, and personal testimonials are abundantly favorable.<sup>4</sup> However, the question of mobilizing these insights into collective organizational efforts has remained a serious issue.

# **Step Forward**

The large-scale program in organization development described in this article may be a major step forward. It was regarded as highly successful both by the businessmen involved and by outside observers; the results *were* measured.

New to most executives in concept and design, the program makes use of a "Managerial Grid" approach to more effective work relationships. The Grid helps to give businessmen a language system for describing their current managerial preferences. It also involves classroom materials and an educational program for designing more productive problem-solving relationships. Even more important, the program is meant to be taught and applied by line managers over a time span involving six overlapping phases. These phases will be described briefly in Part I of this article; here you can see how a Managerial Grid program *should* work.

Then, in Part II you can see how such a program *did* work. The evaluation took place in a large plant (about 4,000 employees), which was part of a very large multiplant company. The parent company will be called "Piedmont" and the relevant plant unit "Sigma," for purposes of disguise. The Sigma plant had a reputation within Piedmont of being technically competent and had consistently been able to meet production goals over past years. Among Sigma's 4,000 employees were some 800 managers and technical staff personnel. These managers and staff personnel were all exposed to a Managerial Grid training program beginning late in 1962. At the request of the research manager in Piedmont's employee relations department, an evaluation study was designed shortly thereafter to follow up the effects of that program. The study included questionnaires, interviews, observations, and a combing of company records in order to separate program effects from nonprogram effects. The findings suggest that, even allowing for the nonprogram effects, the results of the Grid program were impressive. In brief:

- There is some evidence that Sigma's organization development program was responsible for at least several million dollars of controllable cost savings and profit increase. In addition, the program seems to have been responsible for a sizable increase in employee productivity during its first year.
- Sigma's managers began follow-up projects having total organization implications to a degree never experienced prior to the organization development program.
- The relationships between Sigma and Piedmont were considerably improved, partly as a result of the program. In addition, both union and community relationships were better than they had been in the past.
- There is some evidence that major shifts occurred in the behavioral patterns, dominant values, and attitudes found among managers at Sigma. These shifts were in line with the goals of the Managerial Grid program. Improved boss-subordinate, group, and intergroup relations were reported by Sigma managers.
- Colleague support seemed to be more important than boss support as a factor in managerial improvement, according to subordinate managers.

# Part I: How the Grid Program Should Work

The Managerial Grid identifies five theories of managerial behavior, based on two key variables found in organizations. One variable reflects concern for production or output; the other variable, concern for people. In this instance the term "concern for" refers to the degree of concern, not the actual results. That is, it does *not* represent real production or the extent to which human relationship needs are actually met. It *does* indicate managerial concern for production and/or people and for how these influence each other.

# **Managerial Grid**

These two variables and some of their possible combinations are shown in Exhibit I. The horizontal axis indicates concern for production, and the vertical axis indicates concern for people. Each is expressed on a scale ranging from 1, which represents

minimal concern, to 9, which represents maximal concern.

EXHIBIT J. THE MANAGERIAL GRID



Briefly, the lower left corner of the Grid diagram in Exhibit I shows a 1,1 style. This represents minimal concern for production and minimal concern for people. The 1,9 style in the upper left corner depicts maximal concern for people but minimal concern for production. The 9,1 style in the lower right corner portrays maximal concern for production and minimal concern for human relationships. The 9,9 style in the upper right-hand corner represents maximal concern for both human relationships and production. The 5,5 style in the center of the diagram is "middle of the road" in both areas of concern.

Once managers have studied the classroom material accompanying the Grid, it is possible for them to revise practices and procedures so as to work toward a 9,9 organizational climate. These efforts use an educational program as the core, in contrast to more conventional ways of getting better organizational results (e.g., changing organizational structure, leadership replacement, tightened accounting controls, or simple pressuring for more output).

#### **Educational Steps**

The educational steps are simple in concept, though complex in execution. They include the following:

- An investigation by each man of his own managerial style, using certain Managerial Grid forms of analysis. These include self-evaluation instruments, self-administered learning quizzes, in-basket procedures, and organizational simulations.
- A detailed and repeated evaluation of team effectiveness by groups which work with each other.
- Diagnosis of major organization problem areas; e.g., long-range planning, profitability of operation, union-management relations, promotion policies, incentive awards, new-product development, absenteeism, utilities conservation, and safety.

We should emphasize that this entire approach to organization development is self-administered by management except for occasional consultation regarding major issues. As of now, the Managerial Grid approach has been used in both industry and government. Changes in the near future will be in degree rather than in basic approach.

# Six-Phase Program

At the present time, we describe these organization development programs in terms of six overlapping phases. Taken sequentially, these phases can cover from three to five years, but they can also be compressed into a shorter period of time within a company.

### Manager Development

The six phases can be divided realistically into two major parts. The first two phases involve *management* development so that the other four phases can help managers work toward the 9,9 goals of *organization* development. Here are the two management development phases:

# 1. Laboratory-Seminar Training.

This is a one-week conference designed to introduce the manager to Grid concepts and material. From 12 to 48 individuals are assigned as members of problem-solving teams during each Laboratory-Seminar. These Seminars are conducted by line managers who already have been through the Seminar and thus know its material and schedules.

The Seminar begins with the study and review of one's own Managerial Grid style of behavior as outlined in a series of questionnaire booklets completed by each manager. It continues with 50 hours of intensive problem solving, evaluation of individual and team results, and critiques of team performance. The problems typically simulate organizational situations in which interpersonal behavior affects task performance. Each team regularly evaluates its own behavior and problem-solving capabilities. A team which performs poorly on one problem exercise is able to assess and adjust its problem-solving style in time for the next exercise. In addition, one exercise involves an attempted 9,9 "feedback" from team members to each individual concerning *team* impressions of his managerial styles.

Though Grid Seminars are sometimes compared with "T-Group" or "Sensitivity" training, the two training experiences are quite different. The strongest similarity comes in the face-to-face feedback experience of Phase #1. Even here, however, the Managerial Grid Seminars take a more structured approach by focusing on managerial styles rather than on personal behavior characteristics which may or may not be related to management.

Phase #1 is not intended to produce immediate organization improvement. It serves more as the trigger which creates a readiness to really work on human problems of production. Participation in a Grid Seminar is set up so as to include a "diagonal slice" of the organization chart. No man is in the same group as his boss or immediate work colleagues. At the same time, this diagonal slice arrangement permits many organizational levels and departments to be represented in each session.

# 2. Team Development.

This represents an on-the-job extension of Phase #1. The general 9,9 concepts and personal learning of the Grid Seminars are transferred to the job situation after each work group or department decides on its own 9,9 ground rules and relationships. Team development usually starts with the boss and his immediate subordinates exploring their managerial styles and operating practices as a work team. The ground rules of openness and candor which were established in Phase #1 can now become the daily operating style of Phase #2.<sup>5</sup>

Taken together, Phases #1 and #2 provide management development conditions which are designed to-

...enable managers to learn Managerial Grid concepts as an organizing framework for thinking about management practices;

...increase the self-examination of personal performance characteristics;

...increase a manager's willingness to listen, to face and appreciate work-related conflict, to reduce and work out interpersonal frictions, and to reject compromise as a basis for organizational decision making;

...build improved relationships between groups, among colleagues at the same level, and between superiors and subordinates;

...make managers more critical of outworn practices and precedents while extending their problem-solving capacities in

interdependent situations. Words like "involvement" and "commitment" become real in terms of day-to-day tasks.

# **Organization Development**

The last four phases build on this management development and help managers work toward the more complex goals of organization development.

3. Intergroup Development.

This involves group-to-group working relationships and focuses on building 9,9 ground rules and norms beyond the single work group. Situations are established whereby operating tensions that happen to exist between groups are identified and explored by group members and/or their representatives.

The goal is to move from the appallingly common "win-lose" pattern to a joint problem-solving activity. This seems to be possible when competing groups work their problems through to resolution using intergroup procedures developed in behavioral science studies.

A second type of intergroup development helps to link managers who are at the same level but belong to different work units (e.g., foremen, district sales managers, department managers, and so forth). Their competitiveness may increase organizational productiveness, but it may also result in departmental goals being placed ahead of more important organizational goals. Here, the problem is again met using joint problem-solving efforts which confront interpersonal issues according to 9,9 ground rules and norms.

# 4. Organizational Goal Setting.

This involves issues of major importance to all managers. Organization development moves beyond team areas into problems that require commitment at all levels. Such broad problems include: cost control, union-management relations, safety, promotion policies, and over-all profit improvement. These problems are identified by special task groups which may again come from a "diagonal slice" of the organization chart. Departmental groups may also help to define goals and assign roles. The goals prove to be "practical" when managers who must implement them also establish responsibilities for implementation. Commitment gained from the goal-setting procedures of this phase also avoids those negative responses now grouped under "resistance to change."

# 5. Goal Attainment.

This uses some of the same educational procedures used in Phase #1, but here the issues are major organizational concerns and the stakes are real.

For example, when problem areas are defined by the special task groups, other teams are set up throughout the organization. These teams are given a written "task paragraph" which describes the problem and the goal. Team members are also given packets of information on the issue under discussion. This information is usually studied overnight, after which individual managers check themselves on a true-false test designed by the special task group. Once individuals have studied the information and the test, the teams begin discussion on the same items, checking their agreed-on answers against an answer key. This way, agreement is reached on the nature of the problem and its key dimensions. From this point on, the team members work toward a better statement of the problem and toward corrective steps. They also begin to assign responsibility for these corrective action steps.

Phase #5 also relies on a manager serving as a coordinator during Phases #4 and #5. His primary goal is to help achieve the goals set during Phase #4. His secondary aim is to help identify previously unrecognized problems. He should have neither line nor staff responsibility in the conventional sense, but should hold a position similar to an industrial medical officer. He would be a specialist in organization development and intervene at those times when proposed steps seem inconsistent with 9,9 theory. He would seek action based on understanding and agreement, not because of any formal authority he holds. This approach, though more difficult than access through authority, reduces resistance. It also improves the quality of joint effort.

# 6. Stabilization.

This final phase is designed to support the changes brought about in the earlier phases. These changes are assessed and reinforced so as to withstand pressures toward "slip back" and regression. This also gives management an opportunity to evaluate its gains and mistakes under the organization development program.

# Summary

In this section we have briefly outlined the concepts and phases that go into an organization development program using Managerial Grid material. In some respects, the program sounds simple, and yet any manager recognizes the difficulties involved in influencing a large organizational unit toward changes in values and performance. Such was the challenge facing the Sigma management in 1962.

The next part of this article describes how Sigma faced that challenge with the help of the Grid program described above.

# Part II: How the Grid Program Did Work

This part describes the early findings and conclusions of a research study which evaluated the Sigma plant's program in organization development. The evaluation was suggested by the research manager in Piedmont's employee relations department. Those responsible for the program at the Sigma plant gave the idea immediate support. A research design was presented to the Sigma management and accepted. On-site field work began in June 1963 and ended in November 1963.

# **Evaluation Goals**

The evaluation of this large-scale organization development program seemed important for a number of reasons:

- As noted at the start of this article, corporate managements have had trouble in transferring behavioral science concepts into organizational action. The Sigma program represented a deliberate effort to move these concepts from the classroom into the mainstream of organization life.
- The Sigma program was run by *line* managers. Even Phase #1, which introduced Managerial Grid concepts, was directed by rotating pairs of line managers. Staff experts and outside consultants played peripheral roles only. Typically, programs of this kind and scope involve considerable outside guidance and/or teaching.
- Any management development program which focuses on self-introspection and self-other relationships runs some risk of psychiatric disturbances. The question was whether the Managerial Grid program at Sigma was able to avoid such problems by using exercises involving managerial styles rather than depending on the deeper exploration of personal characteristics. Altogether about 800 managers and technical men experienced Phase #1 at Sigma. These men were of varying ages and educational backgrounds. They came from all areas and levels of the organization.
- The program at Sigma sought collective group changes, not just individual changes in attitudes and behavior. Most management development programs treat the individual as the learning unit. The six phases of the Grid program were explicitly aimed at group and cross-group shifts in attitudes and behavior.

Consequently, a "successful" program at Sigma might have important implications for business and the behavioral sciences alike. Sigma's experience might help answer the following questions implied in the above reasons for an outside evaluation:

- Can a program based on behavioral science concepts be translated into meaningful organization action?
- Can management take primary responsibility for such a program?
- Can important attitude and behavior changes be accomplished without their being psychologically threatening?
- Can a change of focus from the individual to the group aid collective learning and behavior change?

#### Measurement Problems

Given the possibility of Sigma's running a "successful" program, how were we to determine whether it was *really* successful? How was organization development to be adequately identified and measured? Such questions involve major issues in behavioral science methodology, and the answers are complex.

Put bluntly, there is no really satisfactory way of identifying and measuring organizational change and development. Too many variables are beyond control and cannot be isolated. An investigator never knows when "extraneous" factors are just as responsible for an important finding as are the "key" factors identified in his research.

Yet this complexity provides no excuse for not attempting to evaluate such programs. The important thing is to approach the project with some qualms and to apply caution. On this basis, we hope to show how different "measures" of Sigma's program furnish enough evidence for readers to piece together what happened before and during the program. These measures include productivity and profit indexes, results of opinion and attitude surveys from members of management, and evidence of behavioral changes taken from interviews and conversations.

None of these indexes is satisfactory by itself, and even when used jointly, they require cautious application. Each finding can only be treated as a piece in the overall puzzle. It is the consistency and direction of the many different findings which lead us to believe that something important was happening at the Sigma plant.

# **Decision on Program**

Historically, a number of factors influenced the management of the Sigma plant in making its decision to undertake the organization development program.

# **New Policies**

The first significant factor occurred early in 1960. At that time, Piedmont was merged with another company. This merger disrupted a long-standing relationship between the Sigma plant and its parent organization. Among other things, the merger ended a prior contract that for over 25 years had assured Sigma of a cost-plus profit. It also brought with it a new headquarters management that stressed plant autonomy. Henceforth important decisions, which previously had been made almost exclusively by headquarters management, were to be delegated to the plant level.

However, complications arose when headquarters adopted its new policy of "hands-off" management. Headquarters hoped that the Sigma management would use its autonomy to solve chronic problems which had carried over from the more directive previous management. The most serious problem involved the use of Sigma manpower on construction work of new units. One headquarters manager described the situation as follows:

"We had heard from higher level people that Sigma had too much manpower. Our reaction, I suppose, was that this should have been reduced before the merger. But we were faced with it. And the Sigma plant was telling us that they were in balance. We got long memos from them, and finally the issue began to center on using manpower for construction work. This practice was typical of several plants in our organization, but Sigma appeared to be defensive, implying that they could do *all* the construction work better than contractors. This was the summer of 1961. We weren't sure about the true answer either, although I guess we thought they had a lot of people. Also, the vice president in charge of our group isn't one to go out and directly tell someone to do something. He would rather let them find out for themselves and then seek help. I believe in this. So we'd prod Sigma and ask questions. But I guess we weren't always too subtle. They became defensive, and some of our later sessions became emotional."

# **In-Plant Relationships**

A second major factor which helped to set the stage for the Sigma program involved the strained relationships between different departments and levels within the plant. Major operating and engineering departments were on the defensive. Accusations of "empire building" were not uncommon. Lower level supervisors still felt somewhat alienated because upper level management had frequently overruled them on union grievance decisions in the past. In short, while Piedmont was concerned about Sigma's major decisions, Sigma management worried more about day-to-day operating problems.

This factor was all the more crucial because of the complex technology of Sigma's plant, a technology that required constant interdepartment cooperation. Mistakes were costly and even dangerous. As a result, Sigma's management felt considerable pressure to resolve departmental differences and improve coordination. Yet these differences persisted, much to the frustration of many people.

# The Plant Manager

Another key factor in setting the stage for the development program was the attitude and reputation of the Sigma plant manager. Prior to assuming operating control of the plant in 1959, he had worked at Piedmont headquarters on a reorganization study committee, and before that he had been research director at Sigma. Because of many important technical

contributions he had made to the company, he was held in high regard within the Sigma plant. In his newer role as plant manager, he had tried to identify and correct the problems facing the plant. But he had experienced some difficulty in gaining full acceptance and cooperation on these desired improvements. One of the plant manager's key subordinates described his reaction to the plant manager's methods as follows:

"The plant manager would go around and ask people, 'What would you think if I made such and such a decision?' Actually, he already had his mind made up, but he was just testing people to see if they would accept it. He always wanted people to agree with him."

And a first-level supervisor made this specific comment:

"The plant manager came down and gave us a lot of company philosophy. We started out with his 'Black Book'—he wrote it. It was pretty positive. It told the men to make decisions. But a new union had just come in, and a lot of people were suspicious that he only wanted us to make tough decisions rather than fair decisions."

The plant manager reported a cautious and circumspect reaction to the 1960 merger. This attitude was shared by most of the Sigma management. When Piedmont representatives asked the plant manager what he considered to be prying questions, he reacted rather strongly—"like Horatio defending the bridge," as he later described it.

# **Prior Plant Experience**

Still another factor encompassed past efforts by Sigma's management to meet the production requirements. The plant was noted for its management and worker training. Like all of Piedmont's plants, Sigma had sent managers to university training programs, as well as running in-plant training programs with and without outside assistance. These efforts were intended to supplement an already high educational level in the plant, where over 48% of 800 managers and supervisors at all levels held college degrees, including 80 with graduate degrees. In addition, Sigma was frequently characterized as a "family" and "meeting" plant where cooperation was considered important.

However, like many organizations, Sigma lacked a consistent way of fitting these concerns for productivity and people together. Instead, Sigma seemed to have emphasized one or the other, depending on headquarters directives and the other pressures on it at various times.

# Consultant's Entry

Finally, the consultant, Dr. Blake, must be considered as a key factor. Blake had an impressive reputation as an organization analyst with management in other parts of Piedmont. Headquarters management had asked him to visit the Sigma plant, provided the plant manager approved. The plant manager described the entry of Blake as follows:

"I guess we decided on some sort of trial marriage with Blake... I said, 'Why don't you look us over and we'll look you over.' In this trial period he began to look into our headquarters relations and concluded there were real problems. Then he asked if we wanted to explore these problems in a joint session with headquarters. I was impressed by that meeting. It did some real good. I guess headquarters at the end of the first day was ready to call off the dogs. We had a lot of misconceptions on the manpower problem—a lot of people in headquarters thought we weren't coming to grips with it. I guess one of the most enlightening things—when we started to let our hair down on the second day of these sessions—was when the vice president of manufacturing said, 'How should I know what Sigma is doing about manpower when they haven't told me?' I would have asked the same thing if I had been in his situation. But it shocked us.

"I'm not too clear on what happened from here on. But I feel we began to establish a rapport that we didn't have before. We ironed out a lot of misunderstandings on both sides. There was no longer a feeling of a lack of trust between us. This session convinced me and the whole group that Blake's methods had helped us—at least on this problem. He got us to see that conflict is something you get out on the table. Then four of us went to an outside Grid Seminar. We invited one manager from the headquarters group to come with us—and he did. All of these decisions to go ahead were made here at Sigma—mainly by a group of sixteen. It was a group decision to send the four of us to the Grid Seminar. We came back and reported—then we had some more discussions—and finally we evolved the development program."

# Significant Changes

Phase #1 of Sigma's organization development program began in November 1962 with 40 managers participating in a oneweek Managerial Grid Seminar. This phase continued until the summer of 1963, by which time 800 managers and technical men had completed it. Meanwhile, the earlier participants began to embark on later phases of the organization development program.

Our data collecting began about the same time. These data, accumulated over the next four months in the field and by reports thereafter, show significant changes in Sigma's operations. Both plant operations and internal external relationships were influenced. In this section we shall describe these changes and attempt to show how the organization development program affected them. The data include changes in:

- Productivity and profits.
- Practices and behavior.
- Perceptions, attitudes, and values.

The analysis of these data moves from "hard," relatively objective material involving profits to "softer," more subjective data such as attitudes. The important things for readers to ask are: Do the different findings seem consistent? Do they reinforce each other? And do they suggest that the development program played an important role in Sigma's own development?

# A. Productivity & Profits

There were significant increases in productivity and profits during 1963, when the organization development program was in effect. Exhibit II indicates that total production rose somewhat (with fewer employees), and profits more than doubled. At first glance, it would seem that Sigma had struck gold, that its worries were over, and that the development program had been highly effective. But this in itself would be a gross oversimplification.

1900-1903				
	1960*	1961	1962	1963
Gross revenue	100	101.6	98.2	106.6
Raw material costs Noncontrollable op-	100	98.8	97.2	103.2
erating costs Controllable operat-	100	97.5	101.8	104.6
ing costs Net profits before	100	95.0	94.1	86.2
taxes	100	229.0	118.0	266.0
Number of employees	100	95.5	94.I	79-5
Total production units	100	98.5	98.2	102.2

EXHIBIT II. RELEVANT OPERATING FIGURES,

\* 1960 used as a base year, since it was the first year that Sigma's records could be compared with post-merger years.

To begin with, Sigma's business involves widely fluctuating market prices, raw-material costs, and other noncontrollable factors. Possibly higher revenues or lower materials costs would explain profit increases. In addition, new automatic machinery and new plant equipment investments might be sufficient cause for the reduced labor force and increased profit picture. Finally, an overall manpower reduction had occurred (involving over 600 employees), and this in itself might account for the increased profit picture in 1963, particularly if the increased overtime costs (at time-and-a-half) had been spread over the remaining work force. These possibilities make it difficult to draw simple cause-effect conclusions about Sigma's development program and operating performance.

# **Controllable Factors**

At the same time, some of these noncontrollable factors can be identified and assessed for their contributions to profit. For example, noncontrollable factors can be separated from controllable factors. At Sigma, changes in certain of the noncontrollable factors—revenues, depreciation, taxes, and raw materials—accounted for about 56% of the increase in profits, despite the fact that noncontrollable costs as a whole had increased.

The remaining 44% of the profit increase was due to reductions in controllable costs—i.e., wages, maintenance materials, utilities, and fixed overhead-over which plant management had decision-making control. These reductions in controllable costs led to a profit contribution amounting to millions of dollars. Meanwhile, net investment had not increased appreciably (1.5% during 1963), and overtime had increased only slightly (5% over a small base) during the same time.

Consequently, it appears that a sizable part of the 1963 increase in Sigma's productivity and profit came from controllable factors. Furthermore, the explanation for this increase was not due to the addition of more efficient machinery or longer work hours. The next question, therefore, is: How much of this increase in profits was due to the manpower reduction, and how much to increased productivity on the part of remaining employees?

Company records show that 69% of the controllable cost savings came from the manpower reduction. The remaining 31%, amounting to several million dollars, came from improved operating procedures and higher productivity per man-hour. Exhibit III shows how these productivity and controllable cost measures for 1963 compared with previous years. (Productivity, in this case, is represented by dividing the number of employees for each year into the number of total production units.) The only really comparable year in terms of profit increase, according to Exhibit II, was 1961. However, the profit increase in 1961 was due more to factors outside of the Sigma management's control than in 1963. Exhibit III shows that the 1961 increase in productivity and decrease in controllable costs were very small compared with 1963. Most impressive, Exhibit III shows that the productivity index per employee increased from a high in 1962 of 103.9 to a new high of 131.3 in 1963 without the aid of substantial investments in plant and equipment, as shown earlier.



### EXHIBIT III. PRODUCTIVITY AND CONTROLLABLE COSTS, 1960-1963

#### Effects on Profits

The difficult problem now is to assess the role played by the organization development program in Sigma's improved productivity and profit picture. Concerning ourselves only with the controllable cost savings and productivity increases, how did the Sigma management account for these?

### Manpower Savings.

The largest saving was due to the manpower reduction. On this issue, consider the following comments from a talk given by the Sigma plant manager at a Piedmont conference:

"The group's decision-making process on the manpower question drew heavily on the approaches that had been developed in

our development program. The approaches used stimulated a high degree of interplay of ideas and suggestions advanced by the various members of the group. It is believed that this permitted development of group answers that were better than the sum of the individual contributions. In the final analysis, it was evident that everyone involved was deeply committed to using methods and procedures that each had helped devise to accomplish or surpass goals that each had helped establish.

"One of the key decisions made on a team basis involved the timing of the announcement. At the start of the discussions, most of the group favored the conventional approach, namely, that of deferring the announcement of the voluntary retirement program as long as possible and of delaying the announcement of the layoff until the completion of the voluntary program. However, a small minority took the reverse position and finally were able to convince the majority of the soundness of this position. We are convinced that this decision was a major factor contributing to the success of the manpower reduction...

"It was particularly gratifying that 520 of our employees accepted early retirement or termination voluntarily in comparison with an expected loss of only 196 employees by these measures. As a result, only 84 employees were laid off versus 260 that we had projected originally. The fact that the total reduction in forces was 160 employees greater than anticipated is particularly significant, since we foresee a continuing need to operate our plant with a fewer number of employees.

"In addition to these numerical results, the program was successful in other important ways. Little bitterness or resentment toward the company has been evidenced by the relatively few employees involved in the forced layoff. Many employees expressed appreciation of the length of the advance notice and of the assistance given by the placement office. None of the unions took a stand against management's actions, nor did any union try to impede the implementation of the program. Community and press reactions were gratifying. There is some evidence of a trend that the community is moving in the direction of becoming more self-reliant and less dependent on Sigma.

"The Sigma management feels very strongly that the quality of the decisions made in connection with setting manpower goals and the implementation of the reduction program was largely responsible for the success of the program. It feels equally as strongly that the quality of the decisions made was profoundly influenced by application of organization development principles."

Comments by other Sigma managers indicate that they also give high credit to the program for the quality of the manpower reduction decision. At the same time, it appears that some such decision was inevitable under any circumstances. The plant manager had decided to reduce manpower before the organization development program began. However, he had not yet communicated this to headquarters (he did this during the joint headquarters-Sigma meeting suggested by Blake), nor had any official implementation plan been worked out. But here is one of those difficult points where observers will argue whether or not the quality and the implementation of this difficult decision were as important as the decision itself was. The Sigma management apparently believes that they were.

# Work-Group Performance.

Another measure of improved performance and profit consciousness is shown in Exhibit IV. A voluntary-response, anonymous questionnaire was sent to those men who had participated in Phase #1 of the Managerial Grid program. Each man was asked to compare several performance indexes of one year ago with those of the present time. The responses were marked on an eight-point scale and returned by 606 of these men. Exhibit IV shows perceived improvement on all of the performance-related items, including an increase of 30.5% in the profit-and-loss consciousness of the work group. The least improvement is reported in "Boss's work effort," which was the only one of the six items not explicitly addressed in the Phase #1 training. Apparently the Sigma respondents saw greater performance-productivity improvement in areas which had been stressed in Phase #1 than in areas not stressed.

Exhibit iv. Perceived changes in group performance, 1962-1963

	Per cent of managers rating dimensions of performance "high" *			
	In 1962	In 1963	Increase or decrease	
"Boss's work effort"	67.1%	78.5%	+11.4%	
"Leveling with other group members"	45-9	67.7	21.8	
"Group's work effort"	50.2	74.2	24.0	
"Problem liveliness in group discussions"	27.2	53.0	25.8	
"Quality of decisions made in	,			
group"	38.8	64.6	25.8	
"Profit-and-loss consciousness in				
group"	41.2	71.7	30.5	
Average	45.1%	68.3%	+ 23.2%	

\* Refers to the per cent of 606 questionnaire respondents rating their managers either "7" or "8" on an eight-point scale.

# Follow-up Projects.

A final indicator of the program's contribution to the productivity-controllable cost picture is reflected in some of the follow-up projects which were part of Phases #4 and #5 of the Managerial Grid program. These activities were intended to solve specific organizational problems using 9,9 concepts and methods, and in this sense they also represent changes in actual behavior (to be examined more closely in the next section). They include some projects which are directly related to productivity and cost improvement, as well as other projects less directly related. For example:

- During the period of contract negotiations with the union, a management team used problem-solving approaches learned in the Grid Seminar to keep all levels of management informed as to management's position.
- An organization development coordinator was appointed to keep track of different follow-up projects.
- A management team was established to work out a program for reducing utility costs. This team used Managerial Grid concepts to create awareness of the problem and to introduce the program to other managers.
- Another management team began work on reducing the costs of maintenance materials and supplies, again using Managerial Grid principles.
- A new series of Grid programs was extended beyond lower level supervisors in the plant. These men included sliding supervisors who moved back and forth between worker and supervisor positions. In addition, an effort was made to extend Grid concepts to the labor force. Consequently, union officers were invited (and many accepted the invitation) to participate in these sessions.
- A series of half-day sessions was held for second-level supervisors to discuss and determine guidelines which would help improve supervisor-subordinate relationships. These sessions were based on the Grid Seminar format, with both supervisors and subordinates participating in the discussions.
- A safety program, based on Grid methods, was designed to increase awareness of safety problems and to get new ideas for improvements. This program was to include all plant employees.
- The plant manager initiated a plan whereby supervisors would encourage subordinates to set personal goals for the coming year. This was intended to replace previous performance appraisal methods wherein the supervisor set the goals and told the subordinate how he was measuring up to them.

An example of how one of these follow-up efforts, the utilities improvement program, was affecting profit consciousness is shown below in a conversation among two members of the program committee and the field researcher:

Researcher: How is the utilities improvement project coming along?

*Manager A:* Real well. This morning we attended a meeting of the project committee that has been created. They have a long way to go, but they're enthusiastic.

*Manager B:* They've set up a committee with a full-time project head, John J. They've put some real important people on the committee—all at the department head level.

Researcher: Management took Jim P. away from his line job on a full-time basis?

Manager A: Yes, he's off for at least a year. This shows the importance management is giving to utilities conservation.

Researcher: Have there been any noticeable P & L effects yet?

Manager A: Yes, just this morning I got the fuel bill for last month, and it dropped to such an extent that, if it keeps up, we could save over a million dollars for the year.

Manager B: And the best we can figure is that this was due to motivational reasons, as little else could account for the drop.

# **B. Practices & Behavior**

Because the research was begun after the beginning of Sigma's organization development program, we have only a few accurate indexes of changes in practices and behavior. However, the ones available are important indicators of the changes taking place in the plant. They include:

- Increased frequency of meetings.
- Changing criteria for management appraisals.
- Increased transfers within the plant and to other parts of the organization.

# More Meetings

Exhibit V shows the increase in meeting schedules from a representative sample of 30 Sigma managers. The calendars of these men showed a 31% increase in formal meetings scheduled during a summer week in 1963 as compared with a year before. Questionnaire data also showed managers reporting an average of 12.4% more time in "team problem-solving" meetings.

# EXHIBIT V. MEETING ATTENDANCE BY MANAGERS



The fact that the character as well as the frequency of these meetings was changing is shown by the following statement made by a Piedmont headquarters representative, formerly quite negative toward Sigma's management:

"I think the recent change in the way that Sigma is being managed is the most drastic thing. You just go to a meeting now and you see it. I sat in on a recent meeting. People talk as though they are making decisions, and they are. This didn't happen before. A meeting would usually conclude with the plant manager's reaction. You knew damn well that he made the final decision. There wasn't a meeting he wasn't in. You could never get hold of him. Now he is the most available guy in the place."

Exhibit V also shows a discrepancy between the findings for administrative managers and those for technical managers. (Administrative managers are line and staff people whose work is concerned mainly with daily operating matters; technical managers are staff people dealing primarily with long-range technical problems. It should be pointed out, however, that almost all administrative managers at Sigma had technical backgrounds.) Administrative managers showed more frequent meetings and a greater increase over the year than technical managers did. Similar tendencies persist throughout these findings. Administrative managers consistently report behavior that is "in line" with Sigma's change trends and more positively oriented toward the organization development program.

# **Promotion Criteria**

One reason for this difference appears in Exhibit VI, which shows a second indicator of actual behavior change. This suggests

that promotion criteria are changing at Sigma, as shown by the profile of the 50 most highly evaluated managers. Youth and a line position (largely held by administrative managers) now seem to be better predictors of success than higher age, company seniority, and position in the staff organization (largely populated by technical personnel).

EXHIBIT VI. ATTRIBUTES OF 50 MOST HIGHLY RATED MANAGERS

ATTRIBUTE	1962	1963
AVERAGE AGE (YEARS)	42.2	39.4
AVERAGE LENGTH OF SERVICE (YEARS)	18.4	15.6
PER CENT IN LINE JOBS	42%	64%
PER CENT IN STAFF JOBS	58%	36%
PER CENT IN HIGH-LEVEL JOBS	64%	50%
PER CENTIN MIDDLE-LEVEL JOBS	34%	36%
PER CENT IN LOW-LEVEL JOBS	2%	14%

These figures suggest shifting qualifications for promotion in a changing organization. They also suggest a shift in the power structure of the plant, with administrative-line managers becoming more highly rewarded than technical-staff managers. We therefore begin to understand one possible reason for the greater acceptance of organization development by the administrative managers. For them, the reward potential was relatively high.

#### **Manager Mobility**

Exhibit VII shows the third indicator of actual change. Manager transfers, while not increasing sharply in total numbers, rose 52% over 1962 transfers within and outside of the plant. The number of transfers in 1962 tended to be typical of previous years. The increase in internal movement suggests greater flexibility within the plant, and the increase in transfers to outside units suggests stronger ties with headquarters and the other operating plants. Company records also show that managers typically spent (and wanted to spend) their careers within the plant. More recently, however, managers have been promoted out of Sigma. In support of the conclusion that the plant has developed stronger outside ties, we find that in 1962 only 18% of the men transferred out were rated among the top 50 managers at Sigma. In 1963, 38% of those transferred out were rated among the top 50.

TRANSFERS	1962	1963	PER CENT CHANGE
WITHIN PLANT	21	39	+86%
OUT OF PLANT	33	43	+31%
TOTAL MOVEMENT	54	82	+52%

### Exhibit vii. Change in mobility of management personnel

#### **Effects on Behavior**

In the previous section on productivity and profits, we saw evidence that follow-up project savings were credited largely to the organization development program. The same was true of the new emphasis on teamwork and problem solving. Again and again, specific behavioral changes were ascribed to effects of the program by Sigma personnel. For example, one higher level manager noted:

"We had a pretty good example of group action here last Friday evening. We had a personnel problem; and if that problem had

come up a couple of years ago, they would have used a 9,1 on it—told the complainer to go back to work—and that would have been the end of it. I was involved myself and still am. My two supervisors brought me and the other man together and used the Grid ideas. They gave us an opportunity to talk. Anybody could say what he wanted to. We got a little personal, but it works. It works because each of us got some things off his chest. I made a mistake a long time ago in not reporting the trouble I was having. When they cut the other man in, he was able to tell us what he thought was wrong."

A lower level supervisor described the effects of Phase #1 in this fashion:

"The way I see it, we had an old philosophy that we had to get away from...this being a country club atmosphere, of doing nothing and just having a good time. Well, there are two ways you can change: One is that you can do it by attrition, but this takes too long. The other is that you can do it like the Chinese do it—by brainwashing. Now this may sound critical and I don't mean it this way, but this is how the Grid training program was done. You were under conditions of pressure and you kept getting those theories repeated to you over and over, and it has worked.

"I don't think it's so much that individuals have changed, but the philosophy has definitely changed. Why, there is one department where it used to be dog eat dog with them. But since March we have been able to work together much better. And I attribute this change to the program because the change is so uniform in that department. It couldn't have been done by one man in the department because then the difference would be more inconsistent."

Finally, a first-level supervisor and former union member commented:

"It's just here in the last year or so that company officials have branched out and let lower level people have a say in things. I guess I'd say, and all us working foremen do things differently, that I make 90% more decisions now compared to ten years ago. Routinely, we have a lot more responsibility now. It used to be that decisions came down from the top—it was all cut and dried—and you did it. In the last year particularly, the supervisors are giving us a lot more authority and getting better cooperation. They give a man a chance to do a job. It seems like they keep bringing things out and getting us to do more."

With regard to the increase in meetings, managers tended to have mixed feelings. Their time was precious, and some of their new problem-solving meetings failed to provide the answers. Furthermore, they, like so many managers today, felt sensitive to "committeeitis" and "group think" criticism. At the same time, there was wide support for the "team" and "problem solving" approaches stressed in the Managerial Grid Seminar, because they provided opportunities to confront problems that had been avoided or unrecognized earlier.

# C. Attitudes & Values

The anonymous survey questionnaires asked each manager to report on his views of organizational relationships during the fall of 1963 as compared with a year earlier. Exhibit VIII shows that improvements had occurred in boss-subordinate relationships, within departments, and between work groups.



NOTE: Based on a questionnaire that asked each respondent to compare in three separate questions: (a) the way he works together with his boss, (b) the way his work group works together, and (c) the way his work group works with other groups.

Perceived improvement was highest in intergroup and interdepartmental relationships, although impressively high in the other

areas too. Improvement was again seen as higher in administrative-line than in technical-staff areas, as shown in Exhibit VIII-B.

### **Changing Ground Rules**

These perceived improvements, theoretically, came from more basic changes in values and attitudes among managers and the technical people.

In order to test this, we devised a game whereby each member of a top-management committee (N = 19) chose from a deck of 132 cards those statements which best described managerial ground rules and values as they were "five years ago," "today," and "preferred for future" in the Sigma plant. The 19 managers' choices indicated a 26% shift from "either-or" and "compromise" card statements to statements representing an integrative synthesis (as shown in Exhibit IX). They hoped to see an even greater shift (17%) toward integrative values and ground rules in the future.



To the extent that "either-or" values still existed (as shown in the smaller circles), they had reversed direction from where they were five years ago. Current polarized values tended to emphasize stronger management. Five-year-ago values tended to emphasize weaker management direction. This weakness was apparently due to headquarters management's strong hand and the lack of incentive provided by the cost-plus contract. After the 1960 merger, a "tougher" line was followed by the plant manager, although this was not enthusiastically received by suspicious lower level managers, as we saw earlier. By 1963, however, there had emerged an integrative value system that was backed up by "tougher" task-oriented values.

This exhibit suggests that the changes in management ground rules were both rapid and extreme. "Soft" practices were condemned in the 1963 value system by Sigma's top management. Integrative values were preferred; but where these were not currently practiced, management saw "hard" values as being preferable to the "soft" ones of five years ago.

#### Effects on Attitudes

How were these perceived changes influenced by the organization development program? The evidence from the survey builds up some impressive links.

To begin with, the changes were directly in line with the 9,9 concepts introduced in Phase #1 of the Sigma program. "Integrative" values were disguised but consistent examples of 9,9 ground rules and norms. The polarized examples were analogous to 9,1 and 1,9 procedures and beliefs. The "compromise" statements, of course, were akin to 5,5 practices and values. The Phase #1 Grid sessions had tended to reward 9,9 and 9,1 behavior over and above the other styles of management. These same two patterns seem to have been most widely practiced in 1963, according to the management group that sorted the 132 cards in the game described earlier.

Boss Behavior.

Still further evidence of change directly in line with Phase #1 concepts is shown in Exhibits X and XI.

	Per cent of sub- ordinates rating manager "high" *		
	In 1962	In 1963	Increase or decrease
Dimensions stressed in positive direction			
in Grid Seminar			
"Keeps me informed"	45.3%	62.6%	+ 17.3%
"Aware of others"	42.9	55.3	12.4
"Plans ahead with me"	45.5	57.6	12.1
"Encourages suggestions"	53.1	64.7	11.6
"Sets goals with me"	48.1	59.5	11.4
"Helps me to learn"	44.7	56.1	11.4
"Gets me to have high goals"	54.4	65.8	11.4
"Follows up with me on action"	53.8	64.5	10.7
"Listens carefully to me"	60.6	71.3	10.7
"Aware of himself"	63.9	72.8	8.9
Average	51.2%	63.0%	+ 11.8%
Dimensions not stressed either positively			
or negatively in Grid Seminar			
"States his views clearly"	58.2%	69.3%	+ 11.1%
"Rewards me for good job"	48.5	56.6	8.1
"Stands behind me"	65.9	72.8	6.9
"Has management's backing"	62.3	68.4	6.1
"Controls his emotions"	76.0	82.0	6.0
Acts self-confident	72.8	78.7	5.9
Acts at ease	78.6	83.4	4.8
Average	66.o%	73.0%	+ 7.0%

EXHIBIT X. PERCEIVED CHANGES IN BOSS BEHAVIOR, 1962-1963

\* Refers to the per cent of 606 questionnaire respondents rating their managers either "7" or "8" on an eight-point scale.

### EXHIBIT XI. PERCEIVED CHANGES IN WORK-GROUP NORMS, 1962-1963

	Per cent of managers rating dimensions of group behavior "relatively negative" *		
	In 1962	In 1963	Increase or decrease
Dimensions stressed negatively in Grid Seminar "Group's attitude toward a member who gives more im- portance to maintaining friendly relations than to solv- ing methods are been been as the solution of the			
"Group's attitude toward a member who prefers to keep his own opinions to himself rather than to lay his	40.1%	65.2%	- 25.1%
cards on the table. "Group's attitude toward a member who prefers to do a job by himself rather than with other members of the	44-5	66.8	- 22.3
group." "Group's attitude toward a member who often compro-	29.0	50.3	- 21.3
mises when disagreement arises." Average	25.3 34.7%	42.0 56.1%	- 16.7
Dimensions not stressed either positively or negatively in Grid Seminar	347.0	,,.	21.470
"Group's attitude toward a member who doesn't make up his mind until others have expressed their opinions." "Group's attitude toward a member who prefers to spend his career at the plant rather than go elsewhere in the	40-4%	51.3%	- 10.9%
organization."	10.3	16.2	- 5.9
close friendly relationship with his boss." "Group's attitude toward a member who greatly outpro-	59.1	51.2	+ 7.9
duces other members of the group." Average	35-9 36.4%	23.9 35.7%	+12.0 + 0.8%

\* Refers to the per cent of 606 questionnaire respondents rating dimensions of group behavior toward the negative end of an eight-point scale. Exhibit X is tabulated from the reports of 606 participants on 17 specific changes in their boss's and work group's behavior in 1962 as compared with more recent behavior in 1963. The questionnaire used for this purpose included some items which were consistent with and important to Phase #1 training and others which were "equally good" but not emphasized in the Grid sessions. Exhibit X shows that 10 out of the 11 items depicting greatest boss improvement reflected ideas taken up explicitly in the Phase #1 training. Only one high-scoring item ("States his views clearly") had not been emphasized at that time. As for the other six items not stressed in the training, all show only moderate increases. Bosses had improved somewhat on these items, according to subordinates, but not as much as on the items addressed during the Phase #1 training.

Exhibit XI also suggests a cause-effect relationship between the Sigma program and changes in work-group behavior over the year. This time, negative rejection of some items (rather than positive reaction) was examined. We asked which items describing work-group practices were least accepted by managers in 1963, compared with those least accepted in 1962. Some of the items included were highly at odds with Phase #1 9,9 concepts, though not identified as such. Others were simply less relevant to the Phase #1 training. Exhibit XI shows that the most strongly rejected practices in 1963 were those at odds with 9,9 beliefs. The "irrelevant" practices were less strongly rejected or were positively accepted.

# Positive Responses.

Favorable attitudes toward Phase #1 also appear in Exhibit XII. Participants were asked to evaluate their experience in the Grid Seminar. The results were generally favorable. The most positive responses came from the members of two administrative departments. The least enthusiastic responses (and even these were generally positive) came from the members of two technical departments.



NOTE: Based on data from questionnaire asking respondents to evaluate the Grid Seminar for its job-related usefulness. An eight-point scale was provided. The results were later combined into four categories, 7 to 8 for "very high," 5 to 6 for "somewhat high," 3 to 4 for "somewhat low," and 1 to 2 for "very low."

These differences might reflect the fact that administrative men were currently receiving a larger share of evaluation and promotion rewards than before. They might also reflect the classic value differences associated with business, on the one hand, and science, on the other. Some interview data suggested that members of technical departments valued individualism over the team strategies of the organization development program. Although many of Sigma's managers (including the plant manager) were engineers or scientists by training and early work, our evidence suggests that they adopted managerial values when they left the technical departments. At any rate, administrative department managers were somewhat more enthusiastic about Sigma's program than were men from the technical departments.

Generally speaking, the changes reported in the behavior of bosses and work groups, as well as the changes in work practices (shown in Exhibit IV), are right in line with the 9,9 values and ground rules designed into the Phase #1 training. Taken together with the enthusiasm for the Grid as a training experience, it is clear that most Sigma participants valued the on-the-job results of their organization development program.

# **Some Underlying Factors**

The material discussed so far suggests that Sigma's program made an important contribution to; (a) productivity and profits, (b) changes in practices and behavior, and (c) at least some changes in attitudes and values among managers.

Although the underlying motivation may have existed long before this program, Sigma's program seemed to provide the

specific vehicles for mobilizing and directing managerial energy. Perhaps other programs or methods would have worked just as well, though, as already stated, Sigma and other Piedmont plants had earnestly engaged in a number of them without comparable results in the past. In addition, the "hands-off" policy of the new headquarters group had not gained widespread improvement at Sigma any more than the more directive line taken by the previous headquarters group had. Furthermore, the plant manager's early managerial toughness had gained resistance as well as slow results.

Therefore, what were the causal factors in and around the organization development program that permitted it to make a contribution to Sigma's improved position? To examine these (and to gain even further understanding of the program's influence), we turn our attention next to a review of evidence and opinion that describes the underlying factors which seem crucial to Sigma's program and its contributions.

# **Headquarters Role**

Earlier, we described the events which led Piedmont to exert pressures on the Sigma plant management for improved performance. In some respects, the pressures may have been overly subtle. Sigma's management did not fully appreciate just how important certain issues were to headquarters until these issues emerged in open discussion. This occurred for the first time during the three-day meeting suggested by Blake. As a result of this meeting, headquarters personnel became the source of help they sought to be, rather than the ambiguous threat they had been. At the same time, headquarters left implementation, including the organization development program, in the hands of the Sigma plant management.

The results of this new relationship seemed to satisfy headquarters management. The verdict late in 1963 was that Sigma had made considerable progress and that headquarters-plant relationships had improved. After the first year of Sigma's program, Piedmont's management expressed strong pleasure and partial surprise at Sigma's improved position.

# Consultants' Contribution

At this point the work and reputation of Blake and Mouton provided the specific departure point for an organization development effort. Their prior design of the Grid Seminar and their six-phase concept of organization development represented a significant contribution, even though they themselves spent little time at the plant.

# Plant Manager's Support

An early and especially important factor was the support and subsequent involvement of the plant manager. His enthusiasm became a strong stimulus and model for the rest of the plant. He remained in the middle of the program rather than on the outside where he might have guided the effort with impersonal mechanisms. More important, he made some significant modifications in his own behavior.

These changes in the plant manager's behavior could not be called major personality changes. Instead, they seemed to reflect changes in his concept of working with others on management problems. Most of the changes were consistent with behavior he had long practiced within the organization. He had a reputation for being a creator and advocate of new projects. He had always disliked being second to others. He had a profound respect for science and extended some of this respect to the behavioral sciences. Finally, he had always explained and shown his ideas to others before implementing them. During the program, the plant manager found that although the ground rules of management relationships had changed, none of them violated his basic beliefs. One of his top subordinates made the following comments:

"He has certainly taken a hard look at the way he runs his business and is trying to change. I think he is trying to involve more people and is more considerate of others. It is not so much a change, though, as it is a recognition that others once misunderstood him. I think he found that others saw him as intolerant because of his enthusiasm. I've always seen him as a pretty strong '9,9,' but no one else seemed to recognize it. He has a real strong '9,1' backup theory though. I think his experience in the Managerial Grid session made him stop and think; being a real intelligent man, he's made a change. He has learned to listen and to be more patient. Also, we have learned to talk better and insist on having a say. It's a two-way street."

# **Top-Management Involvement**

The Sigma top-management group became involved at an early date in discussions of the program. More important, they chose to become involved not only as students in the Phase #1 training but as rotating instructors for two-week periods. Our

material shows this group to be among the key supporters of the program and instrumental in the follow-up projects.

Moreover, the teaching-learning role provided further evidence of the program's impact. Using questionnaire data, we derived "most improved" and "least improved" categories from weighted scores taken from subordinates' ratings of superiors' improvement. As many as 16 of the 22 "instructors" were among the 87 "most improved" bosses as evaluated by their own managerial subordinates. Only one "instructor" was included in the 35 "least improved" superiors.

This finding suggests that being an instructor in Phase #1 served to reinforce a man's understanding of 9,9 principles as well as to aid his on-the-job practice.

The 9,9 commitment of this group had apparently been strengthened by their early success in reducing manpower under delicate community and union conditions. When 9,9 problem-solving methods helped them to accomplish the difficult manpower reduction task, the top-management group became strong supporters of the organization development program.

Considering their involvement and support, what did this group look like in action? Were they now a collection of 9,9 supermen? Had each made significant changes in his behavior? These questions are important, and the answers are "no." Instead, the top-management group had agreed collectively (and continued to reinforce) a set of 9,9 ground rules among themselves. The balance was precarious, however. Two or three key individuals seemed to be most highly respected as 9,9 interpreters and proponents. Several others were "take-charge" and "task-oriented" members who still demonstrated respect for the 9,9 ground rules. Still others helped to formulate issues in nonthreatening ways. The tie that bound the group together was its shared commitment to 9,9 concepts and practices. As long as this tie held, the members seemed to feel that they could continue their pacesetting role within the organization.

# Learning Readiness

The factors identified above did seem to influence men at or near the top of Sigma's organization. But these factors were not sufficient to explain the diverse attitudes found among the managers. There were less-evident forces which affected each manager in the plant. One of these was the attitude of some managers which made them more ready than others to learn in the Phase #1 training and thereafter. Exhibits V, VIII-B and XII-B have already shown that technical-staff men were generally less involved and enthusiastic than administrative-line managers. Exhibit XIII shows that the technical managers were seen as less improved by their subordinates also. In general, technical managers from R & D, engineering, and production planning received fewer "improvement" ratings from subordinates than other managers.



EXHIBIT XIII. BOSS'S SELF-EVALUATION VERSUS GRID TEAM RATING

Exhibit XIII also shows how these on-the-job "improvement" ratings correspond with a boss's self-evaluation *before* Phase #1 training, and his team's evaluation of him *during* Phase #1 training. (These two evaluations were done with the assistance of Grid teaching material made available to us.)

An analysis of this material shows that:

- Technical managers and staff tended to rate themselves as less 9,9 *before* Phase #1 than their colleagues did *during* Phase #1 training. In other words, technical men tended to be "overrewarded" by their colleagues.
- Administrative managers tended to rate themselves as more 9,9 *before* Phase #1 than their colleagues did *during* Phase #1 training. In other words, administrative men were "underrewarded" by their colleagues.

According to Exhibit XIII, it is the administrative managers, "underrewarded" by their teams, who showed more improvement than technical managers, who were "overrewarded." Why? One explanation is that administrative managers, rating themselves as 9,9 to begin with, were given an incentive to improve by the sobering comments of their Seminar teammates. Technical managers, who tended not to see themselves as 9,9 to begin with, were given little incentive to improve because their teams told them they were "better" than they thought they were. However, there is apparently such a thing as too much "underrewarding" (note the downturn of the curve to the right in Exhibit XIII). If the administrative manager's 9,9 self-rating was too much higher than the evaluation given him by his Seminar team, his subordinates would tend to find him less improved than those managers (at the peak of the curve) who were slightly "underrewarded" in the Seminar.

In other words, some Phase #1 participants seem to have been more ready and receptive to Managerial Grid learning than others (although even these were seen as improved by subordinates, according to Exhibit XIII). The higher-readiness learners described themselves as 9,9 managers before training and received team impetus toward further steps in that direction. The lower-readiness learners, with little team impetus toward improvement, tended to be technically (not managerially) oriented. In a later interview, one of these technical men talked as follows:

"I see no point in having scientific personnel take this training course. We believe the results of reproducible experiments and can be informed and convinced without [personal] experience. The data from other experiments will do the job... The program gives a much better understanding of people who can discuss Shakespeare endlessly, or who can enjoy baseball without paying attention to any other sport. One can get into the habit of enjoying a single activity to the exclusion of all else. Give the program enough time on the present tack, and we can become so interested in interpretation of management action that we can play happily at this for years and forget all about the realities of management."

# **Reinforced Efforts**

The final factor underlying the plant changes at Sigma occurred after Phase #1 training. This involved the extent to which boss and colleagues reinforced a manager's efforts to change his behavior. To show the importance of this reinforcement, we can examine its presence among the "most improved" and the "least improved" managers (according to their subordinates' weighted ratings).

Exhibit XIV shows that 77% of the 87 "most improved" managers had bosses who were also "most improved." This suggests that a man's superior is a major force in his learning and improvement, until we note that 55% of the 35 "least improved" managers *also* had bosses who were "most improved." Apparently the boss's improvement wasn't the most important reinforcing agent, although it does seem to have exerted some influence.

EXHIBIT XIV. RELATIONSHIP BETWEEN MANAGER IMPROVEMENT AND SUPERIOR-COLLEAGUE SUPPORT (Evaluations by subordinates)

	Superior also rated among "most improved"	Setting where "most improved" colleagues outnumbered "least im- proved" colleagues
Managers rated as "most improved" (N=87)	77%	92%
Managers rated as "least improved" (N = 35)	55%	26%

Exhibit XIV also shows that colleague reinforcement may have been a more important key than boss reinforcement. Of the

"most improved" managers, 92% worked in settings where "most improved" colleagues outnumbered "least improved," while only 26% of the "least improved" managers worked in similar settings.

A closer analysis of these 26% "least improved" managers in "most improved" groups shows they were outnumbered by "most improved" colleagues by only a 2.55 to 1 ratio. In contrast, the 92% "most improved" managers worked in settings where "most" outnumbered "least" by a ratio of 3.41 to .33. This suggests that the chances for manager improvement in the eyes of subordinates were greatest when a manager worked with larger numbers of others who also sought improvement. Or put another way, possibly one "least improved" cynic was enough to dampen his fellows' enthusiasm and therefore their chances of being among the "most improved." This possibility is supported by the fact that 60% of the "most improved" managers worked in settings where there were *no* "least improved" colleagues to disillusion the 9,9 atmosphere being built.

These data suggest that Phase #1, the plant manager, and a man's boss all played secondary roles when it came to making the lessons of Phase #1 "stick." The most important reinforcers were a manager's own colleagues who either encouraged and supported, or discouraged, his improvement efforts.

# Conclusion

We can return now to the reasons for studying the Sigma program which were given at the start of Part II. To begin with, we wished to know whether the program had been successful in transferring behavioral science concepts into organizational action. Now, after reviewing the program and its consequences, even a conservative answer to this question would seem to be "yes." The program had become a part of day-to-day managerial activities at Sigma. Both in opinion and behavior, most managers endorsed the work patterns presented in the Phase #1 Grid Seminar.

A second reason for studying the Sigma program was the unusual teaching-learning role adopted by line management. The evidence shows that not only did senior line managers take the key "instructor" roles during Phase #1, but they later stood out as among the "most improved" managers in the eyes of their subordinates. It seems likely that the "instructor" roles helped to reinforce their attempted 9,9 behavior back on the job.

With regard to psychiatric difficulties, which was another concern in studying the Sigma program, there was, to the best of our knowledge, no evidence of any such issue among the 800 men who participated in the program. This suggests that the Phase #1 Grid training was relatively "safe" in this company setting because of its emphasis on managerial styles rather than on personal introspection.

The final reason given for studying the Sigma program involved the question of groups as units of learning versus individuals. As we have seen, learning (improvement in the eyes of subordinates) was greatest when supported strongly by colleague values and norms. Where this reinforcement was weak or not present, managers were far more likely to be evaluated as among the "least improved" by their own subordinates. Consequently, colleague groups apparently were crucial in helping individual learning become organization development.

The chances are fairly strong that this crucial factor has been missing in countless would-be organization development programs—including previous efforts within Sigma and Piedmont. In all of these cases, the supporting groundwork of shared values was most likely neglected or made too abstract to be implemented.

# Management Implications

The lessons from this study also involve a number of implications for businessmen. Initially, it *does* appear that behavioral science and human relations education can assist with large-scale organization development under certain conditions. These conditions, as suggested by our data, include:

- Demanding but tolerant headquarters.
- An enthusiastic and involved top-manager and senior management group.
- Educational strategy that effectively and continuously builds team problem solving and mutual support into work-related issues.
- An organization whose work requires some interdependent effort and common values.

This study suggests that managerial and team effectiveness *can* be taught by managers with outside assistance. Furthermore, it appears that this type of educational strategy can help to make significant contributions to organizational effectiveness. This in itself seems to be an important lesson for management to recognize and use in its future efforts to build stronger organizations.

1. See Chris Argyris, "T-Groups for Organizational Effectiveness," HBR March-April 1964, p. 60.

2. See Alex Bavelas and George Strauss, "Group Dynamics and Intergroup Relations," in W. F. Whyte, Melville Dalton, et al., *Money and Motivation* (New York, Harper & Brothers, 1955), pp. 90–96.

3. E. A. Fleishman, E. F. Harris, and E. H. Burtt, *Leadership and Supervision in Industry* (Columbus, Personnel Research Board, Ohio State University, 1955).

4. Instances of individual learning are documented in a series of HBR articles by Kenneth R. Andrews: see "Is Management Training Effective? I. Evaluation by Managers and Instructors," January–February 1957, p. 85; "Is Management Training Effective? II. Measurement, Objectives, and Policy," March–April 1957, p. 63; and "Reaction to University Development Programs," May–June 1961, p. 116.

5. See R. R. Blake, J. S. Mouton, and M. G. Blansfield, "How Executive Team Training Can Help You and Your Organization," *Journal of the American Society of Training Directors* (now called *Training Directors Journal*), January 1962, p. 3.

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