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ABSTRACT

Addresses the complex socioeconomic problem of improving the quality of worklife and, in the process, improving productivity. Focuses on ways to provide a work climate that will stimulate pleasurable ego-involvement in the job, thereby bringing about increased productivity as a likely by-product. Explores a number of attempts to improve the quality of worklife--among them job redesign, participative management, and costsaving sharing. Presents case histories illustrating successful experiences, followed by the author's comments highlighting possible application to other companies. Reviews potential problems and pitfalls attendant upon work improvement programs. Presents a series of guidelines for introducing a quality of work program, based on generalizations from the above and from works of reputable authorities, followed by an independent set of guidelines and recommendations advanced by the author. Appendixes include an outline of an evaluation procedure and a proposed supervisory training workshop on improving the quality of worklife. (Author)

IMPROVING THE QUALITY OF WORKLIFE...

And In the Process, Improving Productivity

A Summary of Concepts, Procedures and Problems, with Case Histories

Edward M. Glaser, PhD

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ABSTRACT

This paper addresses one of the more complex socioeconomic problems confronting society today--improving the quality of worklife and, in the process, improving productivity. It describes and critiques some of the ways in which solutions are being applied. The author is concerned with ways to provide a work climate that will stimulate pleasurable ego-involvement and interest in the job, thereby bringing about increased productivity as a likely by-product. Among other desired effects, this would enable the U.S. to compete more effectively in the world markets.

The author explores a number of attempts to improve the quality of work-life--among them job redesign, participative management, and cost-saving sharing. The case histories illustrate successful experiences with improving the quality of worklife. The author's comments at the end of each case history highlight the possible application to other companies. A number of potential problems and pitfalls attendant upon work improvement programs, representing a range of theoretical points of view and operational experiences, are reviewed.

Generalizing from the experiences reported in the paper, the author then presents a series of guidelines for introducing a job design or quality of work program. Some of these are abstracted from the works of management professors, economists, industrial psychologists and company demonstrations from experimental programs. An independent set of

guidelines and recommendations is then advanced by the author based on his own professional experience plus review of the literature.

The paper contains a number of "how to" suggestions, including an outline of an evaluation procedure and a proposed supervisory training workshop in improving the quality of worklife.

FOREWORD

> In our quest for a better environment, we must always remember that the most important part of the quality of life is the quality of work, and the new need for job satisfaction is the key to the quality of work.
>
> President Richard M. Nixon
> Labor Day Address
> September 6, 1971.

> In a society which prides itself on its democratic system of freedom for the individual... the workplace stands as an island of authoritarianism.... Its rigidity... leads people to live a kind of double life: at home they enjoy substantially the autonomy and self-fulfillment of free citizens; at work they are subject to constant regimentation, supervision and control by others....
>
> UAW Vice President Irving Bluestone
> June 22, 1972.

In the United States today, and in other countries around the world, there is a growing concern about the overall quality of people's lives. One of the strongest currents of this concern is the new interest in improving the quality of life at work.

Some research suggests that improvements in the work climate--such as inviting employees to participate in decision making about the structure and organization of their work--frequently leads to greater productivity as well as greater job satisfaction, growing out of a sense of involvement in the tasks one has helped to shape.

Economists are in general agreement that increasing U.S. productivity is one of the most effective ways to fight inflation and to keep our products

competitive in the world market. Thus, if there is evidence that programs to improve the quality of life at work can be translated into greater productivity and job satisfaction,* and this in turn can mean a better competitive position for American products in the world markets, then information about such programs should be carefully examined and analyzed.

This report advocates giving thoughtful, open-minded consideration to changed ways of organizing and structuring work in order to yield the desired combination of results: increased ego-investment in the job and increased productivity. The plan of this "state-of-the-art" paper is to present concepts, research-based information, case studies, problems and potential pitfalls involved in improving the quality of life on the job. In addition, there are guidelines for starting worklife experiments, proposed workshop techniques to introduce such programs and an outline of evaluation procedures.

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* The concept of "job satisfaction" as used in this context refers to a work situation which realistically engages the individual's status-seeking motive--a situation in which the individual is busily engaged in using his talents, understanding his work, and having pleasant relations with his supervisor and fellow employees. It refers to a situation wherein the individual feels identified with his job, likes his work and cares about the quality of his performance. It does not refer to the kind of satisfaction that some persons might find in an easy or "goof-off" job with low performance standards or lax discipline in terms of quality and productivity expectations.

Most of the case study material drawn together here has been published elsewhere, but in scattered places and varied form. The commentaries on the cases are original as are the guidelines for introducing a job design or quality of work program.

In the 1972 foreword to Work in America, a special HEW Task Force Report on the health, education and welfare problems involved in the workday world, Elliot L. Richardson, then Secretary of HEW, summed up the wide scope of any study of worklife:

> Most of the people in the United States will work, or have worked, forty or more years. To be concerned about the worker is to be concerned about the aged who, through their labors, brought this Nation to its present level of affluence and well-being; about the youth who have yet to choose from among a thousand occupations; ...about the new role of women in our society; and about the rest of us who depart from our homes and return and who seek to fill the time in between with meaningful and well-recompensed activities.

It should be added that concern with quality of life at work also involves the companies which hire the workers, the unions which often represent them and the customers they serve. If, as some evidence shows, work settings that motivate employees to find satisfaction in the work itself tend to yield improved productivity as a dividend, then the quality of life on the job and ways to improve it are woven deep into the fabric of American life.

IMPROVING THE QUALITY OF WORKLIFE... AND, IN THE PROCESS, IMPROVING PRODUCTIVITY

I. ORIENTATION

If management did nothing more than sincerely invite the people who work at a particular task to suggest ways to improve their operation; if these ideas were received in a spirit of appreciation; if the employees were then asked to participate in small committees to study the feasibility of implementing each suggestion, the quality of life at work* probably would improve, and productivity probably would increase in the process.

A Case in Point

Three months after management gave employees at the Kaiser Steel mill in Fontana, California, responsibility for saving the plant, which was threatened with shutdown because of inability to compete with Japanese imports and thus was losing money, there was an astonishing 32.1% increase in productivity.

The Los Angeles Times quoted one worker's observations on reasons for this jump.

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* The phrase "quality of life at work" is used interchangeably throughout the report with "quality of working life" or "quality of worklife" or "quality of life on the job." Specific programs or procedures mentioned, such as job enrichment or cost-savings sharing plans or worker participation in decisions affecting them, are only means which may contribute in certain situations to ends such as upgrading of the quality of worklife.

> Look, before, nobody paid any attention to a guy and so he figured why in hell should he pay any attention to the pipe.... People finally paid attention to the men, the boss started listening, the man on the next machine started looking around, and pretty soon everybody got into the swing of things.*

A Federal Government Program in Complementary Point

In late 1972 U.S. Department of Commerce's National Commission on Productivity launched the Quality of Work Program (QOWP). Its purpose: to stimulate and evaluate management-union-employee collaboration in experiments to improve the workplace, to better utilize human--along with technological--resources. It is hoped that productivity will increase as well.

QOWP is now funding a limited number of demonstration projects in companies and municipalities. The government limits itself to the bringing in and initial funding of consultant teams expert in the field of work and organizational change. If, after six months, the participating managements and unions wish to continue the project, they must match QOWP funds for the ensuing 12 months as proof of their commitment to the project's success. At the end of 18 months, the full demonstration period, all government-supported QOWP funding is terminated. If the experiment is continued thereafter, the decision--and financial support--is that of the participants.

* A full report of the Kaiser plant situation begins on page 36.

Each QOWP project belongs equally to the management, union and worker participants since the expectation is that all concerned will benefit. Each demonstration will be evaluated to document the results and the conditions that seem to make for project success or failure. These data, which will become available in late 1974 or 1975 when the first 18-month experiments have ended, should yield some valuable lessons about ways to improve the climate and quality of work and achieve increased productivity as a by-product.

Zeitgeist (Spirit of the Times) Forces

In the U.S. and other technologically developed countries, mankind seems in the process of changing objectives and values. During the nineteenth century, the goal of economic emancipation gradually was superseded by that of political liberty. Next came the quest for a higher standard of living, coupled in recent years with a growing concern for social justice. Added to this list of common goals is another concern, one which has manifest itself recently with greater sharpness: a demand to enhance the quality of life at work.

Concern with life on the job is not new. The increased ferment of union activities in the 1930s and 1940s, through collective bargaining and legislation, led to improved conditions. Even before that, labor was vigorously protesting management attempts to change the work

environment. In a study* requested by Congress, Chicago University professor Robert F. Hoxie in 1915 reported how the unions, particularly the machinists, were fighting scientific management techniques. The changes, labor complained, then condemned the workers to a monotonous routine, destroyed their creativity and drove them to the brink of nervous exhaustion. As Machinists Vice President William W. Winpisinger recently noted: "Perhaps when workers first negotiated the right to bid on better shifts, overtime and promotions on the basis of length of service, they weren't thinking in terms of 'job enrichment,' but in actual practice that's what they got."**

Today's aspirations for an improved worklife, however, go well beyond continuing efforts to improve benefits and working conditions. Workers are now questioning traditional managerial prerogatives. They seek, as UAW Vice President Irving Bluestone puts it, "more meaningful ways and means to participate in the decision-making process that directly or indirectly affects their welfare."

This new questioning is not limited to workers. Cornell professor Jaroslav Vanek writes: "The quest of men to participate in the

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* R. F. Hoxie, Scientific Management and Labor (New York: Appleton, 1920).

** William Gomberg, "Job Satisfaction: Sorting Out the Nonsense," AFL-CIO American Federationist, June, 1973, 14-19.

determination and decision making of activities in which they are actively involved is one of the most important sociopolitical phenomena of our times."*

Emerging countries, for example, once dominated by stronger nations, have demanded independence, hoping in part to fulfill aspirations for improved standards of living and greater social justice.

College students have won a greater degree of self-determination in the administration of the education system--sometimes even taking part in policy formulation. Minority groups have fought for equal opportunities. Youth has gained a greater degree of freedom from parents and other adult authorities. Citizen groups and environmentalists have called for more corporate responsibility, at the expense of profits if necessary. Many companies are responding with thoughtful plans and tangible actions.

Over a large part of the world, the style of behavioral response to personal or group feelings of frustration has changed discernibly from a fatalistic acceptance of one's lot in life to a thrust for change through confrontation politics. Ever since Adam bit into that apple people have experienced discontent and dissatisfaction. Now, an increasing percentage want to express this, often militantly.

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* From a recent study "The Participatory Economy: An Evolutionary Hypothesis and a Developmental Strategy."

At the same time, the dominant powers-that-be seem reluctant to risk direct confrontation. Negotiate, bargain and--if necessary--accommodate is the order of the day.

Another Zeitgeist force to be reckoned with is a rising level of expectations for a higher standard of living, especially among American workers and consumers, coupled with a rising educational level of the workforce. In earlier times a worker felt lucky just to have a job, since others were waiting at the gate ready and eager to take his place. Nowadays people demand more.

At one major auto company*, for example, 4,000 new hires did not stay through the first day on the job. And this was in a recent year when local unemployment rates were between 8 and 9%. This would not have happened in the thirties, no matter what was wrong with working conditions.

The Organization of Work and What Employees Want

As the organization of human effort at work becomes more specialized and compartmentalized, the worker grows even more remote from the end result of production. Only a few individuals--artists, writers, craftsmen--can turn out a complete product or service without a good deal of interdependence upon the inputs of others.

* Charlton R. Price, "New Directions in the World of Work," A Conference Report (Kalamazoo, Mich.: W. E. Upjohn Institute for Employment Research, 1971), 9.

Usually only an integrated pattern of component activities provides finished goods or services. And the task of integrating a complex pattern requires management. That, in turn, calls for the assumption of managerial responsibility, which traditionally has taken the form of more or less continuous supervision and control, thereby minimizing the independence of workers.

Specialization is almost unavoidable in a technological society. And it must be remembered that specialization has enabled us to obtain many things that most of us value and otherwise could not have. But, as Aristotle observed, "Vice may be defined as the excess or deficiency of that which in adequate amounts would constitute virtue." In the pursuit of mass production techniques, our society also has generated oversimplified, fragmented jobs that many employees find boring and unfit for either the human spirit or the human body.*

*It is important to note at this point, however, that some individuals prefer routine tasks they feel they can handle with no strain and low pressure of responsibility. As M. G. Wolf points out ("The Relationship of Content and Context Factors to Attitudes toward Company and Job," Personnel Psychology, 20 [1967], 121-132), how a person perceives a job situation as an opportunity for gratification of his psychological needs would depend in part on the level of need to which the individual is capable of responding.

Thus, for an individual who is functioning at the level of trying to satisfy his safety and belongingness needs, the additional complexities and responsibilities inherent in working under certain kinds of job enrichment programs may create an increase in emotional stress rather than constitute reward; whereas individuals who are seeking self-esteem through achievement and independence, or self-actualization, may thrive and blossom under job enrichment conditions.

Since people differ in emotional and mental makeup, motivation is a complex matter. What is rewarding for one person may be obnoxious or punishing to another. One way to find out who prefers what is to provide greater opportunity for individual choice, for volunteerism among different available jobs where that is feasible. The work sampling technique as a job placement test is based in part on this concept.

Added to the trend toward restrictive, repetitive specialization is the fact that many managers see the individual employee as nothing more than a replaceable production component in the impersonal system. Obviously, such a depersonalized view of the individual does not tap his potential for ego-involved commitment on the job.

Thus we have the ingredients for deterioration of satisfaction: boredom, alienation and hostility on the part of many workers who want to do a good job and want to feel ego-involved. These are factors related to low productivity, poor workmanship, increasing absenteeism--and occasionally sabotage--on the part of a substantial number of workers.

In today's world there are a growing number of alternatives to unsatisfying employment--living on welfare or unemployment benefits, parental largesse, or that street tactic called hustling. Still, American youth has not altogether rejected the work ethic. In a 1972 survey of college students conducted by Daniel Yankelovich* 79% said commitment to a career is essential and 75% believed collecting welfare is immoral for a person who can work. Only 30% said they would welcome less emphasis in the United States on hard work.

* D. Yankelovich, Changing Values on Campus (New York: Washington Square Press, March 1972).

The work ethic does appear to be changing, however. A 1971 Working Conditions Survey* suggests people now want more satisfaction from the job and better resources to get the job done. The survey, carried out by the University of Michigan, asked a representative 1,533 American workers at all occupational levels to weigh job facets and report whether the item was: (a) very important, (b) somewhat important, (c) not too important, or (d) not at all important. The findings are shown in the table on the following page.

* Survey Research Center, University of Michigan, Survey of Working Conditions (Washington, D.C.: U.S. Department of Labor, Employment Standards Administration, August 1971). Obtainable from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 2916-0001, Price: $3.50.

Table 1*
Percentage of Workers Rating Job Facets
as "Very Important" to Them**

Job Facet	All workers (N=1500)[a]		White-collar workers (N=730)[a]		Blue-collar workers (N=685)[a,b]	
	%	Rank Order	%	Rank Order	%	Rank Order
Resources						
I receive enough help and equipment to get the job done	68	2	64	4	72	1
I have enough information to get the job done	68	2	67	3	68	2
My responsibilities are clearly defined	61	7	58	7	65	4
My supervisor is competent in doing his job	61	7	60	6	63	6

* From Robert P. Quinn, the survey senior author, Survey Research Center, University of Michigan.

** The importance ratings shown in Table 1 are unrealistic in that the "typical worker" is a statistical composite of many workers with distinct demographic and occupational characteristics. These different characteristics are in turn associated with differences in importance ratings. And it is possible to exaggerate these differences. Because blue-collar workers assign greater importance to Financial Rewards and less importance to Challenge than white-collar workers, does not mean that blue-collar workers are exclusively motivated by pay and white-collar workers by interesting work. Such an inference would be patronizing and contradicted by available data in its assumption that workers are incapable of motivational complexities or of being attracted to work for more than a single reason.

While these survey data are interesting, as Dr. Edward Lawler suggests ("What Do Employees Really Want?" paper at APA Convention, Montreal, 1973) "...it is not possible to learn how important job factors are to employees by asking them to rate the importance of some set of job factors. The evidence clearly shows that the importance ratings... are subject to so many biasing effects that they are useless for this purpose.... However...ratings...can be used to determine if (say) pay is more important to person A than to person B or to group A than to group B."

Table 1 (continued)

Job Facet	All workers (N=1500)[a]		White-collar workers (N=730)[a]		Blue-collar workers (N=685)[a,b]	
	%	Rank Order	%	Rank Order	%	Rank Order
Financial Rewards						
The pay is good	64	4	57	8	72	1
The job security is good	62	6	54	10	72	1
My fringe benefits are good	51	10	40	14	62	7
Challenge						
The work is interesting	73	1	78	1	68	2
I have enough authority to do my job	65	3	67	3	64	5
I have an opportunity to develop my special abilities	64	4	69	2	57	9
I can see the results of my work	62	6	60	6	64	5
I am given a chance to do the things I do best	54	8	54	10	55	10
I am given a lot of freedom to decide how I do my work	53	9	56	9	50	11
The problems I am asked to solve are hard enough	30	16	31	17	29	17

Table 1 (continued)

Job Facet	All workers (N=1500)[a]		White-collar workers (N=730)[a]		Blue-collar workers (N=685)[a,b]	
	%	Rank Order	%	Rank Order	%	Rank Order
Relations with Co-workers						
My co-workers are friendly and helpful	63	5	61	5	67	3
I am given a lot of chances to make friends	44	12	39	15	49	12
Comfort						
I have enough time to get the job done	54	8	48	11	60	8
The hours are good	51	10	41	13	62	7
Travel to and from work is convenient	46	11	42	12	50	11
Physical surroundings are pleasant	40	13	32	16	48	13
I am free from conflicting demands that other people make of me	33	14	26	19	40	14
I can forget about my personal problems	31	15	26	18	35	15
I am not asked to do excessive amounts of work	23	17	16	20	30	16

[a] Base N's vary slightly from row to row due to missing data.

[b] Farm workers have been excluded.

If work conditions are growing in importance, this does not mean that income is irrelevant! In a study of what elements of work needed improvement most, union leaders* ranked pay first and job content aspects lower. But many workers also are finding it important to be allowed to work more effectively, to have some control over their job environment, and to feel that they and their work are important--the twin ingredients of self-esteem.

Worker Motivation, Satisfaction and Effectiveness

Three decades ago, Harvard University professor Gordon Allport nicely expressed a key psychological consideration bearing upon the quality of worklife in what is now regarded as a classic paper:**

> When the work situation in which the individual finds himself realistically engages the status-seeking motive--when the individual is busily engaged in using his talents, understanding his work and having pleasant social relations with foreman and fellow worker--then he is, as the saying goes, 'identified' with his job. He likes his work; he is absorbed in it; he is productive. In McGregor's term, he is industrially active. That is to say, he is participant.
>
> When on the other hand, the situation is such that the status-motive has so chance of gearing itself into the external cycles of events, when the individual goes through motions that he does not find meaningful, when he does not really participate--then comes rebellion against authority, complaints, griping, gossip, rumor, scapegoating and disaffection of all sorts. The job satisfaction is low. In McGregor's term, under such circumstances the individual is not active; he is industrially reactive.

*H. L. Sheppard and N. Q. Herrick, Where Have All the Robots Gone? (New York: The Free Press, 1972).

**G. W. Allport, "The Psychology of Participation," Psychological Review, 1945, 52, 117-132.

> ...The problem before us is whether the immense amount of reactivity shown in business offices and factories, in federal bureaus and schools, can be reduced.... We are learning some of the conditions in which reactivity does decline.... Patronizing handouts and wage-incentive systems alone do not succeed. Opportunities for consultation on personal problems are ... found to be important; and group decision, open discussion and the retraining of leaders in accordance with democratic standards yield remarkable results.... In other words, a person ceases to be reactive and contrary in respect to a desirable course of conduct only when he himself has had a hand in declaring that course of conduct to be desirable. Such findings add up to the simple proposition that people must have a hand in saving themselves; they cannot and will not be saved from the outside.

The question is how to translate Allport's insights into practicality. How, in other words, do we best utilize human resources to optimize each person's potential?

In 1972, Dr. Richard Shore of the U. S. Department of Labor, in an unpublished paper called "Worker Motivation, Satisfaction and Effectiveness: A Rationale and Strategy" asks: "(1) How prevalent is discontent within the society, what varied consequences does it have for the functioning of economic and social institutions, and (2) is it becoming more prevalent, and is it likely to have more profound consequences in the future?"

One piece of evidence comes from the answers to a recurring question in the periodic Gallup Poll: "On the whole, would you say you are satisfied or dissatisfied with the work you do?" Based on nationwide interviews with 1520 adults 18 and older the questions produced the following results:

	Satisfied	Dissatisfied	No Opinion
January 1949	67%	20%	13%
July 1963	85	11	4
September 1965	82	13	5
November 1966	86	8	6
April 1969	87	7	6
December 1971	84	9	7
January 1973	77	11	12

Note that there is a ten point drop in respondents' assertions regarding job satisfaction between April 1969 and January 1973. Analysis of the survey findings shows that, while the recent drop in job satisfaction (or, it may be the increase in articulating dissatisfaction) has been greatest among blacks and young persons, some decline has been recorded for all major groups since 1969. Complex issues such as what may be involved in attitudes toward work and life* cannot, of course, be fathomed by

*Dr. Stanley Seashore, at the August, 1972 International Conference on the Quality of Working Life, made the following pertinent summary in his paper "Defining and Measuring the Quality of Working Life":

1. It is desiriable to define that quality of working life with reference to the value perspectives of at least three value sources: individuals, employing organizations, and society as a whole.

2. It is suggested that a broader conception, tentatively named "effectiveness in work roles," as judged from the three valu perspectives cited, be employed as a guide to the definition of quality of working life, with specific criteria of effectiveness drawn from the foregoing three value perspectives.

3. Job satisfaction, for future research and improved use of the concept, must be regarded not as a static state, but rather as a dynamic state; 'dynamic' here means both that the individual's degree of job satisfaction is subject to change and also that it is a cause (motivator) of changes in the individual and in his working conditions. Such a change in the conception of 'job satisfaction' will restore and enhance its utility in the definition and measurement of the quality of working life.

simplistic survey poll questions which do not probe the full flavor of reasons behind a response. (The downtrend in job satisfaction since 1969, for example, is paralleled by dissatisfaction in three other areas: housing, income and education. Between 1949 and 1969--satisfaction with housing, income and education were on the increase--when job satisfaction showed a comparable uptrend.) However, the Gallup figures showing at least decreased allegation of job satisfaction are reinforced by other evidence gathered in limited surveys of worker attitudes, manpower program reports, documented instances of increasing rates of turnover and absenteeism, along with deteriorating product and service quality, plus growing evidence of industrial sabotage and theft.

In some cases there have been dramatic breakdowns of organizational functioning such as the celebrated 1972 GM Lordstown, Ohio case that shut down the Vega production line, or the less well-known strike at Chevrolet's Norwood plant that year, where auto workers walked out, not for higher wages, but (according to the union chairman at Lordstown) from frustration at not having a chance to participate in work decisions (such as the management of the speed of their assembly line). Another less well-known reason for these two walkouts was the reorganization by the corporation of its assembly operations into the General Motors Assembly Department, which called for the union to merge seniority lists of separate locals that hitherto had been autonomous. This clash in "property rights" over seniority frequently has led to acute conflicts

that more often than not result in a strike. (From personal correspondence, August, 1973, with William Gomberg, Professor of Management and Industrial Relations, The Wharton School, University of Pennsylvania.)

In April, 1973, Gallup released another poll bearing upon productivity. Gallup interviewed a representative sample of U.S. wage earners and found:

- Half of all wage earners say they could accomplish more each day if they tried, with three in five of this group indicating they could increase their output by 20% or more.
- The percentage who say they could get more work done is highest (61%) among young adults in the workforce--those between the ages of 18 and 29. Men are more likely to state they could accomplish more than are female earners.

Here are the questions asked of wage earners and the results:

Some persons claim that American Workers are not turning out as much work each day as they should. Do you agree or disagree with this?

Workers Could Produce More

Agree	56%
Disagree	33
No Opinion	11

In your own case, could you accomplish more each day if you tried?

Yes	50%
No	47
No Opinion	3

How much more could you accomplish each day if you tried?

Ten percent	15%
Twenty percent	15
Thirty percent	7
Forty percent	2
Fifty percent	5
Over fifty percent	3
Don't know/No answer	3
	50%

> Gallup comments: "A key factor affecting productivity is job satisfaction. The worker who hates his job or is bored with it is not likely to be as productive as he could be.
>
> A cross-tabulation of survey findings is most revealing on this point. Among those in the survey who say they are 'very satisfied' with their jobs, less than one quarter say they could do 30% of more additional work per day. In sharp contrast, among those in the survey who say they are 'very dissatisfied' with their jobs, about four in ten (two-fifths) say they could do 30% or more additional work per day."

There is a preponderance of evidence suggesting legitimate concern with factors that might alienate or motivate people at work. Those factors do have a direct bearing on costs, productivity, craftsmanship and loss of jobs in the U. S. to foreign competitors who can produce for less--often with better quality.

It seems fruitless to argue over the degree of discontent among workers. The important point on which many people--managers, as well as workers and union leaders--can agree is that a pragmatic effort to improve the American workplace for the benefit of all concerned (management, unions, workers, customers and stockholders) is a valid, worthwhile objective.

Productivity: Definition, Concept and Ramifications

To many an employee, the word productivity connotes some sort of exploitative pressure from above to speed up output per man-hours. It suggests efficiency experts, workforce reductions and even layoffs. This has been true in some cases where efforts to improve productivity have focused on cost reduction. Perhaps because of this some labor

union leaders see productivity improvement efforts and broader attempts to enhance the quality of work as a trick on the part of management to circumvent collective bargaining and thereby weaken unions.

It is interesting to note in this context that union cooperation can be found. Brude Thrasher, assistant to the president of the United Steelworkers of America, strongly disagrees with the social scientists, pollsters and journalists who talked of a growing alienation from work by the American labor force. Like a number of other union leaders, Thrasher sees attempts to counter this alienation by job enrichment outside collective bargaining as an effort to attenuate the role of labor unions. And yet, during a discussion period at the March, 1973 "Changing Work Ethic" Conference in New York, when Thrasher was asked what objection he as a union leader had to the reportedly splendid 32% improvement in productivity results achieved at the Kaiser-Fontana pipe plant (see page 36), he replied (according to the author's notes): "None. I have been part of the Steelworkers committee that developed the Fontana plan. That was accomplished in collaboration with the union, with no violation of contract provisions and no speedup. Now, if you want to focus on how to improve productivity without manipulating or trying to take advantage of labor, and experiment in sincere partnership with the union, we're for that."

Thrasher's sentiment is the orientation of this paper in work situations that are unionized. As already stated, we recognize that labor productivity

is only one among many factors involved in overall productivity. But it is a crucial one. People who can easily grasp the ideas of improved technology, find it less easy to understand the mechanics of labor's productivity.

The real meaning of productivity is to produce more (or rather optimally, if the baseline level was sub-optimal) witn the same amount of human effort. To oversimplify a little, labor productivity measurement is the efficiency with which output is produced by the resources utilized. It refers to either man-hours worked or total hours paid for measurable labor output.

This concept is illustrated by a clause in the 1950 management-labor agreement between General Motors and the U.A.W.:

> The improvement factor provided herein recognizes that a continuing improvement in the standard of living of employees depends upon technological progress, better tools, methods, processes, equipment, and a cooperative attitude on the part of all parties in such progress. It further recognizes the principle that to produce more with the same amount of human effort is a sound economic and social objective.

As General Motors Board Chairman, Richard Gerstenberg, pointed out in his speech before the American Newspaper Publishers Association in April, 1972:

> Productivity is not a matter of making employees work longer or harder. Increased productivity results mostly from sound planning, from wise investment, from new technology, from better techniques, from greater efficiency--in short, from the better exercise of the functions of management.... Beyond this, productivity depends upon the conscientious effort of every employee, a willingness to do a fair day's work for a fair day's wage. If America is to improve its productivity--and we must--then productivity must be everybody's job.

In this paper we will focus on how to elicit that "conscientious effort of every employee" to which Mr. Gerstenberg refers. We agree with his conclusion that:

> Only if we increase productivity will America be able to:
>
> - Arrest the spiral of inflation.
> - Create jobs for the 15 million Americans who will enter our workforce in this decade.
> - Compete in the markets of the world and prevent American jobs from being exported overseas.
> - Earn enough profits to provide and attract capital investment for further growth.
> - Finance the ambitious social and environmental goals our people have set for themselves.

We further agree with the National Commission on Productivity's Statement of Intent of the Quality of Work Program:

> At its most basic, an effective Quality of Work effort can most simply be defined by the two terms: work restructuring and organization restructuring, in a given (and always unique) workplace.... It is a synthesis of basically three kinds of effort rolled into one: motivational, engineering (machine and system design) and organizational restructure of work.... Or--a better quality of work, by men, machines and organizations.... And the three principal beneficiaries are management, unions and individual workers (aside from the public or consumers).

In conjunction with this paper a document well worth reading is Work in America,* a 1972 special task force report to the Secretary of Health, Education and Welfare which states:

* Work in America (Cambridge, Mass.: The MIT Press, 1972).

> The redesign of jobs is the keystone of this report. Not only does it hold out some promise to decrease mental and physical health costs, increase productivity, and improve the quality of life for millions of Americans at all occupational levels (but also) it would give, for the first time, a voice to many workers in an important decision-making process.

While redesign of jobs is relevant to the quality of worklife, to productivity improvement and, perhaps, to improvement in our nation's economy, the latter obviously is affected by many other factors besides labor productivity. In this paper the focus is on the relationship of the structure and organization of work to the complex problem of quality of worklife and its effect upon our ability to compete in the world's markets.

II. CASE HISTORIES

The case histories selected here start with a simple memorandum from the police chief in a small city (Redondo Beach, California, population 60,000) to all officers on the force, inviting their ideas on how to improve the department. Following this limited attempt to elicit ideas for operational improvement are more comprehensive efforts at a variety of companies to enrich or restructure and reorganize work to enhance the quality of worklife and in that process improve productivity. In some instances, such as Shell UK Ltd., the program seemed highly successful for a few years, then faltered badly when top management changed, and the needed commitment no longer was present. At the end of each case there is a commentary in which some attempt is made to point up principles or lessons to be learned.

INTER-OFFICE MEMORANDUM City of Redondo Beach

TO: ALL PD PERSONNEL

FROM: LOUIS J. SUNYICH, CHIEF OF POLICE DATE SEPT. 1, 1972

SUBJECT: INVITATION FOR NEW CRIME PREVENTION IDEAS

Enclosed is a copy of LIFE's (June 27, 1972) survey of readers on their personal opinions regarding crime. The findings are informative and sobering. 70% expressed willingness to pay higher taxes if that expenditure really would result in better protection.

Neither we in Redondo nor any other police organization is batting anywhere near 1000 in prevention of crime, apprehension of suspects, and citizen support. But some cities, for various reasons, seem to have appreciably higher batting averages on these and other relevant counts than others.

We would like our city to have the best police department we have the potential to develop. To progress further and faster toward that goal, I would like to invite and urge each and every member of the force to put on his creative thinking hat and ask himself the following questions:

> Suppose you were running the department and had the authority and resources to do anything you seriously thought might be likely to prevent, control or reduce crime in Redondo to a significant degree.
>
> 1. What would you do or try out experimentally that we are not now doing? And how would you implement it - whatever "it" is?
>
> 2. What, if anything, would you stop doing, that we are now doing?
>
> 3. Now, if you were limited by approximately the present financial resources, where or how would you change our emphasis - or change anything else in our present programs or practices related to crime prevention and control?

Your written responses would be desirable, and be assured that every response will receive careful attention and thoughtful discussion. If you don't wish to write but would prefer to talk, make an appointment with any of the three Captains or with me to discuss your ideas.

LOUIS J. SUNYICH - CHIEF OF POLICE

LJS/ae

Enc. A LIFE Dialogue on "A Plan to Cut Crime," June 27, 1972.

Chief Sunyich's invitation yielded 18 thoughtful responses from the Redondo Beach officers. One was a proposal for team policing. Another called for a police-sponsored program (jobs, education, counseling and recreation) as an antidote to juvenile crime. The department is giving serious consideration to the feasibility and potential costs of the ideas submitted.

Comment: Aside from the possible merit of the ideas elicited, the police chief's memo had an even more important result: it opened up communications within the department. Lower-rank officers now believe they have a better chance to influence department policy and receive top-level consideration for their suggestions.

The Redondo Beach experiment started simply: a sincere invitation of ideas, respectful consideration of all replies, and prompt feedback. The result has been a better chance for the officers to participate in the running of their force.

A police department cannot, of course, change its work patterns as easily as private industry. There is a publicly-allotted budget, political factors, the influence of pressure groups to be considered. The memo described above inviting suggestions from all members of a given task group is only one element among many which go to influence its operation. Still, it is a promising start.

Medical Specialties Co.*

This case illustrates what can be accomplished when a company announces that part of its operation must become profitable or be discontinued. As in the Redondo Beach case, the program started with the top man inviting his subordinates to participate in problem identification and problem solving. In this case, the follow-up was far more comprehensive and systematic.

By way of background information: Medical Specialties Co. manufactures and distributes some 800 products and has an annual sales volume of over $80,000,000. The top management structure is conventional: a president who is also chief executive officer; an executive vice president, and vice presidents for marketing, manufacturing, finance and research. There also are some wholly-owned subsidiaries, each with its own president.

Management can be described as conservative, somewhat paternalistic and interested in sound development and expansion. The company considers itself fair and considerate of people in its work relationships.

In 1965, the vice president in charge of manufacturing called in a consultant to work with a department which had been steadily losing money

* A condensation of a paper by Edward M. Glaser published in the Newsletter, Division of Consulting Psychology, American Psychological Association, Spring 1969. The name of the actual company is disguised.

on a product produced in 20 variations. Low productivity, too many labor grievances and high operating costs were among his complaints.

The consultant first met with the department head, who had his own bones of contention: the sales department turned in too many small orders on the varieties of the product; the engineering department demanded tolerance standards that were too close for economical mass production; the suppliers delivered poor raw materials, and so on. When the consultant then talked to the heads of the sales engineering and quality control departments, each passed the buck back to the others involved.

Psychological objective #1 was to change the name of the game--and the reward system--from "survive by taking no blame" to "frankly admit problems and solve them--or perish."

The consultant, with the concurrence of the manufacturing vice president, suggested that the president decide what percentage of the market his company reasonably could expect to capture if design, price, quality and service were first-rate. After establishing this estimate, the president advised the appropriate people in manufacturing-engineering-sales that unless they could come up with a sure-fire plan to capture the agreed-on share of the market, the company would discontinue that set of products, and lay off some 60 hourly rate workers.

This ultimatum from the president supplied a very powerful motivating force. Those concerned met and decided they did not want to go out of business. In short order, a number of plans were evolved. Among them: the redesign of the product set and the addition of a technical service man in each region to help the users with any problems they might have.

Implementing the new plans, however, would cost considerable money. The president agreed to provide the additional funds only if those who recommended the plan guaranteed it would bring the desired results. Their necks were on the line, so to speak, and so, with some gulping, the plan was launched. With the ultimatum in force, those concerned were glad to have a consultant available to them.

The consultant first made a psychological evaluation of the manufacturing department head and his two male supervisors. This evaluation report, designed to enhance personal insight development, was then fed back to each man in a private counseling session. When the consultant felt that the leadership in the department was sufficiently nondefensive, the department head invited the five female sub-supervisors--union members as well as a part of management-- for a meeting with him and his top two male supervisors.

The union was consulted and, after it expressed no concern, the consultant and all the supervisory personnel joined in a frank and honest attempt to define problems, opportunities and goals. The department

manager set the climate nicely. He explained the consultant's role as a resource person on hand to help with problem solving and to speed communication between members. He then stated that the first person to identify the manager as the key problem would win a lace umbrella or some other suitable reward.

The manager further reassured those present that any increase in productivity or improvement in quality to result from their problem solving would be translated into efforts to expand sales. Management had already agreed that no worker would be laid off no matter how much productivity was increased.

In the next 35 minutes, 28 work problems were identified and organized under appropriate headings. Two of the suggestions for change were simple enough to implement (e.g., protection for the workers against a hot afternoon sun coming into the windows of their work station). The department head said "yes" to these immediately. Two other proposed changes he knew could not be brought about (one would have constituted a violation of the state labor law). To these he said "no" immediately, giving clear and persuasive reasons.

The remaining 24 suggestions needed further investigation of some sort: fact finding, cost analysis, feasibility study, cooperation of other departments, or authorization from a higher level. Ad hoc volunteer committees were formed to look into those suggestions for which implementation authority resided in the department, and report the recommended action.

Within three months every suggestion was answered with either: "we'll do it," or "analysis reveals that it isn't advisable or feasible for the following reasons," or "we can do it in part, or in modified form." At the end of the same three-month period, productivity was up 32%, rejects had dropped from 12% to 9%, and there had not been a single labor grievance. Feedback of any progress on productivity, labor grievances, absenteeism, turnover, rejects, periodically was supplied to the entire group.

The supervisors came to realize that under the new system positive reinforcement would be given for openly admitting and solving problems. They held relaxed post-mortem reviews of the department's results, asking themselves and each other, "How can we do it better?" Communication became freer and more honest. The entire group felt the new spirit of action. They were actively participating in the goals of the department and in the organization of the work to achieve those goals. A sense of responsibility for their own destiny developed. Now there was an opportunity to try out creative innovations and encouragement to become ego-involved.

These supervisors, then, became industrially active people--rather than industrially reactive. As a result of their suggestions, work was restructured and jobs enriched. They found new meaning in mass-producing products--the same products which had previously been produced with such travail. They found greater pleasure in their work now--and

chose to invest more of themselves in trying to increase productivity and find greater job satisfaction for all involved.

After the first three months, the 60-plus hourly-rate union employees were invited to participate. At the first meeting they were divided into subgroups of 12. These subgroups came up with 78 ideas. Again, some suggestions were settled on the spot with clear explanations. Others required study, and the employees were asked to join in committees to conduct such study and recommend appropriate action.

In the following weeks, many of the employee ideas were adopted, in whole or in part. Periodic reports were made to the hourly workers, either in department meetings or in writing. The people were shown that their efforts were not only appreciated but acted on by management. Ego-boundaries were enlarged. There were satisfactions from cooperative achievements. The employees truly were participating--if they volunteered to do so--in the activities and decisions that affected them. No one needed to file a formal grievance to be heard open-mindedly on any subject they might wish to bring up. And, while there was no guarantee that their ideas would find agreement, the implicit guarantee was that they would be treated with dignity and respect, and given explanations on why any suggestions were not adopted.

The results of the experiment were impressive:

1. Labor grievances dropped from an average of one a week in 1965 to only one grievance in three years (1966-1968).

2. Three months after the intervention, productivity rose 32% and the reject rate fell from 12% to 9%. Then, following the intervention of all members of the department, productivity continued to climb. In 1968 it was an almost unbelievable 190% greater than the 1965 baseline, while rejects dropped to 3.2%.

3. Average labor turnover and absenteeism dropped significantly.

4. Improvement continued under the group's own motivation through repeated application of the principles and procedures initially used in this program. The consultant tapered off his aid after one year. The group, under the able leadership of the department head, continued to achieve fine results.

5. Department operations had increased substantially in both complexity and volume during this 1965-69 period of time, and has continued to increase since then.

It should be noted that if any employee did not find the more responsible involvement in the work personally satisfying, no pressure was exerted to persuade that individual to do more. The employee could then leave problem solving and decision making to others, and go along with the work as structured by those in charge, as long as his own performance was reasonably satisfactory. Thus, individual differences in desire for participative involvement were respected.

The manufacturing division experiment was not adopted by other parts of Medical Specialties Co. The plant manager, whose sustained support of the experiment was clearly evident, was transferred to another of the company's plants where his talents were needed. His successor operated in the more conventional management style of hierarchical authority. He wanted to make his own mark on his new assignment and did not support the program.

There is a promising sequel to the foregoing: in 1971, Medical Specialties decided to expand its manufacturing facilities by enlarging a conventional, mass production plant.

At a meeting with the vice president for manufacturing and the plant managers, the author of this paper and an associate pointed out the kinds of productivity improvement achieved through socio-technical approaches (which recognize that there is a technical and a human input to every job), and small project work teams and other job enrichment ideas, sometimes coupled with the Scanlon Plan* of financial incentives. The consultants offered information on quality of work projects carried out by some other respected firms known to the managers. The group was also reminded of their own limited but successful experiment.

As an outgrowth of the meeting, a productivity exploration committee was formed by Medical Specialties, chaired by the man who had been the department head in the original experiment. Key personnel contacted

* Conceived in the late 1930s by United Steelworkers Vice President Joseph Scanlon (later named professor at MIT) and his associates, the Scanlon Plan states that employee interest and contribution can best be stimulated by providing the employee (and the participating union, if the workforce is unionized) with all the information concerning company problems and successes that safely can be shared in a competitive society, and by soliciting the employee's ideas on how the job is best done. The concept included a system of rewards to stimulate employee interest in and acceptance of technological change by arranging an appropriate wage structure reflecting individual skills and additional rewards based on the success of the enterprise, to be shared by all employees and management. Companies usually implement the Scanlon Plan with a system of departmental production committees and an overall steering committee. (F. G. Lesieur and E. S. Puckett, "The Scanlon Plan Has Proved Itself," Harvard Business Review, Sept.-Oct. 1969, 109).

another company with technological similarities to their own, which was using these concepts with demonstrable, sustained success. The manager became excited by what he saw in operation there. A behavioral scientist alone could never conjure up the living evidence of practicability and suitability that can be supplied by a visit to a respected and successful colleague business operation.

As a result of this stimulated thinking, the managers decided to abandon the idea of expanding the conventional plant. Instead, the company would build a new plant engineered to accommodate small work teams, and staffed from the top with persons receptive to the concept of participative management. Construction was started in October, 1972.

Currently (1973) the plant is being staffed and organized to incorporate quality of work programs which the Medical Specialties group believe would be suitable to their highly technical bio-chemical manufacturing requirements.

Some steps and plans to date have been:

- The manager of the new plant moved to the site where he has been involved in engineering design and layout from the time of the decision to construct a new facility. A personnel manager,* with experience in quality of work improvement

* The General Foods plant in Topeka (mentioned on page 54), which was another new operation, deliberately omitted a personnel manager from its organizational plan. Their idea was that the workforce itself should develop its own personnel policies. Questions of this sort come down to matters of judgment, style, special circumstances such as the size of the workforce, and what might be termed "organizational readiness."

procedures, and a production manager promoted from the parent plant were the next two key personnel to be named.

- The technology, though exacting and precise, is being worked out to match the concept of small (5-20 persons) task teams wherever feasible. The psychological consultants will be available on a continuing basis of several days a month (or as needed) to the plant manager and his key people as they are added. The author of this paper has been in touch with operating managers of other companies with experience in successful job enrichment or quality of work programs to see if they might be of consulting assistance. Practical experience of this sort, and perhaps additional invited consultation from persons such as Professor Louis Davis, Graduate School of Management, UCLA, who has had considerable international experience with socio-technical work planning setups, should help avoid the pitfalls.

- As soon as personnel are added, they will be oriented in the philosophy and practice of quality of work programming. A comprehensive, three-week training program tentatively has been developed for this, aside from much more extensive training in task technology. Employees also will participate in general planning for the start-up. While the exacting technical system design is likely to be outside the experience of most of the workforce and therefore will be determined by engineering, safety and quality control requirements, they not only will be trained in the tasks to be performed and in the technology, but also encouraged to raise questions, make suggestions and have voice in the planning and carrying out of the work structure.

- Frequent evaluation of the start-up procedure, and prompt feedback to all concerned, is planned. Tasks wherein the achievement objectives can be defined will be post-mortemed upon completion or at agreed-upon stages, in an effort to learn non-defensively from each experience and thereby help pursue excellence in flexibly responsive ways.

- Evaluation of outcomes can be achieved in part by comparison on a number of measurable indices with the parent plant, which also will continue to manufacture the identical products.

Kaiser Steel Co. (Pipe Mill), Fontana, California

The following account is from the Los Angeles Times on January 26, 1973:

Workers Given Chance---and Output Soars

Productivity Leaps 32.1% in 90 Days After Imports Threaten Closure of Plant

BY HARRY BERNSTEIN
Times Labor Writer

The tough corporate decision was finally made in October, and M. J. (Smitty) Smith sent the word down to the workers at Kaiser Steel Co.'s pipe mill at Fontana: "We're going to shut the place down."

"We just told the men the facts of life," plant manager Smith said last week," and the facts were that the Japanese produce the same high-quality steel pipe we make, but they do it a hell of a lot cheaper. We're losing money and the mill had to go."

The decision came as a surprise even though the men in the mill had been hearing rumors of a shutdown for a year or more. They appealed to the company to let them try to save the mill.

Management, while retaining final authority, gave the workers the responsibility for saving the mill.

Productivity Jumps

Now, three months later, the company reports that there has been a 32.1% increase in productivity, an astonishing figure when it is remembered that a 4% to 5% annual increase is regarded as a good average.

What happened in that one segment of Kaiser's giant steel plant in less than 90 days could have an impact on the future of the mill workers and on the careers of the company and union officials who took part in the experiment.

But, more importantly, the experiment could be a microcosm of the nation's broader problems, such as incentives for workers as well as the ability of this country to compete with the ever-increasing flood of imported goods.

"The situation at our CW (continuous weld) pipe mill is just part of the experiment we're trying throughout the whole plant here at Fontana. Nationally, the nine major steel companies are doing the same kind of experimenting in cooperation with the union," Smith said.

Past Efforts Unfruitful

Past efforts to get mutual cooperation between workers and management in the industry have been unsuccessful, and the Fontana effort may not save the pipe mill. Japanese competition is still highly competitive and the industry and unions say only government help can stem the tide of imported steel.

But everybody involved in the pipe mill's increase in productivity says it has exciting possibilities.

The basic problem is that the Japanese are delivering 2-inch galvanized steel pipe for $240 a ton, while U.S. steelmakers, including Kaiser, sell it for $300 a ton. Kaiser says it takes a loss on each ton.

The companies will not say what it costs to make a ton of pipe, and even with a 32.1% productivity increase, it may be economically sensible to Kaiser to close down the mill.

One company official estimated that with the productivity gain, the company will save between $10 and $15 a ton, but the resulting profit is not close to the margin steelmen say they need to stay in business.

"The workers came to us and said they wanted to try to run the mill even though our statistics showed it just wasn't economically feasible," Smith said, "and they didn't want any reduction in crew sizes, either."

But "finally we told them, OK, see what you can do."

The spokesmen for the workers was Dino Papavero, president of the AFL-CIO United Steelworkers of America Local 2869, who recently had led a 45-day strike against the company, and Timon (Curley) Covert.

Papavero's role, in addition to handling problems of the entire plant, is to find new ways to sell steel.

Covert, who earns $12,000 a year as a utility man in another part of the Kaiser plant, is the grievance committeeman for the union in Zone 14 at the plant, of which the CW pipe mill is a part.

Covert, 55, can be eloquent and polite enough to be a speaker at a church supper, but at times he speaks bluntly:

Confident of Abilities

"I told management, look, we don't believe anybody in the goddamned world can outproduce us. I hear all this bunk about how good they do it in Japan and Germany and we told management to let us try some things."

One of the things, Covert said, is that management has "got to start really listening to the men for a change."

"It was a lot of little things and a few big things, and a change in attitude, but it didn't take long before those damned production figures were leaping up.

"Nobody could believe it. At first, the company guys kept thinking it was all a computer mistake, then they figured it was a one-shot thing, but now they know it's all true.

"I think it is important, I really do."

One of the "little things" which were changed when the workers were given responsibility to run the mill was a pay raise for a key helper on the pipe straightening machine.

"The helper felt he was a nothing. When he was raised up, it really had an impact," Covert said. A few other men received pay hikes to make their earnings comparable with fellow-workers.

Then the workers demanded a new saw.

Although skeptical of the request, the company agreed to spend $125,000 for a new saw.

"It doesn't sound like much, but the men were getting bad cuts with the old saw. Now the pipe ends are not smashed down when it comes through the hot mill, which means the tools don't get torn up as the pipe is put through facers and threaders," Covert said.

"All of a sudden, we started getting some results when we called on maintenance to get a job done. You didn't put in a request for a job and wait a week. Like right now it was done," he said.

Official Impressed

Smith, who became the top man at Fontana four years ago and who is regarded as one of the most knowledgeable men in the industry, is impressed with the changed attitude of the men. Covert agrees that attitudes have changed.

"Look, before, nobody paid any attention to a guy and so he figured why in hell should he pay any attention to the pipe. Nobody cared," Covert contended.

"People finally paid attention to the men, the boss started listening, the man on the next machine started looking around, and pretty soon everybody got into the swing of things."

Covert, Papavero and other union men interviewed at Kaiser were quick to stress that, as Covert said, "we aren't letting the company get away with one, not even one, contract violation. We live by that contract."

Al Chavez, another steelworker, said, "Let's put it like this: We're not fishing buddies with them (management) but if they'll listen, we will, too."

In the pipe mill, where the 300 men work, the clanging uproar is almost ear-splitting as narrow, flat sheets of steel shoot through the white-hot furnace, form into orange-hot pipe, are cut, straightened, faced, threaded and sometimes galvanized all in what is almost a continuous operation.

Reese Johnson momentarily stopped his threading machine to talk with a visitor, but the noise of the other machines still forced him to shout as he explained the productivity increase.

"You just kind of watch things more. If the threads aren't being cut right on one piece, you shut it down and fix it right away. That means one pipe goes back for reprocessing. Guess a few more were going back before we started watching things more," Johnson said.

Now only 9% of the pipes have to be sent back through the system for reprocessing. Three months ago the rate was 29%.

Welder's Comment

Herbert McFeaters, welder on the hot mill, said the workers are "just running things steadier now. Less delays for down time so the steel keeps flowing at a pretty even rate.

"That means if those guys (in the processing sections) keep their noses clean, the pipe goes out faster. But there is no speedup, believe me."

Papavero, Local 2869 president, guessed that "a way of working can become a way of life. So what if a few pipes do go by. Nobody cares. Management never asked anybody to participate, to involve themselves.

"Besides, when people tell us something is impossible, if we don't think they're out to screw us, then we say the hell it is, and we do it."

The men in the pipe mill all have seniority, so even if the mill closed, they would still be working at Kaiser.

Papavero made certain that almost every other sentence of explanation about the overall Union-Management Productivity Committee was a reiteration of the union's determination not to lose any of its rights.

"There is a lot of apprehension about a speedup. We're not giving up anything, but we're ready to

see how to increase productivity without any speedup."

Papavero, 43, who has been working at Kaiser since the age of 17, knows about former steelworkers' union international President David J. McDonald and his hopes for a "mutual trusteeship" of union and management over the steel industry.

"But somehow it never got off the ground. At Kaiser, it worked for a while with our 'fruits of progress' plan where workers get to share in the savings made by increased productivity, but we never really sat down with management and talked about our problems," Papavero said.

Under the "fruits of progress" plan, workers share in savings made when production costs are reduced.

Kaiser workers make about $40 a month more than workers doing the same job in other steel plants around the nation, and, according to management and union officials, Kaiser's productivity is generally higher than in other steel plants.

Both sides are now convinced it takes more than just a higher wage to raise production, and that involves cooperation on a variety of ideas.

Plant Activity

"In the plant we've got committees of workers and foremen all over the place now—from two to seven people—to look at everything from basic ideas like using steel instead of concrete for road overpasses and 'Buy American Steel' campaigns to grievances of workers whom management never seemed to hear before," Papavero said.

Similar plant productivity committees are being created in all steel companies under the 1971 basic steel industry-union contract.

I. W. Abel, president of the international union, recently joined R. Heath Larry of United States Steel Corp. to report "substantial progress" in reducing unnecessary absenteeism and achieving "a better understanding among both company and union representatives of the role of plant productivity committees to make the domestic steel industry more competitive against the imports of foreign steel."

But union officials face elections regularly — Papavero and Covert are up for reelection in June—and if the cooperation effort appears to the membership to be a sellout to management they could lose.

Yet foreign imports last year meant 108,000 fewer U.S. workers were needed in the steel industry, and union members are aware of this.

Other Industries

The job figures are typical of those in the garment, rubber, electrical and other industries which are at times in competition with foreign rivals.

Fewer and fewer U.S. workers are turning out more and more goods. Ten years ago it took 521,000 steel workers to produce 98.3 million tons of steel.

Last year, 487,000 workers were pouring steel at the rate of 120.4 million tons. In other words, 7% fewer workers turned out 18% more steel, primarily because of new techniques and equipment.

In any case, the figures do not indicate that steel workrs are loafing more now than in the past. But U.S. needs rose even faster than production, and the slack was taken up by foreigners.

Ten years ago, foreign steel made up only 5.6% of the amount consumed in this country. By last year imports made up 18% of the nation's steel consumption.

West Coast Imports

And on the West Coast last year the imported steel was a whopping 38% of the amount bought by those in Kaiser's prime market area.

The nation's top industrialists and union leaders, politicians and financial experts have offered a number of possible solutions.

Some want laws to slow down the flow of imports, others want to stop U.S. conglomerates from exporting capital and American know-how to foreigners who then are in a better position to compete with U.S.-made goods.

All agree on the need to increase productivity, but usually management says workers should work harder to achieve more production while workers say management is just looking for a way to make more profits at their expense.

The experience of workers at Kaiser's pipe mill cannot be duplicated exactly in other mills at Kaiser, or in other plants around the country.

But the steel union and industry leaders, and rank-and-file workers, are at least talking about ways of cooperating.

And in Kaiser's CW pipe mill, they have astonished even themselves.

Comment: The Kaiser plant, like the Medical Specialites Co. experiment, had to increase productivity or go out of business. At Fontana, however, changes were made without the help of outside consultants. Furthermore, Kaiser had the direct, active collaboration by the United Steelworkers. The Medical Specialites Co. had only the non-interfering acceptance of a strong union.

The key ingredients in the Kaiser-Fontana case: (1) the workers' desire to save their jobs; (2) management retained final authority but gave the workers responsibility for saving the mill; (3) union-management collaboration instead of the traditional adversary relationship: management really listened to--and wherever possible--went along with the worker-union suggestions, developing a climate that was constructively motivational; (4) union involvement in finding new ways to sell the steel produced at Fontana; (5) work and organizational restructuring.

The Tavistock Institute's Coal Mining Studies*

The next two reports involve the Tavistock Institute of London and its work with the British coal mines and with Shell UK Ltd.

From 1950 to 1958, the Tavistock Institute became involved in a number of studies in the British coal mines. Two of the studies are reviewed below:

> The Longwall method of coal-getting. This was a semi-mechanised system involving automatic coal cutters and a conveyor-belt for filling and loading the coal, which had replaced the old traditional hand-got method. The Longwall method had encountered many difficulties but some changes in manning arrangements had emerged in some pits which were giving more promising results. One purpose of the study was therefore to examine what these changes were and to determine to what extent they might be more generally applicable in other pits. The study included what was the first "socio-technical" analysis of a productive system. In other words, it made a detailed study of the technical system, not merely as background to examining the set-up of the social system, but in order to see how appropriately the two had been related to each other.
>
> In their report on this study, Eric Trist and K. W. Bamforth (1951) show first how the organisation of work in the old hand-got method was ideally matched to the nature and the demands of the task. The miners had developed over generations a system where small groups of two or three men per shift worked their own narrow face. Every man was capable of doing all the tasks involved in the three main phases of the work, breaking up the coal face ("preparing"), moving the coal to the tubs and filling ("getting"), and then fixing pit props and moving forward to the new coal face ("advancing"). Thus, at whatever phase of the job one shift finished, the next shift picked up the work and carried on. They were self-selecting groups and shared a common wage packet. They

* Paul Hill, Towards A New Philosophy of Management (New York: Barnes & Noble, 1972).

needed no external supervision to direct their activities, which was as well, considering the dark, remote and physically cramped conditions in which they worked. Furthermore, as a small, mutually-supporting and autonomous group, they were well suited to withstand the danger and the stress of their underground task.

By contrast, the way in which the work organisation had been set up to deal with the semi-mechanised Longwall method was not at all well suited to the demands and nature of the new technical system. Mechanisation made it possible to work a single long face of up to 200 yards in place of the many short faces of the hand-got method. This meant that as many as forty or fifty men over three shifts were engaged on the face and the quantity of coal to be handled by the system was greatly increased.

Faced with the problem of creating an organisation to cope with this new and more complex situation, management and engineers turned to the conventional pattern of production engineering. Thus each of the three shifts was allocated one of the main phases--"preparing," "getting" and "advancing." Within each shift, the work was further broken down into specialised tasks and men were assigned to a specific task group. There was no self-selection. Each group was paid separately. Responsibility for co-ordination between the task groups and between shifts was not vested in the men, but placed with external supervisors.

The effects of this system of working were damaging both to productivity and to the morale of the men. As they were restricted to, and paid for, a single specialised task, each group tended to concern itself only with its own task, at the expense of the overall objective. Delays and difficulties on one shift would hold up and disrupt the following one. Conflict between task groups, and with supervision whom the men now held responsible for delays, caused high absence and accident rates, and low morale.

The changes in the social system which had begun to emerge in some pits were in the direction of creating groups with more flexible skills who would not be limited to a specific task. The next study goes further and shows how the same Longwall technical system could be operated much more effectively by a social system derived not from production engineering, but from the characteristics of the old hand-got method of mining.

The Durham studies. In studies in the Durham coal mines, Eric Trist and his colleagues located within the same seam, and using the same Longwall technical system, two quite different work organisations. They were able to compare the functioning and effectiveness of the two systems over a period of two years. The results are reported in their book: *Organisational Choice* (1963).

The first system was the conventional Longwall organisation with specialised tasks, described in the previous section. The second, which they called the composite system, had been developed largely by the miners themselves and incorporated many of the features of the old, hand-got working methods. Thus, in the composite system, the men were multi-skilled and able to move from role to role. The group accepted responsibility for the deployment of its members. There was also rotation over shifts, so that no man was pinned to a particular shift or task. Payment was on an overall output basis for the whole group of forty men and divided up by them, usually in equal amounts. Men were thus committed to the overall task, not only to a specific part of it.

The differences in the effectiveness of these two systems, both operating with the same technology in the same seam, were striking, not only in terms of productivity but also of response to stress, as indicated by levels of sickness and absence. For example:

	CONVENTIONAL SYSTEM	COMPOSITE SYSTEM
Productive achievement (as per cent of coal face potential)	78%	95%
Ancillary work at face (hours per man-shift)	1.32	0.03
Per cent of shifts with cycle lag	69%	5%
Absenteeism (per cent of possible shifts):		
no reason given	4.3%	0.4%
sickness or other	8.9%	4.6%
accident	6.8%	3.2%
total	20%	8.2%

Conclusions

The coal mine studies were of great importance and enabled Tavistock to draw the following main theoretical conclusions.

The concept of the socio-technical system. The need to study a production system as a whole and to understand the interrelatedness of all its aspects. Trist and Bamforth wrote: "So close is the relationship between the various aspects, that the social and the psychological can be understood only in terms of the detailed engineering facts and of the way the technological system as a whole behaves in the environment of the underground situation."

The organisation as an open system. In connection with the above, Tavistock argued that it was no longer adequate to consider an organisation as a closed system, sufficiently shut off within its own boundary to enable its problems to be analysed without reference to its external environment. It must be seen as an open system in constant interaction with its environment, and this must be taken into account in the analysis of its problems.

The principle of organisational choice. The importance of matching the social and the technical systems together in the most appropriate way had been conclusively demonstrated. (Tavistock termed this "joint optimisation of the socio-technical system.") This clearly had implications for the design of new systems or the revamping of old ones.

The importance of autonomous groups. It had been demonstrated that when men formed an autonomous group with a degree of responsibility for a major section of the task, where the group set its own target and managed its own internal relationships, the most favourable results were achieved.

Alienation from work. Poor morale and lack of motivation were directly engendered by the type of work role created by the prevailing standards of production engineering which were exemplified in the conventional Longwall system of working. This led Tavistock to develop some general theories on the psychological conditions under which people could be motivated at work. (These were to be built into the next case to be described, Shell UK Limited.)

Shell UK Ltd.

In 1965 Shell UK Ltd., which operates oil refineries and chemical plants at four locations in Great Britain, launched a long-term program to improve company performance by creating conditions in which people at all levels might become better motivated and more committed to their tasks.

For more than a decade, Shell had been less than successful in persuading employees to work effectively. Among other problems, there were continuing difficulties in union negotiations. Over all, management judged the productivity to be low and the labor costs excessively high.

The first step toward change was an employee relations planning team (ERP), formed in 1964. One year later the team, aided by social scientists from the Tavistock Institute's Human Resources Center, presented Shell with two proposals.* Twin lines of action were suggested to deal with two main problem areas:

1. Attitude change. If management allowed workers more participation in the running of the company, there would be a change in worker attitude. It was proposed, therefore, that the ERP team should draft a statement of objectives and management philosophy. If accepted by management, the statement would serve as a focal point for discussion and debate, not only by groups of managers and supervisors but by all employees throughout the entire organization.

2. Productivity bargaining. To deal with the unsatisfactory terms and conditions of employment for unionized employees, a number of study teams should be set up to investigate in depth

* Paul Hill, ibid.

the implications of all the changes which the company would hope to see introduced as a result of eventual bargains with the unions.

After considerable and thoroughgoing discussion, plus some clarification, the ERP proposals were accepted by Shell's entire management team. Trade union officials and shop stewards at the plants were then involved in similar debates. In time, the senior shop stewards expressed their understanding of the company's new philosophy (made explicit in a "Statement of Objectives") and supported it as a statement of intent.

To implement the new development program involved four components:

1. Pilot project to provide people with jobs which, while effectively meeting the technical requirements, they could also find sufficient psychological satisfaction to become committed to doing their task well.

2. The use of department managers as change agents to put the ideas of the philosophy statement into practice, to examine how well existing jobs met psychological needs, and to make changes so these needs could be more effectively met.

3. The designing of new refinery, to offer an opportunity to put into practice the ideas of the philosophy statement on job design and a chance to establish a set of working conditions and practices that could serve as a model for the older refineries to follow.

4. The establishment of joint working parties to pave the way for productivity bargaining with the unions, and the negotiation of new agreements that would incorporate radical change in the terms and conditions of employment of unionized employees. It was hoped that the results of the productivity bargaining would clear the ground of restrictive practices, making it easier to introduce new methods of work and to redesign jobs.

At the end of 1966 a questionnaire was distributed to all department managers--the first assessment of a just-beginning, long-term project.

The data showed that substantial changes had been made in the desired direction and that the tempo of change far exceeded that of previous years. There was a wide variation on the progress of individual items, but, taken together, they represented a clear and positive movement towards the objectives in the philosophy statement.

While the overall results were very positive, a few negative points also emerged that indicated a need to reinforce understanding of the key concepts of the philosophy and to provide help to department managers wishing to bring about change.

By 1967, the program had created a climate throughout Shell that supported efforts to put its concepts into practice. The statement of philosophy was seen as a framework of values within which a variety of experiments could be tried out. Early in the development program, however, the need to incorporate the philosophy within the company--to create policies and procedures that would reflect its values--was recognized. This was accomplished by:

1. Staff appraisal to annually assess a man's performance in achieving previously agreed-upon work targets. Each year new targets would be agreed to, against which performance would be reviewed and assessed.

2. Management by objective to ensure that the system was consistent with the philosophy and not used to enforce more autocratic control over people's performance.

3. Trade union agreements to induce the maximum sense of joint responsibility between company and unions for assuring

adherence, reducing the area of conflict and facilitating change through some form of joint problem-solving mechanism.

4. Communications effectively handled through departmental meetings with representatives from all employee levels.

5. Induction and training to introduce new employees to the history of the development program and take them through the main points of the philosophy statement.

6. Participation of people on the shop floor in the planning and design of projects.

7. Job enrichment to explore alternative methods of redesigning jobs.

8. Supervisor's role enrichment to provide wider area of discretion and an increased level of responsibility.

Comment: The impressive effort reported here began when Hill was personnel manager at one of the Shell refineries. It was Hill who, with the help of consultants from the Tavistock Institute, developed the "Statement of Objectives," and sold the plan to top management of the Shell parent company.

Hill's objectives and the underlying philosophy were worked through in the conferences described in his book, then became company policy for all Shell UK refineries. The plan also won the support of the union representing the shift workers (those with the skills to make the refinery run) although not that of the majority of the craft union day workers such as electricians, painters and plumbers.

Hill's change strategy seemed to work. The Shell organization changed; the counter-productive disturbances also reportedly changed, although

this is unmeasured in any precise way. But change only lasts as long as the company remains committed. In 1968 Shell International reorganized and old managerial lines were reestablished. According to personal correspondence from Ted Mills, Director of the U.S. Quality of Work Program:

> The turned-on Managing Director who had steadfastly stuck by the Hill plan was replaced by a new hard-liner who had never heard of the effort, let alone be involved in or conversant with it.
>
> In the reorganized Shell UK, the effort was given no managerial push anymore. The union representing the shift workers... exercised no leadership in insisting on maintaining or strengthening the many positive job-enrichment and social gains made before the reorganization. The craft unions, who had resisted the change from the outset, were of no help.
>
> Hill resigned from Shell two years later, when it became evident that the new management, unlike the former management, was simply disinterested in the entire philosophy of the highly successful operation. He and I discussed at length how, had there been a committed and demanding union leadership, it could have bridged the management change and continued to keep and increase the quality of work effort in the refineries, by making such gains an expressed and dynamic factor of union bargaining.

In a May, 1973 conversation with Mills, Hill said he believed that perhaps 50% of the affected employees still were psychologically committed five years after the effort was let die. Unfortunately, the manager who guided the experiment at the largest refinery involved says he has no way of proving how much impact the total effort had had on productivity. As Hill put it:

> The qualitative impact is still there in things like morale, attitude and Shell being a good place to work, with little

turnover, whereas before it was bloody awful. But I have no way to measure the impact on productivity. Our technology has changed so since 1966 that it may be technology, it may be attitude and work change, it may be both which let us make do with fewer redundants (British term for surplus labor). We have no records whatsoever, though, which we can use to show other managers how effective the effort was--or wasn't.

Donnelly Mirrors Inc., Holland, Michigan*

A relatively small (600 employees), family-owned company, Donnelly supplies nearly 70% of all automotive mirrors used in the U.S. Its current sales volume is approximately $20 million a year.

For 20 years Donnelly has used a modified version of the Scanlon Plan of cost-savings sharing. In that same time, the company has had a compounded growth rate of 14% and return on investment has tripled. According to President John F. Donnelly, the corporation competes successfully with other companies in the community in basic wages, and also pays bonuses which, over the past decade, have averaged 10% a month.

In 1967, Donnelly added yet another participative management program. With the help of behavioral scientists from the University of Michigan, the company organized all its employees into small work teams. The teams, according to a Donnelly report:

> Have a common responsibility for one part of the organization's work... made up of a supervisor or manager and the subordinates who report to him... an effective team is normally composed of a maximum of 15 or 20 people, and should not be so large as to be cumbersome. Work team meetings are usually held once a month or oftener if an emergency situation arises.... The purpose and function of the work team is to set goals and develop plans for their team, to determine how best to carry out their work and to solve their own problems and make their own decisions whenever possible. We have found that teams are capable of making good economic decisions.

Among the specific responsibilities taken over by the work teams are participating in interviewing and hiring new team members, handling

* Based on information provided by Donnelly.

disciplinary problems, and helping to select new supervisors. Central to the Donnelly concept of participative management is the presence of the "linking pin":

> The linking pin means that the manager or supervisor of each work team is also a member of the next highest group. It is his membership in this higher team that links (integrates) his team with the rest of the organization. As a manager works with his peers in the planning process or decision making, he may hold a decision in abeyance, should he feel the need for more input from the team he is responsible for.... It is not uncommon for a management team... or for any work team to call in members from other teams to get better and firsthand information before making a decision. The interlocking team structure and group process described, with the link pin functioning as described, allows an amazing flow of ideas. It further insures that no single person or group can force their ideas on others, and it eliminates a great deal of misinformation and rumor.

In 1970 all Donnelly employees who formerly had been paid on an hourly basis were put on salary. All time clocks were removed. Under the new policy, pressure for good performance comes from other team members rather than from superiors. Work teams also have no reservations about reducing the number of jobs since workers profit from increased productivity. Employees who are eliminated from their jobs in the interests of improved efficiency are assured work elsewhere in the company. And, as production costs are reduced by job eliminations, bonuses go up.

Donnelly work teams are encouraged to contribute suggestions. One maintenance man developed a machine for $290 that would have cost the company $900 to buy. In another instance, the production worker who was

to operate a new piece of equipment was among those sent to California to test and give his approval before purchase.

Annual pay increases at Donnelly are established by a committee in which employees participate. In one recent year, workers asked for increases totaling $292,000. The corporation agreed, providing the employees could come up with suggestions for equal cost reductions. Work teams held special meetings to eliminate wasteful practices. Three weeks later, employees presented management with commitments that meant an impressive $636,000 in company-wide cost reductions.

In 20 years Donnelly estimates that productivity per person has doubled. In the past five years, quality control personnel has dropped from 14 to four. Other positive signs: a marked reduction in returned goods, absenteeism down from 5% to 1 1/2%, tardiness from 6% to less than 1%, and a worker turnover so small it is not worth recording. Donnelly credits the last three improvements to the end-of-the-time-clock program.

Senior Vice President, Richard N. Arthur, described the Donnelly experience at the "Changing Work Ethic" conference in New York in March, 1973. "We believe that every person is creative and wants to make a contribution," he concluded. "From that, we see it as our responsibility to tap the creativity and contributions of our people. We can, by our way of managing, either have their creativity on our side or against us."

Comment: Donnelly Mirrors is one of the most successful examples of a long-term (20 year) commitment to improving the quality of worklife in the U.S. It must be remembered, of course, that Donnelly is a relatively small firm and a non-union shop, both factors which allow management more flexibility in introducing new ideas. Still, Donnelly's record is impressive. Small work teams play an active and far-reaching role in the company, participating in everything from goal setting to the selection of new supervisors. This degree of privilege and responsibility given to a non-supervisory workforce is rare.

In addition, Donnelly's Scanlon Plan allows employees to share in the financial fruits of cost savings. The results seem to be profitable in spirit and substance to all concerned.

Gaines Pet Food Plant (Post Division of General Foods), Topeka, Kansas*

In this case, the Tavistock socio-technical system concept was used to plan, staff and organize a small new plant. Like Donnelly Mirrors, General Foods extended to employees such privileges and responsibilities as recruiting, hiring, disciplining, firing--normally considered supervisory functions.

In February, 1971, General Foods opened a new dog food plant in Topeka with a new work approach. According to management: "Humans will best respond (be productive) when there exists a high feeling of self-worth by employee and employee identification with success of total organization."

The new plant was planned to minimize a static hierarchy of job classifications, abolish lockstep work assignments, and give all employees a voice in the running of the plant.

It took two years of planning to put the plant into operation. A four-man primary project team (including the leader who would become plant manager, and an engineer) began with a statement of its principles:

1. People have ego needs. They want self-esteem, sense of accomplishment, autonomy, increasing knowledge and skill, data on their performance. People invest more in situations that allow them to meet these needs.

*Summarized from a paper by Lyman D. Ketchum, General Foods manager of Organization Development-Operations, presented at the American Association for the Advancement of Science symposium "Humanizing of Work," Philadelphia, Pennsylvania, December, 1972.

2. An individual has a need to be able to see himself as a significant part of the whole--be it his position in a human group or his role in a complex technology.

3. People have social needs. They enjoy team membership and teamwork. At the same time, they enjoy friendly rivalry.

4. People want to be able to identify with products they produce and firms that employ them. People care especially about the quality of things with which they can identify.

5. People have certain security needs. They want reasonable income and employment security, and want to be assured against arbitrary and unfair treatment. They also want to be assured of due process.

To staff the new plant, the following advertisement was run in Topeka and Kansas City newspapers:

GENERAL FOODS NEEDS PRODUCTION SUPERVISORS

To take on a new plant and an exciting new management concept in Topeka, Kansas.

General Foods, a leading processor and distributor of nationally advertised grocery products including such household names as Post cereals, Kool-Aid, Maxwell House coffee, and many others, is opening a new Post Division plant. In the General Foods' tradition of progressive, forward-thinking management, a young new-breed idea in management is being introduced in the new facility.

If you're looking for something different, a flexible management structure that emphasizes individual abilities, an imaginative program that will set the pace for our multi-billion dollar industry, you may be the young-thinking leader we need.

You must have mechanical skill-potential with a background in production. Previous supervisory experience desirable. You will need an above-average flair for working with people and ideas--with the very minimum of supervision. Excellent salary, benefits, and relocation pay.

Thirty candidates applied for the jobs, and interviews eliminated 20 of these. The project team, advised by a consultant, then offered a week-end of problem solving, exercise and game play designed to show the attributes an individual would need to be a team leader. Six of the ten candidates were then chosen. One of the four rejected became a foreman in the parent plant, two requested jobs as team members--and one of these was hired.

The next step, according to Ketchum, was to help the new supervisors develop interpersonal skills and a knowledge of group dynamics consistent with the value system:

> It was important that the team leaders' worklife from the very beginning should be consistent with this system. Other skill development: technology, where the parent plant was used; business methods such as cost accounting, quality control, personnel procedures, capital programs, profit planning and so forth.
>
> One important task this new group performed was job design. With the system characteristics as a given, our agreed-upon notions of people needs, knowledge of the process and opportunity to observe a similar process in the parent plant, the jobs were designed. Then began more specific work on the compensation system.
>
> With the plant still under construction and startup approaching, there was a need for team members. Another transition in primary responsibility and control occurred at this phase.
>
> The direct role of the three primary project team members began to diminish. The team leaders began exercising more autonomy in the process of recruiting and selecting, just as the project team without the plant manager had done earlier in their recruiting and selection. This again was consistent with the value system and was made even more practical by the knowledge and experience the team leaders had gained in their own recruitment and selection process aided by their having strongly "bought in" to the new value

system. They thus, with outside help, established the criteria, designed advertising, worked out testing and selection processes and, indeed, did their own hiring.

The criteria for team members:

- Age distribution desirable within the team
- Healthy and energetic with no defects that would handicap doing any job in the plant
- Schooling - practical experience and achievement instead of grade completed
- Aptitude - average mechanical and numerical ability and desire to learn
- Analytical ability
- Comprehensive and communications abilities--above average (some members should have exceptional abilities)
- Responsibility - desire to accept responsibility
- Social- disposition for group-oriented work environment (open, honest, sincere)
- Interest in working within organization concepts

A newspaper want ad was again used to find workers:

GENERAL FOODS--TOPEKA PLANT NEEDS PRODUCTION PEOPLE

Work in a new, modern Gaines Pet Food plant with an exciting new organization concept which will allow you to participate in all phases of plant operations.

Qualifications:

- Mechanical aptitude
- Willing to accept greater responsibility
- Willing to work rotating shifts
- Desire to learn multiple jobs and new skills

Of the 625 people who applied, all but 98 were eliminated by various screening methods. The team leaders again designed a selection weekend that eliminated an additional 35, leaving 63 who were offered jobs.

Anyone rejected was offered... the reasons for rejection. We felt this was only right to the applicant and, also, it provided the team leader an early opportunity to deal openly and honestly with people.

It is our opinion that the team member selection process, managed in large part by the team leaders with outside consultant help, was a better process than the first designed process for selection of team leaders. This was one of our earliest reinforcements that we were on the right track in having high expectations of people when we provided them the resources and the opportunity to work on their own.

Systematic orientation and training then took place. Committees for safety, disaster and fire protection, recreation, and so forth, were formed.

The startup, while not without problems, has gone satisfactorily. Learning is taking place at higher than expected rates. The plant is manned with about two-thirds the number we would expect with traditional methods.

We have learned a lot. We are still learning. Our Board of Directors has just authorized a second plant for this site. All of the learning from our first experience will be incorporated into the second. We have the opportunity in the second plant to introduce the requirements of the social system to the physical design process at the preliminary engineering phase. We will thus jointly optimize the social and technical systems, an opportunity we partially missed in the first plant.

Highlights of the Topeka program include:

- Building production around team units rather than the individual worker. The three components at Topeka are teams for: (1) processing, (2) packing and shipping, (3) office duties. Each worker is assigned to a team, but not to a fixed task within the team. Rather, the total team is given the assignment, and the workers who make up the team can rotate jobs. This is proving to increase worker versatility, stimulate continuing learning, and--of primary importance--relieve boredom and the sense of doing meaningless work.

- Allocating a team leader to each team--someone who is not a foreman, supervisor, watchdog or boss, but, more accurately, a coach and a resource person.

- Arriving at team decisions after open discussion. Among the matters subject to team decision are: individual job assignments, including how to fill in for an absent member; interviewing and hiring job applicants; establishing and changing work rules, operating decisions, and policies; evaluation of individual job performance to determine need for improvement; progression within the compensation system.

- Encouraging initiative. To cite an example, there are no separate maintenance or utility departments in the plant. If there is an emergency in processing or in the packing lines, it is handled by the person within the team who has the necessary skills for that specific task. While he is dealing with the emergency, his position is covered by other team members.

- Assigning two production teams to handle quality control. This means that the worker who makes the product passes judgment on its suitability; the result is a sense of having a personal stake in doing satisfactory work.

- Eliminating many of the physical manifestations of status. The office of the Operations Manager is completely open to view and any employee can get in to see him readily. The conference room is open to all personnel. All employees enter and leave by the same doors. There is no time clock. There are no reserved positions in the parking lot. The carpeting in the manager's office is the same as the carpeting in the locker room of the production workers.

Management has reported a discernible improvement in employee morale and in the entire work climate. There is improved job satisfaction, more sense of responsibility and an increased level of cooperation. Compared with the company's other pet food plant in Kankakee, Illinois, there were more tangible results reported:

1. Increased productivity--within a range of 10-40% per man-day, with uniformly high quality of product.

2. Low absentee rate: .05% compared with an industry level of 1.0%.

3. Negligible turnover: in nine months of operations, only four of the 80 employees left.

4. Virtually no theft or misuse of property.

Professor Richard E. Walton of the Harvard Business School, has served as a consultant to General Foods at the Topeka plant. Since his thinking underlies the development of the work setup, Walton's observations regarding problems encountered are important. His article from the November-December, 1972 Harvard Business Review on the experiment is excerpted on the following pages:

Richard E. Walton

How to counter alienation in the plant

The roots of worker alienation go deep; nothing less than comprehensive redesign of the workplace can sever them

Foreword

A plant where work teams perform without supervisors, where many decisions are based on employee consensus, and where most of the staff functions are assigned to line operators—in what future organization would such a phenomenon exist? "Probably in most," says this author, "because such radical innovations are part of the emerging answer to alienation in the workplace." He argues that total, "systemic" restructuring of the way work is done is required to both meet the changing expectations of employees and increase productivity. Some companies, in fact, have already used this approach with considerable success—and they have the productivity and high morale to prove it. After analyzing the employee dissatisfaction that dictates the innovations he recommends, the author draws lessons from a redesign effort implemented in a pet-food plant by a particularly forward-looking organization.

Mr. Walton is Edsel Bryant Ford Professor of Business Administration and Director of the Division of Research at the Harvard Business School. He is the author of *Interpersonal Peacemaking: Confrontations and Third Party Consultation* (Addison-Wesley, 1967), as well as numerous other books and articles that apply behavioral science techniques to management problems.

Implementation difficulties

Since the plant start-up in January 1971, a number of difficulties have created at least temporary, and in some cases enduring, gaps between ideal expectations and reality.

The matter of compensation, for example, has been an important source of tension within this work community. There are four basic pay rates: starting rate, single job rate (for mastering the first job assignment), team rate (for mastering all jobs within the team's jurisdiction), and plant rate. In addition, an employee can qualify for a "specialty" add-on if he has particular strengths—e.g., in electrical maintenance.

Employees who comprised the initial work force were all hired at the same time, a circumstance that enabled them to directly compare their experiences. With one or two exceptions on each team, operators all received their single job rates at the same time, about six weeks after the plant started. Five months later, however, about one third of the members of each team had been awarded the team rate.

The evaluative implications of awarding different rates of pay have stirred strong emotions in people who work so closely with each other. The individual pay decisions had been largely those of the team leaders who, however, were also aware of operators' assessments of each other. In fact, pay rates and member contributions were discussed openly between team leaders and their operators as well as among operators themselves. Questions naturally arose:

- Were the judgments about job mastery appropriate?
- Did everyone have an equal opportunity to learn other jobs?
- Did team leaders depart from job mastery criteria and include additional considerations in their promotions to team rate?

Thus the basic concepts of pay progression are not easy to treat operationally. Moreover, two underlying orientations compete with each other and create ambivalences for team leaders and operators alike:

▽ A desire for more equality, which tends to enhance cohesiveness.

△ A desire for more differential rewards for individual merit, which may be more equitable but can be divisive.

Similar team and operator problems have also occurred in other areas. Four of these are particularly instructive and are listed in the ruled insert on the facing page.

Management, too, has been a source of difficulty. For example, acceptance and support from superiors and influential staff groups at corporate headquarters did not always come easily, thus creating anxiety and uncertainty within the new plant community.

Management resistance to innovative efforts of this type has a variety of explanations apart from natural and healthy skepticism. Some staff

Implementation problems in the pet-food plant

Here are four team and operator problems encountered in the design of the innovative plant:

1. The expectations of a small minority of employees did not coincide with the demands placed on them by the new plant community. These employees did not get involved in the spirit of the plant organization, participate in the spontaneous mutual-help patterns, feel comfortable in group meetings, or appear ready to accept broader responsibilities. For example, one employee refused to work in the government-regulated product-testing laboratory because of the high level of responsibility inherent in that assignment.

2. Some team leaders have had considerable difficulty not behaving like traditional authority figures. Similarly, some employees have tried to elicit and reinforce more traditional supervisory patterns. In brief, the actual expectations and preferences of employees in this plant fall on a spectrum running from practices idealized by the system planners to practices that are typical of traditional industrial plants. They do, however, cluster toward the idealized end of the spectrum.

3. The self-managing work teams were expected to evolve norms covering various aspects of work, including responsible patterns of behavior (such as mutual help and notification regarding absences). On a few occasions, however, there was excessive peer group pressure for an individual to conform to group norms. Scapegoating by a powerful peer group is as devastating as scapegoating by a boss. The same is true of making arbitrary judgments. Groups, however, contain more potential for checks and balances, understanding and compassion, reason and justice. Hence it is important for team leaders to facilitate the development of these qualities in work groups.

4. Team members have been given assignments that were usually limited to supervisors, managers, or professionals: heading the plant safety committee, dealing with outside vendors, screening and selecting new employees, and traveling to learn how a production problem is handled in another plant or to troubleshoot a shipping problem. These assignments have been heady experiences for the operators, but have also generated mixed feelings among others. For example, a vendor was at least initially disappointed to be dealing with a worker because he judged himself in part by his ability to get to higher organizational levels of the potential customer (since typically that is where decisions are made). In another case, a plant worker attended a corporationwide meeting of safety officials where all other representatives were from management. The presence and implied equal status of the articulate, knowledgeable worker was at least potentially threatening to the status and self-esteem of other representatives. Overall, however, the workers' seriousness, competence, and self-confidence usually have earned them respect.

What it cost

I have already suggested what the pet-food manufacturer expected to gain from the new plant system: a more reliable, more flexible, and lower-cost manufacturing plant; a healthier work climate; and learning that could be transferred to other corporate units.

What did it invest? To my knowledge, no one has calculated the extra costs incurred prior to and during start-up that were specifically related to the innovative character of the organization. (This is probably because such costs were relatively minor compared with the amounts involved in other decisions made during the same time period.) However, some areas of extra cost can be cited:

Four managers and six team leaders were brought on board several months earlier than they otherwise would have been. The cost of outside plant visits, training, and consulting was directly related to the innovative effort. And a few plant layout and equipment design changes, which slightly increased the initial cost of the new plant, were justified primarily in terms of the organizational requirements.

During the start-up of the new plant, there was a greater than usual commitment to learning from doing. Operators were allowed to make more decisions on their own and to learn from their own experience, including mistakes. From my knowledge of the situation, I infer that there was a short-term—first quarter—sacrifice of volume, but that it was recouped during the third quarter when the more indelible experiences began to pay off. In fact, I would be surprised if the pay-back period for the company's entire extra investment was greater than the first year of operation.

Why it works

Listed in the ruled insert on the facing page are eight factors that influenced the success of the new pet-food plant. I want to stress, however, that these are merely facilitating factors and are not preconditions for success.

For example, while a new plant clearly facilitates the planning for comprehensive plantwide change (Factor 3), such change is also possible in ongoing plants. In the latter case, the change effort must focus on a limited part of the plant—say, one department or section at a time. Thus, in the ongoing facility, one must be satisfied with a longer time horizon for plantwide innovation.

Similarly, the presence of a labor union (Factor 6) does not preclude innovation, although it can complicate the process of introducing change. To avoid this, management can enter into a dialogue with the union about the changing expectations of workers, the need for change, and the nature and intent of the changes contemplated. Out of such dialogue can come an agreement between management and union representatives on principles for sharing the fruits of any productivity increases.

One factor I do regard as essential, however, is that the management group immediately involved must be committed to innovation and able to reach consensus about the guiding philosophy for the organization. A higher-level executive who has sufficient confidence in the innovative effort is another essential. He or she will act to protect the experiment from premature evaluations and from the inevitable, reactive pressures to bring it into line with existing corporate policies and practices.

Management and supervisors must work hard to make such a system succeed—harder, I believe, than in a more traditional system. In the case of the pet-food group, more work was required than in the traditional plant, but the human satisfactions were also much greater.

Conditions favorable to the pet-food experiment

Listed below are eight factors which facilitated the success of the new plant.

1. The particular technology and manufacturing processes in this business provided significant room for human attitudes and motivation to affect cost; therefore, by more fully utilizing the human potential of employees, the organization was able to both enhance the quality of work life and reduce costs.

2. It was technically and economically feasible to eliminate some (but not all) of the routinized, inherently boring work and some (but not all) of the physically disagreeable tasks.

3. The system was introduced in a new plant. It is easier to change employees' deeply ingrained expectations about work and management in a new plant culture. Also, when the initial work force is hired at one time, teams can be formed without having to worry about cliques.

4. The physical isolation of the pet-food plant from other parts of the company facilitated the development of unique organizational patterns.

5. The small size of the work force made individual recognition and identification easy.

6. The absence of a labor union at the outset gave plant management greater freedom to experiment.

7. The technology called for and permitted communication among and between members of the work teams.

8. Pet foods are socially positive products, and the company has a good image; therefore, employees were able to form a positive attitude toward the product and the company.

A Wharton professor of management and industrial relations, William Gomberg, is sharply critical of the Gaines experiment and the attempts to compare productivity at Topeka with the company's more traditional plant at Kankakee*:

> Basically, what is claimed is that it was an innovative experiment in rescuing and revamping a low-morale workforce. But it really was a matter of running away from the original problems, in an Illinois plant, and building an ideal work environment through a careful selection of new personnel and the advantages of new physical facilities in Kansas.

Gomberg then goes on to criticize Professor Walton's analysis of the situation, citing in part from an article by Mitchell Fein, "The Real Needs and Goals of Blue Collar Workers," The Conference Board Record, February, 1973:

> Walton did not reveal that the new Topeka employes were screened for special skills and profiles to match the organization criteria that had been established for the new plant.... In a normal employe market, screening one out of four applicants is considered fairly tight. Here only one out of 10 was selected.

*William Gomberg, "Job Satisfaction: Sorting Out the Nonsense," AFL-CIO American Federationist, June, 1973, 14-19.

The new Topeka employes were a special breed; they were "non-union achievers" who preferred working in autonomous situations. They were obviously not typical of a cross-section of the Kankakee employes.

Nowhere does Walton mention that the problem-ridden plant is located in Kankakee, Illinois, and employs 1,200. At a 10-1 ratio, in hiring for a 1,200 employe plant, they would have to screen over 12,000. Where would all the people come from?

Walton says: "Using standard principles industrial engineers originally estimated 110 employes should man the plant. Yet the team concept, coupled with the integration of support activities into team responsibilities, has resulted in a manpower level of slightly less than 70 people."

Attributing the superior performance of the Topeka employes to the organization development principles completely ignores that the Topeka employes were carefully selected for the plant and may have had very different skills and attitudes from the Kankakee employes. Walton cannot use industrial engineers to sanctify his comparison because the comparison is not valid. Work measurement principles in industrial engineering require that the measurement criteria must be developed separately for each plant, unless it is demonstrated that the plants are identical. Common sense reveals that these two plants are not comparable, especially in the workforce. It is like putting together a basketball team of 8-footers to play a normal height team.

The results obtained at Topeka are valid only for Topeka. This was a stacked experiment in a small plant with conditions set up and controlled to achieve a desired result. These employes were not a cross-section of the population, or even of Topeka. The plant and its operations are not typical of those in industry today. What are the other managers to do? Screen one in 10 employes and only hire these? And what about the other nine?

The GF-Topeka case proves nothing of value for operation managers. Had the behaviorists gone to work on the Kankakee plant and shown how they converted a rundown plant, bursting with labor problems, into a plant where management and employes told glowingly of their accomplishments, the behaviorists would have earned the gratitude of everyone. Instead, they turned their backs on a plant which typifies the problems of the big city plants. Worse, they tantalize management with the prospect that, in building a new plant, with new equipment, with carefully selected employes and no union, productivity will be higher. Many managers have dreamed of relocating their plants into the wheat fields or the hills

to escape from the big city syndrome. Is this Walton's message to managers in his article, "How to Counter Alienation in the Plants"? And is this case the HEW task force's contribution to the solution of the problems of the big city plants?

Comment:

Gomberg's critique raises some legitimate questions about what can be generalized from the Topeka case. Contrary to what he says, however, overall evidence shows that permitting employees greater participation in decision making is not restricted to small, special situations in new plants such as Topeka. Other case histories in this paper do report substantial improvements in both the quality of worklife and productivity in companies both big and small, new and old, unionized and non-union. The conditions necessary for success are discussed in Chapter IV.

Volvo and Saab-Scania

At two automobile companies in Sweden management and labor are working together to find ways to democratize the work place. Both cases were reported in Business Week:

Sweden tries new ways*

In Sweden, auto maker Volvo is building entire new plants, one for engines and one for car assembly, designed from the outset for production by teams rather than by conventional assembly lines. In the engine plant, each team will build an entire engine, while in the assembly plant, teams will be assigned complex jobs such as installing electrical systems or brakes and wheels. Pehr Gyllenhammar, Volvo's president, concedes that the program is an expensive gamble, and its effect on productivity is unknown. But Volvo has little choice; it is having serious difficulty in recruiting young Swedes for its assembly lines, where almost half the workers now are foreigners. Because of rapid turnover, it has to hire and train one-third of its work force every year, at an annual cost of $10-million to $30-million at its main plant in Gothenburg.

The assembly plant, costing $20-million, is being built in the shape of four hexagonal blocks to provide bays for team operations, with each car assembled on a free-rolling electric-powered platform. "We hope to introduce the atmosphere of a small workshop," says Vice-President Bo Aakerlind. Teams of 15 to 25 members will set their own work pace and will divide up tasks among team members. Swedish labor unions favor the approach, and the unions worked closely with Volvo in planning and designing the new plants. Rival auto maker Saab-Scania is trying a similar scheme in a new engine plant.

Sweden Tests a New Assembly-Line Concept**

Swedish trade unions have been pressing for years to end "dehumanizing" monotony and dull jobs on many assembly lines. Now Saab-Scania is taking a big first step in that direction at a new $10-million engine plant in Soedertaelje, 25 mi. south of

*Business Week, September 9, 1972, 116.

**Business Week, March 4, 1972, 70.

Stockholm. The traditional assembly line will be partly replaced by a new assembly system that uses a Swedish-made industrial robot to take over many monotonous operations. More important, it will allow a worker to produce an entire engine, and not just one part of it.

The plant will assemble a two-liter, four-cylinder, overhead-camshaft engine that will be used in a new version of the Saab-99 sedan. The engine is the first to be made by Saab in Sweden since the late 1960s, and the Soedertaelje plant, when in full production, will allow Saab to stop buying engines from England.

The plant is so new, and its production plans are so unique, that it has not yet been shown to outsiders. It is just starting up production. Workers, mostly women and many of them Finnish, are still being hired and trained, and the basic "assembly team" operation is still more theory and plan than a tested technique. However, Saab is pretty certain it will succeed, and Swedish unions intend to help make it work.

Teamwork. Motorblocks, crankshafts, connecting rods, and cylinder heads are delivered to the plant from outside foundries and will be machined and finished at Soedertaelje. Parts and components not needing additional work will be sent directly to the assembly area. Much of the preliminary work and some of the mounting and assembly will be done as before. However, final assembly will be handled by a new "assembly team" approach that will be a sharp departure from the traditional.

There will be seven teams, each made up of four workers. Each worker will be able to assemble the entire engine. In the past, assembly line workers were required to be able to do one or only a few parts of the assembly process. In the new system, a member of a team might work individually on an engine assembly, members may elect to pair up, or they may choose to work together otherwise.

Saab and its unions have run into some problems on pay. Most Swedish factories work on a combination of hourly and piece work rates, and working out a rate on a team basis posed difficulties. The company and unions have been discussing this and a premium rate for maintaining high-quality production.

First step. To the unions, the new production concept is fine--but only a first step in the right direction. The whole question of what is called arbetsmiljo, or working environment, has had a high union and public priority in Sweden for several years.

> Arne Gustavsson, chairman of the local trade union, hailed the Soedertaelje project as a good move toward "goals for better working systems." But he said, "Now we have to see what we can do in other parts of the plant. There is still much hard physical work to be done and there will still be a high-tempo work that will have psychological effects.... There will be monotonous tasks to be performed, and thus it is necessary that the union take an active role in organizing the work to make sure that monotonous jobs are eliminated as much as possible.

According to a 1973 management report, first-year results of the Saab experiment were mixed. Absenteeism and turnover remained the same as before--and the capital cost was higher. On the plus side: labor was attracted to the new work arrangement and the production group system gave the company more labor flexibility.

In a June, 1972 speech, UAW Vice President Irving Bluestone commented favorably on the Swedish experiments:

> Humanizing the job must be related philosophically to democratizing the work place. It must embrace not only the normally recognized amenities of life at work, but it must move to a higher plateau and create job satisfaction, a closing of the widening gap between the ever-increasing mechanization of production and the participation by the worker in the decision-making process.
>
> An experiment of enormous potential aimed at this goal of democratization is currently underway in Sweden where the Swedish labor movement and the Swedish employers' association have joined in a cooperative effort to test ways and means of democratizing life in the work place. They are jointly financing an organization called Development Council for Collaboration Questions, which acts as a catalytic agent for experimentation in worker participation in decision-making. In 1971, this Council issued a paper describing certain areas for exploratory experimentation as follows:
>
> > "Each of these experiments takes its premises from one of the following areas:
> >
> > - job design - the organization of work in production

- the supervisory function
- the planning, processing and work study functions
- personnel policy
- the firm's long range planning
- the development of representative cooperation
- the economic budgeting - accounting function."

Significant emphasis is placed upon the interrelationships and interreliance of the projected research experiments. Specifically, the paper states:

"On the strength of research participation in collaborative experiments which have different premises, empirical data from the various projects taken together are expected to complement one another, and data from each premise are expected to provide incentives for how the determinants can be shaped in projects which have other premises.

"To judge from past experience, collaborative experiments which are rooted in, say, job design and the organization of work in production carry over after a time into questions of changes in economic budgeting and accounting techniques, etc. In that way these different functions constitute determinants of job design and the organization of work in production.

"By analogy, collaborative experiments which take their premise from, say, the supervisory or planning function, carry over into other areas.

"Hence a collaborative experiment within a specific area cannot be developed beyond a certain limit unless it is supported by corresponding developments within other areas.

"The selection of collaborative experiments in which research participation is planned is made against this background.

"The different collaborative experiments are meant to form a pattern, where the different premises are expected in varying degree to contain determinants for the development of interfaces with other premises."

It is immediately evident that whatever the results, there is no gimmickry, no manipulation of people and ideas, but rather the recognition of the seriousness of the problem and a comprehensive probing for solutions. It is significant too that the areas of study go far afield, involving not only the job itself, but the management of the total enterprise.

Comment: Detroit auto makers have taken a dim view of the Swedish experiments. They argue that U. S. production rates are too high for group assembly. One American plant can produce 200,000 cars per year--more than is turned out by the entire Swedish auto industry.

The General Motors Truck and Coach Division has experimented with team assembly of motor homes, involving 300 workers at the Pontiac plant and 100 employees at their Gemini operation. Six-member teams were organized to handle body trim and fitting work, three-member teams assembled the chassis.

According to Business Week* the experiment was not successful, and GM was abandoning the team approach.

Instead of team experiments, the magazine reports, GM is now concentrating on attempts to reorient supervisors, teaching them to "open the doors and give people an opportunity to improve the quality of what they do." One result to date is that GM now is consulting more with workers about the structure, layout and organization of their jobs. The long-term effects remain to be seen.

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* Business Week, May 12, 1973, 144.

American Telephone and Telegraph

This experimental study was prompted by the fact that, in the 1960s, when the nation's unemployment rate was low, AT&T was experiencing an unusually high turnover in virtually all departments. Jobs were relatively easy to find at the time and there was little to persuade employees to stay on a job they did not find interesting. College recruiters, after listening to the complaints of those leaving the company told AT&T: "You don't deserve the people we send you."

The turnover rate was particularly high among people who stayed less than six months--employees who left before the company could offset their initial training costs. There was, then a strong cost motivation to correct this situation.

The initial job enrichment study began in 1965 in AT&T's treasury department. Robert N. Ford, personnel director of work organization and environmental research* listed the objectives of the treasury department experiment as:

1. Improve the quality of service.
2. Maintain or perhaps improve productivity levels.
3. Improve the turnover situation.
4. Lower costs.
5. Improve employee satisfaction in job assignments.

(The project director assumed if the last objective was accomplished, the preceding four would follow--an assumption not always validated in other studies.)

* R. N. Ford, Motivation Through the Work Itself (New York: American Management Association, Inc., 1969).

The initial study group involved 104 women who answered customer complaint letters, plus 16 women who handled telephoned complaints. The employees were divided into five small groups:

1. Twenty experimentals in what was called the "achieving group" whose assignments would be vertically loaded.

2. The 16 phone answerers (their uncommitted supervisor decided to make changes similar to those in the experimental group).

3. Twenty women in a control group. The second-level supervisor was asked to ignore the study while the first-level supervisor and the employees were told nothing.

4. Nineteen women in an uncommitted group.

5. Twenty women in another uncommitted group.*

It is important to note that none of the women--or the first-level supervisors--were informed of the study in which they participated.

The project director acknowledged certain starting points:

1. Remove the sources of job dissatisfaction--poor wages, poor working conditions, inadequate supervision.

2. But don't expect removing these to make up for boring jobs.

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* Note that the sum of the five groups cited above differs from the number originally involved in the study. Dr. Ford explains: "The volume of letters tapered off during the six-month study period, as expected, when a business problem was resolved. Therefore, some natural shrinkage in the size of the total group was allowed to occur: It decreased from 120 to 95. Of these girls in the September analysis, 90 were the same individuals who started out in March."

3. If the job is boring, load it with true work motivators: achievement as perceived by the employee, recognition associated with an achievement, more responsibility, advancement to a higher order of task, and growth of employee competence.

The project director had warned management there might be an initial drop in productivity and in employee attitudes, and he requested that in spite of this possibility they permit the experiment to run for the full six-month period. Although there was considerable managerial anxiety about the experiment, this support was granted.

In designing the project, the director was eager to differentiate between horizontal and vertical job loading. Horizontal loading, he explained to top level supervisors, meant simply enlarging a job or rearranging its parts without making it more challenging. The following suggestions for horizontal loading for the department were proposed and rejected:

1. Setting firm quotas of letters to be answered each day.
2. Channeling all difficult complex inquiries to a few women so that the remainder might attain high rates of output.
3. Rotating the women through the telephone units to units handling different customers and then back to their own units.
4. Letting the girls type the letters themselves, as well as compose them, or take on other clerical functions such as reviewing the files or obtaining detailed information.

"Obviously this type of loading does not really improve the task, but it is unquestionably aimed at this end," observed Ford. "We often turn completely away from a bad job assignment and attempt to make the work tolerable by improving rest rooms, adding soft music, subtracting time

worked via coffee breaks and so on. In effect, these moves say, 'This work is boring but it must be done. Please do it and we'll try to reduce the level of pain."

Focusing on what could be done to make the job itself more challenging, the following list of changes was agreed upon by the project director and top-level supervisors for the achieving group:

1. Subject matter experts were appointed within each unit for other members of the unit to consult with before seeking supervisory help. (Later on it was found that the girls had rearranged these assignments among themselves along lines they felt to be more meaningful. This was a real test of climate of responsibility the company was trying to build and it was accepted as such by management.)

2. Correspondents were told to sign their own names to letters from the very first day on the job after training. Previously the verifier or supervisor usually signed for many months.

3. The work of the more experienced correspondents was looked over less frequently by supervisors, and this was done at each correspondent's desk. Instead of verifying 100% of the letters, the proportion was reduced to 10%, a source of significant dollar savings.

4. Less rather than more pressure was placed upon the group for production.

5. Outgoing work went directly to the mailroom without crossing the supervisor's desk.

6. All correspondents were told that they would be held fully accountable for the quality of work--a responsibility previously shared with verifiers and supervisors.

7. Correspondents were encouraged to answer letters in a more personalized way rather than adhering to a standard form letter.

Among the results reported for the first six month trial period were:

1. All groups within the experiment showed improvement in the quality of customer service, as measured by an index already used in the company, but the experimental groups were well ahead of the others.

2. Turnover was greatly reduced for the two achieving groups, but continued at the former high level for the control group and the two uncommitted groups.

3. There was a pronounced reduction in absences of long duration among the experimental workers: from 2.0% to 1.4%. The control group showed a slight increase in this category of absences.

4. No great emphasis was placed on productivity in measuring results, since it was conceded that it could take from 20 minutes to two days to compose an appropriate letter. However, the experimental groups exceeded previous levels of productivity.

5. Promotions were being made in large proportions out of groups 1 and 2 because of their better performance.

6. There was a substantial improvement in job attitude among the achieving group, a lesser improvement in the telephone group, and a deterioration of attitude in the control group and one of the uncommitted groups. The other uncommitted group showed a slight improvement.

At the time of the final survey, members of the achieving group reported they now derived greater satisfaction from the job and felt their performance had improved because of this. Achieving supervisors found fewer crises, few necessities for repeat calls, and higher group morale demonstrated by group enthusiasm toward work problems. Achieving group supervisors find that more of their time is now available for actual supervisory work rather than having all their time absorbed by verifying outgoing letters, a responsibility which the girls now accept themselves.

At the end of the six month trial, top management in AT&T's treasury department set up a small manpower utilization group involving more than 1,150 employees, including several hundred supervisors. A year and a half later, the company estimated that the program saved $558,000.

On the basis of its successes in the treasury department, AT&T then conducted 18 additional studies at various companies within the Bell System. A variety of departments were included: engineering, traffic, plant, controllers and commercial (service representatives). While space does not allow us to describe all in detail, it can be stated that good results were reported throughout the system. None of the projects had the impressive results found at the treasury department, but there were substantial improvements in the commercial departments, and visible, consistent good results with the controllers.

Early in 1968, top management of the Bell System decided to take employee motivation programs out of the special trial projects class and include them as part of their ongoing program of development. As Ford notes: "This is, in a very real sense, the most substantial proof of the success of the projects to date."

In his book on the AT&T experiments, Ford points out the need to distinguish between corporate purpose and individual employee purpose, and to concentrate upon helping the employee meet his job needs. The worker is deeply committed to serving the customer only when he is simultaneously

meeting his own needs. When these needs are met, the employee will serve management well because he has his own little part of the business to run, not because of attempts to motivate him from outside his own frame of needs.

Ford concluded: "The data from these studies show that it is possible to get an order-of-magnitude change, not just a small increment. Modern employees are bright, healthy, well-fed and well-educated compared to those in the time-and-motion study days. They will not accept dull jobs unless the jobs are their very own. We must set the conditions of work so as to gradually maximize the responsibility thrust upon the worker.

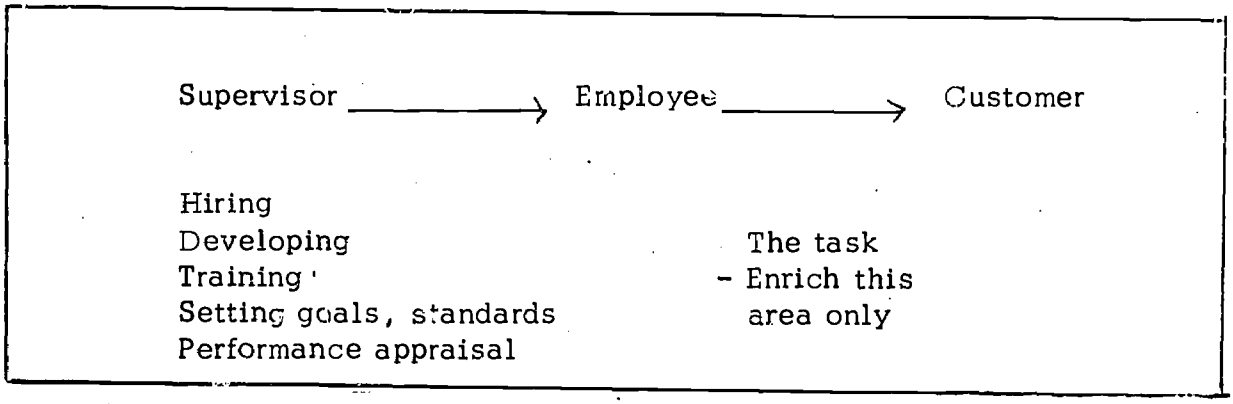
To do this we must ask ourselves:

> What do I do for him that he could now do for himself?
>
> What thinking can he now do for himself?
>
> What goals could we now set jointly?
>
> What advanced training or skill could he now have?
>
> What job could he work toward now? How could I help him?
>
> Is there a way of combining this job with another one he would like? Is the module right?
>
> Is there anything he does that could be given to a lower-rated job?
>
> Could anything be automated out of the job?
>
> We must learn to trade off engineering economies for human values and not to assume that this will be costly.... We will know that we are doing something right if we can change the conditions of the job so that employees will stay on and work productively .... The way to achieve this end, for new or old employees, is not to confront them with demands, but to confront them with demanding, meaningful work. And the employee will always have the last word as to whether the work is meaningful.

In later discussions of the AT&T program, Ford emphasized that the way in which change is brought about is more important than the specific details of job redesign. In general, he says, those involved in the work must arrive at their own decisions about the changes to be made, and take joint responsibility for putting those changes into effect. (The author has found that there are many instances where this is not true. Sometimes change is most effectively brought about by a legal or administrative ruling which requires local conformance.)

Comment: AT&T is one of the largest, if not the largest, company in the U.S. Job enrichment efforts have the support of the president, and are spreading slowly through the company. How well it works depends largely on the receptiveness of local managers and department heads.

In the Bell System the guiding philosophy has been to give the employee every part of the job that he or she is able to handle in the area bearing upon the employee-customer relationship. At the moment the company believes job enrichment should be confined to this area. Charles V. Pfautz, staff supervisor at C&P Telephone, in Washington, D. C. diagrams this concept as follows:



AT&T and many other companies adopt a more conservative attitude toward job enrichment than firms like Donnelly Mirrors or General Foods. Size may have something to do with this--although other large companies such as Procter and Gamble, General Electric and Imperial Chemical have pursued job enrichment efforts in other areas than just employee-customer relationships.

Each company that decides to experiment with quality of work improvement programs needs to do its own planning and to take account of its own situation. While AT&T emphasizes job enlargement, some companies report negative results from that. Of major importance is how the program is introduced and carried out.

An additional 14 case histories are listed in Appendix B. Four of these (Imperial Chemical Industries, Motorola, CRYOVAC Division of W. R. Grace & Co. and General Electric) are presented in more than the usual case report detail, so that the interested reader can better appreciate what is involved.

Appendix B also includes reports on flexible work time in Europe, worker management in Yugoslavia, and worker orientation in Japan. There is also a description of a film "The Factory," which depicts a real-life effort to humanize work at a wood-working plant near San Francisco.

For further reference, interested readers might want to refer to the summary of 34 quality of work improvement case histories listed in the appendix of Work in America.

A Well-Designed Job

Before turning to the next chapter which discusses the problems that can be encountered in planning a work enrichment program, it might be helpful to specify what is involved in a well-designed job. In the Harvard Business Review Robert Ford* summarizes these specific steps toward improving a work task as systematic changes in: (a) the module of work, (b) control of the module, and (c) the feedback signaling whether something has been accomplished. Ford describes fully how the "slice" of work can be redesigned into a natural functional unit, control of it then is given to the employee, with sufficient feedback so the worker knows how he is doing.

David Whitsett, Vice President of Drake-Beam & Associates, Inc. in New York defines a well-designed (or enriched) job as one that has three characteristics:**(1) it is a complete piece of work--work that has an identifiable beginning and end for the person who is doing the job; (2) it is a job in which the worker has as much decision-making control over how to carry it out as possible; (3) it is a job in which the individual receives frequent, direct feedback on his performance.

* R. N. Ford, "Job Enrichment Lessons from AT&T," Harvard Business Review, January-February, 1973.

** D. A. Whitsett, "The Enriched Job," The Personnel Administrator, September-October, 1972.

The Ford and Whitsett definitions are similar in concept, and are in accord with general work theories. The idea of worker participation in decision-making on how to carry out his work is important in both formulations. Other writers on the subject, such as Neal Herrick, also would include provision for some kind of financial cost-savings share in the gains from increased labor productivity. Our own experiences support this additional feature. Robert Ford claims this latter point is not part of the design of the job, but considers monetary reward a "beautiful reinforcer" to good performance in an otherwise well-designed job.

III. PROBLEMS

While there is heartening evidence that lower production costs and higher quality can go hand in hand with efforts to improve the quality of life at work, it should be noted that there also are cases on record where such attempts have not worked out well. It would be an error to think of any specific management style as a panacea for solving the productivity problems in an organization. The reasons for an instance of low productivity must be studied in depth and with sensitive awareness in order to develop the best plan for improvement.

This chapter identifies some of the major pitfalls found when quality of work programs are introduced, so that the same mistakes can be avoided in future experiments. After studying potential problems, those interested may decide, in a specific situation, that it would be more practical to forego such programs.

Organizational Resistance

In an article entitled "Job Enrichment: What Are the Obstacles?" (Personnel, May-June, 1972), David Sirota and Alan Wolfson* have pointed out that anyone who is planning a quality of work improvement program is well advised to be aware in advance of the following management obstacles to such programs:

1. Educational. Training in job enrichment is not customarily a part of management's preparation. Managers often lack the necessary skills to plan and carry out job enrichment.

* Dr. Sirota teaches at the Wharton School of the University of Pennsylvania. Mr. Wolfson is a consultant in the application of behavioral science research.

2. Ideological. The more conservative members in a company's management tend to think of job enrichment as an additional employee benefit. Accordingly they begrudge it.

3. Organizational. Job enrichment programs often challenged vested interests. Functions are taken from one unit of the company and given to another. Further, if a manager does not expect to be in a job for long, he has little interest in installing a job enrichment program which may not pay off until after he has left the organization.

4. Managerial. The manager tends to have the classic resistances to change. For example:

   (a) he feels that it is safer to do what he has always done than to change his procedures;

   (b) change may be an admission that he has been wrong in the past;

   (c) change may reveal his inadequacies.

5. Technological and Financial. Technology often imposes very real constraints upon job design. There are times when job enrichment cannot be carried out in any significant sense without investment in new equipment for facilities. Management is usually reluctant to undertake those investments.

6. The Employee. Although most employees have demonstrated that they are willing and able to handle increased responsibilities, management tends to be doubtful of their potential and motivation.

7. The Enricher. The job enrichment practitioner is cautioned not to downgrade management's past efforts as he attempts to bring about a change.

8. Diagnosis. There is a critical need for competent diagnosis before job enrichment work is undertaken.

9. "Prove It Here." Management tends to think that its own organization is special and that job enrichment programs which have worked elsewhere cannot possibly be applied there.

10. "Nothing New Here." Management contends that they have been carrying out a job enrichment program for years. What

the job enrichment practitioner offers them represents nothing new.

11. Time. Few job enrichment programs are allocated enough time needed for planning, idea development and actual implementation.

Our own experiences support the Sirota-Wolfson findings--with the addition of one vital point: when job enrichment is undertaken in only one part of a company, and the workers involved like it a great deal, other employees often become jealous. Planning, then, should consider ways of expanding the program to the entire workforce if the pilot experiment proves clearly successful.

We also would note that there is over-emphasis in the Sirota-Wolfson paper on job enrichment as such. There are other possible job-related change options which are not necessarily job enrichment per se. A list of such options, taken from the National Commission on Productivity's QOWP Statement of Intent is appended on page 267.

Resistance of Organized Labor

As outlined in earlier chapters, obstacles to job enrichment often can come from the suspicion--and sometimes--the resistance of labor. During the Upjohn conference called "New Directions in the World of Work,"* Mitchel Sviridoff of the Ford Foundation--and formerly a top union official--observed that comments by the union representatives attending

* Charlton R. Price, "New Directions in the World of Work," A Conference Report (Kalamazoo, Michigan: W. E. Upjohn Institute for Employment Research, 1971).

showed their uneasiness at the drift of the discussion at the conference. The problem always was stated by management people, often supported by the academicians present. Most of the proposed solutions also came from the management side. The union representatives felt there were anti-union attitudes behind the job improvement initiatives reported on at the meeting. Sviridoff's remarks clearly pinpoint the nature of the conference deadlock:

> The anxiety here reveals that union representatives are clearly suspicious of an analysis that challenges the fundamental percepts of the trade union movement.... When you suggest that the basic problem has to do with the nature of the job and the way the plant is structured, rather than wages, fringes, and other things basic to the bargaining process, then union representatives understandably get nervous.

Frank Pollara,* the AFL-CIO's assistant director of research, also sums up labor's fears: "Everybody would like to see his job enriched. But when you're talking about productivity, you're really talking about cutting the number of jobs, so workers will look on this with suspicion."

By way of contrast, UAW President Leonard Woodcock, has shown an open-minded attitude about government and management efforts to improve the quality of worklife. In a February, 1973 speech Woodcock said:

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* Business Week, September 9, 1972.

> We've had a lot of discussion with regard to this within our union. It's not the sort of thing, really, that should be a problem of confrontation and collective bargaining. If any of the companies suddenly said to the UAW, "O.K., we agree: We want to humanize the workplace; you do it," we wouldn't even know how to begin.... What we would say, I think is, "We want experimentation involving both management and the union and the workers to try to find answers."
>
> Sometimes it is as simple as asking a group of workers, "We're going to bring this product into production--how would you do it?" Then the workers tell the engineers and the supervisors, "This is how we think it should be done."
>
> The end result may not be much different than if it had been laid out for the workers by management, but because the workers had a voice, they will take a different attitude toward it.

The following articles from Business Week and the Wall Street Journal elaborate on specific instances of labor resistance to job enrichment.

> Why Steel Failed to Boost Productivity*
>
> Worker Resistance Doomed the Plan. Industry and the USW Still Want It
>
> When the basic steel industry negotiated its union contract 16 months ago, one of the most highly touted accomplishments was the creation of a joint labor-management program to boost the industry's productivity. Under the provisions of this unprecedented plan, high-level committees of labor and management representatives were to be set up at each major steel company and plant to find methods of boosting output.
>
> The results have been disappointing. The program has produced more confusion and uncertainty than gains in productivity. Next week, top representatives of the steel companies and the United Steelworkers will meet in Washington to see what can be done to improve things.

* Business Week, December 9, 1972.

Neither the companies nor the USW can--or will--say so flatly, but their joint-action plan has apparently failed to show a discernible improvement in the industry's lackluster productivity record. From 1965 to 1971, the steel industry's annual rate of gain was only 0.6%. While output has gone up since then, industry sources say gains cannot be credited to the joint effort.

During the 1971 negotiations, the steel industry bargainers argued that the companies were seriously hurt by increasing steel imports and competition from other materials. As part of the costly but peaceful settlement, I. W. Abel, president of the steel union, and R. Heath Larry, vice-chairman of United States Steel and the industry's chief negotiator, announced that labor and management would work together to improve productivity. Abel later told his union that the collaboration should be fully supported because "you don't get anything by dropping a bucket into an empty well." In short, he said, the union could not expect continuing economic gains unless it helped make the industry more competitive.

Misunderstandings and Fears of Job Security Boosted Walkouts and Slowdowns

Resistance - Hailed originally as a major breakthrough in union-management cooperation, the program has since been hampered by considerable rank-and-file resistance. Part of it is due to a lack of understanding about the program, part to fears of what efforts to increase productivity might do to jobs. The bitterness engendered over moves to step up output has led to scattered strikes and job actions.

In some companies, such as the Wheeling-Pittsburgh Steel Corp., joint productivity committees have been set up and are operating in the plants. In others, top-level or company-wise groups have met, but local plant committees have not even been established. Next week's Washington meeting will assess the situation and, Larry and Abel hope, "provide a better understanding...of the plant productivity committees' role in our efforts to better compete against the imports of foreign steel through improved productivity...while at the same time continuing to live within the negotiated labor agreements."

The joint plan provides for plant-level committees of four each from management and the union to meet "no less than once

each month" to recommend ways to reduce production inefficiencies. In many plants, meetings have been sporadic, if held at all.

Many of the difficulties can be traced to old antagonisms at the plant level between supervisors and workers. The joint productivity program requires a close and cooperative relationship that is new and foreign to many on both sides. Despite a USW educational program at grassroots levels, intended to allay suspicions among its members, there are indications that in some places the program may have caused more problems than it has solved.

Flawed Equation - The labor relations background is important in determining whether the productivity plan works. One USW official conceded this week: "If the members aren't getting cooperation on other things, they might use this productivity clause as a wedge." In effect, it is being regarded as a trade-off--cooperation to increase output is made conditional on, say the clearing up of accumulated grievances.

However, the big problem is the fear of job losses. The industry's work force has declined from 495,000 to 367,000 since 1965 as a result of modernization of outdated equipment, foreign competition, and sagging profits. Last month, when Jones & Laughlin Steel Corp. announced the layoff of 300 more workers at its aging Hazelwood plant in Pittsburgh, USW's Local 1843 charged that the company violated the productivity agreement by making changes that went beyond the terms of the pact.

About the same time, Wheeling-Pittsburgh Steel phased out rod and wire production at its Monessen (Pa.) works, explaining that shipments had dropped 76% in the previous five years because of foreign imports. The phase-out will cost 200 jobs by mid-1973. USW's Local 1229 told members the company had worked with the union but had failed to find an alternative. The loss of jobs was accepted.

Reassurance - Abel is trying to reassure his members that joint action for more output will not necessarily cost jobs--that "doing nothing could cost more jobs in the long run than cooperating."

Abel has made effective implementation of the productivity program one of his top priorities. Because he has, the unrest over the productivity clause may be political. Abel faces opposition in USW's election next February.

Wary Labor Eyes Job Enrichment*

Miami Beach - A union-made backlash is building against industry's plans for "job enrichment."

Underlying those plans is the idea, widely held by many sociologists, that worker alienation and boredom can be relieved by individualizing worker tasks and tailoring the work done to the needs and desires of the person doing it. But talks with labor leaders gathered here for the mid-winter meeting of the AFL-CIO Executive Council suggest that organized labor sees job enrichment in an entirely different light--as a scheme for getting more work out of fewer workers.

The clash seems likely to greatly complicate efforts to cope with the "blue collar blues" that some observers on both sides of the labor-management divide say is a growing problem. For at bottom, it appears that job enrichment is clashing with what has long been a fundamental goal of unionism: negotiating standardized wage scales, seniority rights and working conditions to ensure that everyone gets "a fair day's pay for a fair day's work."

Job enrichment is just "a stop watch in sheep's clothing," snorts William Winpisinger, general vice president of the International Association of Machinists, referring to labor's traditional disdain for management's time-and-motion studies. "They (job enrichment advocates) are just trying to divide the worker and his union," snaps another labor man here. And United Auto Workers Chief Leonard Woodcock had some words only last week for the "elitist" academics writing "a lot of nonsense" about job enrichment.

A Slashing Attack - In addition, this month's issue of the AFL-CIO's Federationist Magazine carries a slashing attack on job enrichment by Mr. Winpisinger, plus the controversial Wall Street Journal essay by New York University Professor Irving Kristol that dismisses "Blue Collar Blues" as something created by "some liberal social scientists and politicians."

At the same time, few union officials deny their members are growing more dissatisfied with their jobs, a trend reflected in increased absenteeism, turnover and strikes over working conditions. "There appears to be something there and we need to find out more about it," says Jacob Clayman, head

* Wall Street Journal, February 26, 1973.

of the AFL-CIO industrial union department. And some, writes Mr. Winpisinger, admit an even more direct impact: "the rising level of contract rejections and the growing number of defeats suffered by long-established business representatives and officers in union elections."

Indeed, a recent report on "Work in America" issued by a special task force appointed by the Secretary of Health, Education and Welfare, contends that union leaders have a big stake in combating alienation. While criticizing labor for being slow to "come to grips" with the problem, the report declares that "the trade union movement must be among the initiators of new demands for the humanization of work." Harold Sheppard, a task force member, argues that union leaders will come around to cooperating with management and social scientists; some quiet "experiments" already are getting under way with union acquiescence, he says.

Despite some obvious misgivings, UAW President Woodcock has publicly indicated his willingness to participate in experiments. He doubts that union leaders know enough about the problem yet to dictate solutions, and notes that experiments at Chrysler Corp. haven't produced a breakthrough yet. In any case, the most important thing is that union leaders must be included in any job enrichment planning, Mr. Woodcock maintains. UAW officials have complained they were left out of the Chrysler efforts.

But leaders of some other major unions seem to be shying away from even experiments. Instead, they're talking about approaching the problem in a more conventional way, through collective bargaining. "If you want to enrich the job, enrich the paycheck," asserted the Machinists' Mr. Winpisinger. "The better the wage, the greater the job satisfaction. There is no better cure for the 'blue-collar blues.'" The Machinists official cited Gallup polls showing that worker job satisfaction dropped in the late 1960s and early 1970s when worker income --in relation to inflation and taxation and purchasing power-- also declined.

To these unionists, the problem of alienation is often seen as being more simple and clearcut than many others believe it is. They maintain, for example, that the widely publicized strike by "alienated" young auto workers at a highly automated plant in Lordstown, Ohio, last year was really a dispute over management's attempt to run the assembly line faster.

They point out that older workers at another plant protested--with less publicity--about a similar alleged "speed up" of their own line.

Union leaders like Mr. Winpisinger contend that seniority rights spelled out in many contracts already constitute a form of job enrichment. Much worker discouragement can be dissipated, they argue, by negotiating contracts that guarantee them a better chance to move up to more attractive jobs or switch to a slot on a better shift.

Claiming that even the social scientists can't enrich some disagreeable jobs, other labor men favor attacking alienation by simply negotiating contracts that give workers more time away from the job. One example: The UAW, which bargains this fall with major automakers, has tagged voluntary overtime and improvements in its early retirement plan as major demands. The Machinists union is talking about negotiating more "floating holidays" that an employee can use whenever he needs time off to take care of personal affairs.

The labor leaders' suggestions obviously reflect their desire for changes that generally will be shared across the board--and under the watchful eye and control of the union. "What workers resent--and what really causes alienation--are management decisions that rearrange job assignments or upset existing work schedules without reference to the rights of the workforce," declares Mr. Winpisinger. His reference to "the workforce" manifests the traditional union concept of "all for one and one for all" that has consistently spurred labor to seek a standardized approach to pay and working conditions.

Unions also fear that job enrichment will cost jobs. "Substituting the sociologist's questionnaire for the stopwatch is likely to be no gain for the workers," labor historian Thomas Brooks wrote in the AFL-CIO's Federationist Magazine last October. "Job enrichment programs have cut jobs just as effectively as automation and stopwatches. And the rewards of productivity are not always equitably shared."

Some of the more far-reaching job enrichment programs being tried these days are reinforcing these fears. A new pet food plant in Topeka, Kan., for example, was recently opened to replace an old facility: it had 70 workers while the old plant

had 110. The recent HEW report notes that the new plant is "organized into relatively autonomous work groups with each group responsible for a production process. Pay is based on the number of jobs an employe can do rather than on what he does at a particular time." So while early studies of the plant show improved productivity and "positive assessments" of the enriched jobs by the workers, the worst fears of labor leaders appear substantiated: The employes have so far spurned union efforts to organize them.

Despite the thought-provoking job enrichment recommendations of the recent HEW report and the growing concern about worker alienation there aren't likely to be such sweeping changes in most of the nation's other plants and offices. The number of employers willing to pour large amounts of money and time into a major restructuring of jobs isn't likely to swell rapidly in the near future--even if the unions weren't so resistant. And the fact that labor is likely to resist of course, certainly doesn't enhance the chances.

But where employers faced with disruptive and costly worker discontent are forced to sincerely and honestly commit themselves to making disagreeable jobs more agreeable, unions will be confronted with a major test of their ability to respond to a new situation and survive. For, if the employer does manage to actually "enrich" a job, it seems inevitable that the workers involved will begin to question the need for paying union dues or signing a union organizing petition.

Receptive Workers - It also seems inevitable that the clashing objectives of union leaders and job enrichment advocates herald an intensifying battle for the hearts of the nation's workers, both organized and unorganized. That the workers are receptive to both job enrichment and higher pay is documented in a recent survey by pollster Louis Harris.

Mr. Harris found that some 64% of the workers questioned would be "very willing to work harder" if their pay were increased. An almost identical percentage, 61%, said they'd work harder if they had "more say" about the kind of work they did and the way they did it.

The normal union-management adversary relationship is an abrasive one at best, and the coming struggle may well make it more so. Still, the average worker may well make gains as

> a result of this tension. In fact, it is possible that he could emerge with the best of both worlds--a redesigned job from management and more money and job security from his union.

If, as labor fears, the end result of workers' ideas for improved productivity is a layoff that would not otherwise have occurred, it would not be reasonable to expect very many people to cooperate enthusiastically toward their own unemployment. Both labor and management should be invited to examine the experience of companies which have increased productivity without layoffs.

Black & Decker Manufacturing Co. is a good example. This tool company keeps constant and careful control of the interacting factors of costs, pricing and sales volume. The firm has supported rising production by consistently reducing prices to stimulate sales (its 1/4-inch drill, for example, introduced in 1946 for $16.95, sold for $7.99 in 1972*).

In five years Black & Decker sales have nearly doubled. In spite of marked productivity improvements, more employees have had to be hired to keep pace with the expanding market.

Failure to Accommodate to Changing Trends

Columbia University professor Eli Ginzberg** argues that current approaches to improving the quality of working life do not fully take

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* Business Week, September 9, 1972, 110.

** E. Ginzberg, "Work Structuring and Manpower Realities." A paper presented at International Conference on the Quality of Working Life, Arden House, New York, September, 1972.

into account changing trends in the labor market. Ginzberg lists seven: (1) the shift from a goods-producing to a service-producing economy; (2) the requirements for an expanded number of educated and trained personnel; (3) the increased participation of women in the labor force (chiefly on a part-time basis); (4) the later entrance and earlier withdrawal of people from the labor force; (5) the increased movement toward a "second career"; (6) the shorter work week; (7) the increased growth and centralization of organizational units (including the trend toward mergers).

Says Ginzberg:

> What can be said about the impact of each of these seven trends on the quality of working life? The shift from goods to services suggests that in advanced industrial societies the rigid, highly subdivided, tightly controlled production line will provide the work setting for an ever smaller proportion of the total work force, but it tells us little about the potentials for autonomy among brokerage clerks, salesgirls, telephone operators, sanitation workers.
>
> The absolute and relative increase in scientific, professional and technical workers suggests the need for more sophisticated measurements of output and for less reliance on tight controls through time clocks if the potential contributions of these educated and trained workers are to be optimized. But there is little evidence that large organizations have found a way without running larger risks than they are willing to take to provide these brainworkers with the autonomy they desire.
>
> The agitation on the part of many educated women about the way they are discriminated against in jobs and careers is indicative of the long distance that employers still have to go to improve the opportunity structures for those who are work-oriented even while they face rising discontents among those who look upon their work primarily as a source of income. There is little evidence to suggest that loss of autonomy is a critical source of discontent for most women workers.

The later entrance into and potentially earlier egress from the labor force represents a marked increase in the freedom which men and women enjoy to plan their lives and work, but it is a freedom that cuts both ways. The more young people invest in preparing for work and careers, the higher their expectations and the greater their potential source of dissatisfaction if their goals are not fulfilled. And if men have the option to retire early, employers often have the option to retire them early. And if employers force men out who want to remain, the result can hardly be defined as optimizing the goals of the individual no matter how useful it may be to the organization.

Another broadening of options can be seen in the trend towards second career which is enabling increasing numbers of men to move out of fields that no longer command their interest and no longer engage their talents. It does not follow that the choice of a second career will prove fully satisfying, but with experience and maturity back of him the man who makes a career move on his own is likely to benefit therefrom.

The reduction in working time also represents a broadening of options. If men find their work oppressive or uninteresting, then the fact that they have to spend fewer hours on the job permits them to seek alternative satisfactions elsewhere. But whatever its merits, this solution does not add to the satisfactions a man derives from his work; it increases only the potential satisfactions he may be able to derive from having to spend fewer hours at work.

Even the trend to large organizations is equivocal with respect to the subject at hand. For those who reach the top, or even close to the top, the work they do is probably more interesting the larger and more complex the organization. On the other hand, for the many down the line--in middle management--with little scope for independent decision making the environment is not attractive.

If work structuring represents managerial and societal efforts to make more imaginative use of technology and organizational powers to provide greater autonomy for the worker and to elicit greater commitment to the organization, these efforts must be placed alongside labor market trends which are also acting to transform the work environment. Our review suggests that these manpower trends do not speak with one voice either to the subject of autonomy or commitment. In fact it suggests that the framework established for assessing the subject of

> improving the quality of working life must be broadened. From the viewpoint of manpower and the labor market it should be in the following dimensions. First, it is essential to recognize that the adjustment of people to the world of work changes as they change. Hence the need for a longitudinal perspective that allows for such changes. Next, it is an error to neglect differences in the way in which men and women workers approach the problem of jobs and careers. The implications of the vastly extended period of education and training prior to entrance into the world of work upon the skills workers have to offer, upon their expectations about work, and upon their value orientations must also be part of any comprehensive approach studying the quality of working life. And finally, a broadened framework must allow for the interplay and interpenetration of the work and non-work aspects of a man's life.

Alleged Incongruity between Individual Needs and Organization Goals

Chevrolet Director of Employee Research and Training Activities Thomas Fitzgerald* finds current approaches to employee motivation inadequate. He wonders whether it is possible, given the present structure of business organizations, to achieve anything but superficial solutions to the problem. "How much personal freedom is possible in a hierarchal, bureaucratic authority system?", he asks. "At what point does individual style become incompatible with order?"

Fitzgerald agrees with other experts on the necessity of eliminating monotonous, repetitious jobs, and considers it inevitable that such operations will ultimately be automated. But beyond that, he believes today's job enrichment does not take into account individual differences.

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* T. H. Fitzgerald, "Why Motivation Theory Doesn't Work," Harvard Business Review, July-August, 1971, 37-44.

"The job Jones finds moronic and insufferable is okay with Smith, yet too much for Brown," Fitzgerald explains. Restructuring and/or enlarging jobs are brave attempts to fit the job to the man, but which man? Do we have different sets and sequences of the same operation for people of varying competence, interest and drive? Does turnover then imply continued rearrangement?" He further believes that there are recognizable limits to how much job enlargement will satisfy the worker and speculates that perhaps the added challenge provided will be only a temporary phenomenon.

Fitzgerald says enhancing supervisory skills and improving the climate of communication "does not get at enough of the basic incongruence between individual needs and organizational goals." He argues that it is inherent in our organizational structure for supervisors to be authoritarian, that the models of success presented encourage them to be "bossy, condescending and insensitive," and that they derive rewards of both money and status by maintaining their traditional roles.

Some of Fitzgerald's points are valid. At the same time, he is raising some straw men. While it is true that some people do not want more responsibility in their jobs, the evidence suggests most people do. A thoughtful, successful job restructuring effort takes into account individual differences. It considers intellectual, physical, emotional, social and technological factors.

Generally the only demand made of an individual worker in an enriched job setting is that he satisfactorily perform the tasks for which he is paid. When there is a commitment from top management to sponsor, support and serve as a role-model for inviting ideas and suggestions from all concerned, workers have a substantial degree of voice in decision making, there is lessened divergence between individual needs and organizational goals. What does remain should be dealt with openly as part of the real world in which we live.

Fitzgerald is even less optimistic about the feasibility of participatory management. It is, he contends, "an open question whether any significant percentage of the workforce even wants to participate other than perhaps for the novelty of doing so." Fitzgerald foresees the possibility of continuing pressure for more involvement, ultimately bringing the judgment of employees to bear on issues considerably beyond their expertise, and the ensuing disruption of order in an increasingly complex organization in which order is imperative.

Evidence from companies where participatory management has been tried suggests that about 80% of the workforce do want to participate--and continue to do so over the long run, although disruption of order has occurred in some situations. This is a valid warning. Any tool can be misused or used unskillfully. People cut themselves with knives every day, but that is hardly a good argument for not using one for an appropriate purpose.

Perhaps the key problem Fitzgerald poses is how to get a larger proportion of managers and supervisors to relinquish a portion of their traditional authoritarian role and develop an attitude of truly wanting to encourage and reward those below them in the organizational hierarchy who are willing to move toward an optimum work scope within their capabilities or practicable potential for learning.

Pitfalls in the Introduction of Organization Development Programs Noted by GM Personnel Administration and Development Staff

The GM Assembly Division approach to improving the quality of life at work has been through what the company calls organizational development (OD). This is a long-range program to improve the effectiveness of the total organization--at all levels--work group, department, plant or staff. A number of OD efforts have been made to promote a "people-oriented" management philosophy.

This philosophy, if spelled out in appropriate action, may well bring about new management attitudes and behavior that will persuade workers to care about their work because they have opportunity for significant voice in the organization.

While GM has used OD only recently, results have shown favorable results. Nevertheless, GM did find that, like almost every other introduction of change, their system has potential pitfalls. The lessons they pass along from their experience is taken from a GM brochure titled "Our People Do Care--If We Care About Them":

You can't move it on to a more advanced step unless your organization is ready for it. In your enthusiasm to get it spread right down to the hourly people immediately, you've got to make sure that you've got your whole team working together on it before you do it. So, you have to be a little patient--you've got to recognize the pitfalls, why people are not accepting the program and get the ownership to them... the other thing, too, is that some of the people in your organization will look to this "new package" to solve their problem. A superintendent or general foreman will say, "Give me this program so I can get my absenteeism stopped." You've got to watch the pitfall that you're putting out something that they think will solve all their problems for them.

Legislating change from the top is one tough job to do. It's got to be owned by the plant. It's got to be bought by the plant. It's got to be their project if it is going to go.

There is a high risk in getting a department or a section really turned on too fast. The rest of the organization also has to be tied in so that they let that department or section get into a new "people program"--at least let them go in on an experimental basis. If the rest of the organization blocks that, there is a very grave risk that the new program--even if it's good--isn't going to last. You raise people's expectations and if they can't do anything with them, you would have been better off not to have done it in the first place. There is also a grave risk...in looking for panaceas, looking for the right package--jumping to the conclusion that "it looks good, let's bottle it up and put it over."

You've really got to work with your supervision for a long period of time before you actually get into the hourly involvement. They have to be convinced that this is the way to go... one of the mistakes that we've made is to say: "Go do something to hourly people and change their attitudes." If we think that they're the only people whose attitudes have to change, we're really missing the boat...management (are) the first people who (have to) change, and...take a good look at themselves. If we try to change the hourly people's attitude first, we are in trouble.*

* In many instances it may be best to avoid trying to change attitudes first. If the nature of the task is rearranged first, attitude change may follow naturally from the new experience.

When we surveyed the hourly people they said, "Well, how do you expect to do things for us when you can't even get along with yourselves, when you can't even work together as managers?" And that's true ...the only way OD works in a plant is if it starts at the top and goes down. You can't make it just an hourly motivational program. It doesn't work that way. But if you start...departmentally and work with your supervisors--get them involved--you'd be amazed at the enthusiasm that is in a group like that that's just been laying there dormant. They enjoy this. The supervisors work harder on their jobs. They do a lot better job. Once you've got supervisory support then you go to the hourly people and start working with them and getting them involved....

We've got to have some support from the top, and sometimes that means starting at the top.... But in other operations, the support from the top has already been there. We've been in the middle and worked up and down. I think we started at a variety of places. It's more difficult where there isn't just total active involvement from the top--but not impossible.

Caveats from the Government QOWP*

To the disappointment of those who seek easy formulae for social and/or economic improvement, Quality of Work effort and activity is not definable in pat, package terms. Effective work and organizational change in various kinds of workplaces will necessarily wear many faces, and appear in many diverse places. Some are deceptively dissimilar to others, which they actually closely resemble in intent, and even method.

To complicate matters, the nature of the social system of every workplace, the nature of its technology or lack of it, its recent labor-management history, company or industry health, geography and climate, ethnicity, even personalities, in many configurations, inevitably vary so greatly as to make it axiomatic that no two workplaces, like no two human beings, are ever alike. This truth creates another: no two Quality of Work efforts are ever alike; no manager, union, or consultant can or should guarantee in advance the specific outcomes of Quality of Work effort in a given site.

Success, particularly by traditional measures, is never guaranteed. Factors such as resistance, lack of support,

* T. Mills,"The Quality of Work Program of the National Commission on Productivity, A Statement of Intent." February 1, 1973, 9-10.

bad management, inadequate resolve, inadequate thoroughness, timidity, fear of change and innovation, inadequate preparation, and myriad other deterrents can blunt or destroy a well-meaning effort before it has a chance to demonstrate its worth. Occasional failures, however, as in any effort, including war, do not invalidate the potential for impressive success.

A QOWP demonstration project reflects intent. But between intent and full achievement is doing. As noted, the doing can be performed only by the participants themselves. The benefits to all, identified below, are there to capture and profit from: increased involvement, increased interdependence, increased productivity. But to achieve them is--work.

It is important to the success of each project of the Program, therefore, that neither the management, union, or individual participants permit themselves any overexpectations as to the speed of seeing measurable results in economic and social benefits. The Program is a process, like growing up. And, like maturity itself, it has no measurable dates, or predictable dimensions.

A Case Report Illustrating Problems of Job and Organization Design in a Corporation

A detailed look at the problems that may be encountered in trying to introduce work teams and job enlargement comes from a 1972 unpublished paper by Dr. William Lytle,* a human behaviorist in a major U.S. corporation. This report gives unusual insights into what might be called a failure experience at an unnamed company. For background Lytle explains:

> Three years ago (1969) the Corporation in this case established the beginning of a manufacturing organization which would eventually produce a new generation of corporate products. Since the inception of this venture, the author has served as an internal consultant to the management in an attempt to help them explore and use a variety of job and organization

* W. Lytle, "Obstacles to Job and Organization Design: A Case," July, 1972. Available at the UCLA Graduate School of Management.

design concepts. Despite this effort, it is obvious that the ideas and processes introduced by the author have had little observable impact on the two plants which will manufacture the new product; they are now proceeding into full production with traditional human systems. This paper is intended as an interim report and will explore the activities and outcomes of the job design effort, with special emphasis on the reasons for the limited accomplishments.

The setting for this project is in two factories which at full manning will have 600 employees (Plant A) and 1200 employees (Plant B) respectively. They are part of a large U.S. corporation located in a major, eastern metropolitan area. It is a research-based company that is becoming manufacturing oriented, and is recognized for the uniqueness of its products. The company is not unionized and is noted for its liberal employee policies and practices. A significant attempt was made in the area of job design ten years ago.

The new product made in the two factories is a small, highly sophisticated, precision-made consumer device, with state-of-the-art technology in its electronics, mechanics and materials. With this product, the corporation is making its entry into large-scale, high-volume hardware manufacture. The product is expected to sell extremely well at a substantial price, and together with its associated software will be the corporation's chief revenue source for the next several years.

Lytle then analyzes the reasons for the limited accomplishments, including a frank critique of his own performance as a consultant. He concludes with admonitions to himself for future projects. They include:

A. An organization that is operating under stress will wish to avoid what it may perceive as extra stress. A major effort to plan and implement a new type of human system in an organization will require the investment of a large amount of time. The payoff may be potentially very worthwhile, but there won't be such a payoff without substantial investment in planning.

B. If management does not deliberately address the kind of organization it wishes to have, it will get a traditional bureaucracy. Thus, the organization will build from th top down

and lose its opportunity to form around its function, e.g., manufacturing processes and tasks. If an attempt is to be made to innovate with the bottom of the organization--workflow, jobs, etc.--then the management structure must be designed to support this. More than likely, values, norms, leadership patterns, etc., must be consistent throughout the organization.

C. Technology designed by sensitive engineers is necessary for, but not sufficient to ensure worker motivation, group formation, and individual identification, trust, and cooperation; skillful management and mature employees are also required. But it is apparent that technology unchallenged has an enormous capacity to frustrate constructive innovation in the human area. Therefore, understand and control the technology (the product, processes, equipment, and facilities in this case) as early as possible; for once it is frozen, major degrees of freedom are lost. To do this will require a major reeducation for engineers and their management. But this is crucial, for these people in reality are inadvertent social engineers of the first magnitude.

D. There may be no way to avoid poor jobs in high volume hardware assembly where the need for process operations and equipment disrupts a sequence of hand operations. JD concepts are probably easier to implement in process industries.

E. It is not clear where the initiative and energy for new human innovation in organizations will come from. If this organization is at all typical, very little will come from the workforce. Perhaps such change will receive its leadership from managers who will view it with a pragmatic idealism. Other managers may become involved only when labor costs become significant and efficient employee utilization is a concern. Certainly, new ideas can be introduced by aggressive staff personnel. For any effort to succeed, the senior management of all functions must be deeply involved and committed to a common goal.

F. Management's faith in its organization's internal opportunities for upward mobility may reduce its sensitivity to the need for improving its poorer jobs.

G. Managers who choose to explore human innovations will need expert staff who can help relate conceptual material to organizational realities. In a major design effort which focuses on change in the work, the organization and the people, consultants from a number of different disciplines will be needed, e.g., manufacturing, engineering, facilities, human relationships,

management, etc. One consultant by himself cannot catalyze and meet the needs of a large organization.

The consultants and management should develop some systematic way of testing for genuine movement in any change effort.

H. It may not be necessary for a consultant to enter an organization at the top; a sponsor may suffice in the short run. But pick a sponsor who will stay with the effort and who is committed to getting the consultant access to the top and to other functions; the views and needs of the sponsor will differ from those of the others, especially the senior man. The man at the top must get involved for he has a unique perspective of the organization; he has singular responsibility and thus commitment; he can involve relevant functions and people in a way no one else can; and he has the power to effect change if he needs it, for example, to impact the technology. As one manager concluded, "You must have someone with both knowledge and power to make it happen."

I. It is possible that major human systems change is easier to bring about in relatively small organizations or at least in those with a low rate of growth. Perhaps large, complex organizations could be restructured into a number of small, autonomous, interdependent units, not necessarily even under the same roof.

J. People who become involved in the exploration, design, planning, and selling of these ideas can enjoy a uniquely rich personal growth experience. But they should be in a secure position before beginning (their career should not be on trial), and the organization should be prepared to reward them for a competent effort.

Case Report of Company's Unsuccessful Attempt to Reduce Turnover

A study by the Survey Research Center* reports one company's very ambitious, very expensive and very unsuccessful attempt to solve the problem of a high turnover rate among its economically disadvantaged

* R. P. Quinn, T. Levitin and D. Eden, The Multi-Million Dollar Misunderstanding: An Attempt to Reduce Turnover Among Disadvantaged Workers (Ann Arbor: Survey Research Center, The University of Michigan, 1971).

workers. A six-week vestibule training program was instituted, during which time the trainees attended class and were paid $2.50 an hour. The training was aimed at fostering the "personal growth" of the trainees. The company assumed that the high turnover rate was attributable principally to characteristics of these workers rather than to characteristics of their jobs. No specific skills that would help on the job later were included in the program since the advisors and teachers had no advance knowledge of the particular type of company job to which a trainee would be assigned.

Yet, a sample interview of 66 workers indicated that the major cause of turnover was the poor quality of their working lives. The physical conditions at the heavy machinery plant were dirty, noisy, overcrowded, physically exhausting and dangerous. Of the workers interviewed, 35% had been injured on the job during their first six weeks in the company. A newly-hired worker was often moved, like a pawn, from job to job, station to station, or supervisor to supervisor because of highly unpredictable fluctuations in company absenteeism or production quotas.

The researchers conclude:

> These data suggested that turnover was almost exclusively determined by characteristics of the worker's job or by generally immutable properties of the worker's background. Neither of these sources of turnover can be altered by training. That the company's training program failed to reduce turnover was less a function of shortcomings of the program's design or execution than it was a function of the total irrelevance of the program to the social problem it was

> designed to solve. No amount of employee training can make working conditions objectively less noxious or change a man's history.

If the company did not wish to improve the poor quality of these jobs--or believed it could not--another option might have been to keep searching for surer ways to select people willing to endure such jobs. Then the degree of early turnover which still would occur could be viewed as part of their selection costs. In any case, creative attention to the clearly undesirable job conditions could have resulted in some practical solutions for making them less noxious.

IV. GUIDELINES FOR INTRODUCING A JOB REDESIGN OR QUALITY OF WORK PROGRAM

A number of experts--on job enrichment and improving the quality of work-life--have suggested guidelines for introducing such programs. Five of these guidelines are summarized here.

While there are differences in philosophy, emphasis and strategies, the area of agreement is greater than that of disagreement. University of Utah professor Frederick Herzberg (until 1972 at Case Western Reserve), for example, argues against inviting direct participation by the employees whose jobs are to be enriched, while most other students and practitioners in the field favor it. Neal Herrick of the Department of Labor argues strongly for employees to share in cost-savings, a number of others do not consider this essential.

Louis E. Davis Guidelines

Professor Davis* of UCLA's Graduate School of Management reviewed six studies "intended to indicate the multidimensionality of the job design problem and the pervasiveness of its influence on quantity and quality of output, costs, and job satisfaction." He concluded that performance improves:

1. When job and organization designs lead to responsible autonomous job behavior. Responsible behavior as defined here implies acceptance of responsibility by the individual for the cycle of

* L. E. Davis, The Design of Jobs, Reprint No. 163 (Los Angeles: UCLA, Institute of Industrial Relations, 1966).

activities required to complete the product or service. Autonomous behavior encompasses:

(1) self-regulation of work content and structure within the job where the job is an assignment having inputs, facilities and outputs;

(2) self-evaluation of performance;

(3) self-adjustment to changes required by technological variability;

(4) participation in setting up of goals or objectives for job outputs.

2. When there is acceptance of responsibility for rate, quantity or quality of output.

3. When there is recognition of interdependence of the individual or group on others for effective progress of the cycle of activity.

4. When the scope of jobs includes all tasks required to complete a part, product or service.

5. When the job content includes all four types of tasks inherent in productive work: (a) auxiliary or service (supply, tooling), (b) preparatory (setup), (c) processing or transformation, and (d) control (inspection).

6. When the tasks included in the job content permit closure of the activity, if not product completion, permitting development of identity with product or process.

7. When there is the introduction of task variety in the form of larger numbers and kinds of tasks and skills as well as more complex tasks.

8. When product quality acceptance is within the authority of the jobholder.

9. When there is social interaction among job holders and communication with peers and supervisors.

10. When there is a reward system that supports responsible autonomy.

In addition to the above items which relate to job structure, the following aspects of organizational design were cited as contributing to improved performance:

1. Group composition that permits self-regulation of the group functioning.
2. Group composition that deliberately provides for the full range of skills required to carry out all the tasks in an activity cycle.
3. Delegation of authority (formal and informal) to the group for self-assignment of tasks and roles to group members.
4. Group structure that permits internal communication.
5. A group reward system for joint output.

The conditions summarized by Dr. Davis call for the proper climate within an organization; a climate in which top management supports wholeheartedly the development and implementation of those conditions.

A general caution: In any quality of work program management cannot delegate its responsibility for successful operation when it gives workers autonomy and the power to regulate and evaluate themselves. To properly carry out this responsibility, top management needs an information system to provide facts on such items as scrap, rework or reject rate, sales trends, expenses, inventories, profits and whatever else may be necessary for intelligent and timely monitoring. In this way, inquiry and new problem-solving action can be devised if called for.

Frederick Herzberg Guidelines

University of Utah psychologist Frederick Herzberg* suggests the following steps:

*F. Herzberg, "One More Time: How Do You Motivate Employees?" Harvard Business Review, January-February, 1968, 53-62.

1. Select those jobs in which (a) the investment in industrial engineering does not make changes too costly, (b) attitudes are poor, (c) hygiene is becoming very costly, and (d) motivation will make a difference in performance.

2. Approach these jobs with conviction that they can be changed. Years of tradition have led management to believe that the content of the jobs is sacrosanct and the only scope of action that they have is in ways of stimulating people.

3. Brainstorm a list of changes that may enrich the job without concern for their practicality.

4. Screen the list to eliminate suggestions that involve "hygiene" rather than actual motivation. ("Hygiene" refers to job surroundings or "maintenance" or context, depicted in the outer circle of the chart which follows: motivation refers to the job content--the inner circle on the chart on the following page.)

5. Screen the list for generalities, such as "give them more responsibility," that are rarely followed in practice....

6. Screen the list to eliminate any horizontal loading suggestions.

7. Avoid direct participation by the employees whose jobs are to be enriched.* Ideas they have expressed previously certainly constitute a valuable source for recommended changes, but their direct involvement contaminates the process with human relations hygiene and more specifically gives them only a sense of making a contribution. Their job is to be changed and it is the content that will produce the motivation, not attitudes about being involved or challenged inherent in setting up the job. That process will be over shortly and it is what the employees will be doing from then on that will determine their motivation. A sense of participation will result only in short-term movement.

8. In the initial attempts at job enrichment, set up a controlled experiment. At least two equivalent groups should be chosen: one an experimental unit in which the motivators are systematically introduced over a period of time, and the other one a control group in which no changes are made. For both groups hygiene should be allowed to follow its natural course for the duration of

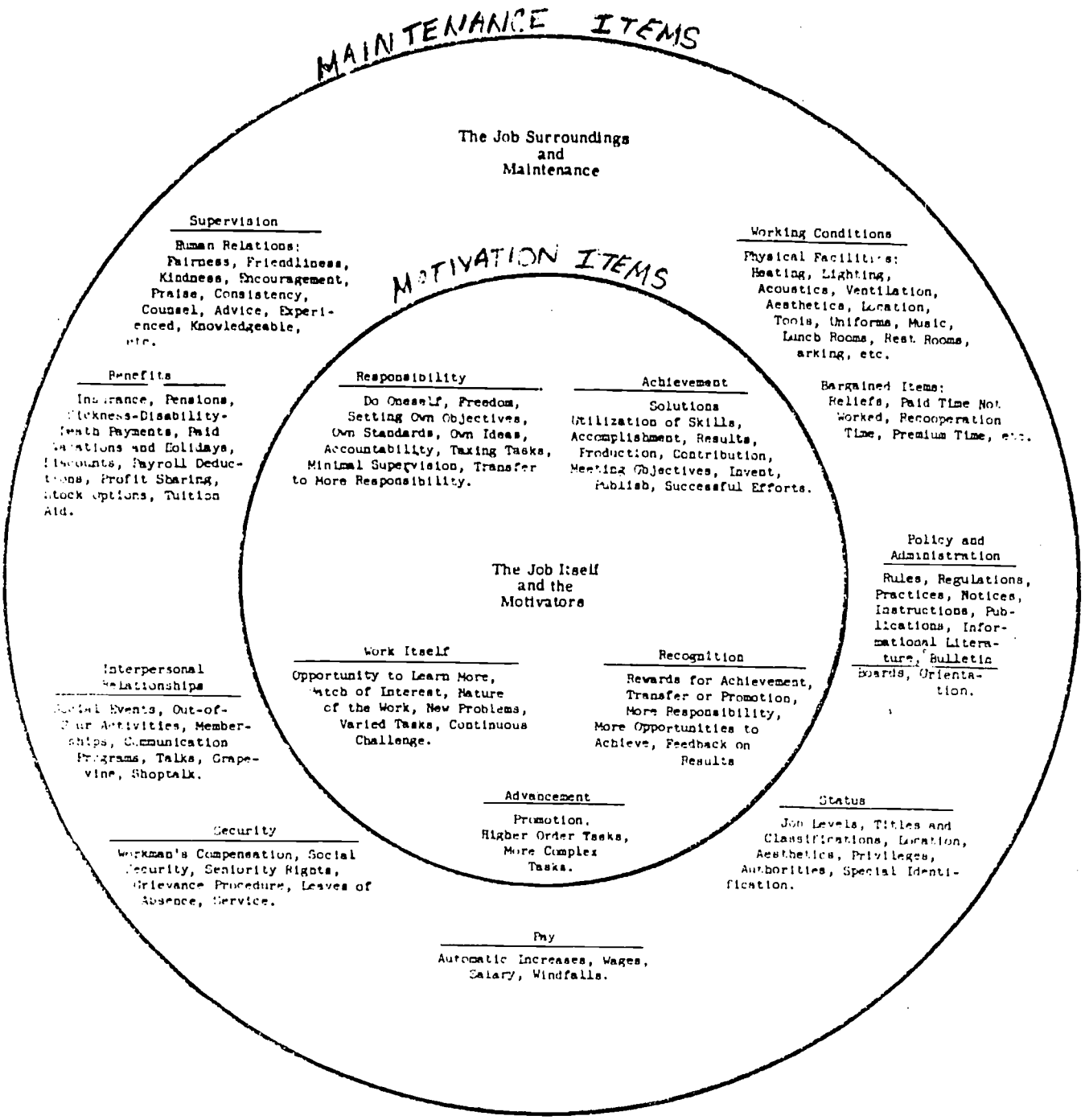
*We disagree with Herzberg's advice here. The decision on direct participation depends on many conditions: how it is done, with what kinds of people, the sincerity and skill in follow-through, the size of the company, etc.

the experiment. Pre- and post-installation tests of performance and job attitudes are needed to evaluate the effectiveness of the job enrichment program.

9. Be prepared for a drop in performance in the experimental group in the first few weeks. The changeover to a new job may lead to a temporary reduction in efficiency.

10. Expect your first-line supervisors to experience some anxiety and hostility over the changes you are making.... After a successful experiment, however, the supervisor usually discovers the supervisory and managerial functions he has neglected or which were never his because all his time was given over to checking the work of his subordinates....

Guide for Determining Motivation and Maintenance Items



Eli Ginzberg Observations

Eli Ginzberg,* Professor of Economics at Columbia University, and four Ford Foundation staff members traveled through the Netherlands, Sweden, Norway, France, Italy and Israel in 1972 to observe some of the work restructuring experiments in these countries.

Ginzberg writes:

> As for the workers, why have they been willing to participate in experiments that could not be launched and surely could not be successfully implemented without their cooperation? What have they seen as their own possible gain in all this? To begin with, most factory work in Europe--as in the U.S.--leaves much to be desired. It is characterized by excessive noise, poor ventilation, frequent breakdowns in machinery, poor supervision, infrequent rest periods, and a host of other conditions workers find irksome. As a result, any effort on the part of management to address itself to these problems, provided the workers are convinced that the new approach is not aimed at getting them to produce more without commensurate adjustment in wages, will be seen as a boon. The fact that most experiments require the cooperation of only small numbers of workers--those who volunteer for them--makes it considerably easier to convince them on this point.
>
> The volunteers frequently respond to improved communications and expanded decision-making powers, which are an integral part of many work structuring experiments. They like the idea of having more say about the specifics of the production process: and they enjoy the regularly scheduled conferences at which they learn about how their work fits into the larger picture. They also like the fact that the experiments relieve them of one or more layers of supervision and that they're given more room for initiative. In the case of autonomous work groups--a leading form of experimentation--the members frequently enjoy the camaraderie that develops, and most of them find themselves under less pressure than before, when the pace of work was set by the machine.

*E. Ginzberg, "The Humanizing of Europe's Assembly Lines," World Magazine, September 26, 1972, 22-26.

Two important principles noted by Ginzberg and others are: 1) the workers--and the unions, in organized situations--need to be convinced that the new approach is not aimed at getting them to produce more just to benefit management, 2) participation in quality of work improvement should be voluntary, for those who wish to have more voice and take more responsibility in the company.

Herrick and Maccoby Suggestions

Neal Herrick and Dr. Michael Maccoby* of Harvard listed four principles which they believe underlie the humanization of work:

1) Security: The worker's freedom from anxiety concerning his health, safety, income and future employment.

2) Equity: The employee receives compensation commensurate to his contribution to the value of service or product.

3) Individuation: Work should stimulate the development of the individual's unique abilities and capacity for craftsmanship rather than force him into a mechanized role. It should include continued learning rather than boredom and stagnation. The principle of individuation, once adopted, can lead to a nonbureaucratic spirit in which workers are encouraged to develop themselves and to learn as much as they wish about the industry as a whole.... The desire for craftsmanship is one of the deep strengths of the American character. By weakening it, we have lessened ourselves as a people. Recent studies of worker attitudes have clearly shown workers' concern that their jobs be more interesting, provide more autonomy and allow them to develop their abilities. After a certain level of income is reached, these concerns are more important than receiving money.

*N. Herrick and M. Maccoby, "Humanizing Work: A Priority Goal of the 1970's," presented at the International Conference on the Quality of Working Life, Arden House, Harriman, New York, September 24-29, 1972.

4) Democracy: The principle of democracy, like that of individuation, is opposed to making the worker into a passive object, a machine part. It implies psychological activeness. Wherever technically possible, workers should manage themselves. Authoritarian, hierarchical control should be replaced by cooperative self-managed groups. Autonomous work groups should replace pyramidal structures. Where supervisors are necessary, they should be elected directly by the workers.

Herrick and Maccoby contend that a system based on these four principles "would develop in the worker a sense of hope, activeness, and productiveness."

Integration and Recommendations--Edward Glaser & Associates

EGA* efforts to promote productivity improvement have focused on: (1) eliciting the understanding, commitment and support of the concept at the highest management level; (2) serving as a resource and catalyst in arranging for a company interested in exploring a job enrichment or work-life improvement program to visit some other companies that have worked out successful, sustained programs of this type; (3) inviting--but not requiring--task group members to participate in problem identification, problem solving, goal setting and decision making; (4) structuring the the work where practicable and desirable into relatively small--five-to-twenty-person--task-group teams if that evolves from step three;

*Edward Glaser & Associates is a firm of psychological consultants to organizations. Established in 1952 and headquartered in Los Angeles, the industrial-social-clinical psychologists in the groups have had experience with a considerable number of companies in connection with organization development and relevant efforts to improve the quality of life at work and productivity in the process.

(5) providing open channels for communication and systematic feedback of progress; (6) offering the special resources of the consultant firm to the task teams wherever wanted or needed; (7) providing incentives, perhaps through a share in rewards derived from any resultant increased productivity and profits.

From our experiences--and a review of the experiences of others--we draw the following observations:

1. If long-term gains are to be made, the top manager of the company, or of whatever division, department or subsidiary may be interested in a quality of work program, needs to understand and give sustained commitment to the philosophy and practice of that program.

2. Once the high level decision is made to explore ways of operating under a philosophy of participation, then all concerned, from the top down, need to understand the concept and become colleagues in planning the program. Detailed preparation, planning and follow-up--all of which take time--are needed to achieve real improvement in work practices, job content and, in some cases, the organizational setup. In a company where workers are union members, a sincere effort should be made to invite the union's collaboration.

   The easiest and most natural way to start all this is for the top person in the given work group to invite his employees to meet in an unhurried, freewheeling atmosphere to take stock, identify problems, evaluate performance, recommend solutions to problems, set goals, and think broadly about how to improve the quality of worklife while at the same time improving the effectiveness and efficiency of the organization. Subsequent meetings can carry this procedure down through the organization.

   A company's readiness to take on any worklife improvement program must be carefully assessed before deciding what steps may be appropriate to undertake. In some situations, a survey of employee perceptions and their suggestions for improvement, along with the setting up of some program for constructive follow-through, would be a simple way to invite

broader employee participation. At other companeis there may be readiness to try more complex experiments in job enrichment--like small, more autonomous task teams.

One of the best ways for a company interested in pursuing productivity improvement through work restructuring to begin is by having some personal contact and interaction with respected kindred organizations which have successful "living demonstrations" of such programs.

Then, too, there is helpful reading on the subject: The Failure of Success edited by Alfred Marrow, AMACOM, New York, 1972; the HEW 1972 task force report on Work in America; and Robert Ford's Motivation Through the Work Itself, American Management Association, 1969, will provide helpful background.

Of course reading along is no substitute for personal interaction with and consultation from well-regarded, friendly organizations using employee participation. A special study team of interested personnel (rather than any single individual) should be invited to volunteer to visit such other companies.

3. The entire task group, not just the volunteer study team, should be invited to develop criteria for effective group performance. They should also have a voice in establishing ways to get baseline evaluation of existing performance, and ways to measure periodic progress. Consultants who are skillful in group process, problem solving, the introduction of change and evaluation, whether they are internal or external to the organization, can be helpful here.

4. The newly created task groups should receive frequent feedback. How does their performance measure up to the agreed-upon criteria in comparison with baseline data? This should be coupled with praise/recognition/reward/positive reinforcement for any gains made--even for a sincere effort to improve performance when no tangible gains occur in certain time periods. Early success experiences build confidence and encourage continued experimenting.

   Don't ask people to do what they really are not capable of doing, thereby inviting a sense of failure. At the same time do provide the opportunity to learn, stretch and grow; to experience a sense of successful achievement.

5. In the early stages of change from authoritative to a participative work structure, the team should have available all the resource-person help or guidance it may want. Either a resource person or a specially designated ombudsman should be readily available to the group in this transition stage.

6. Time should be set aside for a periodic post-mortem by all concerned. "How are we doing?" and "What changes or modifications in policy or procedure might we like to try to overcome problems, make further improvement?" are questions that should be discussed by those concerned.

7. Top management of the organization--or at least of the division involved--should give recognition and reward (positive reinforcement) for any unusual noteworthy accomplishment by a task group. This is in addition to the day-by-day recognition noted in point four.

8. Any persistent problems in the operation should be studied by all concerned. The atmosphere here should be problem solving and not culprit seeking.

9. After the change has been in operation for a year or two, surveys should be made at regular intervals to find any problems or suggestions which have not come to light through the everyday communication channels provided. Such surveys are best made through confidential, open-ended interviews conducted by someone the members trust--perhaps (but not necessarily) an outside consultant.

10. If the group improves productivity, all members should share in these gains. Cost-savings sharing arrangements such as adaptations of the Scanlon Plan might be examined in depth.

    As we have noted earlier, jealousy and dissension may result among workers who are not participating in the experiment if one segment is drawing higher pay in any form from the productivity gains. When success has been demonstrated and if the principles can be extended to the entire operation, this may be the ripe time to introduce cost-saving sharing with the entire workforce.

11. The problem of moving a traditionally structured organization toward a participative, decision-sharing team style of operation involves the many problems attendant on the introduction of any major change. The management of change is a large but related subject which has its own voluminous literature.

A practical start on that subject is offered by Goodwin Watson and Edward Glaser in an article entitled, "What We Have Learned About Planning for Change," Management Review, November, 1965.

Some General Ways of Getting Started on a Program

A vital quations in planning a successful work quality program is how to win the sustained support of top management. The following suggestions recapitulate comments made in other sections or this paper:

One helpful method is for the advocate for change--personnel manager, plant supervisor, or whoever--to summarize what is being proposed, together with an honest assessment of the anticipated benefits, the costs and the possible risks. The report should then be submitted to the executives whose sponsorship is vital to the program's success for their critique. If the situation permits, discuss the matter beforehand, then ask for another meeting after the proposal has been read. This works better than trying to resolve questions and make decisions on pieces of paper going back and forth.

The advocate's report should not be presented as a finished recommendation, but as a draft inviting serious critique by the executives and, where appropriate, the union officials whose sponsorship and participation may be needed. The second draft should reflect questions or critique offered and presumably discussed in the first round. If there is a company where a similar program is in operation and where a site visit (or at least personal discussion with some key persons involved) can be arranged, this can be helpful.

Another approach is to have the interested supervisor or manager simply discuss his idea first with his immediate boss. The program can be presented as an experiment in better management that he would like to try, with the expectation that it will lead to better task performance as well as increased job satisfaction. The manager or supervisor then might outline the plan to the personnel who would be involved, explain the reasons and objectives and invite a free airing of questions and critique. If the consensus is that the idea is worth trying, the next steps are to set up a planning committee and consider engaging a consultant with successful experience in facilitating quality of work improvement programs.

No matter how the program gets started, it is desirable to agree on criteria of effectiveness and, if feasible, to get some baseline measures of present performance so that progress from baseline can be calculated and periodic feedback of progress provided.

Nothing should be done in one part of an organization which cannot be spread to other parts if the results seem favorable to all concerned. Otherwise, resentments can build up if one segment is seen by others as receiving advantages that cannot be made generally available to the rest of the workers.

V. SOME QUESTIONS ANSWERED--AND OTHERS STILL UNANSWERED

1. Is any company capable of undertaking a quality of work program?

   No. The top management and the supporting cast have to "give a damn"--even if they do it only to reduce labor problems and increase profits. Beyond a willing spirit, there must also be the patience and readiness to sustain a deep commitment. If a quality of work activity is not painstakingly planned, based upon careful diagnosis of problems and an assessment of learning readiness, it will probably fail.

2. If a company seems incapable of undertaking a humanization of work program, what changes are needed to gain such capability?

   This depends on the reasons for the company's unwillingness, inability or non-readiness. In some cases management and/or union attitudes and practices need attention first. In other cases, the main obstacle may be in the technology, or a negligible labor involvement in a highly automated production process, or the power distribution, or the reward system.

   How enterprises can best make the necessary changes depends first on finding leadership which wants to explore the new directions. Next comes personal contact with similar companies who are using such plans and the finding of competent technical assistance for a

study of their situation. This is followed by collaborative planning by all people necessary for successful implementation, and a pilot tryout.

The government, through the National Commission on Productivity's Quality of Work Program, may be able to help by contributing technical assistance and providing funds for a demonstration project. QOWP provides seeding money for demonstration projects which involve a three-in-one synthesis of motivational, engineering and organizational restructure of work. From QOWP's orientation, desirable objectives for the demonstration period include:

- Improved utilization of human and technological resources
- Innovation in work restructure
- Innovation in organization restructure
- Increased employee involvement in work improvement
- Decreased workplace (and product) costs
- Increased workplace (employee and technological) productivity
- Improved workplace communications
- Increased labor-management interdependence and collaboration
- Increased employee motivation and allegiance to union and company
- Innovation in distribution of productivity gains
- Increased organizational responsiveness to change

3. Have worklife improvement programs to date been limited to small companies in the Western world using mainly middle-class employees?

No. Large companies in both Japan and India, as well as large and small companies in the U.S. and in Europe, have tested and are still

experimenting with ways to improve the quality of work and increase productivity. Many U. S. companies are doing so with a workforce classified as disadvantaged.

It is interesting to note here, however, that most of the very large corporations reporting noteworthy success with job enrichment or efforts to improve the quality of worklife in some division of their company (AT&T, General Electric, General Foods, Imperial Chemical, Motorola, Procter and Gamble) have not as yet introduced these successful programs throughout the firm, as is the case with smaller companies like Donnelly Mirrors.

4. Is there any evidence that good results from the experimental programs are sustained?

Yes, but not always. Some companies have been operating cost-savings sharing or productivity sharing plans for up to 35 years with continued good results as measured by reduction in labor costs, in grievances, in turnover, in absenteeism and in machine down-time--all parts of increased general productivity. Other companies not using group financial incentives (AT&T, Motorola, Polaroid, Texas Instruments) have achieved and sustained desirable results for from three to eight years.

5. Do we assume that most workers today are alienated?

No. Based upon available survey evidence, most workers do not

now feel alienated. But, in certain situations, most workers do evince some degree of alienation. An overall approach to the humanization of work, then, seems to be desired by most, but not all, workers, according to reports of well-planned programs of employee participation. Those who do not want increased responsibility or do not want to learn new skills will need a selected approach to cope with their feelings. This minority should be permitted to perform their still-needed and familiar "thing" as long as they perform satisfactorily.

6. We read a lot about firms such as AT&T, Donnelly Mirrors, General Foods, Motorola, Polaroid, Texas Instruments, whose efforts to improve organizational effectiveness and efficiency through quality of work programs have been successful. Have there been many failures or disappointments following such efforts?

Yes. Indeed there have been failures and disappointments, some of them examined in this report. To borrow a concept from the psychology of learning, quality of work programs do not present a Stimulus → Response situation. If you apply a hot flame (stimulus) to a normal person's skin, you will get an "ouch"--or pain response.

Instead, the learning principle here can be diagrammed: S → C → O → R. S, the stimulus (quality of work program) is applied under C, certain conditions, with given qualities of appropriate planning, skill and

timing to O, an organization with its own history, readiness for change and feelings of committment, which then lead to R, certain responses and results.

In other words, the same fire can melt the butter or harden the egg. It would seem that, when a program has been successful in many organizations with different people involved and under different conditions, that there is something to generalize about the principles involved. The fact remains, however, that in a number of cases, job enrichment efforts have not worked out well and have been discontinued.

This might be compared with a medical or surgical procedure--which, although helpful in many cases, has not worked out well in others. It may be in the variables: the condition of the patient at the time of treatment, the diagnosis, the appropriateness of the intervention, the skill of the physician, the intelligent cooperation of the patient.

7. If the favorable results reported from a number of the quality of worklife improvement programs have some generalizable characteristics, what are they? Are there dimensions of the person-organization-environment interactions that seem essential to successful outcomes in diverse settings?

Yes, to a degree, but not with certainty. This question has been discussed in some detail in Chapter IV. Some of the dimensions

that make a difference seem to be: (1) sustained commitment from management to the open, non-defensive modus operandi of sincerely writing collaborative inputs from the workforce regarding problem identification and suggestions for improving any aspect of the organization or the policies, practices and structure of work with incentives provided for such participation; (2) invited involvement of members of task groups in recommending resolution of identified problems; (3) training of supervisors to equip them to function effectively in this less directive style; (4) implementation of practicable suggestions and explanations for rejected ideas; (5) feedback, and recognition for good results achieved; (6) selection of personnel who can be motivated, under appropriate conditions, to "give a damn" about striving for excellence in task performance; (7) evaluation and analysis of results, including failures, leading to revised efforts toward continual enforcement in modus operandi.

Three intriguing questions remain unanswered:

1. Why, in spite of clear evidence of significant gains in productivity following the establishment of job enrichment programs in given companies, has there been no follow-through?

   In some cases, the program has been scuttled, when compelling evidence points to success. Why? We think we have some answers. These programs can pose a psychological threat to some managers,

union leaders, and the bureaucracy. The concept of inviting workers to participate in all aspects of a task, the setting up of autonomous work teams, and the providing of open channels of communication at all levels does mean giving up some of the conventional authority exercised by the company--or union--bosses.

2. Why have so few companies tried upgrading the quality of life at work when the evidence of promising results and the description of methodology frequently have appeared in the management, personnel and behavioral science literature since the early 1960s?

   Again, we only have our opinions on this unanswered but important question. And again it involves management fear of losing control by inviting participation in decision making, and union fear of losing status with its members if the individual's ideas and suggestions can be discussed directly with a receptive management in a "non-adversary" climate. Solid research evidence still is lacking for the answer to this question.

3. If you asked all personnel in the organizations reporting success with their quality of work programs if they would continue to organize and structure the work the way it is now, or change it,what would the answer be?

In the few situations where this questioning has been tried, informal results report some 80% of the personnel expressed a desire to continue the participative format.

VI. OUTLINE OF AN EVALUATION PROCEDURE

An organization about to embark on a quality of work program that would improve productivity in the process needs to measure the results of its efforts.

The first step is to identify criteria for effective performance and for a generally satisfying work situation. There are both similarities and differences among different organizations.

To illustrate, we have listed the samples of "hard data" criteria and "soft data" criteria for taking outcome measurements in three different types of organizations:

	Manufacturing	Social Service	Municipal Government
Objective factors	Labor cost per x units produced	Volume of cases handled	Financial solvency
	Reject rate	Percent of successful outcomes	Comparative cost-of-living statistics with other comparable cities
	Machine down time	Average time required for satisfactory closure of a case	Crime statistics compared with baseline and with comparable cities
	No. of labor grievances per month	Cost of service per case	Comparative range and adequacy rating of services provided
	Employee absenteeism rate	Staff absenteeism rate	Employee absenteeism rate
	Employee turnover rate	Staff turnover rate	Employee turnover rate
			Comparative tax rate

	Manufacturing	Social Service	Municipal Government
Subjective factors	Index of employee satisfaction with the work situation	Index of staff satisfaction	Index of staff satisfaction
	Index of customer satisfaction with goods or service	Index of client satisfaction	Index of constituents' satisfaction
	Index of board of directors satisfaction	Index of board of directors' satisfaction	Index of city council or board of supervisors' satisfaction
		Community satisfaction	

Another step is to determine whether reliable and meaningful information on each of the identified factors can be collected in the organization. It is also necessary to explicate what kinds of data-gathering techniques would be required. If data are collected from more than one site, a special effort is needed to ensure comparability of information.

The final list of factors should be those regarded as the best indicators of organizational effectiveness, efficiency, and general satisfaction to all those concerned (at a minimum, employees, customers/clients/constituents and governing body) with the evaluation.

To sum it up, evaluation methodology here requires three key steps: (a) to decide which variables to include in a data collection system, (b) to obtain baseline data regarding the relevant variables, and (c) to develop a system which permits outcome evaluation of the new program in comparison with baseline data.

Methods for data collection include: (a) gathering of accounting or statistical data from company records; (b) pencil-and-paper survey questionnaires; (c) structured individual or small group interviews; and (d) on-the-job standardized observations.

Analysis might focus on the individual, on various task groups, on the organization as a whole, or all of these. Obviously, what to look for must be thought through in each given situation, depending on what is important and susceptible to measurement.

A sample questionnaire for measuring organizational climate (adapted from one used by General Electric) is presented as Appendix A. It can be used on a before-and-after basis. A number of data-collection instruments to measure employee satisfaction are available commercially. Measures would need to be tailored to the special needs of a particular organization.

BIBLIOGRAPHY

Under a contract with the Department of Labor, Manpower Administration, UCLA's Center for Organizational Studies at the Graduate School of Management, has prepared an 837-page annotated bibliography, on The Quality of Working Life, 1957-1972. There seems no point in duplicating the unmatchable bibliography in this report, since it is available to the public. Specific reference sources used in this report are cited in the text.

APPENDIX A

A Study of Climate in Organizations*

This questionnaire is part of a study being conducted to gain a better understanding of the kind of work climates or environments in which managers and specialists in an organization find themselves, how these climates are created, and how they affect the individual's performance and satisfaction.

We hope you will be as frank and honest as you can in answering these questions and that you will spend enough time on each to put down what you really feel. This research will be of little or no value unless you provide us with a truly accurate description of the climate in your Section. (The word "Section" refers to your department or branch or whatever would be an appropriate designation of your work group.)

The information you provide herein will be used for research purposes only and your answers will be kept strictly confidential.

In Part I you will be asked to indicate how you feel about a number of subjects in terms of agreement or disagreement. The statements at the top of the four columns may be described as follows:

Column 1, Definitely Agree: that is, the statement definitely expresses how you feel about the matter.

Column 2, Inclined to Agree: that is, you are not definite, but think that the statement tends to express how you feel about the matter.

Column 3, Inclined to Disagree: that is, you are not definite, but think that the statement does not tend to express how you feel about the matter.

Column 4, Definitely Disagree: that is, the statement definitely does not express how you feel about the matter.

* Adapted from a General Electric personnel research study

A STUDY OF CLIMATE IN ORGANIZATIONS

PART I

For each of the statements below, please place an (X) in the column that most nearly expresses how you feel about the matter.	Definitely Agree	Inclined to Agree	Inclined to Disagree	Definitely Disagree
	1	2	3	4
1. The assignments in this Section are clearly defined and logically structured.				
2. Our management is less concerned about formal organization and authority than getting the right people together for the job.				
3. In this Section there are very high standards for performance.				
4. There is little reliance on individual judgment in this Section; almost everything is double checked.				
5. If a mistake is made in this Section, punishment follows.				
6. People are proud of belonging to this Section.				
7. The policies and organization structure of the Department have been clearly explained.				
8. Ordinarily there is little deviation from standard policies and procedures in this organization.				
9. Around here there is a feeling of pressure to continually improve personal and group performance.				
10. Our philosophy emphasizes that people should solve their problems by themselves.				

For each of the statements below, please place an (X) in the column that most nearly expresses how you feel about the matter.	Definitely Agree	Inclined to Agree	Inclined to Disagree	Definitely Disagree
	1	2	3	4
11. There is not enough reward and recognition given in this Section for doing good work.				
12. People in this Section don't really trust each other enough.				
13. Things seem to be pretty disorganized around here.				
14. Excessive rules, administrative details, and red-tape make it difficult for new and original ideas to receive consideration.				
15. In this organization people don't seem to take much pride in the excellence of their performance.				
16. Around here management resents having everything checked with it; if one thinks he's got the right approach, he just goes ahead.				
17. We have a promotion system here that helps the best man to rise to the top.				
18. People in this Section tend to be cool and aloof toward each other.				
19. Our productivity sometimes suffers from lack of organization and planning.				
20. If one wants to stay out of trouble around here, one has to conform to standard practice.				
21. Management sets difficult, challenging goals in this organization.				
22. The best way to get ahead in this organization is not to stick one's neck out.				

For each of the statements below, please place an (X) in the column that most nearly expresses how you feel about the matter.	Definitely Agree	Inclined to Agree	Inclined to Disagree	Definitely Disagree
	1	2	3	4
23. In this Section people are rewarded in proportion to the excellence of their job performance.				
24. A friendly atmosphere prevails among the people in this Section.				
25. I feel that I am a member of a well-functioning team.				
26. There are a lot of rules, policies, procedures and standard practices one has to know to get along in this organization.				
27. Our agency has grown because people are encouraged to take calculated risks at the right time.				
28. In this Section the rewards and encouragements usually outweight the threats and the criticism.				
29. There is a lot of warmth in the relationships between management and other personnel in this Section.				
30. Management doesn't put much emphasis on improving performance.				
31. Unnecessary procedures are kept to a minimum in this Section.				
32. There is a great deal of criticism in this Section.				
33. There doesn't seem to be very much personal loyalty to the organization.				

PART II

1. How would you describe to a friend, who had never been in your office, the climate and the pressures of your day-to-day work situation?

2. Describe the situation in this Section regarding rewards (for accomplishments), and what is liable to happen if someone makes a mistake (and fails). Are significant accomplishments encouraged and well-rewarded or are you better off if you just keep your nose clean and avoid any mistakes?

PART III

We would like the following information for research comparisons only.

What is your age?

Under 30 ____

30 to 49 ____

Over 50 ____

How long have you worked for this organization?

Less than one year _____

1 to 10 years _____

Over 10 years _____

How long have you worked for the Section in which you now are employed?

Less than 1 year _____

1 to 10 years _____

Over 10 years _____

Male_____; Female_____.

ORGANIZATION CLIMATE STUDY

Definitions of Climate Dimensions

Constraining Conformity

The feeling employees have about the constraints in the office--e.g., degree to which they feel there are many rules, procedures, policies and practices to which people have to conform, rather than being able to do their work as they see fit. Too much "structure" in the form of rules, policies, and standard procedures tends to stifle achievement movitation. Therefore, high scores on this dimension are generally considered undesirable.

Responsibility

The feeling that employees have a lot of individual responsibility delegated to them--they can run their jobs pretty much on their own without having to check with the boss every time a decision must be made. This dimension also includes the feeling that management is willing to take some risks in operating the business. Achievement-oriented workers like a lot of individual responsibility and are challenged by moderate risks, whereas the more security-oriented worker seeks to avoid risks and likes a climate where "double checking" is stressed.

Standards

The emphasis that employees feel is being placed on doing a good job. Includes the degree to which people feel that challenging goals are set and that there is some pressure to continually improve personal and group performance. Achievement-oriented people usually respond enthusiastically to high, but reasonable standards. Security-oriented people may find high standards threatening.

Reward

The degree to which employees feel that they are fairly rewarded for good work, rather than only being punished when something goes wrong. A climate where stress is primarily on punishment for deviations tends to cultivate a fear-of-failure orientation and is de-motivating to the individual who might otherwise be an enthusiastic success-oriented worker. Furthermore, punishment has been found to have little effect in correcting undesired performance if it is not balanced off by some commensurate rewards for good performance.

Organizational Clarity

The feeling that things are pretty well organized rather than being disorderly, confused, or chaotic. While too much organization leads to feelings of constraint, too little organization does not permit people to achieve group goals effectively. This should be considered as a supportive dimension, since organization as such does not engender achievement motivation, but the lack of it may be frustrating to the achievement-oriented individual.

Friendly, Team Spirit

The feeling that general "good fellowship" prevails in the atmosphere--that management and fellow employees are warm and trusting, and that the organization is one with which people identify and are proud to belong. This dimension may also be considered as supporting in character, since a friendly atmosphere won't necessarily lead to achievements, but a cold, untrusting climate will usually stifle achievement motivation.

ORGANIZATION CLIMATE QUESTIONNAIRE

Questions Composing Climate Dimensions

Constraining Conformity

+	8.	Ordinarily we don't deviate from standard policies and procedures in this organization.
	14.	Excessive rules, administrative details, and red-tape make it difficult for new and original ideas to receive consideration.
	20.	If you want to stay out of trouble around here, you have to conform to standard practice.
	26.	There are a lot of rules, policies, procedures and standard practices one has to know to get along in this organization.
-	2.	Our management isn't so concerned about formal organization and authority, but concentrates instead on getting the right people together to do the job.
	31.	Unnecessary procedures are kept to a minimum in this Section.

Responsibility

+	10.	Our philosophy emphasizes that people should solve their problems by themselves.
	16.	Around here management resents your checking everything with them; if you think you've got the right approach you just go ahead.
	27.	Our agency has grown because people are encouraged to take calculated risks at the right time.
-	4.	We don't rely too heavily on individual judgment in this Section; almost everything is double checked.
	22.	The best way to get ahead in this organization is not to stick your neck out.

Standards

+	3.	In this Section we set very high standards for performance.
	9.	Around here there is a feeling of pressure to continually improve our personal and group performance.
	21.	Management sets difficult, challenging goals in this organization.
-	15.	In this organization people don't seem to take much pride in the excellence of their performance.
	30.	Management doesn't put much emphasis on improving performance.

Reward

+	17.	We have a promotion system here that helps the best man to rise to the top.
	23.	In this Section people are rewarded in proportion to the excellence of their job performance.
	28.	In this Section the rewards and encouragements you get usually outweigh the threats and the criticism.
-	5.	If you make a mistake in this Section you will be punished.
	11.	There is not enough reward and recognition given in this Section for doing good work.
	32.	There is a great deal of criticism in this Section.

Organizational Clarity

+	1.	The assignments in this Section are clearly defined and logically structured.
	7.	The policies and organization structure of the Department have been clearly explained.
	25.	I feel that I am a member of a well functioning team.
-	13.	Things seem to be pretty disorganized around here.
	19.	Our productivity sometimes suffers from lack of organization and planning.

Friendly, Team Spirit

+	6.	People are proud of belonging to this Section.
	24.	A friendly atmosphere prevails among the people in this Section.
	29.	There is a lot of warmth in the relationships between management and other personnel in this Section.
-	12.	People in this Section don't really trust each other enough.
	18.	People in this Section tend to be cool and aloof toward each other.
	33.	As far as I can see, there isn't very much personal loyalty to the organization.

APPENDIX B

Additional Case Histories and Special Reports

The additional case histories and reports included in this appendix contribute further insights and ideas, and provide contextual enrichment about ways to approach quality of work and productivity improvement.

Not mentioned, because we have to stop at some point, are other interesting and reportedly successful programs at:

A. B. Dick, American Velvet, Arapahoe Chemical, Bankers Trust, Chase Manhattan Bank, Chrysler, Corning Glass, Dana Corp., Detroit Edison, Exxon, Fieldcrest Mills, First National Bank of Chicago, Harwood Manufacturing, IBM, Jervis Corp., Lockheed Aircraft, Merrill Lynch, Pierce, Fenner & Smith, Monsanto Chemical Textile Division, Polaroid, Precision Castparts, Prudential, Ralston Purina, Saga Administrative Corp., Sonesta (Hotel Corporation of America), Syntex, The Bank of New York, and Western Union.

Norsk Hydro*

The Norsk Hydro fertilizer company of Norway was facing steadily tougher competition. Profits were decreasing and cooperation between labor and management was considered by management to be unsatisfactory. In response to this situation the company selected a fertilizer processing plant with about 50 employees for experimentation. The following organizational changes were made:

- The shifts were organized in flexible subgroups, which were responsible for production in assigned work areas. (Individual workers were not given specific jobs.)
- The organization was built up without "first hands" (i.e., supervisors).
- Each worker was given the opportunity to learn all the tasks within his subgroup through job rotation and mutual aid.
- It was left to the worker to decide how quickly and how much he wanted to increase his competence, thus leaving little chance for too much or too little variation in a job.
- The idea behind the organization was that every man should be able to get help from others when his own abilities were not sufficient and vice-versa.
- A bonus system was installed which paid the workers according to factors they themselves could influence, such as quantity produced, cost, loss of materials, and working hours. The bonus was paid to all workers in the 50-man plant, in order to stimulate cooperation.
- Basic wages were paid according to the number of jobs in the plant which a worker was able to do rather than the actual work he did.

* N. Herrick and M. Maccoby, "Humanizing Work: A Priority Goal of the 1970's," presented at the International Conference on the Quality of Working Life, Arden House, Harriman, New York, September, 1972.

The human outcomes of this participative work restructuring were measured by asking the workers involved whether their jobs were satisfying or not satisfying in general and with regard to variety, learning, responsibility, and security. This was done for their previous jobs and for their new jobs after the experiment had been underway for one year. The percentage of workers expressing satisfaction increased from 58 to 100 on general view, from 45 to 85 on variety, from 33 to 96 on learning, from 42 to 96 on learning, from 42 to 96 on responsibility, and from 39 to 73 on security.

The economic results were that production costs per ton steadily decreased by about 30% during the first six months of the project and absenteeism in the experimental factory was 4% against 7% for the controlled factory and 7.5% for the firm as a whole.

Norsk Hydro has since been extending this participative management experiment throughout the company. Top management sums up its reaction with "It is not only the production that matters, human values become more central."

Imperial Chemical Industries, Ltd.*

A group of studies were carried out in Britain to cross-validate some of Frederick Herzberg's theories of motivation (which are discussed in detail in Chapter III of this paper). In each experimental situation, management had identified problems of morale and performance: a group of laboratory technicians was believed to be suffering from low morale because of their lack of status compared to the scientists with whom they worked. They felt their technical abilities were wasted; and that channels for promotion within the plant were limited.

A group of sales representatives were selected as targets for another experiment because, in the management's opinion, they were not competing successfully for their share of the market. Another group--design engineers--had problems with an increasing workload and recruiting difficulty; developmental work in the organization suffered as a result.

Two final studies concerned one group of production foremen and another of engineering foremen. In these cases, management was concerned about the recent erosion of the traditional role of the foreman. The men had fewer opportunities to make decisions on planning, technical control

* W. Paul, K. Robertson and F. Herzberg, Harvard Business Review, March-April, 1969, 61.

and discipline, and were isolated from critical work. The day-to-day relationship between the foreman and his men, it was believed, had been weakened. The method and results used with each of the groups is summarized below:

A. Laboratory technicians or "Experimental Officers" (EOs)

An experimental group of 15 and two control groups totaling 29 EOs. The changes made were:

Technical: The EOs were encouraged to write the final report on any research project for which they had been responsible. Such minutes carried the author's name. The EOs were also involved in planning projects and experiments, given more chance to assist in work planning and target setting and, upon request, given time to follow up their own ideas.

Financial: EOs were authorized to requisition materials and equipment, to request analysis, and to order services such as maintenance.

Managerial: Senior EOs were given responsibility for a training program for their junior staff, were involved in interviewing candidates for jobs of laboratory assistant, and took part in staff assessment of their own assistants.

Results: Outcomes are reported only in general terms. It was felt that reports written by EO's compared favorably with those of scientists. One original idea that was followed up resulted in an important discovery with possible applications in certain kinds of national emergency. It was the feeling within the company that the members of the experimental group showed definite evidence of growth and improvement during the experimental period.

B. Sales representatives

There were 15 in the experimental group. The rest of the sales force (23) served as the control group. The following changes were made:

Technical: The sales representatives were relieved of writing reports on every customer call, but were required to pass along information when appropriate or to request action when it was required. They made their own records for staff review and decided themselves how frequently calls were to be made. Contact between sales staff and technical service department was direct, paperwork being cleared subsequently; service calls from sales representatives were given top priority.

Financial: Sales representatives were authorized to make immediate settlement of customer complaints up to $250, and to buy back

surplus stock. They were given a discretionary range of about 10% on prices of most products.

Results: The sales for the experimental group increased by almost 19% over the same period of time for the proceding year; for the control group, sales declined by 5%.

C. Design engineers

The sizes of the experimental and control groups are not reported. The changes:

Technical: Engineers were given greater independence; situations in which consultation with supervisor was obligatory was reduced to a minimum. Engineers were encouraged to become departmental experts in particular fields and to follow up completed projects as they thought appropriate. They made the choice with regard to outside consultants.

Financial: Engineers were given considerable latitude in spending money provided they adhered to the project budget.

Managerial: Engineers were involved in selection and placing of designers (draftsmen), ratified the allocation of any new hire to their jurisdiction, and made initial salary recommendations for their junior staff members.

Results: No statistical backup on results is provided, but the descriptive account indicates improved performance. The increased autonomy was well handled, with supervisors thus freed to give more time to technical development.

D. Factory supervisors (production foremen for one company, engineering foremen for another)

In this case, too, the size of the experimental and control groups is not reported. The changes:

Technical: Foremen were involved more in planning and were assigned projects on specific problems, such as quality control. Production foremen were authorized to modify schedules for loading and sequencing. Engineering foremen were consulted more about organizational development.

Financial: Both categories of foremen were given greater control of certain categories of expenditures.

Managerial: Foremen were given expanded authority with regard to hiring, disciplinary action (except for dismissal) and training. Engineering foremen, in addition, worked jointly with union officials in a job appraisement program.

Results: In only one instance was a dollar value placed on the results of this program; solutions advanced by foremen to long-standing technical and organizational problems resulted in estimated annual savings of more than $125,000. Beyond that, managerial personnel reported that the foremen in the experimental groups demonstrated that they were able to absorb their additional responsibilities creditably.

A significant part of this study was the analysis made and the conclusions reached:

1. Generality of Findings

   a. The findings of job enrichment studies can be applied to a variety of types and levels of jobs in a wide range of industries. The researchers believe that the findings are relevant wherever people are being managed.

   b. The scope for change is wide and the need is deep. Almost any type of job offers the potential for job enrichment.

   c. Meaningful results can be obtained in a variety of situations regardless of whether the job involves large numbers of people all doing the same work, or few people in highly diversified tasks. Managers reported that job enrichment programs made possible methods of measuring individual performance, which did not exist before, but which often led to better diagnosis of technical problems as well as

personnel problems.

2. Feasibility of Change

a. It is doubtful that any situation exists in which the operational risk is so high that it would be foolhardy to attempt to pass responsibility and scope for achievement down the line. Despite the fact that there were considerable risks involved in the experimental projects--particularly with respect to the latitudes given employees in terms of financial matters--no disasters were reported. "When a man is given the chance to achieve more, he may not take that chance, but he has no reason to achieve less. The message of both theory and practice is that people respond cautiously to new responsibility. They feel their way and seek advice. When responsibility is put squarely to a person doing a job, he is the one who wants and needs feedback in order to do the job.... Mistakes are less likely, not more likely, than before. Those which occur are more likely to be turned to account, learned from and prevented in the future, for they are seen to matter."

b. It is not necessary to make changes selectively despite the fact that people's ability and sense of responsibility vary markedly. "We are in no position to decide before the event who deserves to have his job enriched and who does not.... Some people who had been thought to be sound and

responsible under the old conditions, turned out merely to have been yes men once those conditions were changed; their performance was the same as it had always been, but now compliance was no longer valued so highly. At the other extreme was a classic example of an awkward employee about to be sacked, who turned out to be unusually inventive and responsible when he was given the opportunity to be so.... When changes are made unselectively, the genuinely good performers get better. Some poor performers remain poor, but nothing is lost."

c. Not all employees are uniformly receptive to a job enrichment program, but this lack of enthusiasm on the part of some is not likely to impair the program itself, nor to diminish the level of performance of either those who are receptive or those who are apathetic.

d. The imposing of new responsibilities upon employees does not inevitably lead to demands for higher pay or better conditions. There is not necessarily a price tag attached to changes in working practice. "Higher pay may temporarily buy more work, but it does not buy commitment."*

*On the other hand, if a job enrichment program does in fact result in sustained significant increases in productivity and profitability, why not share this increased harvest with all concerned, including customers?

e. Participation is not necessarily the route to motivational change. These researchers are quite convinced that the employees themselves should not participate in deciding what changes are to be made in their job.* The researchers do not totally dismiss the value of participation as a component of job enrichment, but feel that meaningful participation consists of consultation sought by the employee with his superior. "In consultation upward there is no ambiguity; tasks and roles are clear. Both parties are motivated, the subordinate by the need to make the best decision to satisfy himself, to justify the trust placed in him, to enhance his professional reputation; the manager by the need to develop his staff." The researchers believe conversely that when management seeks consultation from employees it is often a patronizing gesture, or an attempt to lend credibility to a job enrichment program which is not essentially a valid one. "Participation is indeed the best route to motivational change, but only when it is participation in the act of management, no matter at what level it takes place. The test of the genuineness of that participation is simple--it must be left to the subordinate to be the prime mover in consultation on those topics where

*As we have noted earlier, most other researchers disagree with this observation and cite evidence to support the view that employee participation in job changes helps to support and implement those changes.

he carries personal responsibility. For the manager as well as for the subordinate the right to be consulted must be earned by competence in giving help."

3. Expected Consequences of the ICI Experiment

a. Despite the many potential difficulties associated with job enrichment programs, it can be expected that the gains will be significant rather than only marginal. For example, it was estimated that in the experimental programs reported above, the annual savings would be more than $200,000.

b. Contrary to some people's expectations, the gains from the programs related primarily to performance rather than to job satisfaction. In the opinion of the researchers, this is accounted for by the fact that performance gains can be measured immediately, whereas changes in attitudes tend to be delayed. They express confidence that ultimately the job satisfaction gains also would be appreciable.

c. The fact that the jobs of subordinates were enriched does not necessarily mean that the jobs of supervision became impoverished. Rather, the supervisors found that their time was free to do more important work. "Fear that the supervisor may somehow miss out are based on the premise that there is a finite pool of responsibilities in the organization

which is shared among its members. In practice, new higher-order responsibilities are born."

d. The researchers see a new role for management as one of the consequences of motivational change. "The main consequence is that management becomes a service. Its purpose is to enable, encourage, assist and reinforce achievement by employees. Task organization and task support are the central features of the manager's new role."

In September, 1972 Business Week,* in a special issue on productivity, took a look at experiments at Imperial:

ICI breaks its bottlenecks

By giving blue-collar men more self-respect, it raised morale and productivity

"It was a real sweatshop before, with the management up there, us down here, and those bastards, the supervisors, in the middle," says a local union leader who has worked 20 years for Britain's Imperial Chemical Industries (ICI). "We have proved that we don't need supervisors, and we have proved that work can be more than just a pay packet at the end of the week."

This is a pithy summary of one of Britain's most successful and far-reaching productivity programs, involving all the giant chemical company's 55,000 workers in 75 British plants. For blue-collar workers paid by the week, the scheme, called simply Weekly Staff Agreement (WSA), aims at removing restrictive work practices that are as much a part of the British workingman's way of life as the corner pub is. In return, ICI, traditionally one of the most paternalistic of all British companies, offered its men wage increases up to 22% and, perhaps more important, self-respect through greater responsibility for their own performance.

In the four years since the plan was launched at ICI's Gloucester nylon works, the lines of demarcation between jobs have been broken as never before in British industry. In many cases, men program their own work day and check the quality of their own output, eliminating the need for supervisors. Distinctions between blue-collar and white-collar workers have been lessened by payment of factory workers on a weekly instead of hourly basis. Time clocks have been abolished, and workers take tea and lunch breaks according to their individual work schedules. For an added touch of dignity, special rooms have been built on the shop floors where men may smoke, talk, read newspapers, or even sleep. Before, the common resort for a break from work was the lavatory.

Running the plant

"We now feel that we are close to actually running this plant and not just doing work according to a rigid schedule," says a union official at one ICI unit. "There is a real dialogue between the shop floor and management." Before signing the WSA in each plant, all the workers took part in discussions of its terms.

For ICI, the full benefits have been blurred by Britain's general business slowdown and the company's overcapacity in many plants. When the company put together the package, according to Edgar Vincent, an ICI industrial relations executive, it figured that a 15% productivity increase would be needed to offset the salary increases. Beyond that, ICI looked for additional benefits from better plant utilization and less downtime.

So far, the company is getting a productivity improvement of about 11%, according to John Miller, national secretary for chemicals of the Transport & General Workers Union, which represents most ICI workers. Vincent declines to give a figure, but he says the company as a whole expects to reach the breakeven point of 15%, "or very close to it," by the end of this year. "In better times, WSA might well have been paying for itself by now," Vincent adds. "We are still running a more efficient operation." Without the program, he makes clear, ICI's profits would have fallen even further than last year's 6.5% drop.

The plan works better in the social and economic context of some areas of Britain than it does in others, Vincent says, and better in plants that use continuous processes. At Gloucester, which does not have a long history of bitterness in labor relations like that of areas such as Northeast England, plant chief Harry Penny reports productivity gains of up to 25% in the fiber operation.

Cracking the work barriers

The staff agreement includes a five-point program for getting rid of restrictive practices that have long plagued British industry. Process plant workers, for example, can now do simple maintenance jobs that once required shutting down a machine and waiting for an engineer. Maintenance engineers can now do welding. It is no longer necessary for an engineering craftsman to wait for an electrician to pull the fuses in a machine and make simple connections in motors. And ICI now has a flock of multipurpose workers who can do triple duty as builders, painters, and joiners. For doing these additional jobs, the men are graded in higher labor brackets and are paid higher salaries.

The sense of greater responsibility and involvement on the part of workers has been matched by a change in management attitudes. Penny admits that his own managers were "startled" by the number of new ideas for improvements that came from the shop floor.

"Management throughout the entire company has had to go off and reconsider its attitudes toward the men," maintains Penny. "When you open men's minds, as WSA does, lots of discoveries are made." He continues: "Once those minds are open, you can't close them, either. You have to find new ways of maintaining the dialogue, or you're in trouble."

Union officials have already given ICI plenty to think about. They have told management that the next logical steps are to develop a new system for promoting men from the shop floor, provide more operational and financial information about the company, and introduce workers on the board of directors.

* Business Week, September 9, 1972, 119.

Olivetti*

Office-machine maker Olivetti has gone much further in reorganizing its operations to fit them to workers' needs, and it is reaping substantial benefits in increased productivity. As far back as 1961, the company became concerned over signs that dissatisfaction of workers with monotonous jobs was affecting productivity. "We found lots of nervous tension among workers on the assembly line," says Federico Butera, chief of Olivetti's Office of Sociological Research. "Too frequently, assembly-line workers were asking for job changes. Absenteeism started to creep in. We came to the conclusion that we had to have job enrichment, and this had to take place within a general reorganization of the manufacturing process."

Starting in 1967, Olivetti formed three-man teams in its machine shops who rotated in the jobs of setting up machine tools, operating them, and inspecting finished pieces. In addition, workers were shifted from one machine to another, so that they learned how to operate different tools. Later, when Olivetti introduced numerically controlled machine tools, workers were trained to read designs and handle computer tapes. "From being a dull job, machine tool operations became a real profession," says an Olivetti executive. The result was a dramatic improvement in the quality of work and a sharp drop in rejected parts.

In a second project, Olivetti formed teams of workers to build modules such as keyboards and printers for its new Auditronic accounting equipment when the line was introduced in 1969. Each team was placed around a table, and each worker was given a job lasting up to half an hour, instead of the traditional assembly-line operation taking only a few minutes. Each worker was made responsible for testing his own work.

The system, now applied throughout the Auditronic manufacturing system, has given Olivetti great flexibility in a high-technology field that involves frequent changes in the product. Under the traditional assembly-line system, it took months to introduce innovations. Partly finished machines were stacked up in warehouses, and workers, accustomed to performing single operations, were difficult to retrain. Indeed, Olivetti found that after the age of 45, assembly-line workers had difficulty learning anything new. In Italy, where it is virtually impossible to fire anyone, this left the payroll burdened with unproductive workers.

The Auditronic project has raised the quality of work, reduced absenteeism, and eased the problem of fatigue. "Each worker sees what he is doing, has a feeling that he is doing something meaningful, and can see the final product," says an Olivetti executive. And, since each worker is trained to do the jobs of others in building the modules, an absent worker can easily be replaced. Now Olivetti is experimenting with teams to build entire modules such as memories and printers for electronic desk calculators and install them in operations lasting up to an hour. Olivetti figures the latest program has raised productivity 15%, chiefly because rejects are fewer.

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* Business Week, September 9, 1972, 113.

QC Circles in Japan*

One movement which has contributed to an impressive increase in productivity in Japanese industries is the phenomenon known as QC (quality control) Circles.

These groups of workers, initially concerned solely with quality control, now have expanded their activities. The QC movement started in 1962. Within five years 10,000 circles were reported in operation and, among the companies where the circles operated, $30,000,000 worth of improvements had been achieved.

The significant characteristics of a QC Circle are:

1. The membership is made up entirely of non-management people. No one above the rank of foreman is included and most of the people are workers at the operator level.
2. Membership is voluntary.
3. The activities of the circle are carried out outside of regular working hours.
4. Compensation for the time spent on QC activities ranges from full-time to no compensation at all.

Management devotes considerable effort to train workers for their added responsibilities: books, audio-visual devices, discussion of cases worked out in other companies and discussions of internal quality-

* J. M. Juran, Industrial Quality Control, January, 1967, 329-336.

control problems, both those which have been solved and those that are yet unsolved are all used. Since 1962 there has been an annual Foremen's Quality Control Conference held in Japan; one of the rewards of companies achieving success through their QC Circles is the privilege of presenting their case material at these conferences.

Says Juran:

> Beyond improvement of control, a gratifying proportion of the projects are of a breakthrough nature--by systematic study they take the department to better levels of performance, levels not previously attained.
>
> The intangible by-products of the foregoing results are evident but not measurable:
>
> - the foreman's ability to control and lead his department is increased....
> - the operators have greater interest in their jobs and a higher morale....
> - the relationship between the staff people and the line workers has improved noticeably....
> - there is being developed on the factory floor a generation of workers with successful experience in the use of what have today been regarded as management tools....

In projecting the broadening of the QC Circles, Juran, in the 1967 article summarized here predicted that this movement would extend into improvements in cost, safety and productivity as well as quality, and would strengthen relationships between the company and the employees. At the same time he was skeptical that this kind of participation could work in Western industry. Juran cited the difference between Japanese

orientation to work and what he considered the prevalent attitudes in the U. S. and in other industrial countries in the Western world. The priorities of the Japanese worker were, in his judgment:

1. Improving the company's performance
2. Self-improvement
3. Recognition
4. Creativity amid boredom
5. Money incentives

According to what was indicated in Chapter I of this paper, these priorities are not as markedly different from those of American workers as might have seemed in 1967.

Juran defines the differences between QC Circles and more conventional motivational plans:

Elements of plan	As practiced in Conventional motivational plans	As practiced in QC Circles
Choice of projects	Left up to employee to identify his own project	Some projects identified by management; others identified by the QC Circle
Training in how to analyze a project	None provided	Formal training program provided. Out-of-hours; voluntary

Elements of plan	As practiced in Conventional motivational plans	QC Circles
Analysis of the project	By employee himself or with such aid as he can muster; otherwise by formal suggestion which is analyzed by someone else	Analysis is by the QC Circle, out-of-hours, using training tools previously provided
Payment for time spent	None	Varies from no pay to full pay for hours spent
Payment for successful idea	Definite payment varying with value of idea	No payment. Indirect effect on company profit and resulting bonus which uses one formula for all employees
Non-financial incentives	Opportunity for creativity and recognition; pride of workmanship	Opportunity for training; opportunity for creativity and recognition; membership in a group; response to company leadership

The QC movement is still functioning effectively in Japanese industry. In Business Week's special productivity issue* it was reported that Nissan Motor Company workers are organized in such teams. During the past five years, according to that account, the company has cut its unit manpower requirements in half and, in one plant alone, cost savings as a result of these worker circles were estimated at $350,000 annually.

* Business Week, September 9, 1972.

CRYOVAC Division, W. R. Grace & Co. *

This case study is based on the startup of a new plastic extrusion and converting plant. What makes the case particularly interesting is the switch that came after the first year of operation. Since it may offer a possible model type of situation, we are presenting the history in considerable detail.

In 1968 the CRYOVAC Division of W. R. Grace & Co., headquartered in Duncan, South Carolina got corporate approval to construct and to staff its first West Coast manufacturing facility at Camarillo, California. At that time Division Management made a key decision: all employees in the plant would be placed on salaried status, with salaried fringe benefits programs applicable to everyone. The traditional dichotomy between hourly and salaried workers which relegated production and maintenance employees to restricted coverage and protection was to be eliminated. A special advisory committee made this decision after careful analysis of hoped-for results and the major risks, and after talking to several U. S. companies which had converted units to an "all on salary" program.

After a year of operating under this new arrangement, the evidence suggested no real changes had resulted. And so, the Camarillo management took a

* J. E. Powers, Director, Employee and Community Relations, "Empirical Case Study for Transition to More Meaningful Work," presented at the International Conference on the Quality of Working Life, Arden House, Harriman, New York, September, 1972.

hard look at where they were headed.

In 1969, David A. Whitsett, a management consultant retained by CRYOVAC, pointed out that "a salaries-for-all program, if it is inserted in an otherwise authoritarian management system, will yield not positive, but rather disastrous results. In the cases in which salaries-for-all systems have been extremely successful, it has been as a result of an attitude in the employees generated by the overall level of responsibility they are given rather than as a result of the compensation program alone."

As CRYOVAC director of Employee and Community Relations J. E. Powers states in his paper:

> Whitsett was asked to help us pull ourselves back on the right track. At the request of the writer, Whitsett was asked to obtain the services of an individual who had experience in technical processes, such as CRYOVAC, in order that a technically oriented top management would be more comfortable with the Camarillo experiment.
>
> In March of 1971, to the credit of Whitsett, Dr. Louis E. Davis, an international consultant in job design was introduced to the Camarillo management. Through the combined experiences of Davis and Whitsett, and with the assistance of a number of key CRYOVAC managers, in three continuous days (and nights), a dynamic method for redesigning jobs was developed which incorporated the best of the behavioral scientist and socio-technical systems approaches.
>
> As an introduction to a more detailed report on the merger of these systems, a brief analysis should make the specifics better understood. A good way to explain coordination of the Whitsett approach with Lou Davis' would be as follows:
>
> > Job enrichment is a strategy for more fully utilizing the talents and competencies of employees by placing in their hands as much decision making and responsibility as they can handle. It has been found to be motivating and

satisfying to employees as well as very productive to companies. Lou Davis agrees entirely with the philosophy and process of job enrichment and he adds the following dimension.

He points out that in a high technology situation in which we are interested in turning over decision making and self-control to employees, in the hopes that quality and productivity will improve, we need to be very certain what the sources of variance in quality and productivity really are. Many of these sources of variance lie in the technological system. Davis suggests that the most meaningful and most potentially productive kinds of responsibilities to be turned over to the employees are those which help them recognize and control the major sources of variance in their job situation.

He has used successfully a process of variance analysis in which a particular source of variance is identified, is shown to be a "key" source of variance, and then the following questions are asked about that source of variance:

> Where in the process does the variance occur?
> Where is it observed?
> Where is it controlled?
> By whom is it controlled?
> What tasks does he have to do to control it?
> What information does he get and from what source to enable him to carry out these control activities?

The answers to these questions then lend to a suggested change in job design which conforms in every respect to the criteria for "enriching" job changes, with the added advantage that we now know that what we are offering the employee is the opportunity to control significant variables in his own job situation and we can, therefore, not only expect significant improvement but we can hold him clearly accountable. The power of these two strategies when they are combined is, in my judgment, tremendous.

In his opening statement to the CRYOVAC managers, Dr. Davis asked:

> "If the jobs are regulation and control jobs. . . where are the variances (or variables) in the situation? Where do they come from? How does the social system control them? How can we put more control in the hands of the job incumbents?"

His answers to the last question result in enriched jobs although he used such phrases as "autonomous jobs" in which employees

"regulate and control their own worlds."

As the discussions developed, Davis related to the technical processes sharing many experiences about people being "adaptive" and being able to solve problems. He drove home a significant point that you cannot give an individual self-control if the knowledge is not available that is necessary for self-control.

Introducing new terminology as the socio-technical method was explained, Davis challenged the group with still another question:

"What are the obstacles that prevent people from doing better?"

And with this answer the Lou Davis approach was revealed and accepted as a desirable companion for the enriching method. The following six steps provided the basis for exploring the heart of a segment of the manufacturing process:

(1) Search for sources of variance;
(2) Gather information about predicting and working with the sources of variance;
(3) Look for "boundaries" (i.e., job/department lines) which cut through these information sources;
(4) Decide how to get the information necessary for self-control to the people. (Put the constraints aside for awhile, e.g., wage structure, overtime, job evaluation systems, company policies, etc.);
(5) Set up the mechanisms to do it;
(6) Do it.

Any idea generated from the above must contribute to these factors:

Requisite response capacity - i.e., would the change increase the individual's capability to respond? Would he know more that is useful? Would it increase his access to the sources of variance?

Equi-finality - Would this change give the individual the decision making power freedom to use the knowledge described in requisite response capacity?

With the new method of examining the variables in the process beginning to take hold in the minds of the participants, the logical step was to develop a procedure for combining the brainstorming job enrichment approach to the technical system analysis. Listed below are the factors for combining these forces:

(If the answer to any question is "no"--discuss ways to modify the idea to make it "yes.")

A. Existing Items

1. Is it a change in the task content (as opposed to a change in environment--i.e., does it change what he does?)
2. Is it motivating? i.e., would it . . .
   a. make his task more complete-- would it help create a module?
   b. give him more feedback on how he is doing?
   c. give him an opportunity to learn something new?
   d. be an increase in decision making and/or self-control?
   e. be an increase in challenge level, i.e., require a higher skill or competence level?
3. Would it give him access to a source or sources of variance (in either the technical or social system) i.e., would it help him to know about, recognize or determine that there is a variance and how much?
4. Would it contribute to his capability of controlling or regulating that variance? i.e., would it give him a mechanism to control or act on that variance?
5. Would it give him the opportunity to exercise that control? i.e., would the suggestion give him the authority to act?

B. Identify the key sources of variance (use the following procedure to do so).

1. Identify unit operations (follow the process).
2. Identify sources of variance associated with each unit.
3. Develop a matrix.
4. In each cell you indicate the effect (develop a code) of each variable on the other.
5. Variables that:
   a. inter-relate with lots of others) are key variables
   b. flush through to output

C. Having identified a key source of variance, ask the following questions about each source:

1. Where does it occur?
2. Where is it observed?
3. Where is it controlled?
4. By whom is it controlled? (role, not person)
5. What activities are engaged in by that person to effect the control?
6. What information does he use to effect that control?
7. Where does he get that information?
8. Hypothesize changes in job design.
   (Each of these hypotheses becomes an "item" which we subject to 1 and 2 under the "existing items" category.)

Perhaps this marriage of controls can best be described by Dave Whitsett's memo to the writer which was written immediately after our initial meeting with Dr. Davis. Dave states:

> "Lou evaluates ideas for change as to whether they affect the variances isolated, i.e., can we expect the change to have impact on one or more of the identified sources of variance? - or in other words - if we let that idea be part of his job, will he be able to have an effect with it? - will he, in fact be in greater control?
>
> It may be that these amount to the same thing. However, combined they may be more powerful than either is separately.
>
> > e.g., there may be changes that are 'motivating' but which do not qualify under Lou's terms and therefore produce no measurable outputs in quality, quantity, etc. - but may influence turnover, absenteeism, etc. (joint-optimization - social system technical system)
> >
> > OR, perhaps those changes which seem motivating on paper but do not turn out to produce good results of any kind are those which would not qualify under Lou's terms because they don't affect variables and therefore the person does not achieve.
>
> The two, together might ask a very powerful combined question - e.g., Will this change be "motivating" to the individual and will it, in fact, enable him? (to become more effective?)
>
> We say it isn't motivating if it does not truly enable him but we don't really have a good handle on what things are enabling and what aren't from a systems point of view. Lou's stuff gives us that and perhaps much more."

A Job Is Born

With a greater awareness of our opportunities and a full commitment of the Camarillo management, the decision was made to utilize the new procedure which they had assisted in developing.

For our initial try at job redesign, a single department was selected. It had the largest number of employees in the facility and contributed the greatest process cost to the product: here, we believed, was an area where our probability of success was good and the impact of the program would be highly visible.

We established a committee of the entire management of the department, a superintendent and three first-line supervisors. We covered the department with supervisors from other areas of the plant to free the committee for three full days to learn the redesign philosophy and procedures, and for one full day each week for approximately 25 weeks thereafter.

Putting aside constraints such as established policies and rules, the committee members first brainstormed means of making the jobs challenging, and came up with over a hundred ways to expand job responsibilities in just their first hour together. A list of these ideas was put in hold status for further review after the next step had been completed. That was the identification of variables to be considered.

Since this department was at the tail end of the entire process - extrusion, printing, and bag making - a great many variables were pinpointed. The original list became so long that a reduction to 148 key variables was necessary before the real work could begin. Then these variables were further refined to 48 "super" variables, which were analyzed individually by finding answers to the basic questions associated with the study of the variable.

When all the answers concerning the variables were in, they were pooled with the brainstorming ideas to develop jobs that met these specifications:

> First, they contained a complete piece of work (module); the person who was doing it could see clearly the beginning and the end.
>
> Second, the person doing the job was given most of the decision making and control over how he completed the piece of work.
>
> Third, the person doing the job got constant feedback on how he was doing from the job itself.

Once the jobs had been designed, an implementation plan was developed to assure a gradual transition to the new way of doing things.

The great challenge during the transition was training. Criteria were established for a six-step skill development that would qualify an individual employee for an operator assignment. This meant individual development plans for each employee, which have since been translated into individual salary plans.

A Good Job Gets Results

We are measuring the effectiveness of these changes by feeding information into the computer on a monthly basis, covering costs, quality, absenteeism, turnover, job satisfaction, and other factors. As a side study, identical information is being collected from two of our other plants with similar processes, one a union plant in Iowa and the other a nonunion plant in South Carolina. Specifically, there are 64 individual measurements each month. No formal attempt has been made as of this writing to prepare an overall statistical analysis. This will not be accomplished until the end of 1972, when adequate experience, including fluctuations of production requirements, will permit a more objective analysis between the three locations, as well as the Camarillo progress itself.

Some interesting observations can be made at this time in regard to the Camarillo facility:

> A comparison of cost data for the first quarters of 1971 and 1972, in the department under formal study showed an improvement in the units produced per direct labor dollar of approximately 25%. Part of this would have been achieved through the normal maturation of the plant, but there is no way to really put a figure on this.
>
> For more than a year now, this operation has produced the best structural quality product at a time when the quality control function was decreasing dramatically in number and while transitioning to a line responsibility.
>
> The Regional Sales Manager has stated that the service from this facility is the best he has witnessed.

The traditional separation of maintenance and production units has been presently changed to give production maintenance responsibilities to the operating people.

Females who were originally inspector-packers are now operators with complete responsibility for a single machine. This responsibility includes loading of rolls of plastic tubing, machine setup and adjustments, and routine maintenance tasks.

During the transition of jobs, only one employee resigned.

Other departments have pushed to get their areas included in formal studies. Even before the formal approaches could be started there were changes occurring in the design of jobs in other areas. After one such change in the printing department, this facility received a special in-company print quality audit award (the best of four plants) for six consecutive periods.

Additional information is being compiled through the utilization of two specific employee surveys. One of these is a general attitude survey covering thirteen categories which are determined by employee completing a questionnaire. This particular survey has been administered to more than a million employees throughout the United States and has been used by CRYOVAC since 1964, therefore, excellent norms are available. As of this writing, the first survey of this nature is being conducted at the Camarillo facility.

The second survey is also in the form of a questionnaire.

The data obtained is reported in nine categories specifically selected to an employee's job. These are as follows:

(1) The work itself is interesting. Items include references to work as being interesting, something to which a person looks forward, enjoyable, satisfying, and not something that is distasteful, boring, or monotonous.

(2) The job is not wasteful of time and effort. Items indicate that the job is organized so that it is easy to carry out, and does not involve parts that could be eliminated, organization that leads to wasted time or effort, and things that do not make sense.

(3) I do not feel the need for more freedom in planning the job. The opposite statement of this possibly conveys the meaning of the score better: With more freedom I could do the job better. (Emphasis is on need for freedom.) Items involve content of one's freedom in planning or doing work to organize it effectively, to accomplish objectives, and to use one's capabilities fully.

(4) I have reasonable say on how my job is done. The items in this score emphasize content on how the job is carried out when things are done, and opportunity to arrange one's schedule.

(5) The job provides opportunities. Items in this score include the content of opportunities for individual recognition, opportunities to learn, opportunities for advancement, and the job not being a "dead end."

(6) The job provides feedback. Items emphasize the ability to know whether one is doing well or poorly, having enough information to control own work process, getting enough information to allow one to correct errors and improve performance, and being satisfied with the way feedback is gotten.

(7) The job is not too closely supervised. Items include content of not feeling the job is too closely supervised and things are not checked unnecessarily.

(8) The job is worth putting effort into. Items involve the content that putting effort into the job will affect things, that it is worth the effort, that one is more than a cog in the machinery, and that trying to do a good job gets somewhere.

(9) Feedback from superiors does not involve awkwardness or tension. Items emphasize the content of the relationship between the respondent and superiors, particularly with reference to feedback situations that, rather than provide knowledge for use in control and improvement of performance, are embarrassing, awkward, tense, or put the worker "on the spot."

In-company norms are being developed as this survey is utilized in several plants. At Camarillo, reference points were established prior to the changes in jobs. An additional survey will be completed near the end of 1972, to measure the changes as perceived by the employees. At the same time, the survey will be administered at the other two plants with similar processes to determine the reaction of employees in those situations.

Motorola*

The Communications Division of the Motorola Corporation reports several successful innovations in the field of employee motivation. One represents a departure from the normal assembly procedure in the manufacture of a radio pocket pager. This innovation has resulted in employee job enlargement, increased efficiency and better use of facilities layout.

Before the introduction of the new method, as many as 100 different individuals played a role in assembling, testing and packing each pager. Today, one technician assembles, tests and packs each pager by himself. This is made possible by a new design technique, and a dramatic reduction in the number of components needed in the new paging device (80 parts compared with 210 parts in the earlier pager).

The direct involvement of a single employee in the completion of a finished product results, according to a Motorola spokesman, in "a turned-on group of individuals who enjoy their work and have a great deal of pride in their product. The key is involvement. If we're to achieve the quality and performance that our sophisticated customers demand, we must attract and keep bright, interested people and it is very difficult to be interested when you're inserting three or four parts into one printed circuit board after another."

*From material supplied by Motorola

The new manufacturing process revives a long-lost art: pride of workmanship. Now the assembly technicians have a true sense of relationship with Motorola customers. They are accountable for 75% of the final product and 100% of all line responsibilities. Compare this to the 1-5% accountability under the old assembly procedure. Thus, the assembly technicians identify with the customer (the technician's name is enclosed with each pager shipped), and increase their growth and learning skills through job responsibility. This responsibility, together with a sense of personal achievement and recognition has produced such benefits as improved quality, increased productivity, reduced employee turnover and absenteeism.

Upgaits or downgaits can now be made at a moment's notice since no line rebalance is required. Depending on the number of factory orders, assembly technicians can be easily added to or subtracted from the production area. This saves thousands of dollars previously lost in indirect and direct labor costs due to regaits.

Another advantage is that inventory is reduced. Because the process begins and ends on the same line, no finished goods inventory is required. This allows a reduction in the piece parts inventory as well, freeing previously frozen working capital. All work is now programmed toward the completion of a specific factory order. Consequently, the delivery cycle to the customer is substantially shortened.

Motorola admits there are problems associated with the new type of assembly. It is necessary to provide the assembly technician with supplementary training to familiarize him with all facets of the job. And, since there is no finished goods inventory, it is less possible to make a timely shipment at the convenience of a customer. In the judgment of the Motorola management, however, the advantages far outweigh the disadvantages both in terms of human relations and cost considerations.

In another employee motivation project, Motorola sought to recapture the family spirit which it felt was somewhat eroded by the fact that its employees now number in the thousands. Motorola was eager to test the management principle that most people are capable of contributing far more than what is required. To test this operationally, the company formed a team project using the creativity of the individual and the team to find solutions to problems through involvement rather than imposed change.

The program was introduced when a new line of operators was trying to build a complicated receiver without previous experience. Many problems resulted. It looked as if it would be necessary to shut down the lines completely. Supervisors and highly specialized engineering personnel had worked long and hard to find a solution without tangible results. So the operators were brought into a session to see exactly what the problems were and how they could be solved.

One major quality problem was to eliminate small metallic particles within the electrical circuits they were building. These particles caused short circuits making the entire circuit inoperable. Some operators used air hoses to blow out the particles, others used small brushes. Neither method was totally effective.

After intensive discussion on possible solutions, the workers suggested using an air hose with a brush attached to the nozzle. It worked. The problem was solved.

From this small experience with successful participation, a sense of group cohesion developed. The ten women on the production line became eager to join in the problem solving. Regular team meetings were scheduled. The ten women decided to take responsibility for tracking their own performance. And they developed a method of recognition for the members whose performance was outstanding in such areas as attendance or quality excellence.

Today there are more than 100 such teams in Motorola's Communications Division. As team members, employees have the opportunity to talk and be involved directly with managers, engineers and other employees. Within the general framework of bettering themselves and improving daily operations, teams set their own goals, measure their own performance, solve their own problems and, when the results are good, share in the feeling of accomplishment.

Each team elects a captain to help monitor and measure its effectiveness. The captains keep records of their reports and lead discussions on quality, cost and attendance. In each major performance area, some goal or resolution is set by the team so that during the month they can work to improve themselves. Because the experience gained by a captain is invaluable for personal growth and understanding, new captains are selected every three to four months.

Each team is encouraged to determine in what ways meeting times can be best utilized to help in accomplishing its goals. This includes such things as viewing training films, talks explaining functions of other departments, plant tours, the operation of a completed radio communications system and discussion with support groups.

At Motorola management involvement started from the very top. A motivational development department was organized under the direct control of the Vice President of Operations to service the entire Communications Division. Without the sustaining force of management's commitment and involvement, any lasting application would be impossible. Seminars were developed to give management a better understanding of motivation in terms of philosophy, principles and concepts. Though not all members of management were immediately converted, the end result has been that a climate supportive to real motivation has emerged.

Some tangible results of the team program:

1. Production output has improved more than 30%.

2. Turnover has decreased an average of 25% for groups operating as a team for at least six months, compared to non-team groups.

3. Rejects, which ran between 30 and 40 per month, are now almost nonexistent among the team workers.

4. Average attendance has increased to 95% or more on most teams. Many teams consistently run above 97%.

A Motorola spokesman comments:

> Today's employees are no longer content with a job that doesn't provide opportunities for expression of ideas, self-fulfillment, social activity and participation in planning and controlling their jobs. The emphasis has been placed on the total work experience rather than a specific job. Work has been enriched to include the whole person and not just his mechanical skills. The feelings, ideas and attitudes of the employee are receiving increased attention.

Texas Instruments*

A project carried out at two divisions of Texas Instruments located in Attleboro, Massachusetts involving approximately 1,500 employees.

The essence of the program was a continuous cycle of meetings by a group of workers and their supervisors. At each meeting problems related to the work were identified, and one or more members of the group--either supervisors or workers--were assigned responsibility for solving these problems. In addition, reports were given by members on the progress made in solving problems identified at earlier meetings.

The objective of these programs was to increase the motivation of the workers. As those identified with the project stated: "The motivated worker can assume a part in the managerial functions associated with his job. He can share in planning, organizing and controlling the work he does. His increased understanding and achievement, and especially his increased mental stimulation, combine to boost his morale and his company's profit."

The first step in launching the project was to enlist the sustained commitment of management. High-level management at Attleboro had the theoretical concepts underlying the proposed program explained to them in detail.

* W. Roche and N. Mackinnon, "Motivating People with Meaningful Work," Harvard Business Review, May-June, 1970, 97-110.

The next step was to familiarize supervisors with the new, less authoritarian style expected of them, and provide them with the training necessary to carry out the style. Since supervisors would be called on to assume a new role as participants in the problem-identification and problem-solving conferences, it was recognized that they would be asked to behave in a manner quite different from what was expected of them traditionally. The "emerging" style of supervision needed for this sort of motivation project was outlined as follows:

1. The manager works with his subordinates to identify and resolve work-related problems and guides and assists them in setting the standards and goals rather than dictating the goals, designating the basic methods of achieving them, and defining standards for quality and production.

2. The manager helps his subordinates set their own goals using their motivation as leverage, rather than using persuasion or other traditional methods of leadership to move his subordinates ahead.

3. The manager encourages his subordinates to evaluate their own performance, provide recognition for achievement and promote open discussion of failures, rather than doing his own evaluation of performance in a judgmental fashion.

4. The manager provides the opportunity for his subordinates to develop and grow at their own pace, rather than taking the initiative in stimulating the development of skills among his subordinates, and stressing the promotional opportunities only for the successful ones.

5. The manager attempts to interpret rules logically and to explain the consequences of violating them, instead of disciplining subordinates for infraction of rules and for poor performance.

6. The manager encourages his subordinates to develop and install their own innovations, rather than imposing his new way of doing things upon them.

Texas Instruments has no overall information on results of the programs in terms of attainment of specific productivity goals, but they were reported successful in terms of group morale and company profit.

Not all groups did uniformly well during the two-year period. The pattern here seems to be all-or-none. Groups either made spectacular gains or manifested a pattern of failure within the first three months of the project. Some of the workers were uncomfortable in their new roles--as were some supervisors. The supervisors had to take the initiative in helping workers identify problems, convincing them that they could really speak candidly and openly to each other and to the supervisors and providing them with the assistance that they needed to solve the identified problems between meetings.

It was very important that the supervisor performed in relation to the problem he and his group had undertaken to solve so that the program became credible and the workers could see that the supervisor's participation and cooperation could be relied upon. A period of time usually was needed, devoted solely to problem solving before the group had enough confidence to undertake goal setting. Here, too, the supervisor had to provide confidence and initiative. It was very important that, at each meeting, everyone who had been assigned a responsibility for a problem was given the opportunity to report on it, so that nobody's efforts seemed to be discounted or belittled.

The following is quoted from the concluding section of the experiment:

The supervisor must:

1. Induce his work group to participate in identifying and solving problems, recording successes and improvements, and setting goals.

2. Make sure that the whole problem is solved in each case.

3. Make sure that the goals set are both attainable and challenging.

4. Work with the group to develop meaningful criteria for measuring its impact.

5. Report conscientiously on his own project and make sure that his workers report on theirs punctually.

Some ingredients for failure are also easy to list. They are:

1. Using short-term factors to measure management effectiveness.

2. Encountering supervisors' resistance to the change in management style.

3. Letting the meaningful work approach be viewed as "just another program."

4. Training the supervisor inadequately.

5. Concentrating on problems in areas over which the team has no control.

6. Setting unattainable goals.

7. Allowing early disappointments to discourage teams.

8. Allowing the supervisor to fail to follow through after problems have been identified.

In 1967, another Texas Instruments study was conducted at the company's headquarters in Dallas, where cleaning and janitorial services are

contracted for with an outside building maintenance firm. TI's facility engineers evaluated the quarters as only 56% clean. The contractor's ability to do the job was aggravated by a quarterly turnover rate of 100%.

Preceded by careful planning and training, the following actions were taken in a test site with 120 maintenance personnel:

- Cleaning service teams of 19 people were organized with appointed supervisors. Each team was given a voice in the planning, problem solving and goal setting for its own jobs.
- The whole group was held accountable for the overall job, but the means of getting the job done was left to the teams. It was their responsibility to act independently, devising their own strategies, plans and schedules to meet the objectives.
- As individuals and as teams, the people were taught how to measure their own performance and were given the freedom to do so.

Although only economic results were measured, the outcome in human terms can be inferred from the drop in the turnover rate:

- The cleanliness level rating improved from 65% to 85%.
- Personnel required for cleaning dropped from 120 to 71.
- Quarterly turnover dropped from 100% to 9.8%.
- From the fourth quarter of 1967 until the fourth quarter of 1969, costs savings for the entire site averaged $103,000 a year.

In a further study, undertaken to cope with the many defective products coming off the assembly line, TI decided to delegate responsibility and authority for quality control down the ranks. Time clocks disappeared. The workers on the assembly line, who formerly had learned to perform

small tasks, were reorganized into teams of seven, each team responsible for producing a complete instrument. Distribution of tasks was left to mutual agreement.

Under the new system, man-hour productivity reportedly increased by 30% while customer reports of defective instruments decreased by 70% and absenteeism fell to half the local average.

Insurance Company Enrichment Trials*

Early in 1970, a large insurance company developed an interest in job enrichment, a concept that the work itself can motivate the workers.

Two objectives of the job enrichment pilot study team were to test new approaches for the implementation of output of an Operations Improvement Program, and, at the same time, to improve the quality of work, to reduce absenteeism and turnover through the design of more interesting and meaningful jobs, and to improve the job attitude of the general work force. A system was established to appraise each category for measurement purposes.

Selection of the test area was critical. The area had to have two similar operations for the purpose of comparison between the experimental and control groups, and it needed a progressive management that would be willing to accept changes. The trial started in July, 1970 and was completed in July, 1971. One location was chosen as the experimental group, while a second location remained as a control group (with no job enrichment applications).

The results of the experiment were dramatically greater than our original expectations. Turnover was the only area that did not show improvement,

*This summary is from "Job Enrichment Trial--Data Processing Department Analysis and Results in an Insurance Organization," a paper by Robert Janson presented at the International Conference on the Quality of Working Life, Arden House, Harriman, New York, September, 1972. Janson did not identify the company.

but the first location turnover ratio at the outset was only 15%, a rate far below the second average. The following chart summarizes the results of the trial

	First Location (Experimental Group)	Second Location (Control Group)	Difference
Current Productivity Ratio	104.0%	94.0%	10.0%
Absenteeism Change	24.1%	(29.0%)	53.1%
Turnover Change	(6.4%)	5.1%	(11.5%)
Attitude Improvement	16.5%	.5%	16.0%
Throughput Change (cards keypunched per hour)	39.6%	8.1%	31.5%
Error or Ratio Change	35.3%	.8%	34.5%

These improvement resulted in an actual savings of $65,000 annually with an additional potential savings of $90,000 annually made possible through expected increases in throughput (total cards process per hour)..

Although these figures speak for themselves, the most significant impact the program made was in the effect it had on the organization. One dramatic change was in the behavior and attitude of the group supervisor. Before the experiment, his was the first and only level where basic supervisory functions were performed. All 83 employees reported directly to him. Most of his time was spent reacting and responding to problem situations as they arose. Even casual observation of the unit would indicate that

each day was filled with continuing and reoccurring work crises. The supervisor was besieged daily by employees with salary grievances and personal problems.

As the experiment progressed, work was transferred from the supervisor to the unit leaders, and in some cases, to the operators. The supervisor began rethinking all his responsibilities, As he worked with the unit leaders, he began to develop feedback systems, to establish work modules, and generally to spearhead the enrichment effort. Instead of supervising the behavior of his subordinates, he began to manage the work itself. There have been no salary complaints in six months, as opposed to the daily complaints prior to the trial.

Before the trial, taped interviews were held with many of the operators. Most were found to be bored with their jobs, frustrated because of procedural and policy requirements, and generally apathetic towards their work. Recent interviews indicate marked improvement. Employees now talk about their work with family and friends, have better feelings because of increased responsibilities, and realize that their jobs are important.

The original list of changes prepared from a brainstorming session of the supervisor and unit leaders contained 73 items. This list was reduced to 25 for implementation, some of which were:

- Keypunch operators have become responsible for their own work. Included in their job is responsibility for scheduling--and for meeting those schedules.

- Operators can now correct obvious coding errors. Prior to this trial, they were told to punch information as they saw it. Since they know coding well, it was frustrating for them to punch the wrong codes.

- Each operator now corrects her own errors. Previously, the errors came back from the computer and were given to any operator to correct. The new system provides feedback and aids in training.

- Operators now deal directly with clients. Before the trial, work from unidentified sources was given to them in one hour batches. Now an operator has her own customers with full responsibility for those clients' jobs. If there is a problem, the operator, not the supervisor, discusses it with the client. (This approach brings in an aspect of entrepreneurship to the working levels.)

Results

Actual dollar savings were determined on the basis of measurable changes in the quality and quantity of work as well as absenteeism and the elimination of certain controls (without eliminating responsibility). The quantifiable savings which includes salary and machine rental are illustrated below:

	Staff Saved	Additional Potential	Actual Savings	Additional Potential
Measurable Change				
Attitude and Quality	2	1	$11,354	$ 6,245
Selective Elimination of Controls	7	14	$40,465	$81,538
Absenteeism Change	2	1	$12,486	$ 4,104
Total	11	16	$64,305	$91,937

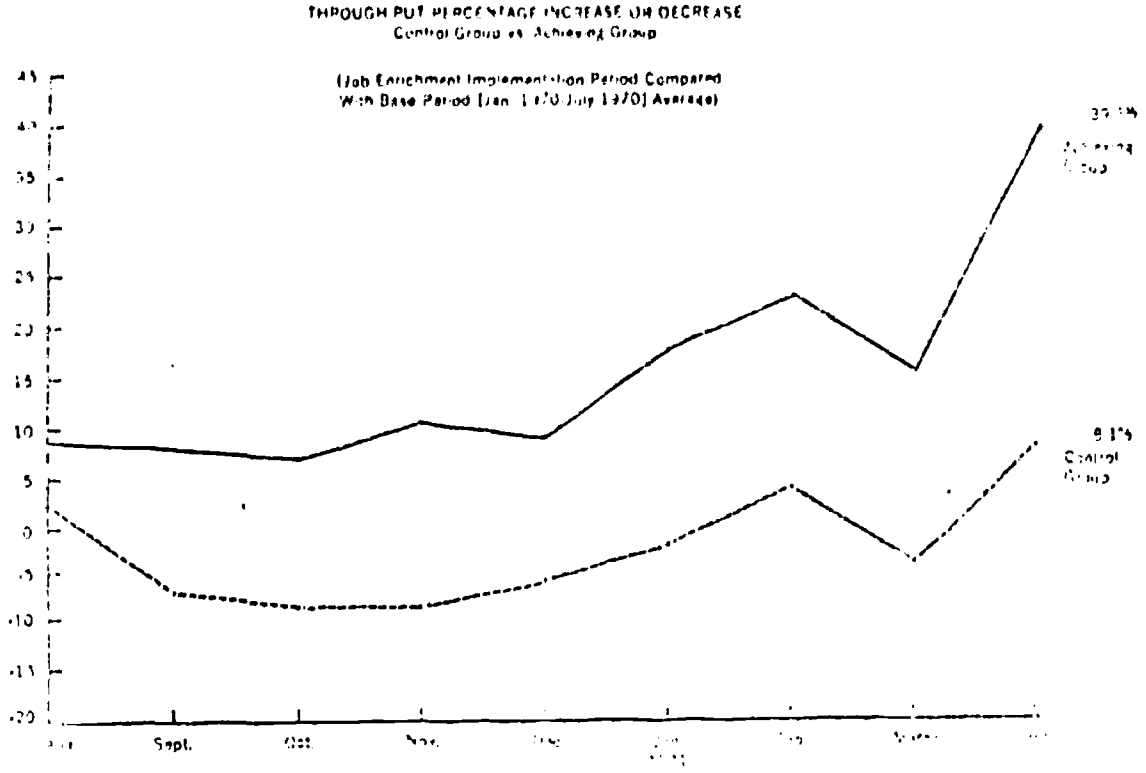
The following paragraphs treat this breakdown in greater detail and also provide background on the development of the results.

Quantity of Work

Two measures of productivity have been kept in the keypunch groups; the throughput rate and effectiveness ration results expressed in those two measures are as follows:

1. Throughput Rate

This is an expression of the average number of cards keypunched per hour of work (hours of work includes keypunching and verifying).



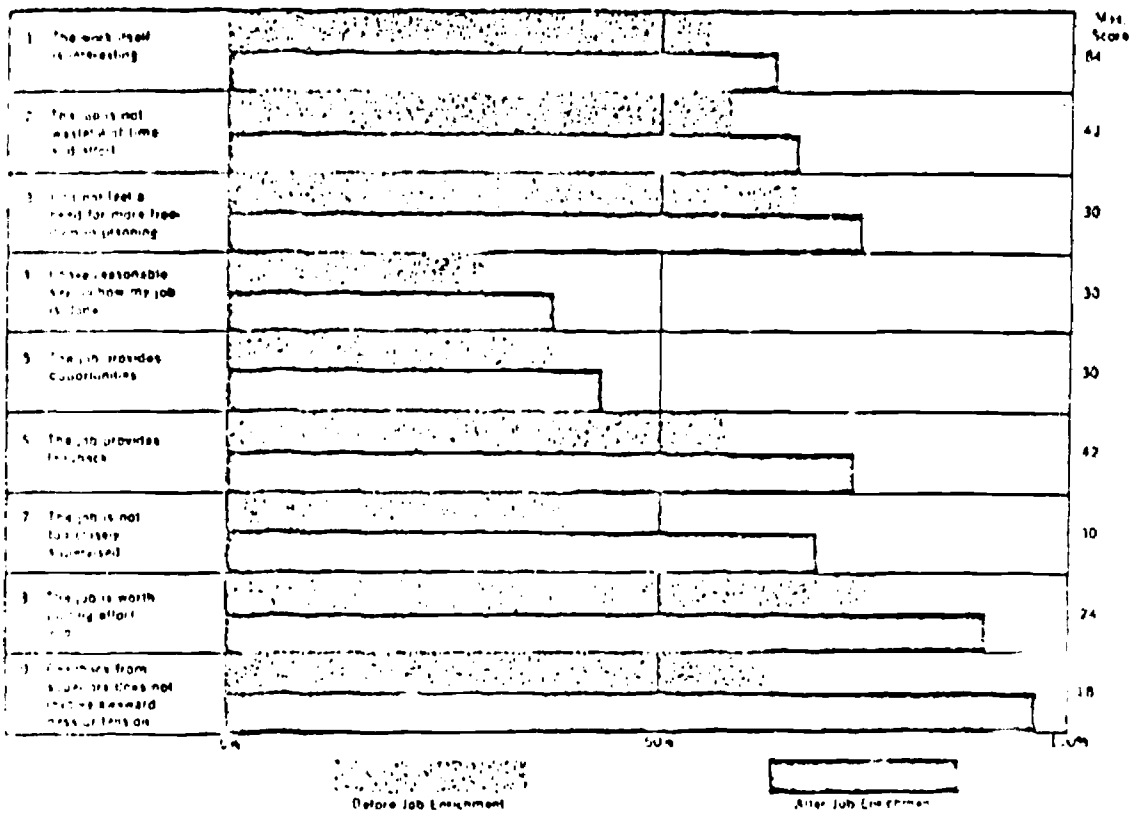
2. Effectiveness Ratio

This ratio is an expression of the number of work hours required to complete a given number of cards as compared with the number of hours that should be required as established in work measurement standards. At the start of job enrichment the achieving group was at 78% of standard. At the conclusion of the job enrichment year this group was operating 10 104% of standard, a 26% increase in effectiveness.

Job Reaction

When the job reaction survey was initially administered, both groups showed nearly identical scores. Job attitudes could best be described as average. Eleven months later when the survey was again given the control group registered a score that was essentially the same as its previous one. The achieving group's score rose by 16.5% which is a significant upturn for this type of job. This change is highlighted on the

graph below:



Quality of Work

Data was collected for approximately 40 achieving group keypunch operators, who were keypunching before the job enrichment study and during it. All the operators were experienced. The data collected represented the number of cards which proved to be incorrectly punched. Data was not collected for the control group since it would affect other areas of the study.

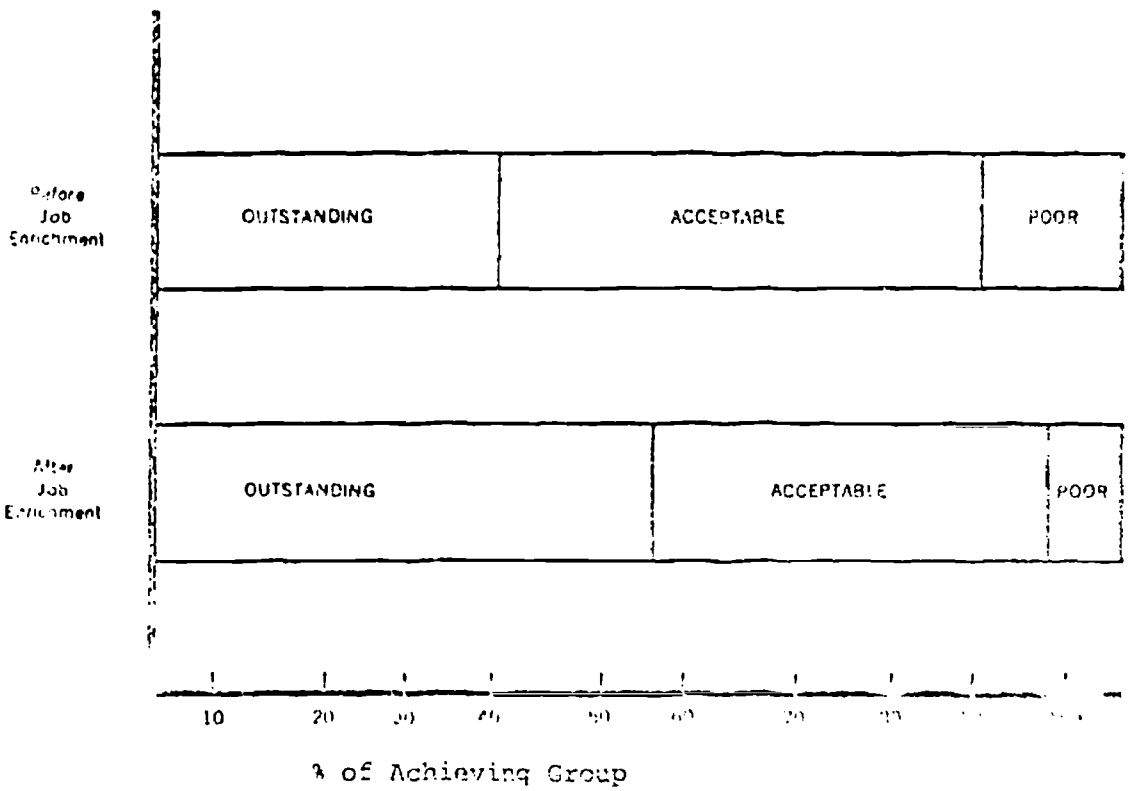
For the two months previous to the study, the 40 operators had a collective error rate of 1.53%. For two months toward the end of the study, the collective rate had been reduced to 99%.

Individual operators performance is divided into three ratings for evaluation of keypunching accuracy. Each rating is related to a range of per cent error in the work as follows:

Outstanding	0	-	.5% error
Acceptable	.5	-	4.0% error
Poor	over	-	4.0% error

By the end of the job enrichment year, there occurred a significant increase in the number of operators turning in outstanding work. The number of operators doing poor work had decreased.

The next chart gives a graphic view of this improvement:



Results show:

- An increase from one fifth to one-half of the operators achieving, an "outstanding" rating.

. A decrease by one-half (11.1% to 5.5%) of operators receiving a "poor" rating.

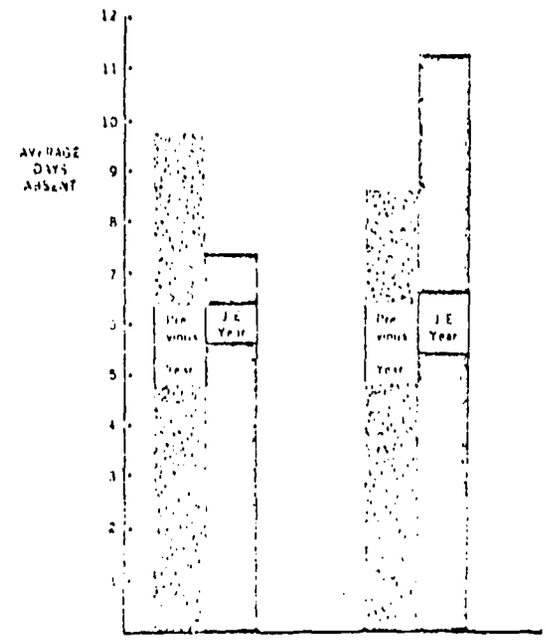
These results were determined through the "effectiveness ratio" discussed previously. Credit is not given for reprocessed work since this has the effect of lowering the effectiveness ratio as volumes are re-punched with no earned time credit. While error volumes decrease, the effectiveness ratio improves as time is spent on work with a time allowance.

Absenteeism

Absence statistics were obtained for both the achieving group and control group for two periods of time--eleven months previous to the job enrichment study and the eleven months following the beginning of the study. All keypunch operators, Leaders and alternates employed at the end of a period were included. An absence was considered to be any sick time and any unpaid personal time.

This change was not evident in the effectiveness ratio since that ratio is based on available hours. The absenteeism change actually increased the available hours.

Savings are shown for the achieving group where absenteeism improved by 24%. In the control group absenteeism actually increased by 29% which in effect was a loss to the company. These changes are clearly illustrated in the following chart.



Selective Elimination of Controls

This step involved removing controls without removing responsibility or accountability for those employees who demonstrated job proficiency. This change does not appear in the effectiveness ratio since this is "eliminated work." We assumed that 75% of the work can be processed this way which is the equivalent of twenty one employees. Seven have been achieved with an additional potential of fourteen.

General Electric*

General Electric reports on a series of studies of employee motivation carried out by its Behavioral Research Service.

An exploratory study reported on in 1966 in "Achieving Productive Motivation Through Job Design" stated:

> Many jobs in the factory are designed in such a way that it is almost impossible for the individual to evaluate the real worth of his contribution.... Surveys have shown that hourly workers in many jobs feel that their work has little or no meaning and just seems to go on and on endlessly in a monotonous manner. This kind of work not only generates feelings of boredom, apathy, fatigue and dissatisfaction, but also leads to resentment and active resistance. Workmanship suffers, employee turnover becomes a serious problem, and work stoppages, slowdowns and strikes disrupt production.

In this study, the researchers attempted to measure the effects of various design characteristics on employee attitudes about their jobs, and quality of workmanship. Manufacturing shop operations and quality control managers in five departments were asked to identify work groups that were consistently high or consistently low in quality of output. Then, 25 groups at the high end of the quality continuum and 25 groups at the low end were selected for study.

The foreman of each of the designated groups was interviewed for information on job-related factors such as cycle time, size of work group,

* From material provided by General Electric.

training, repetitiveness. In addition, a few employees from each work group, randomly selected by the researcher, were asked to complete a brief questionnaire dealing with pride in work, job meaningfulness, sense of accomplishment, monotony, identification with the product and the company, and attitudes toward management.

Because of the exploratory nature of the study, the researchers decided they would not attempt to articulate formal findings. Instead, they presented a series of provisional recommendations to the managers of shop operations:

1. Establish a formal training program for hourly employees beyond the required minimum.

2. Create subgoals to measure accomplishment in groups where repetition is high or where the employees do not ordinarily see the finished product.

3. Provide employees with feedback on the quality of their performance on a regular and frequent basis.

4. Have each foreman put continuing effort into the maintenance of a very neat and orderly work area.

5. Arrange work areas to either make co-workers conversation very easy while working, or make it virtually impossible for employees to converse while working.

6. Increase the number of operations performed by an employee whenever possible.

7. Structure jobs so that workers can, at least occasionally, move about the work area.

8. Explore ways to assign greater personal responsibilities to an individual.

Some of the recommendations of the foregoing study were further explored in a 1967 report entitled "Motivating the Hourly Employee." In assessing productive motivation, the company took into account the following attitudinal dimensions:

Attitudes or feelings about the work itself (job content):

Enjoys work versus bored with work

Pride in workmanship

Sense of accomplishment

Attitudes or feelings about the work environment (job context):

Perceived relationship between personal needs and department or company goals

Identification with the department or company products

Perception of general management

Perception of immediate supervisor

These attitudes, in the opinion of the researchers, exert a direct influence on:

1. Productivity--quantity to meet customer demand
2. Quality of work--workmanship to keep customer satisfied
3. Labor relations--a working environment which minimizes income loss to employee and company

The study undertook to observe and measure the following variables:

Responsibility for own work (the extent to which an individual can use his own discretion)

Shift work--repetitiveness of the work (a function of cycle time and the number of operations)

Physical activity (is it sedentary work or does an employee move about area, use physical energy, etc?)

Rotation between work stations--goals (in terms of eventual use of product, customer, logical number of units to produce, etc.)

Group structure (small work groups at interdependent stations versus individual work stations relatively independent of each other)

Role training (any informal or formal program which promotes insights into the importance of the job and encourages psychological investment in the work)

The following results were reported:

1. Productive motivation was higher where employees had some discretionary responsibility in their jobs.

2. Second shift employees had more favorable attitudes than first shift employees.

3. Productive motivation was lower for employees in highly repetitive jobs.

4. Regularly scheduled rotation is reacted to favorably while casual rotation has the opposite effect.

5. The opportunity for relatively vigorous physical activity on the job is associated with greater productive motivation.

6. Opportunities for social interaction seldom resulted in more favorable attitudes toward the job.

7. Role-training and participation resulted in significant improvement in overall productive motivation.

In a third study, "The Effect of Employee Involvement on Work Performance," which was carried out by Personnel Research and reported on in 1969, General Electric explored the concept of stewardship. According to

the report, "Stewardship denotes something more than merely adding responsibility. It implies having pride in doing the work properly, maintaining a sustained alertness for job improvements in all aspects of job-related functions, and a willingness to accept responsibility for related tasks which one has not previously or typically covered."

In one program, employees participated in a role-training program to help them understand how their work affected other groups in the plant. They were given a better understanding of the entire manufacturing process, the importance of each step in the process, and the problems encountered in producing the product. Each work group was taken on a tour of local businesses where their products were used.

Each operator was informed of the total output required for his unit, then asked to use this information to determine the order in which he would work on each of several items. Stewardship was developed further by prominently posting each day in the work area a graph depicting group performance to schedule. This provided performance results feedback. On the basis of this information, operators were encouraged to set their own quality goals in the form of defect per operator.

As a result of this program there were significant performance improvements. Defects per operator were reduced approximately 50% and productivity, based on dollar output results, rose from a 25.7 average for the nine months before the program, to a 46.7 average after its introduction.

In another aspect of the same program, the sequential assembly process was modified so that a single operator continued down the entire line with one production unit. This changeover in assembly substantially reduced the number of defects per completed units. There was also an improvement in productivity, from 40 units, the monthly average produced in the nine months before the changeover, to 52 units in the first month after the change, 60 in the second and 71 in the third.

Another example of the effects of added responsibility and a feeling of stewardship toward the job came in a department where most hourly employees were semi-skilled equipment operators. In-line inspectors were taken off the floor and operators were asked to do their own inspection. In assuming the self-inspection responsiblity, the operators became more alert to quality and scheduling problems. As a result, quality improved and the cost of direct labor was reduced. The self-inspection resulted in approximately a 25% reduction in the cost of product failures during the first year. The improved performance was sustained throughout the following two years.

In presenting its conclusions, the GE report stated:

> Several conditions must be met if efforts to improve the motivation of workers are to be successful. In the first place, the program must be conducted by the immediate supervisors of the employees. An outside researcher, or even a local staff man, cannot conduct such a program successfully.

Secondly, the program cannot be based on a few mechanically applied gimmicks which would hopefully improve performance in some magical way. To be successful, such a program must be based on a genuine desire on the part of the supervisor to build the self-esteem of employees by demonstrating genuine trust and faith in their motives and in their abilities to contribute constructively to the objectives of the work group.

A third important condition of the success of a motivational program is that it must be carried out in an atmosphere of approval. It must not be seen by employees as any kind of admonishment for performance in the past. A punitive attitude on the part of the supervisor will only threaten, rather than build, the self-esteem of the employees. A natural reaction to a threat to one's self-esteem is to become defensive--to defend one's past performance and thus become unconstructive about possible improvement.

Business Week reports that General Electric is now trying a task force approach to make jobs more interesting and rewarding to workers (see following report).

General Electric*

General Electric is exploring worker teams. The idea is to identify a task and then assign a group of 5 to 15 people to handle it. The key is to give the group as much responsibility as possible. Meyer cites a group of welders in a fabricating plant where the team approach was tried. The welders were given responsibility for scheduling and planning their work load. They determined, for example, how much time it would take to meet specifications on any items requiring special welding techniques, a job formerly done by a methods-and-standards engineer.

The 12 welders were experienced enough to decide which one of them would do a specific job and the time it would take, Meyer says. "The responsibility meant the men had a bigger say in how they did their jobs, and we found that they all became more committed to the work as team members," says Meyer. Methods engineers are now freed to work on new product models while the welders decide how the daily work is going to be done. The efficiency and quality of work, Meyer adds, has improved significantly, because the team has a real stake in the outcomes.

Another approach at GE involves encouraging supervisors and foremen to use "an alternate way" in dealing with workers. The program involves role-playing, and the foreman plays the role of a worker. He may act out a situation where a worker is called in by his superior to discuss a problem, anything from poor work habits to absenteeism. The scene is video-taped and the other supervisors in the training session critique the action.

Some 2,000 GE foremen and supervisors have participated in the training sessions, which run three to four hours. According to Meyer, most men who have gone through the sessions go away with the feeling that they can be more effective in their jobs if they put aside a "tough guy" image. "We're not trying to change a foreman's behavior with a lot of theory," says Meyer. "We're saying that there is more to his job than just clobbering people when they get out of line, which is the way a shop has traditionally been run."

* Business Week, September 9, 1972, 143 & 146.

As elementary as the lesson may appear, the results have been surprising. In one GE electronic components plant, a group of foremen went through the training. Ten weeks later, the workers they were supervising were performing at a level 20% higher in productive efficiency. Now all the foremen in the plant are taking the training.

TRW, Inc.*

The techniques for changing the attitudes of both management and workers vary from company to company. Since the early 1960s, TRW, Inc., has used a heavy dose of job enrichment and organization development with both salaried and hourly workers to "produce a climate in which people can share their ideas and get them rammed up through the system," says Dr. Thomas A. Wickes, TRW's director of organizational development.

TRW's experience with project teams has been equally encouraging. "Since we started paying attention to it, projects seem to get started faster, and we seem to come up with more elegant solutions than we did in the past, whether it is a manufacturing or a management problem," says Wickes. "We're convinced that in terms of productivity, the man who is most productive is the one who has a real piece of the action. He's in a job where he has control and influence, and one where he is measured on results."

Early this year, TRW created in one of its manufacturing plants a group it terms a "semiautonomous work team." The workers were given the responsibility of assembling a product as a team rather than separately performing assembly-line tasks. Once they were given the new assignment, they were allowed to schedule their own time as long as they did the job.

One result was the elimination of different shifts for a given job, since it made no sense to work as a team unless its members worked at the same time. Working hours were staggered when necessary to fit personal requirements, and management started to see team members take on tasks formerly regarded as the "company's responsibility." Older, more experienced workers were voluntarily spending time in training younger team members, for example. While the novelty of the new setup may account for the enthusiasm of the group, it is a hard fact that productivity has gone up 15%.

* Business Week, September 9, 1972, 143 & 146.

Kaiser Aluminum and Chemical Corp.*

The project involved 60 hourly maintenance workers in the reduction plant at the Ravenswood Works in West Virginia. The following changes were effected: The 16 maintenance men performed without a boss and with no time clock. They worked the day shift only, although serving aluminum potlines that were in operation 24 hours a day. In cooperation with operating personnel, the 16 men decided what maintenance jobs were to be done and in what priority.

The program was preceded by a management retraining program which involved weekly meetings for more than a year. The concrete results of the program were: maintenance costs reduced 5.5%, four supervisory posts eliminated, up time approaching 99%, no maintenance worker grievances filed since the program's inception.

In broader terms, the program payoff can be summarized:

Management Gains

Lower maintenance costs

Reduced down time

Fewer grievances

Fewer supervisors

* D. B. Thompson, Industry Week, February 14, 1972, 36-43.

Improved maintenance performance

Higher employee morale

Better team work

Increased employee interest in reducing costs and improving efficiency

Foundation laid for related programs for improving productivity

Worker Gains

Freedom to exercise responsibility, initiative and skills

Less direct supervision

No time clock

Fewer conflicts and aggravations

Opportunity to improve skills through specialization

Opportunity to specialize in work enjoyed most

Better understanding of relationship between efficiency-cost-profit and wages-job security

Growth of pride in workmanship

Growth of feeling of "ownership" of a particular work area

Hercules, Inc.*

Aside from the specific information on Hercules, this article makes the general point that productivity reflects how well managers use every kind of corporate resource:

> Today, the most alert and thoughtful managers are seeking ways to boost productivity not only in the factory but in the board room and the executive suite as well. They fully realize that when earnings slump, the assembly-line worker who malingers or the salesman who lackadaisically makes his rounds are not the ones who get roasted by stockholders and grilled by analysts. It is the management.
>
> "In the over-all, productivity is very tangible because you look at what you have accomplished as a corporation," says Harry Heltzer, chairman and chief executive officer of Minnesota Mining & Mfg. Co. Says GM's Gerstenberg: "Increased productivity results mostly from sound planning, from wise investment, from technology, from better techniques, from greater efficiency--in short, from the better exercise of the functions of management."
>
> In this view, management's responsibility for productivity begins before a piece of equipment starts running, and even before ground is broken for a new plant. Misreading the market demand, backing the wrong product design, or betting on the improper technology will all impair productivity. "You have to make an assessment of the needs of the marketplace and do your darndest to meet those needs, either with the development of a new product or with the improvement of a product that exists," says Heltzer.
>
> With a failure rate of 80% in new products for industry in general, the task becomes a delicate balancing act, and if the product fails to measure up, the most elaborate marketing strategy and production capability wind up as write-offs--with dismal productivity as the result.

* Business Week, September 9, 1972, 142-143.

Productivity is bound to suffer, too, if new production methods are available and management is slow to adopt them. "Engineering and innovation are all part of productivity," says Heltzer. "If we were making Scotch tape today the way we were 20 years ago, we couldn't compete."

The principle applies to entire industries as well as to individual products. The U. S. steel industry is a case in point. Domestic steelmakers doggedly continued to invest in the open hearth process after the basic oxygen steelmaking technique was available. Not only was basic oxygen steelmaking faster but it also was cheaper to install and more economical to operate.

Meanwhile, European and Japanese producers embraced the basic oxygen process. By the mid-1960s, they were able to gain a foothold in the U. S. and other markets by supplying customers with lower-cost, better-quality steel. Too late, U. S. steelmakers frantically started pouring catch-up investment dollars into the new process. By then, foreign steel had already made its inroads in the market.

Figures that cloud the view

The impact of capital investment on productivity, especially in high-technology industries, can be more important than worker performance. When Hercules, Inc., started probing into the true meaning of its productivity figures, its concept of the term was altered.

When the standard productivity definition of unit output per man-hour was applied to Hercules and the chemical industry, it appeared that aggregate productivity was climbing 6% to 8% a year. At Hercules, physical production was up some 90% since 1961, while the total number of employees was virtually unchanged.

Hercules President Werner C. Brown remained skeptical. He felt the figures obscured what was actually happening. Two years ago, he assigned his corporate economist, William W. Bewley, Jr., to conduct a searching analysis of the figures. One of Bewley's early conclusions was that looking at the chemical industry, and at Hercules, through the traditional way of viewing them clouded the issue.

"The reason that management is so hung-up about productivity," says Bewley, "is that it has been using the classical definition. It doesn't make a bit of sense in a company like ours, where we have some 1,200 products and one may sell for 3¢ a lb. and another may sell for $1 a lb. And this is constantly changing. What the manager want to maximize is the spread between his costs and his revenues. That is what he is really interested in."

Bewley analyzed each of the company's major profit centers, which ranged in sales from $100-million to $300-million. Going back to 1962, he looked at each center's costs in relation to the volume it generated quarter by quarter. Then he broke the costs down between labor and both fixed and working capital.

"I looked at what proportion of revenues were going out to pay for increased capital costs and increased labor costs," says Bewley. "This put productivity on a dollar-and-cents basis." Calculating the company's productivity this way, he found that 70% to 80% of the conventionally measured productivity gain was due to capital investment and technological advances. Even more revealing, he says, the analysis showed which profit centers were pushing the figures up and which were dragging them down.

"The same thing kept popping up," says Bewley. "From 1962, more than 90% of the gain in productivity for the company was coming from three product areas." These were dimethylphthalate, the raw material used in making polyester fibers; polypropylene resins for the plastic container and automotive markets; and polypropylene fiber for carpets and film for packaging. In 1962, Hercules produced 50-million lb. of these products; last year, the output topped 1-billion lb.

An increase in production by that amount meant a heavy infusion of investment in new plant and equipment. Plant worker productivity, based on the traditional unit output per man-hour, obviously benefited. But the real push behind the increase came from the capital inputs rather than from the efforts of labor.

Motivating the workers

Even for such companies as Hercules, however, capital investment cannot generate great productivity gains unless the workers

make the most of the capital support that is given them. And for industries where wages represent a large proportion of the final cost, worker attitudes are crucial. At the heart of the productivity problem are the relations of management to the worker and of the worker to his job, whether it be on the assembly line or at corporate headquarters. This is why management men have become absorbed with the problem of finding approaches to the worker that will elicit a positive response.

There is more than a little truth in the quip: If you have a Mickey Mouse job and you put a good man in it, the odds are that you will wind up with a Mickey Mouse man. More and more executives are beginning to think that the behaviorists may have something when they talk about upgrading the work force and giving it a greater feeling of responsibility. Consequently, the most vigorous, and probably the most promising, productivity improvement programs of management are in the area of labor relations....

The techniques for changing the attitudes of both management and workers vary from company to company.

Chemical Bank of New York*

Ada Traynham well remembers her old job at Chemical Bank here. Even a machine would have grown bored with it. "My job was to pull invoices and checks out of envelopes and stack them into three piles: one under $10, another between $10 and $25 and a third over $25. Then I'd pass the piles on to the next person," she recalls. "After two months of this, I was so bored I would have quit within another month."

That was about two years ago, and the young clerk is still with Chemical. But instead of performing a tiny task in the paperwork mill, she now handles all the processing of 22 corporate accounts, from crediting payments to returning unsigned checks. "Handling your own accounts is a lot more interesting, and you feel like you've accomplished something," she says. "What you do is what the customer gets."

The change was part of the bank's program of "job enrichment," essentially the restructuring of jobs to give workers more variety, interest, challenge and sense of accomplishment. Such job-enrichment programs now are boosting productivity and slashing turnover at many corporations. The trend is showing that countless dull and unsatisfying jobs can be made far more rewarding than their victims ever believed.

And supervisors, middle managers, salesmen and professionals who think the trend affects only factory hands and keypunch operators may be in for a surprise: their own jobs could be next.

In Mrs. Traynham's department at the Chemical Bank, turnover in the four years prior to the start of a job-enrichment plan averaged a staggering 59% a year, nearly double the bank's overall rate of 30.9%. But after a job-enrichment program was introduced in 1970, the department's turnover rate plummeted to 24%, roughly in line with the bank's overall rate (which the tight job market and other factors had trimmed to 22%), says Peter Landrigan, assistant treasurer. Thus Chemical and other organizations now are convinced that boredom is a major factor in the rising problems of turnover and absenteeism, which can be extremely costly.

*From an article by R. Ricklep titled "The Quality of Work," in the Wall Street Journal, August 31, 1972.

Procter and Gamble*

Several Procter and Gamble plants have been experimenting with an overall job design and enrichment system involving teams. In each shift, one complete team, made up of different work groups, is made responsible for a given type of production.

Up and down the line, there is full and free communication of production information. The team meetings not only permit but value expressions of feelings and perceptions as well as task-oriented problem solving. Problems are discussed until there is consensus acceptance of the decision. Each work group has a measurable desired outcome which is stated in terms of cost, quantity, quality and level of appearance.

At the "New Directions in the World of Work" conference conducted by the W. E. Upjohn Institute for Employment Research in 1972, results of the Procter and Gamble experiments were reported: "In its six new plants opened in the last year, the company has operated with 10% to 50% less overhead and operating costs, with technology constant."

* From an unpublished report by an observer at the Procter and Gamble plant in Lima, Ohio.

Europe likes flexi-time work*

"Everybody told us flexi-time was pie in the sky," says Gösta Rehn, a Swedish expert on manpower problems. "A few years ago nobody wanted to hear about it. And now look."

Flexi-time is shorthand for flexible working hours, an arrangement that allows workers a couple of hours of latitude in starting and stopping work each day without reducing total working time. Last week everybody wanted to hear about it as 150 labor market experts from 22 countries gathered at the Paris headquarters of the Organization for Economic Cooperation & Development to discuss the worldwide trend toward varying the traditional eight-hour day and five-day week of most industrialized countries.

In Europe, the most common variation is flexi-time, and U. S. delegates Janice Hedges and Jack Meyer, both Labor Dept. officials, were sufficiently impressed by its results to urge U. S. companies to give it a try. Mrs. Hedges, who is with the Bureau of Labor Statistics, is taking a week-long detour before heading home in order to get a first-hand look at some German plants operating under flexi-time.

By contrast, the U. S. has experimented mostly in compressing the work week. Some 2,000 companies have squeezed 40 hours of work into four 10-hour days, giving workers a three-day weekend or an extra day off during the week. Labor Dept. studies show the trend is growing fast. Currently, the biggest potential user is Ford Motor Co. The United Auto Workers is trying to sell the idea to Ford after being turned down earlier this year by Chrysler Corp., which cited fears of production line jamups.

Swiss formula. At present, 30% of Switzerland's industrial labor force is on flexi-time, 5% of Germany's total work force uses the system, and extensive experimentation is under way in Holland, Scandinavia, France, and Japan. Reports at the OECD conference indicated that the arrangement usually pleases everyone: the workers, who like their new freedom, and the employers, who like the increased productivity.

* Business Week, October 7, 1972, 80-82.

OECD experts listed more than 100 variations in the system, but all have in common the feature of allowing workers to show up late without penalty. This novelty has paid off well in tight labor markets, where employers are under pressure to create pleasant working conditions for their employees, and for employees they hope to lure away from other companies. Tardy workers make up their lost time either by staying late the same day or by working late another day, depending on the company formula. Flexi-time is particularly prevalent among banks, insurance companies, and food, cosmetics, and equipment manufacturers.

Switzerland has moved the fastest in implementing the new concept. This summer, Omega Watch extended its pilot program to cover 90% of its 2,500-man work force. Workers must be on the job from 8:30 to 11:30 each morning and from 2 to 4 each afternoon. The rest of the work day--the other three hours and thirty minutes--can be put in at any time the plant is open, from 6:30 a.m. to 6 p.m. The assembly line coordination problem has been solved by building up a "buffer stock" at each point along the line. Omega officials report that production has dropped slightly, but quality has improved substantially enough to produce a net gain.

Sulzer Freres, Switzerland's largest builder of machines and pumps, expanded its experimental program this year to cover more than 8,000 employees, about 90% of its payroll. Sulzer solved its toughest problem--how to apply flexi-time to the foundry, where teams of men operate large furnaces--by specifying that each team must "float" as a group. Team members agree on next day's starting time before leaving work each day.

"Sulzer had to extend flexi-time progressively to the entire work force," says Edouard Duc of the Union of Swiss Employers Associations. "There was a lot of pressure from the workers on fixed hours once they saw how the pilot group was enjoying it."

Experiments. In Germany, major employers such as Lufthansa, Siemens, Messerschmitt-Bolkow, and Volkswagen are using flexi-time variations for large chunks of their personnel. The Ministry of Transport & Communications is trying it out in a pilot program that may be extended to all government employees.

German unions have remained neutral about the development. The principal trade union federation, the Deutscher Gewerkschaftsbund, is experimenting with flexi-time, but finds it "lacking in sufficient control," says union secretary Heinz Beykirch. "Organized labor is not hindering flexible hours, but we're not promoting them yet either, pending accumulation of more data," he says. Beykirch adds that German unions are more interested in winning the 40-hour week for the entire work force than in experimenting with its distribution through the day or week. Some 20% of German workers still put in 45 hours a week.

In France, cosmetics manufacturer L'Oréal is gradually introducing flexi-time to its 9,000-member work force. Says President Francois Dalle: "This flexibility does away with the anxiety that, for example, a mother would suffer if her child were suddenly taken ill in the morning when it is time for her to go to work."

Heinz Allenspach, director of the Swiss Employers Associations, says he is personally convinced that flexible working time is "in tune with modern society and will therefore continue to spread."

U. S. defender. The U. S. delegates tend to agree. Mrs. Hedges suspects that the lack of U. S. experiments in flexi-time stems mainly from unfamiliarity with the concept and its benefits. Both delegates are eager to carry the word back to the U. S. "I think there definitely may be a place for this concept in the U. S.," Meyer says. He plans to encourage controlled experiments in some U. S. plants to test the adaptability of flexi-time to the U. S. mentality.

In Paris, however, Meyer found that his main task was defending the U. S. against the "unfounded myth" that the country has bred a money-grubbing work force that is interested in getting work out of the way--by compressing the workweek, if necessary--rather than in enjoying the more relaxed approach to work inherent in flexi-time. Allenspach criticizes four-day-week experiments in the U. S. on the ground that they derive from the idea of "work as a chore that offers no prospect of developing the personality."

"Not so," says Meyer. Labor Dept. studies indicate that Americans want both money and the leisure to enjoy it. "As pay has increased, leisure also has increased," Meyer notes.

Indeed, if U. S. workers suddenly developed an overwhelming desire for leisure, the result might change work patterns radically. One U. S. Labor Dept. projection shows that productivity is increasing so fast that the U. S. work week would shrink to 29 hours by 1980 if U. S. workers took all their expected output gains in additional time off. Obviously, this is a theoretical rather than a realistic prospect. Realistically, productivity gains will probably lead to trade-offs among the alternatives of higher wages, more vacation time, more holidays, earlier retirement, and slightly shorter work week.

Clear trend. In reporting on the compressed work week, the U. S. delegates noted that several New York banks and insurance companies have carried it a step further, creating a three-day work week of 12 1/2 hours each day for their computer data processors. "They have found that this reduces errors because the most error-prone periods are at the moment of shift changes," Mrs. Hedges says. But she cautions that more research needs to be done, especially on health consequences, before the value of the 12 1/2-hour day can be measured. At least two assembly line operations tried it "and quickly dropped it," she says.

"The more you work with changed work schedules, the more you realize that every case is different," says Mrs. Hedges. "The only real trend that is clear today is the move to break away from the five-day, forty-hour mold."

Too much TV. On the whole, the compressed work week drew stiff disapproval from the manpower experts in Paris. "We have to ask what this 10-hour day does to family life," says Allan Porter of the Canadian Labor Dept. "Also, there is the risk that we are going to produce a race of people that spends seven hours a day, three times a week, watching television. Is this a desirable fate?"

And Ronald Lang of the Canadian Labor Congress rejects compressed work weeks because they "go beyond the bounds of health and safety standards" by exceeding the eight-hour limit that unions fought to establish.

While OECD delegates discussed ways to vary the five-day, 40-hour week, Japanese workers campaigned to achieve it in its old-fashioned form. Although the drive conducted by the 150,000-member Federation of City Bank Employees--featuring

lectures and concerts to win public support--is unlikely to accomplish much, most observers in the U. S. believe that Japan's six-day week will be shrunk to five fairly soon because pressures for the change are building up within and without the country.

The Japan Federation of Textile Workers Unions, representing one-third of all textile workers, will present demands for a five-day week later this month, and the tougher-minded textile union promises a strike early next year if its demands are not met. A few demands for a five-day week surfaced during this year's spring offensive for higher wages. "Next spring you will see lots of demands for a five-day week," predicts Kenji Watanabe, chief of labor standards in the Labor Ministry.

Moreover, the government itself is pressing for a gradual changeover to a five-day week. Officials note that a major criticism accompanying Japan's export push is that it represents unfair competition because Japanese workers "work too hard."

And Kotaro Tsujimura, professor of economics at Keio University, emphasizes that a gradually shortened week would have a minimal effect on productivity. His study of changing work hours among Japanese companies from 1960 to 1969 indicated that shortening hours by 1% produced a productivity increase of 1.7% and adding 1% in overtime produced a decrease of .37%. The Japanese government cites other studies showing that shortened hours result in lower absenteeism, reduced turnover, and greater success in attracting employees.

Japan's two auto giants, Nissan and Toyota, went to five days every other week last April and Honda Motor Co., which had been on that schedule since 1965, went to a straight five-day week at the same time.

The "lunar cycle." The labor policies of another Japanese company, Ohmi Transport Co., had the distinction of inspiring the most corridor conversation at the OECD conference in Paris. Ohmi takes into account each man's "lunar cycle," the few days each month when, according to some physiologists, he functions below par in a manner comparable to that of women during their menstrual period. Ohmi will not assign a man to a hazardous job during this period, to keep depressed workers clear of danger. Ohmi claims a 30% drop in its accident rate since the program went into effect. Masao Komura of the

Japanese Ministry of Labor, says that several other Japanese companies have begun to emulate the program.

Worker Management in Yugoslavia*

The Yugoslavia experience is not a case history per se. It is presented here because of its relevance to the issue of productivity, and because it is viewed by many as a trend-setting development in participative management.

It should be kept in mind that one should not draw facile parallels between the experience in Yugoslavia and potential applications elsewhere. For one thing, the ideological set in Yugoslavia is markedly different from the U. S. and most countries in Western Europe. The industrial scene there is characterized by a weak union structure and by a pervasive role assumed by the Communist Party. Furthermore, the dramatic improvements in productivity have to be assessed in terms of the ravaged condition from which Yugoslavia started after World War II.

The self-management system has been evolving since 1945 when the Federal People's Republic of Yugoslavia attained national identity. It was a time when most of the country's industrial plant was destroyed and many of its managerial and professional people had been killed in the war. In the process of industrial evolution, there has been constant

* W. Glueck and D. Kavran, "Worker Management in Yugoslavia," Business Horizons, February, 1972, 31-39; W. Glueck and D. Kavran, "The Yugoslav Management System," Management International Review, 1971-72, 3-17; C. Cvlic, "Yugoslavia," The Economist, August 21, 1971, v.-xlii; B. Horvat, "Yugoslav Economic Policy in the Post-War Period; Problems, Ideals, Institutional Development," The American Economic Review, 1969, 71-169.

diminishing of the state intervention in the work structure. The present system of self-management dates from 1956 and undergoes constant revision to keep pace with political and economic realities.

The Yugoslavian system combines two classic approaches to increasing productivity: economic incentives and participation in decision making.

Ownership of most business enterprises in Yugoslavia is vested in society. The workers are considered trustees for the people. All those working in an enterprise belong to a collective which elects workers' councils (with membership limited to two-year terms) through which self-management is administered. The council in turn elects a board of management (also limited to a two-year term), and appoints a manager who faces re-election every four years. The council makes long-term policy decisions, the board makes short-term decisions and day-to-day decisions are delegated to the manager.

While there is some variation between individual plants, and some gap between theory and practice, the system on the whole assigns comprehensive control to the workers through their councils. This includes decision making on production, prices, distribution of income, and personnel policies.

There seems to be little doubt that the system has yielded impressive gains in productivity. Between 1956 and 1963, economic growth in

Yugoslavia was 14% each year. Since 1963, growth has been between 12% and 16% annually--a more rapid rate of increase than in any country except Japan. This has been accomplished in a country in which, before World War II, 85% of the workers were in agriculture. The standard of living reportedly has improved with the quality of products.

Some observers have warned that self-management should not be viewed as an eternal panacea, and that even now the trend in Yugoslavia may be ebbing. As the industrial pattern becomes more complex and the nation grows more concerned with international competition, the center of power is shifting from the workers to a new bureaucracy of managers/technicians.

Other problems are also cited: many workers are losing their enthusiasm for endless discussion, even though it gives them control over their working life; internal disputes develop over whether excess revenue should be allocated to capital investment or bonuses, with workers often voting for bonuses to the long-term detriment of the company; the system is not subject to audits or other types of financial surveillance; bribery and corruption have surfaced; interference by governmental bureaucracy is still present.

Evidence that self-management is not the ultimate, across-the-board solution is found in the fact that the government has decided that this approach does not work in the service industry, and is turning this

industry over to the private sector. In spite of the problems now surfacing and the limitations, however, self-management in Yugoslavian business enterprises still presents a persuasive model.

The Japanese Yen for Work*

The well-known Japanese willingness to work is the envy of many a Western entrepreneur. What makes them labor so hard? Newsweek's veteran Tokyo bureau chief, Bernard Krisher, offers this analysis of the Japanese yen for work:

Japanese workers aren't motivated primarily by money or the prospect of climbing to the top. Basically, they work for the team. Their attitude is a throw-back to feudal days when daimyo (feudal lords) protected and provided for their followers and demanded loyalty and obedience in return. Today, the daimyo are gone, replaced by corporations--but the tradition of obedience remains. Company presidents often take a paternalistic interest in their employees. For example, Takeshi Hirano, president of one of Japan's leading fishing and canning firms, attends ten or more employee weddings a month, and members of his board go to "many, many more."

As a result, the Japanese worker usually feels a deep loyalty to his firm, which almost always employs him until he retires or dies. Working for the advancement of the company is elevated into a life goal for the worker. Japanese society encourages this by identifying a man not by his profession, but by the company he works for. "If you ask a man what he does," says one Japanese businessman, "he will say he is with Mitsubishi regardless of whether he is a driver or vice president." Often a Japanese employee's life revolves more around his company than his family. A 1971 government poll revealed that almost one-third of Japanese employees felt that work was the most meaningful part of their lives.

Company officials work hard at maintaining a team spirit among employees. In many firms, the work day starts with group exercise, the chanting of a company song or a slogan-packed speech by the president. Sometimes whole plants are shut so that workers and employers can go off together for company-paid overnight trips. Along with teamwork comes harmony. Most firms have management-labor councils that hold year-round discussions with the employees--not just on wages and

* Newsweek, March 26, 1973, 82.

vacation issues, but also on production rates, new machinery and how to improve working conditions. As a result of this team effort, strikes are infrequent, and when they occur, they are usually symbolic and end after a day; workers just care too much that other companies will get ahead of their own. Niroshi Naruse, a 29-year-old checker in Kinokuniya, a Tokyo supermarket, puts it this way: "We all have pride working here, knowing it is the most reputable supermarket in Japan."

There is also a philosophic basis for the Japanese work ethic of which Westerners are often not aware. It is based on Confucianism, which promulgates the doctrine that work is a virtue.

And, of course, there are practical reasons Japanese work so hard. One is to save for retirement. While U. S. social-security payments now average $270 a month for a retired couple, Japanese at present receive only $75--hardly enough even in a country with a lower standard of living. Many company-financed pension programs in the U. S. are six times bigger than those in Japan, and the Japanese employee must work hard when younger to provide for his retirement, which starts at the age of 55. In recent years, young Japanese workers have been muttering about this and about other aspects of their work life. A few even reject the traditional hard-work ethic that created the Japanese economic boom. But Japan still has a long way to go before it has to worry about a slackening of the national passion to work.

The Factory

A summary of a pertinent movies produced by Haight-Ashbury Films*

"A Feeling of Belonging"

This is a film about an alternative philosophy of factory management. It is about a working environment which deals with industry's most depressing shortcoming, the dehumanization of the worker and the impersonality of the "system." With mechanization, high production, and the necessity for profit, industry has typically organized, regulated, and supervised the worker until there are no decisions left for him to make.

This is a production wood-working plant just north of San Francisco, located in a lovely rural area near the little town of Cotati. Here, small, beautifully finished items of black walnut are produced: puzzles, games, spice racks, carving boards, trophy bases, and related wood products, all imaginatively packaged and distributed nationally. Here we find a unique approach to hours, wages, and participation in factory management--a real alternative.

The president of the company was formerly an executive with a large steel firm. He was trained as an engineer and has also extensive experience in sales as well as management. In this film, we hear, from both management and personnel, the value of flexibility. The workers speak of participating in management decisions, of moving from one machine to another, and from one department to another. We hear of their freedom to complete their work at their own pace, and the interest and concern that evolves from this flexibility of management creates a productive atmosphere of human beings working with one another. We hear the president of the company reinforcing these concepts and discussing his own conviction that giving a man choice leads to self-motivation and the opportunity to be inventive and original. On any issue, when the decision-making ability is taken away from the worker, then each decision he can't make degrades him

* The short subject can be rented from Haight-Ashbury Films, 701 Irving Street, San Francisco, California 94122, (415)665-7171. The particulars: 16MM color; opt sound; 26:12 minutes; purchase price: $310; rental: $45/3 days.

and sets up a situation where he is in competition with management.

Typically, in a factory, a man is placed on one machine and stays there for the entire time he works in the plant; he can work forty years on the same cut-off saw. He punches in and out on the time-clock, and his production for each eight-hour day is established by union and management at an arbitrary figure which has nothing to do with his motivation, ability or feelings. Here in this plant, the mutually established quota for the same cut-off saw is half again more than the average in the area, and there are times when this quota is reached by noon. Each person is able to select the type and pace of work which fits his mood and feelings for the day; his work hours are flexible, and he can also select the method by which he is paid.

In this system, the workers are free to start early and to end their day sooner. This happens regularly in the summer, when cool mornings are the pleasantest work times, or it could be that a man wants to work on a particular machine for the day and gets there early for it. Also, if he misses time for any reason, he is free to make it up after work in the evenings, or on weekends.

There are four methods of earning a wage: a straight hourly wage, a piece-work basis, a quota system, or a fixed amount for a specific task. The hourly wage and the piece-work system are obvious, but the last two have been worked out on a trial and error basis between this management and the production workers. The quota system means they have mutually agreed upon a daily production quota for each machine, and the worker is only required to meet this quota to be paid a daily wage. He can pick the machine he prefers for a particular day, he can start early, and he can leave when he reaches the quota.

When the workers select the fixed amount for a specific task system, they are free to choose as many or as few jobs as they want for any given time period. They can work at their own pace and have some control over their earning capacity. Each job is given a mutually agreed upon fixed value for its completion, and they can vary greatly as to the time required to finish each one. The individual has the freedom to move from one job to another during the day or to move from one system of payment to another.

A vital contribution to this participatory management is the means by which everyone is involved in being able to maintain free and open communication. There is a constant exchange going on within small groups in the plant, and anyone, worker or management, can call a general meeting to discuss any plan or problem which cannot be dealt with on an individual basis. No one is fired or criticized for expressing an opinion, and the worker knows that he can always discuss any grievance he may have.

One of the first concerns of people new to this concept of management is whether the workers will take advantage of their freedoms and end up by reducing their efficiency and destroying the system. Indeed this is a possibility, but it has not happened. This management treats each person as an individual and demonstrates its confidence and trust in him. This trust and confidence is returned by the worker with greater creativity, productivity, and individual responsibility.

Company accounting and sales figures support the fact that this system is also an economic success. Over the last three years their gross volume has tripled, and the number of retail outlets for their products has increased a healthy six times. Throughout this same period, the individual worker productivity has increased, and the average wage is up a third to where it is well above similar plants in the area. The company has had rather typical cash flow problems associated with rapid growth, but they have continued to make a profit and to triple their capital investment in equipment and machinery.

In this film, the story and the feelings of the plant are told through the words and reactions of the people involved: Dick Benton, the president, representing management, and the workers themselves, individually and in groups.

The film was shot without any script and the dialogue has all been edited from unrehearsed interviews either on film or on tape. We have approximately fifty hours of taped personal interviews and the ratio of total footage to the finished film is twelve to one. Total running time is 26:12. Also, 250 35MM slides were taken on location, forty-five of which are used in the film, and many were combined as imaginative superimpositions.

The original music theme, "The Whittler," was written and arranged by Roger Steen and performed by "The Tubes," a popular San Francisco group. The effectiveness of their contribution was greatly enhanced by the extent to which they became involved with the project and identified with the people who work there.

Before this film was made, the individuals at this plant had never verbalized or really understood the extent of their personal involvement and the changes which had happened to them as a result of this work experience. Martha Martin, a Senior Counselor at Stanford University, whose professional work is largely individual and group therapy, did all the interviewing. These sessions not only brought out the material for the film, but they also gave an insight for the first time to both workers and the management of the importance and depth of their involvement. And management alone is not responsible for the atmosphere of this plant. Since the very beginning, a few key employees have expanded and reinforced the original concepts and have contributed in a major way to what is now the basic philosophy. We also found a fascinating cross-section of people who have gravitated to this environment from all over the country. Their educational backgrounds range from grade school to graduate school, and their backgrounds include art, music, psychology, dramatics, engineering and literature.

Most important though, is the conviction of the film makers as well as plant personnel, that here indeed is a model alternative for people in organizations everywhere. The central and vital theme of treating people as responsible human beings has its practical application in any setting. Even the biggest corporations or government organizations break down into small groups in various departments and sections, and people can function in these smaller groups just as they do here. "Human survival depends on institutions changing with individual consciousness, growth, and freedom," and this message is universal.

APPENDIX C1

Outline for a Proposed Two-Day Workshop on Improving the Quality of Life at Work

The participants usually are all those supervisors who would be involved in the workshop. If appropriate, union representatives and all members of a given task team might well be included.

First Day, 8:30-10:30 a.m.

Opening Remarks: Experience suggests that most participants in conferences, seminars and workshops do not have the time--or take the time--to do much pre-conference reading. Thus, in this case no preliminary material has been distributed other than some journal article reprints. However, the report now being passed out ("Improving the Quality of Worklife... and in the Process, Improving Productivity") does provide carefully selected relevant information and an orientation to the subject. Let us use the next two hours to read the main body of the report, after which there will be a brief (10-minute) self-scored test, to see if any key concepts need discussion so that we can all start from some common information base.

10:30-11:00 a.m.

Coffee and ten-minute test (see page 236), followed by self-scoring, with key answers written on board. (If discussion seems needed about the report or the test, take the time and push subsequent schedule forward.)

11:00-12:00 noon

Show film, "Motivation Through Job Enrichment,"* through the engineer vignette. Stop film after the words, "We're talking about two different

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*Obtainable from BNA Communications, Inc., Division of the Bureau of National Affairs, Inc., 5615 Fishers Lane, Rockville, Maryland 20852.

things." Ask the group what is wrong with the engineer's job. After discussion, finish the vignette and the remainder of the film. Invite further discussion and summarize Herzberg's Motivation-Hygiene theory.

Ask each person to serve as consultant to this hypothetical company. How would he cope with the problem using the Herzberg concepts or any material from the reading or any other relevant ideas. Write all suggestions on the board. Has anyone proposed taking the problem to the employees for their ideas? Discuss, see if consensus can be reached, and explicate the principles involved in the proposed approach or recommended resolution. This exercise can be carried out either with the total group or by breaking into subgroups, then reassembling to hear ideas from each subgroup.

Lunch (12:00-1:30)

1:30-2:30 p.m.

Invite each member of the group to take ten minutes to answer Understanding Work Motivation questionnaire (see page 240). Break the total group into subgroups of three to seven persons to discuss their answers, and then report their results to the total group. Spark debate. Sit in with each subgroup for sufficient time to offer group process observations, if appropriate.

2:30-3:15 p.m.

Next, present the case of an electronics assembly plant (see p. 251).

Break (3:15-3:30)

3:30-5:30 p.m.

Pass out the sheets on "Steps in Improving a Job and Factors which Appear as Dissatisfiers and Satisfiers" (see pages 244-245). Explain the steps briefly, then each participant who wishes to do so describes a real situation for which he would like to work out the steps needed to improve the quality of life at work--through job enrichment or other means. Since a number of case situations will be presented, get group to decide which two cases they would most like to discuss and develop.

Again, break into small groups of three to five people to tackle the case. Instruct each group to list or diagram their proposed steps sequentially. The small teams should also be prepared to present their reasoning when they report to the total group.

Before reassembling as a total group, take about 10 minutes for each subgroup to critique its own group process and see what can be learned for more effective functioning as a problem-solving group.

Summarize each small group proposal on the board. Organize in a way that will permit comparison. For example:

	Group A	Group B	Group C
Proposed steps:	1.	1.	1. ....
	2.	2.	2. ....
	3.	3.	3. ....
	etc.	etc.	etc.

Since the exercise in which the group has been involved is realistic and affords an opportunity for clarification of principles and procedures, give it as much time as seems fruitful. Discuss any differences among the

small groups. Consensus or agreement is not necessary since there is no one best way, but clarification of reasons and conceptual foresight regarding probable consequences or foreseeable problems is a workshop goal. There should be an attempt to profit from the case material distributed.

5:30-5:45 p.m.

Reassemble as a group. Ask them to read Appendix A of this report (additional case histories) before the morning meeting. Invite critique of the day's meeting and any suggestions for making the second day optimally valuable for the participants. Then adjourn for refreshments and dinner.

Second Day, 8:30-10:30 a.m.

Convene the entire group. Call for questions about the new case material from the Quality of Worklife book or anything else before breaking into (differently constituted) small groups to tackle the second real-problem case. Proceed in same manner as previous afternoon. When ready, reassemble as a whole.

Break, 10:30-10:45 a.m.

10:45-11:45 a.m.

Show film, "The Modern Meaning of Efficiency."* Stop the movie after the clerical record-keeping training sequence. Ask two separate groups to analyze what is wrong with the job and to suggest means to correct the deficiencies.

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*Obtainable from BNA Communications, Inc., Division of the Bureau of National Affairs, Inc., 5615 Fishers Lane, Rockville, Maryland 20852.

Lunch (11:45-1:00 p.m.)

1:00-2:15 p.m.

Pass out the "Machine Operator Case" (see page 246). Break into small groups for 30-minute discussion of what to do in that situation.

Reassemble, hear from each group, then pass out the "What Actually Happened" sheet and discuss differences in approach.

2:15-3:15 p.m.

Show film, "The Factory"* (26 minutes), followed by discussion.

Break (3:15-3:30)

3:30-4:30 p.m.

Questions, general discussion, and workshop evaluation. Adjourn.

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*See p. 227

Human Interaction Research Institute

Quality of Work Concepts

By indicating agreement or disagreement with each statement, you can check your understanding of some basic views regarding programs to improve quality of work and productivity in the process.

Please read each statement carefully and place an "X" on the line which most nearly expresses your beliefs.

Check only one line for each statement.

	Agree	Disagree
1. Some individuals do not want "job enrichment"; they prefer routine tasks they feel they can handle with no strain and low pressure of responsibility.	____	____
2. Motivation is a complex matter. Since what is rewarding to one person may be obnoxious to another, the best way to organize work in a company is to permit everyone to choose the job he would like best.	____	____
3. When white-collar workers were compared with blue-collar workers on their ratings of job facets which were very important to them, the white-collar group ranked "interesting work" as #1, whereas the blue-collar group ranked "enough help and equipment to get the job done, job security and good pay" as their #1 concerns.	____	____
4. Management and labor are of necessity in an adversary relationship, and improvements in the quality of work are likely to come only through winning them through collective bargaining.	____	____
5. An objective of increasing importance to today's workers is to achieve more meaningful ways and means to participate in the decision-making process that directly or indirectly affects their welfare.	____	____

	Agree	Disagree
6. Many people have long experienced discontent and dissatisfaction in their work, but now an increasing percentage seem more likely to express it, and to do so militantly.	____	____
7. In a Gallup survey conducted in 1973, 90% of all wage earners contacted said they could accomplish more each day if they tried.	____	____
8. A survey of college students' attitudes toward work in 1972 revealed that a majority believed that commitment to a career is not essential; the majority would welcome less emphasis on hard work.	____	____
9. When an individual likes his work, understands it, likes at least most of the people he works with, and gets feedback on how well his task group is doing, he and his task group are likely to perform more productively.	____	____
10. Nationwide sampling reveals that since 1969, a growing percentage of persons have expressed dissatisfaction with the work they do.	____	____
11. The true meaning of productivity improvement is to get human beings to work faster and harder so as to reduce costs and increase profits for management.	____	____
12. If workers become more productive through increased efficiency or through better design of the work, this necessarily will lead to a reduction in the workforce.	____	____
13. There is clear evidence that workers who feel satisfied with their pay and working conditions regularly will be over 20% more productive than workers who find the work itself satisfying, but are unhappy with their pay and working conditions.	____	____
14. To improve the quality of work we need a three-pronged effort: effective motivation of people; appropriate machine and system design (engineering); and an appropriate organizational structure to accomplish the work.	____	____

		Agree	Disagree
15.	Social scientists suggest that what employees want in order to feel identified with their work is voice in decisions regarding their own jobs. Workers disagree; most say they want less responsibility and fewer decisions to make, not more.	____	____
16.	There is clear evidence that over 90 percent of the case studies of companies that have tried job enrichment programs have found them to be very successful over the long run.	____	____
17.	Most labor union leaders have expressed enthusiastic support of programs to enrich jobs and improve the quality of work, but management leaders generally have expressed disinterest in such experiments.	____	____
18.	The more that young people invest in preparing for work and careers, the higher their expectations and the greater their potential source of dissatisfaction if their goals are not fulfilled.	____	____
19.	Job enrichment efforts usually end up in failure, because their underlying objective is to get workers to take on more responsibilities for the same pay, and eventually workers see through this and rebel.	____	____
20.	If efforts to improve the quality of work in an organization are to have a good chance of being effective, they generally require the support, understanding and sustained commitment from top management of the organization, and if the company is unionized, from the union too.	____	____
21.	Once a decision is made to experiment with efforts to improve the quality of work, the best procedure is to plunge in and start <u>doing</u> it, not spend a lot of time talking and planning.	____	____

		Agree	Disagree
22.	The most effective element in an effort to improve the quality of work in an organization is to fire the people who don't produce satisfactorily and find others who will do so.	____	____
23.	In the early stages of change from a more authoritative work structure to a more participative one, the group should have available all the resource-person help or guidance that they may want to perform their tasks.	____	____
24.	The best way to increase motivation of workers to do a good job is to post a clearly spelled-out set of work rules, supervise closely to see that those rules are followed, and promptly discipline anyone who violates them.	____	____
25.	A key to excellent performance in an organization is to set a model of integrity in behavior and competence in job performance at the top, then give all personnel an opportunity to challenge practices they may regard as inappropriate.	____	____

Answer Sheet - Quality of Work Concepts

1. Agree
2. Disagree
3. Agree
4. Disagree
5. Agree
6. Agree
7. Disagree
8. Disagree
9. Agree
10. Agree
11. Disagree
12. Disagree
13. Disagree
14. Agree
15. Disagree
16. Disagree
17. Disagree
18. Agree
19. Disagree
20. Agree
21. Disagree
22. Disagree
23. Agree
24. Disagree
25. Agree

UNDERSTANDING WORK MOTIVATION*

Please read each statement carefully and place an "X" to indicate whether you agree or disagree with each.

Please check only one answer for each statement.

	Agree	Disagree
1. Work that an employee considers interesting is an important source of motivation.	____	____
2. The opportunity to experience achievement on the job is an absolute necessity if a person is to be motivated at work.	____	____
3. To be a good supervisor, it is more important to be able to organize and structure the work effectively than to concentrate on bringing about happy human relations.	____	____
4. Shorter hours of work (for example, the four-day week) is one good motivational tool.	____	____
5. Incentive pay plans, if tied directly to individual productivity, are an effective motivational tool.	____	____
6. Improved two-way communications can greatly enhance job satisfaction of employees.	____	____
7. Plans which push decision-making responsibility down in an organization will be met with resistance by most employees.	____	____

*Reproduced by permission of Drake-Beam & Associates. Copies obtainable from Drake-Beam & Associates, 277 Park Avenue, New York, New York, 10017.

		Agree	Disagree
8.	Improved working conditions often affect employee attitudes significantly and contribute to their level of job satisfaction.	____	____
9.	Excessive absenteeism may be due to poor supervision, inadequate pay, or boring work, among other things.	____	____
10.	Elimination of the sources of job dissatisfaction, whatever they may be, will result in improved job satisfaction and motivation.	____	____
11.	A major responsibility of supervisors and managers is to motivate their people to achieve.	____	____
12.	In most cases, extending more decision making to employees involves more risk than gain.	____	____
13.	One effective way to reduce employee dissatisfaction is to see that people are informed about the reasons for decisions that affect them.	____	____
14.	Employees on routine or repetitive jobs are often more motivated and job satisfied if they understand how their work contributes to the overall company goals and objectives.	____	____
15.	One of the most common sources of dissatisfaction at work is personality clashes and disagreements. If these conflicts can be minimized, job dissatisfaction will be reduced but employee motivation and interest in the work will probably not improve.	____	____
16.	A supervisor's or manager's task is best defined as that of providing his people opportunities for achievement so that they will become motivated.	____	____

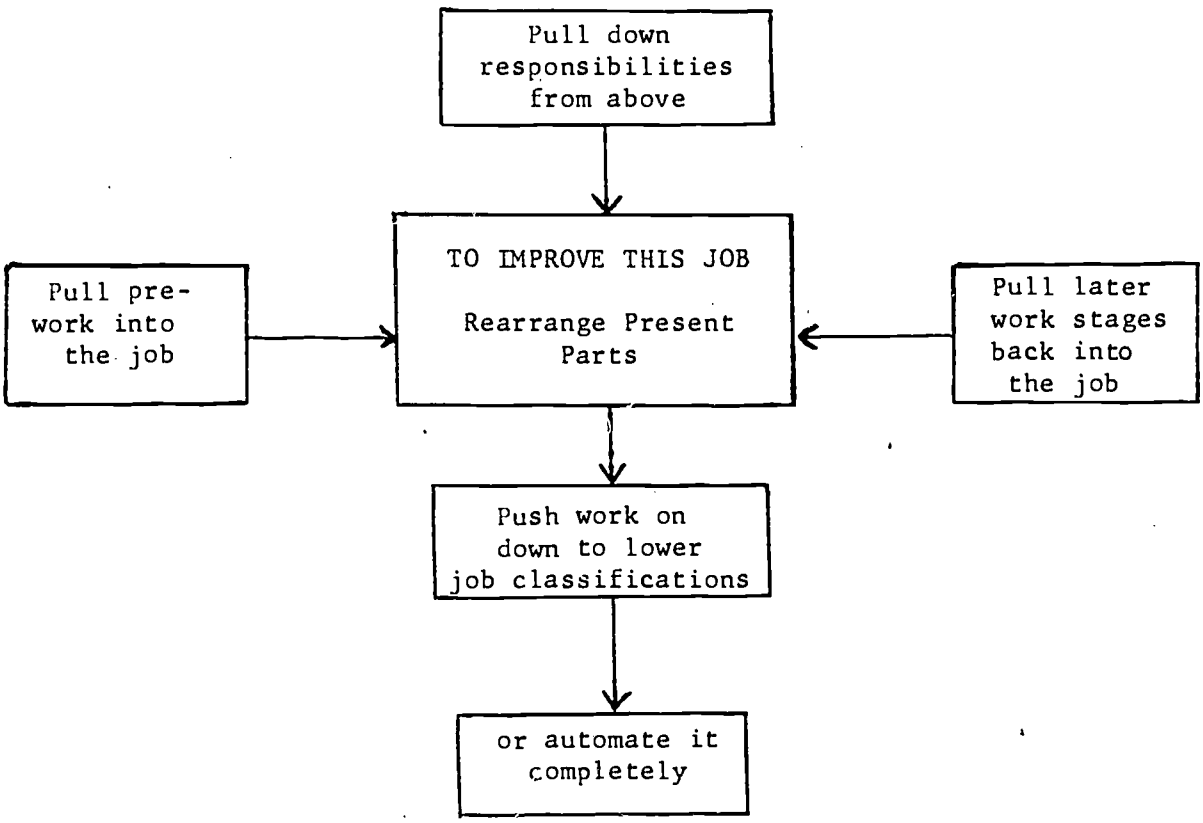
		Agree	Disagree
17.	Most employees would prefer to have their supervisors take over the more complex and difficult tasks in their jobs as long as their pay would not be reduced.	____	____
18.	Boring, uninteresting work may make some employees more demanding about such things as pay, working conditions, holidays, etc.	____	____
19.	Most employees would prefer not to have their work identified because they do not want to receive feedback on their errors.	____	____
20.	Indicators of status and/or longevity such as well furnished offices, privileges of various kinds and service awards are very important to some employees and provide a strong source of motivation and job satisfaction.	____	____

Answer Sheet - Understanding Work Motivation

Your answers to Understanding Work Motivation will indicate which of two basic points ov view about work motivation and job satisfaction is closest to your own beliefs. The two points of view are represented by the two columns of answers below.

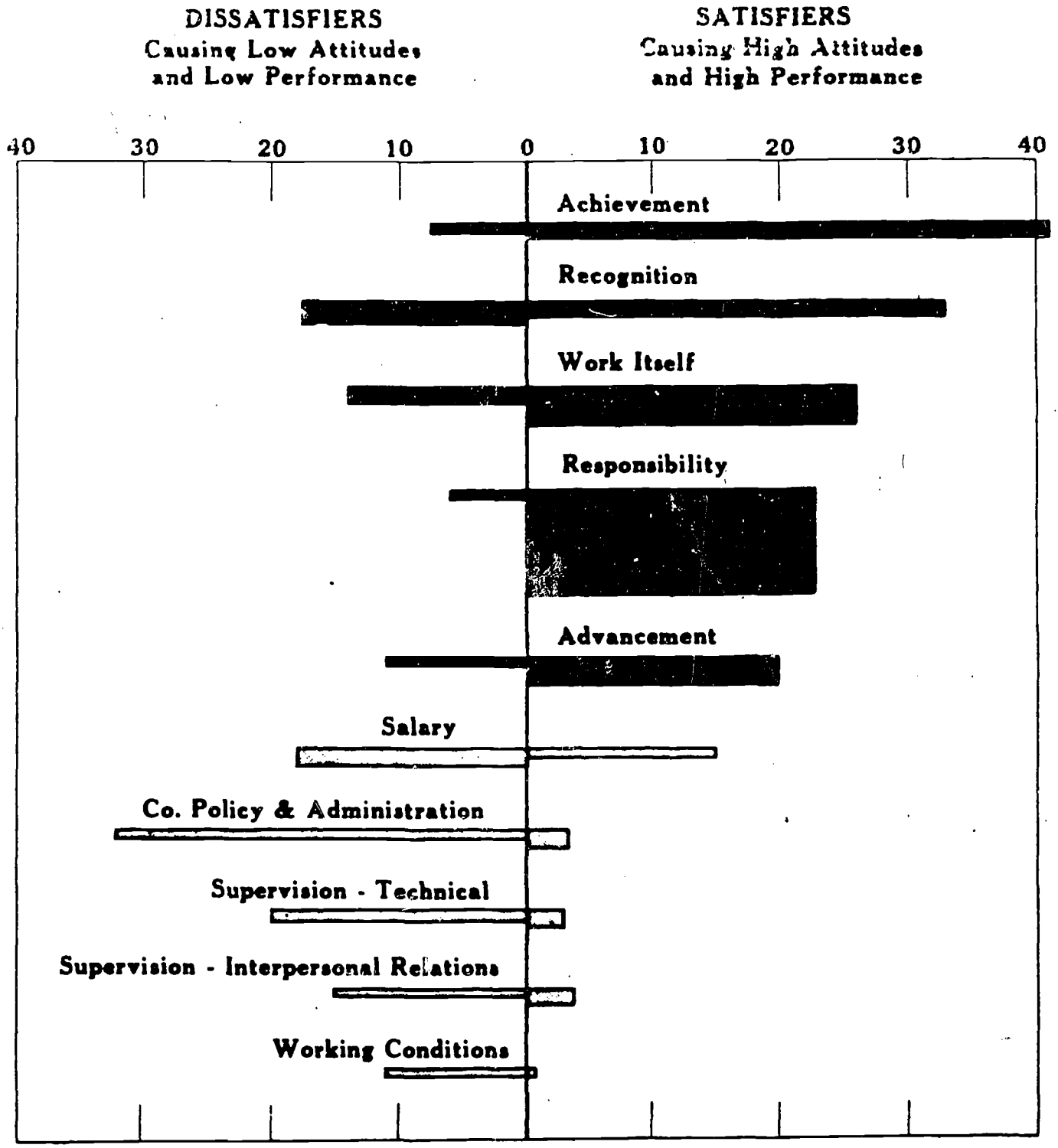
	Motivation-Hygiene Orientation	Traditional Orientation
1.	Agree	Disagree
2.	Agree	Disagree
3.	Agree	Disagree
4.	Disagree	Agree
5.	Disagree	Agree
6.	Disagree	Agree
7.	Disagree	Agree
8.	Disagree	Agree
9.	Agree	Disagree
10.	Disagree	Agree
11.	Disagree	Agree
12.	Disagree	Agree
13.	Agree	Disagree
14.	Disagree	Agree
15.	Agree	Disagree
16.	Agree	Disagree
17.	Disagree	Agree
18.	Agree	Disagree
19.	Disagree	Agree
20.	Disagree	Agree

STEPS IN IMPROVING A JOB*



*Adapted from Robert N. Ford, "Job Enrichment Lessons from AT&T." Harvard Business Review, January-February, 1973.

FACTORS WHICH APPEAR AS



Length of Bar - Percentage Frequency

Width of Bar - Duration of Attitude Change

Case V

Machine Operator*

Job Objective

To operate a bagmaking machine, manufacturing plastic and saran bags for use in food packaging.

Current Situation

This is a three-shift operation with six bag machines in use on each shift. The manning requirements at present are: one operator and two inspector packers for each pair of machines. The operators load the roles of plastic tubing on the machines, start the machines running, get the supervisor's approval after a short check run and then while running the machine make the necessary minor adjustments. The operators inform the supervisor if maintenance of a more involved nature is required. The machine automatically cuts the tubing into appropriate lengths for bags and then seals one end of the bag and ejects the bag onto a conveyor. The inspector packers then pack the bags into cartons inspecting them for flaws as they do so. Inspector packers currently move from one machine to another depending upon load requirements.

Symptoms

1. Unacceptable reject rates
2. Excessive downtime
3. High amounts of overtime
4. Marginal productivity figures

Proposed Changes

On this page are listed some of the proposed changes that the management group suggested for improving the situation in the department. Your task is to read over the list and decide which changes you feel would be enriching and which would not be, and then to decide in what order you would implement those changes which you feel are enriching.

	Would	Would Not	Rank Order
1. Let operators call maintenance men themselves for minor maintenance rather than having supervisors do so.	____	____	____
2. Let operators participate in setting productivity and quality standards for the department.	____	____	____
3. Establish a one person, one machine manning set-up to allow each person to manufacture, inspect and pack his own bags.	____	____	____
4. Allow operators to schedule their own orders.	____	____	____
5. Establish incentive pay system to tie operators' pay rates to productivity end or quality.	____	____	____
6. Allow operators to perform quality control function including right to reject incoming material and to exercise final "ship or don't ship" decision.	____	____	____
7. Give operators training in maintenance of their machines and allow them to do all maintenance other than major machine overhaul.	____	____	____

	Would	Would Not	Rank Order
8. Form teams made up of one operator and two inspector packers and make team responsible for quality and productivity performance.	____	____	____
9. Cross train operators on jobs in other deparments which send work to the bag machines; for example, the extrusion and printing operations.	____	____	____
10. Give operators supervisory responsibility over inspector packers.	____	____	____
11. Train inspector packers to do operator's job.	____	____	____
12. Assign operators responsibility for end user accounts so that the orders from those accounts comes (in all cases in which it is possible) to the same operator each time.	____	____	____
13. Allow operator to decide when to start up and shut down the machine either for production runs or for maintenance needs.	____	____	____
14. Allow operator to write own work requests for major overhauls.	____	____	____
15. Let operators decide which machines they will run.	____	____	____
16. Allow operators to do own machine set up and approve own test runs.	____	____	____

	Would	Would Not	Rank Order
17. Give opportunities for operators to conduct tours of the bag making facilities for visitors.	____	____	____
18. Give an entire order to a single operator instead of dividing it up among several operators.	____	____	____

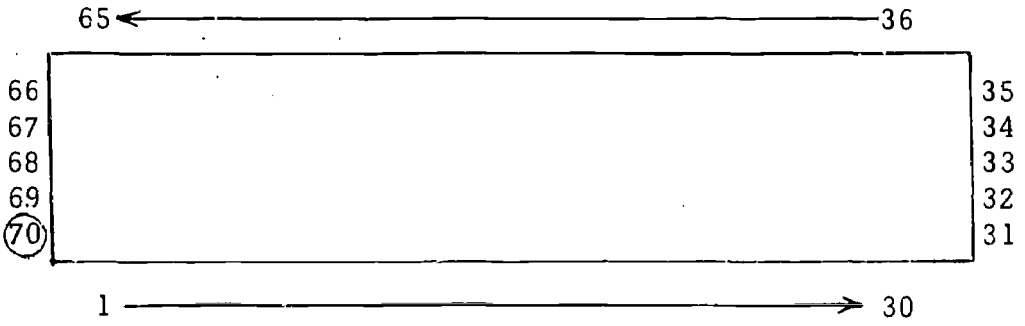
What Actually Happened — Case V

Items 11, 3, 7, 14, 18, 6, 13, 16, 12 and 4 were implemented in that order.

Productivity improved dramatically--as much as 30% in some cases. Quality figures improved also and downtime dropped significantly as did overtime.

ELECTRONICS ASSEMBLY CASE

A company that manufactures and sells an electronic product (think of an oscilloscope or a television set) had its work structure arranged as follows:



The chassis for the assembly was placed in front of the girl in the #1 position. She installed and soldered the red wires, a repetitive task which she could be trained to perform in about one-half hour. The chassis then moved (on a conveyor belt) to the next girl, and she (#2) installed the white wires. And so to each girl in turn, who installed a wire, or tube, or condenser, or some other part that needed to be added to the assembly.

The seventieth girl, the department manager, was a technician-inspector. She had a B.A. in electrical engineering and a good deal of relevant experience. Her job was to plug the set in and see if it would work properly. If not, she would need to run appropriate diagnostic tests, determine what was wrong, and send it back for correction to the work station(s) responsible for the defect. The department manager had four sub-supervisors or foreladies to help her and to help as well as supervise the 69 girls on the production line.

The plant was plagued with labor grievances, friction, poor morale, low productivity, a large amount of rework, and an overall decline in share of the market due seemingly to undependable quality and high cost of production. Unless this situation could be improved materially, the company might be forced out of that portion of its total business.

Assume that you are invited in by the president of this company as a consultant to study the problem and make recommendations for improvement. How would you proceed? What are the approximately sequential steps you would take, and for each step, why? (Keep in mind the Herzberg theory of job context "hygiene" factors and job content "motivators.")

Step 1:

APPENDIX C2

One-Day Organization Design Workshop

This workshop was designed to help the staff of a residential child-care institution to reexamine and renegotiate the organization and structure of the jobs and functions of the staff in relation to the objectives or purpose of the institution. It could be adapted for other organizations.

A. Purpose of the Workshop

To provide the staff with the opportunity to redesign their own jobs and, ultimately, the entire organization. Thus, the purposes for which the institution exists are supported by an organizational structure which is considered by the staff the most effective way of doing their job and carrying out the mission of the institution.

B. Proposed Structure for the Workshop

The basic structure includes:

1. Brief statement of the purposes of the institution or organization.

2. Brief review of major functional responsibilities of the organization.

3. Dividing all participants into their respective role groups: Director, Social Work Associates, MSW degree Social Workers, Cottage Staff.

4. Role groups select one representative (negotiator) each.

5. Negotiators meet and go through the list of responsibilities to establish their role group's position.

   Positions may include:

   a. Accepting full responsibility and accountability for the function listed.

b. Participation in the function or task in some way, but not accepting full responsibility and accountability.

6. Action Planning--an ongoing process of working out the specifics of who should and will take responsibility for what. Once responsibilities are accepted, the fine points of how they are to be carried out, who is involved and how performance is to be evaluated, become action planning.

C. Preparation for the Workshop

1. It is essential that staff members realize their unlimited freedom to redesign their jobs (within legal constraints).

2. The staff should list and discuss the purposes of the institution.

   a. Why does the institution exist?

   b. What is it trying to do with the children who come into placement?

   c. Does it have a purpose which relates to the families of the children in placement?

   d. Does it have a purpose which relates to the community?

   Examples of some purposes developed by the institution's staff:

   a. To re-socialize the (delinquent) children in placement with the idea of returning them to their community after assessing that particular community.

   b. To help the child develop a new self-image.

   c. To provide counseling for parents.

   d. To provide a self-realization experience which would encourage the child in placement to realize his potential.

3. The staff should develop (either individually or as role groups) a list of all responsibilities (functions or tasks) which relate to the institution's core process--residential treatment of children. What are the functions (responsibilities) that make up an effective residential treatment center?

Examples:

a. Locating potential residents for the institution

b. Cottage maintenance

c. Transportation

d. Telephone communication

e. Board of Directors

f. Parent counseling

g. Individualized goal planning for each child, with the child himself as well as institution staff, parents and referring agency included in the goal planning

The staff should also try to conceptualize an organizational structure to support these functions, and the purposes of the institution, most effectively.

4. Role groups should go through the list of responsibilities and develop their positions. Which role groups want total responsibility--accountability for which functions? Which role groups want to participate in the functions at what level: design, implementation, etc.

D. Benefits Derived from the Workshop

1. It provided a process by which one can redesign not only his own job but, ultimately, the whole organization.

2. It outlined clear lines of responsibility and accountability. Everyone should know what his responsibility is, and for what he is held accountable. The issue for accountability or evaluation should be tied to the effective operations of a treatment program--not to personalities or idiosyncracies.

For example, it may be decided that each child have a treatment plan. Whoever accepts responsibility for individual goal setting may be evaluated on:

a. Is there a written treatment plan or goal for each child for whom he is responsible?

b. Are these goals being met? In other words, is the child progressing?

c. Are the goals realistic and are they communicated to the cottage staff?

3. It enabled staff to break through traditional job/professional roles.

Example: It may be traditional in an institution that only the social workers meet with parents' groups. During the workshop it would be possible for other staff members--a teacher or a child care person--to express interest in participating in this activity. By negotiating with the social workers, the wish could become a reality.

4. It allowed more effective teams to develop because who had responsibility and who had to work together to insure the operation of an effective treatment program was made clear.

E. Points to Remember About the Workshop

1. Accepting responsibility does not mean you have to do the task yourself. You will be held accountable but you can engage others to assist you.

2. The workshop does not present solutions. It presents a process by which solutions can be developed.

3. Negotiation is open to review and/or change. By engaging in the exercise you are not locking yourselves into hard and fast responsibilities. You are essentially redesigning your job to fit the functions or your institution and your interests. You will also have the opportunity to establish clear working relationships with other staff on whom you depend for the operation of an effective residential treatment program.

APPENDIX D

On February 1, 1973, Senator Edward Kennedy joined with 17 other senators to introduce Bill 736. The bill attempts to put into legislation much of what has been learned from extended research and hearings on the subject of worker alienation, humanization of work and productivity.

United States of America

Congressional Record

PROCEEDINGS AND DEBATES OF THE 93d CONGRESS, FIRST SESSION

Vol. 119 WASHINGTON, THURSDAY, FEBRUARY 1, 1973 No. 18

Senate

By Mr. KENNEDY (for himself, Mr. CANNON, Mr. CRANSTON, Mr. GRAVEL, Mr. HART, Mr. HUMPHREY, Mr. HUGHES, Mr. JAVITS, Mr. MONDALE, Mr. MUSKIE, Mr. MCGOVERN, Mr. NELSON, Mr. PELL, Mr. PASTORE, Mr. RANDOLPH, Mr. RIBICOFF, Mr. STEVENSON, and Mr. WILLIAMS):

S. 736. A bill to provide for research for solutions to the problem of alienation among American workers and to provide for pilot projects and provide technical assistance to find ways to deal with that problem, and for other purposes. Referred to the Committee on Labor and Public Welfare.

Mr. KENNEDY. Mr. President, I am introducing today legislation to respond to the problem of worker alienation and job dissatisfaction in the United States. Seventeen other Senators join me in cosponsoring this legislation.

The Worker Alienation Research and Technical Assistance Act of 1973 provides for research into the problem of

worker alienation in all occupations and technical assistance to those unions, workers, companies, State, and local governments seeking to find ways to relieve this problem. The bill provides $10 million for fiscal year 1974 and $10 million for fiscal year 1975.

Throughout history, the United States has prided itself on the talents, the dedication, the imagination, and the initiative of the American worker. The growth and development of our economy has been based not only on our technological genius but on the high level of performance of our working men and women.

But despite our pride in the performance of American labor, adequate wages, and adequate working conditions have been achieved only with great difficulty. Institutions were slow to respond. Now, once again we see a similar lethargy.

As we marvel at the increasing automation of the assembly lines and the benefits of modern office equipment, we have forgotten once again that behind the assembly lines and the electric typewriters are human beings who spend the major portion of their waking lives at those jobs.

The issue of worker discontent in America can no longer be avoided. In our plants and our factories and our offices, there is a growing sense of dissatisfaction that affects untold numbers of American workers. The extent of this dissatisfaction and discontent is not fully known. Nor is the full impact of this discontent on the mental and physical health of workers and on the productive capacity of our Nation.

The recent report on "Work in America" by an HEW task force emphasizes both the existence of the problem and the embryonic-state of our knowledge of what to do about it. Thus, the report summary notes:

> And significant numbers of American workers are dissatisfied with the quality of thier working lives. Dull, repetitive, seeming meaningless tasks, offering little challenge or autonomy, are causing discontent among workers at all occupational levels.

And I am pleased that the clearly negative attitude of the past leadership of the Department of Labor on this issue may be shifting as a result of the appointment of Peter J. Brennan. In his confirmation hearings before the Senate Labor and Public Welfare Committee, Mr. Brennan expressed his view that worker alienation was a major problem in America today. He also promised to work with the Senate in securing legislation to meet this problem.

In hearings that the Senate Subcommittee on Employment, Manpower and Poverty held last July, which I was privileged to chair, we heard from workers, union officials, corporate managers and researchers. All testified to similar conditions and all urged action from Government, labor and management to meet the problem.

Gary Bryner, president of the UAW local at Lordstown, talked to the "symptoms of the alienated worker" where the absentee rates is moving ever upwards, where the turnover rate is enormous and where the use of alcohol and drugs is becoming an ever more serious problem. At Lordstown, Bryner told of the conveyor that sends 101.6 Vega automobiles out of the factory door every hour, with workers required to execute their assembly line operation every 36 seconds.

The lack of corporate concern for the worker is described by Bryner in the orientation of new assembly line employees:

> He is brought into the plant and his orientation session ends and starts with his papers on insurance and his assignment to a foreman who immediately puts his warm body on the line.
>
> The job assignments within the plant in the same classification are solely the right of management, no say for the employee—The job content, and there is not much of that—when you have 36 seconds to do a job, and all we are left with is the deadend job—jobs that offer little challenge to the more educated worker, little chance for advancement, and hardly any chance to participate as a worker.

The disregard for the worker as a human being was cited by James Wright, now director of National Policy Affairs, National Center for Urban Ethnic Affairs, and a former steelworker. He testified:

> I can recall when a friend of mine was killed in a car accident, and I took the day off to attend his funeral, and I was disciplined for two days because this was an unexcused absence.

These are some of the problems and frustrations and discontents that are producing a class of angry and rebellious workers in America.

And for a nation concerned about productivity, our failure to heed the signs of restlessness among workers in our plants and factories seem difficult to grasp.

For we have the statistics of the National Commission on Productivity to tell us that something is wrong with the economic machine. In one major industry absenteeism increased by 50 percent, worker turnover by 70 percent, worker grievances by 38 percent and disciplinary layoffs by 44 percent in a period of 5 years.

Yet, to a large degree, the response of government, of unions and of business has been to ignore the problem. We do not even know the extent of the problem. We do not know how many men and women unnecessarily suffer mental or physical illnesses whose cause is linked to their jobs. We do not know the extent of the use of drugs among young workers. We do not know the cost to the economy from the subsequent loss of productivity, or the cost to the society of pockets of despair among its workers. Nor do we know what changes in the design of the job and in the environment of work could produce increasing job satisfaction and productivity at the same time.

While there have been some experiments, as our hearings revealed, there was almost universal agreement that far too little is being done. That also was a conclusion of the HEW study.

Witnesses from the business world, including Robert Ford of American Telephone & Telegraph Co., Lyman Ketchum of General Foods, and Sidney Harman of Jervis Corp. all discussed some of the attempts by their corporations to respond to the problem of worker alienation. But all agreed that there exists a vast area of inadequate information on a national level, a vacuum which helps prevent the education of government, business and union leaders to the problem.

Their view was confirmed by Irving Bluestone, vice president of the UAW, who added that working models and practical on-the-job experiments are needed in addition to basic research.

The motivation for attempting such a program begins with the worker. For he is a citizen, a human being. And it should not be the potential for increasing his productivity that spurs our interest; but our concern, as Bluestone stated, to "find new ways to make human beings more human."

And so in the bill that is being introduced today, we hope to break down the resistance of our institutions to the idea of humanizing the workplace. We hope to make the quality of life for the worker on the job just as much a consideration in the eyes of labor and management as the quality of the product.

This bill authorizes jointly the Secretary of Health, Education, and Welfare and the Secretary of Labor to conduct research to determine the extent and severity of job discontent and to assess the costs to the economy of the problems of absenteeism, turnover, sabotage and loss of productivity associated with worker discontent.

In addition, research is directed into the incidence of mental and physical disease among workers, and into the methods now being used in both the United States and Europe in trying to meet the problem of worker alienation. We heard from Ford Foundation witnesses, who recently had traveled to Europe, of the innovations that have been tried there.

Recently, I also have learned of the interest of the French Government in stimulating similar research in an effort to measure worker discontent there. They too have seen the problem and are beginning to try and find ways to cope with it.

The bill also provides that the research results and recommendations will be made available to workers, to unions, to companies, to schools of management and industrial engineering and to the general public.

Technical assistance also will be made available to groups of workers, to unions, to companies, to State and local governments for the following efforts:

First, practical experimentation in meeting the problems of alienation in their own places of work;

Second, the development and conduct of pilot demonstration projects to improve our knowledge of how to relieve job satisfaction. These projects could include job enrichment, autonomous work groups, job restructuring, increased worker participation in decisionmaking, increased job mobility, and compensation on the basis of new skills learned.

The bill also provides for assistance in developing curriculums and programs for training and retraining professionals and

subprofessionals in work humanization approaches and methods.

This was felt to be critically important by most of the witnesses because of the impact that industrial engineers and plant designers have on the conditions of work and their present lack of concern for the worker.

The bill also authorizes the Secretary of HEW to insure that Federal agencies seek to maximize job satisfaction and to consider that factor in the design of new Federal facilities.

At the same time, the bill authorizes the Secretary of Labor to seek assurance that job satisfaction is considered by Federal contractors.

For by providing the data and disseminating the results of research and technical assistance, we can stimulate among unions and corporations and the public in general not only an understanding of the scope and severity of this problem but an awakening to the ways in which they can begin to resolve it.

Mr. President, I ask unanimous consent that the bill be printed in the RECORD at the conclusion of my remarks.

There being no objection, the bill was ordered to be printed in the RECORD, as follows:

S. 736

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Worker Alienation Research and Technical Assistance Act of 1973".

STATEMENT OF FINDINGS AND PURPOSE

SEC. 2. (a) The Congress finds that—

(1) alienation of American workers because of the nature of their jobs is a problem of growing seriousness to the national economy and to individual workers;

(2) alienation often results in high rates of absenteeism, high turnover, poor quality work, a decline in craftsmanship, and lessened productivity;

(3) alienation often results in high levels of frustration among workers and causes poor mental health, poor motivation, alcoholism, drug abuse, and social dissatisfaction among workers;

(4) it is in the national interest to encourage the humanization of working conditions and the work itself so as to increase worker job satisfaction, diminish the negative effects of job dissatisfaction, and to the extent possible, maximize potential for democracy, security, equity, and craftsmanship;

(5) it is in the national interest to promote the fullest development of the abilities, creativity, skills, and personal growth of all American workers; and

(6) the problem of worker discontent and alienation has for too long been largely ignored by government, management, and unions.

SEC. 3. (a) The Secretary of Labor and the Secretary of Health, Education, and Welfare are jointly authorized to either directly or by way of grant, contribution, or other arrangement—

(1) conduct research, to determine the extent and the severity of job discontent and the problems related to the nature of work in American worksites, included but not limited to—

(A) quality of work, levels of turnover, absenteeism, sabotage, and loss of productivity, and the monetary costs to the economy of such problems; and

(B) the health of workers, including statistics on mental and physical health and occupational stability;

(2) conduct research on methods now being used in the United States and abroad to meet the problems of work alienation, including more flexible hours of work, reduced working days, profit sharing, additional responsibility for workers, job rotation, worker participation in the decisionmaking process with regard to the nature and content of his job, redesign of jobs and production patterns, autonomous work groups, and additional opportunity for education, training, and advancement;

(3) collect and disseminate research results and recommendations for relieving worker discontent and for improving the quality of work, to workers, to labor organizations, to businesses, to schools of management and industrial engineering, and to the general public;

(4) provide technical assistance to workers, labor organizations, businesses, State and local governments for (i) practical experimentation in meeting the problems of alienation in their own places of work, and (ii) the development and conduct of pilot demonstration projects which show promise of making significant contributions to the knowledge in the field of resolving problems related to worker alienation, including such projects as job enrichment, guaranteed employment, reduced workdays and weeks, autonomous work groups, job restructuring, increased worker participation in decisionmaking on the nature and content of jobs, increased job mobility, job rotation, group productivity, bonuses, compensation on the basis of skills learned, continuing education and training for new careers and new opportunities for increased job satisfaction;

(5) provide support for the Triennial Working Conditions Survey of the Department of Labor;

(6) assist in the development and evaluation of curriculum and programs for training and retraining professionals and subprofessionals in work humanization approaches and methods;

(7) conduct pilot projects for a variety of experiments in both blue collar and white collar work redesign in selected Federal agencies to determine the effectiveness of such projects in improving employee job satisfaction.

(b) In carrying out the research and technical asistance program authorized by this section, the Secretary of Labor and the Secretary of Health, Education, and Welfare shall consult with the head of the National Institute of Mental Health, the National Science Foundation, the National Institute for Occupational Safety and Health, and representatives of workers, unions, management, academic, and medical experts.

(c) The Secretary of Labor and the Secretary of Health, Education, and Welfare shall file a report not later than December 31, 1974, and again not later than December 31, 1975 to the Congress, on the administration of this Act together with such recommendations, including recommendations for additional legislation, as they may deem appropriate, and may file such interim reports as they deem advisable.

SEC. 4. (a) The Secretary of Health, Education, and Welfare, in consultation with the Chairman of the Civil Service Commission and the Administrator of the General Services Administration, is authorized and directed to assist Federal agencies in maximizing job satisfaction of their employees.

(b) The Administrator of the General Services Administration is authorized to consider maximizing job satisfaction in the design of new Federal facilities.

SEC. 5. (a) In order to carry out the provisions of this Act, the Secretary of Labor and the Secretary of Health, Education, and Welfare are each authorized to —

(1) procure temporary and intermittent services to the same extent as authorized by section 3109 of title 5, United States Code;

(2) secure from any executive department, bureau, agency, board, commission, office, independent establishment, or instrumentality of the United States Government, or of any State, or political subdivision thereof, information, estimates, and statistics required in the performance of his functions under this Act;

(3) enter into and perform such contracts, leases, cooperative agreements or other arrangements as may be advisable without regard to section 3709 of the Revsed Statutes (41 U.S.C. 5) and other provisions of law relating to competitive bidding; and

(4) accept and use with their consent, with reimbursement, such services, equipment and facilities of other Federal agencies as are necessary to carry out such functions efficiently and such agencies are authorized to loan, with reimbursement, such services, equipment and facilities to the Secretary of Labor, to the Secretary of Health, Education, and Welfare, or both.

(b) Each such department, bureau, agency, board, commission, office, independent establishment, or instrumentality is authorized and directed to furnish such information, suggestions, estimates, and statistics directly to the Secretary of Labor, to the Secretary of Health, Education, and Welfare, or to both, upon written request made by that Secretary.

(c) The Secretary of Labor and the Secretary of Health, Education, and Welfare are authorized to take whatever action is necessary to avoid duplication or conflict in the administration of this Act.

APPENDIX E

Job Related Change Options

- Job Improvement

  - job redesign
  - job expansion
  - capital redesign
  - work simplification
  - self-evaluation of performance
  - peer group evaluation
  - job allocation
  - work redistribution
  - self-pacing
  - goal setting
  - process layout
  - scrap reduction
  - quality control
  - ordering supplies
  - ordering maintenance
  - flexible job descriptions
  - work area budgeting
  - production flow
  - materials handling
  - automation
  - initiation of technological change
  - delivery scheduling
  - job re-allocation
  - human resource management
  - job rotation
  - "busy" work vs. contribution
  - task combination
  - work performance feedback systems
  - task advancement
  - client/customer relationship

- Work Time

  - establishing flexible hour system
  - revision of scheduled over-time practices
  - vacation schedules
  - self scheduling
  - elimination of time clocks
  - shift assignments
  - mandatory overtime
  - reduced work week
  - optional overtime

- Authority Shifts

  - reduced supervision
  - autonomous work teams
  - team/group problem solving
  - raising of approval limits
  - team structure
  - decentralized decision making
  - peer discipline
  - absorbing staff specialties

- Work Rule Changes

  - clothing/uniform regulations
  - performance standards
  - flexible job specifications
  - rules of personal conduct
  - crossing craft lines

- Recruiting

  - setting criteria
  - worker involvement in job descriptions
  - job assignments
  - worker involvement in selection
  - worker involvement in hiring
  - internal search

- Mobility

  - revision of bidding practices
  - promotion training
  - job posting
  - revision of job rotation
  - promotion practices

- Training

  - job-related skill improvement
  - company time training
  - skill extension
  - worker/union control of training
  - industrial engineering training
  - after hours courses
  - intellectual (high school/college) improvement
  - career planning
  - material/cost accounting training
  - self-training/experimentation
  - tuition aid
  - programmed instruction

- Communications

  - employee publication
  - upward communication system
  - open forum
  - ombudsmen
  - suggestion program
  - greater flow of corporate information

Environmental Options

- Safety

  - clothing and equipment
  - noise control
  - workplace medical services
  - improved lighting
  - fire security
  - catwalk rails
  - smoke/fume control
  - machinery/process redesign
  - plant/office/store security
  - rotation on dangerous jobs
  - non-slip flooring
  - safety committees

- Workplace Improvement

  - lighting
  - seating
  - ventilation/heating/air conditioning
  - rest rooms
  - piped-in music
  - noise
  - floors
  - color
  - lockers
  - lunchrooms, cafeterias

- Off Hour Recreational Activities

  - bowling leagues
  - basketball leagues
  - anniversary celebrations
  - hobby clubs
  - softball leagues
  - travel clubs
  - gifts to employees

- Environmental Improvement

  - parking lot/access roads
  - green space
  - community involvement
  - day care centers
  - air/water pollution
  - company provided transportation