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Productivity and the Quality of
Work Life

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ABSTRACT

Summarizes the results of eight case studies of quality of

worklife change programs. Points out that productivity is

not an automatic product of quality of worklife improvement.

Some projects studied showed improvements while others didn't.

Quality of work life (QWL) has become a national concern. Until the 1980s, it seemed to be largely the province of a few researchers, companies, and academics. Suddenly the situation has changed. It is virtually impossible to pick up a national publication these days without finding some reference to QWL. Because of this widespread attention, many people have heard of General Motors' success with its QWL program and of some of the exciting new plants that have been built by General Foods, Procter and Gamble, and Cummins Engine.

A key issue in discussions about QWL concerns its relationship to productivity. Much of the current interest stems from the belief that QWL improvements will lead to productivity improvement. Despite the importance of understanding the impact of QWL improvements on productivity, little work has been done on the issue. This article analyzes the relationship between productivity and the quality of work life. It does not argue for a simple relationship between the two, nor does it argue that the two are unrelated. Rather, it argues that by carefully specifying a number of factors, it is possible to predict what the relationship between productivity and QWL will be. In addition, practical implications for the design of QWL projects are examined and key types of projects are reviewed.

Basic Concepts

A variety of meanings, usages, and measures are attached to the terms "productivity" and "quality of work life." Hence, the first issue to be considered is their definition and measurement, an issue often not addressed when organizations undertake QWL projects.

Productivity

Productivity is typically defined as a ratio of outputs to inputs. Outputs are the goods and services produced by an organization. Inputs include labor, capital, materials and supplies, and energy. The most common productivity indicators are really measures of labor productivity. For example, the U.S. Department of Labor's Bureau of Labor Statistics publishes quarterly data on private sector productivity, defined as the constant-dollar value of all goods and services produced in relation to total labor hours worked.

Managers prefer to think of productivity as a "hard" (i.e., valid, reliable, and quantifiable) measure of organizational performance, unlike "softer" measures of job satisfaction or employee morale. However, there are many problems with measuring inputs, outputs, or both (and thus productivity) in most organizations.

Problems in Measuring Outputs

In some organizations, output measures are difficult to obtain or may not be meaningful. This is especially true for government, many parts of the service sector, and the construction industry. For example, what is the proper measure of productivity for a hospital? The number of medical services performed in a given number of labor hours tells little about organizational performance; the quality of medical care (in itself difficult to measure) is much more important. In fact, maximizing the number of medical services administered to each patient would needlessly increase the cost of care and would probably be harmful to patients.

Even in industrial plants, where outputs usually are relatively easy to measure, meaningful productivity data may be difficult to collect. If

the plant's output includes many different products, and if the relative contribution of inputs to outputs is different for each product, overall plant productivity may appear to rise or fall dramatically simply because of fluctuations in product mix. This problem arose in a bakery sponsoring a QWL project. The bakery made over 30 products, and productivity levels differed for the various products. Yet the company's productivity index did not take product mix into account. A management crisis was precipitated by a sharp drop in the bakery's "productivity," and the QWL project was blamed. However, close inspection of the data by an outside assessment team suggested that productivity had not really changed; instead, a change in product mix and other factors not considered in the company's formula was responsible for the apparent decline in productivity.

Problems in Measuring Inputs

Adequate measurement of inputs also is often difficult. Clearly, the best productivity indicators take all major inputs into account. For instance, it is misleading to ignore the contributions of capital and energy inputs to productivity, especially in organizations that are not labor-intensive. However, conventional methods of accounting for capital expenditures are primarily based on financial and tax considerations, and such methods typically are not very useful for developing productivity measures. Methods of accounting for energy and materials are still fairly primitive.

A QWL project in a southern automobile parts plant illustrates the implications of these problems. A rise in labor productivity occurred during the course of the project, and the increase appeared to result largely from a new incentive plan designed by employees. However, the

company also made some significant plant and equipment improvements during this period, and these probably also improved labor productivity. While the company had excellent measures of labor productivity, it had no measures of capital productivity. Hence, it was difficult to determine how much of the total increase in labor productivity was due to the QWL program's incentive plan (which led employees to work harder and "smarter"), compared to how much was due to capital improvements (which reduced the amount of labor input needed).

The problems of adequately measuring inputs are compounded if product mix is a factor. Properly allocating the relative contribution of a particular type of input--capital expenditures, for example--to each kind of product may be difficult or impossible.

Implications for QWL Projects

For organizations with no productivity measures or misleading ones, it is difficult or impossible to know whether QWL projects (or any other innovations) have affected productivity. Indeed, adequate measures may need to be developed in order to have a successful QWL program. Quality of work life programs are hampered in organizations that lack sound productivity measures. Productivity data is needed as an important source of feedback on the effectiveness of experimental changes. Without this feedback, it is much more difficult to detect, correct, and learn from mistakes. It is also more difficult for a QWL program to focus the energy of people on productivity improvement and to prove itself by showing productivity benefits.

Quality of Work Life

There is wide agreement about the conceptual meaning of productivity; the major difficulties are in applying the concept to measure productivity measurement in specific organizations. Quality of work life is a much newer concept, and there is much less agreement about its basic meaning. The definitions that have been offered so far fall into two broad categories.

The first definition equates QWL with the existence of a <u>certain set of organizational conditions or practices</u>. This definition frequently argues that a high quality of work life exists when democratic management practices are used, employees' jobs are enriched, employees are treated with dignity, and safe working conditions exist. The second approach to defining QWL equates it with <u>the impact of working conditions on employee well-being</u>. This definition emphasizes the degree to which individuals are accident-free, enjoy good health, express satisfaction, and are able to grow and develop as human beings. In short, it equates a good QWL with the work place in which the full range of human needs are met.

Measurement of QWL

A variety of measures may be used to assess the degree to which either type of QWL exists. Employee questionnaires and interviews are relevant to most aspects of either definition. For example, employees may be asked about the degree to which their jobs are enriched (i.e., the degree to which the jobs provide variety, autonomy, and so on); employees may also be asked about the degree to which they are satisfied with their jobs or find their jobs fulfilling. Other types of data may be relevant for specific purposes. For example, measures of accidents and employee illnesses often are available. There is no single best indicator of QWL,

regardless of which definition is used. Rather, a variety of indicators must be pieced together to form a more complete picture of the state of QWL in a given organization.

Differences Between the QWL Definitions

In many cases, the differences between these two types of definitions are minimal, since working conditions that are equated with a good QWL often produce a positive impact on individuals. Thus both approaches often lead to a common determination of whether a good QWL exists. There are enough differences among people, however, so that the two definitions can lead to varying conclusions about the relationship between QWL and productivity. Thus, we will first discuss the relationship between productivity and QWL measured as an outcome. Then we will discuss QWL measured as a set of working conditions and its relationship to productivity.

Quality of Work Life as an Outcome

The issue of how individual employee well-being and productivity are related is a traditional one in organizational psychology. Since the 1930s, psychologists have been concerned about the relationship between employee satisfaction and employee performance effectiveness. Rephrasing this idea slightly--that is, does QWL affect productivity--does not change the basic question. The essential issue still is: Are satisfied employees more productive? The answer to this question seems fairly clear, based on the research evidence. Overall, satisfied employees do perform slightly better. How much better depends on a number of factors, including which kind of satisfaction is considered--that is, satisfaction with pay, opportunities to influence decisions, social needs, security,

etc. It also seems to depend on such conditions as the structure of the job and the type of pay system.

It is incorrect, however, to assume that satisfaction leads to performance. Satisfaction is not the same as motivation, even though some assume that increased satisfaction means higher motivation. Rather, performance leads to rewards which, in turn, cause satisfaction. In most settings, the rewards that accrue to a better performer are slightly more positive than are the rewards that accrue to a poor performer; as a result, better performers are more satisfied. Indeed, the same thing also seems to be true of organizations: organizations that perform better accrue more rewards, and as a result, employees are more satisfied. Thus, because of the relationship between performance and rewards, we would expect that those organizations with higher QWL will also tend to be ones in which performance is slightly higher.

There is one other factor that may contribute to a positive relation-ship between QWL and performance when we look at organizational productivity as our measure of performance. When employees are more satisfied, there is typically less turnover in the organization and, to a degree, less absenteeism. In addition, there is evidence satisfied employees are less likely to go on strike, suffer psychosomatic illnesses, etc,--behaviors that tend to increase costs and decrease the effectiveness of the organization. Thus, in an organization where turnover, absenteeism, illness, labor strife, and so on are reduced, the increased levels of satisfaction or QWL would be responsible for causing better productivity.

Putting the two arguments together, so far, we would expect a significant, but not strong, positive relationship between QWL and productivity in most situations. It would be wrong, however, to conclude that this is a simple, causal relationship in which productivity leads to a higher QWL or vice versa. Rather, we are arguing that the relationship is likely to exist because of multiple forces and, to a degree, is dependent on situational forces. Thus, when QWL is considered as an outcome state, we can make a general statement about its relationship to productivity; yet, for any particular situation we must be cautious in deciding whether QWL improvement will have any impact on productivity.

Implications for the Design of QWL Projects

Most QWL projects established during the last decade have focused on twin outcomes: improving employee quality of work life, and improving productivity and other aspects of organizational effectiveness. An important political reality underlies the twin goals of improved productivity and organizational effectiveness: organizations are unlikely to voluntarily make continual, long-term improvements in QWL if the improvements have no significant payoff to the organization. As a result, QWL project leaders have argued for projects that simultaneously meet both organizational goals and employee QWL goals.

The preceding discussion of the relationship between OWL outcomes and productivity helps explain why several major QWL projects have been abandoned: the projects did not result in increased productivity or other organzational benefits, even though they improved QWL. This is a very possible result, given the complex nature of the relationship between QWL and productivity. A common mistake of QWL projects is to attempt directly

to improve employee satisfaction and well-being, while hoping that this will in turn improve organizational productivity and effectiveness. Specifically, QWL projects are sometimes dominated by attempts to improve various aspects of the physical work environment, such as parking lots, cafeterias, restrooms, time clocks, and other possible sources of employee dissatisfaction.

There are usually two reasons why QWL projects take this direction. First, many managers, union leaders, and employees believe that satisfaction causes productivity (often translated as "a happy worker is a productive worker"); hence, project leaders try to find ways of making employees more satisfied with the work place. Second, it often seems easier to concentrate on creating a more pleasant work environment than on changing management style, job design, the reward system, or patterns of coordination and communication. Suggestions for improving physical working conditions are easy to generate, since making the suggestions requires no special expertise and since problems in the work environment are usually highly visible. Anyone can see the need for a bigger parking lot, for example, but problems in the way work is performed, rewarded, and managed are abstract, complex, and difficult to solve.

Improving the Work Environment: An End in Itself

Thus, it is usually a mistake for QWL projects to concentrate primarily on improving amenities in the work place. This is not to say that organizations should callously ignore needed improvements in the work environment. On the contrary, improvements in working conditions are desirable ends in themselves; employees should be able to work in as much comfort as possible. The argument here, however, is that QWL programs are

unlikely to survive for long if they focus mostly on improving the physical work environment. There are four reasons for this position.

First, and as we have seen, the belief that satisfaction causes productivity is too simplistic and is sometimes wrong. Even if improvements in work place amenities increase QWL, productivity and organizational effectiveness are unlikely to be affected significantly. A slight gain may be expected over the long run because of lower turnover, fewer strikes, and less absenteeism; but as is often noted, the financial books are "balanced" in the short run.

Second, implementing changes in the work environment often takes longer than managers and employees expect. Major construction projects can take months or even years to be approved, designed, and completed. Delays are common because work environment changes generally have a lower priority than matters more central to organizational survival and effectiveness. In addition, work environment changes often require money approvals and end up making management look cumbersome and unsympathetic. Indeed, many of the same problems which lead to the QWL project often end up making it impossible to implement these changes. During the long period of time usually needed to complete work environment improvements, employees and managers may come to view the QWL project as a failure, because they see no progress.

Third, the costs of work environment improvements often far exceed the productivity benefits. Even if a better work environment does translate into higher productivity and other organizational benefits, the benefits are almost always small. The costs of building a new cafeteria or air-conditioning an old facility, for example, are rarely, if ever,

recouped. Managers may come to see QWL as a costly giveaway program with no benefits for the organization, and thus withdraw support for the project.

Fourth, some of the very problems that QWL project leaders try to avoid by concentrating on the work environment and ignoring more complex organizational issues usually come back to haunt attempts to improve the work environment. Especially important are problems in coordination and communication. A major construction project can involve the purchasing, maintenance, and engineering departments, as well as other departments where work may be disrupted by the construction; top local management must approve the expenditure; in large organizations, management and staff above the local level usually must review and approve large expenditures; employees may be consulted about their views on the proposed changes; and there may be one or more outside contractors to deal with over a long period of time. With so many interdependent groups involved, it is not difficult to see how coordination and communication problems can block or delay the work.

Improving the Work Environment: A Means to An End

There are, however, some conditions in which it may initially be desirable to focus QWL efforts on the work environment rather than on issues more directly related to organizational productivity.

It may be necessary to improve working conditions in order to win credibility for a new QWL program. If the work environment is dangerous or extremely uncomfortable, employees may not trust management's motivation for improving QWL. This was the case in one area of a western wood products plant that was poorly protected from cold winter weather.

Employees in the area refused to participate in a new QWL program because every cold working day provided "evidence" of management's lack of concern for their welfare. Fixing this problem could have been a way of giving the QWL program credibility; it was never corrected because of "administrative problems," however, and the QWL project failed.

Some improvements in the work environment offer the potential for joint benefits to the organization and to employees. Improvements designed to reduce safety or health hazards are a good example. Employees benefit by the reduced health hazards or threats to their safety; employers benefit by the reduced medical and worker's compensation costs and sometimes by increased productivity as well.

In summary, changes that are directed only at better QWL outcomes, such as improvements in work place amenities, ought to be pursued as ends in themselves rather than as a means to productivity improvements. Routine management decision making, collective bargaining in unionized settings, and, to some extent, government regulation of working conditions are among the means for directly pursuing QWL outcomes. Major, long-term QWL programs should be concerned with much more than the amenities of the working environment; truly meaningful QWL efforts must directly address both individual and organizational needs. The next section discusses in more detail the ways in which this can be done.

Quality of Work Life as a Process

Perhaps the most interesting question regarding the relationship between productivity and QWL is: What impact does introducing certain QWL practices into an organization have on production? Unfortunately, this question is also much more difficult to answer than the question of

whether QWL outcomes and productivity are related. The correct answer requires a number of assumptions and varies widely, depending on which QWL intervention is being considered. To illustrate this point, two QWL interventions--gain-sharing plans and employee problem-solving groups-- will be discussed. But first some background on how to think about the relationship between QWL practices and productivity is needed.

Figure 1 shows that there are three primary ways a QWL intervention or practice can improve productivity: communication/coordination, motivation, and employee performance capabilities.

Not shown in the figure, but certainly relevant in determining whether a QWL intervention will improve these factors, are such characteristics as an individual's needs and abilities. Clearly, for motivation to improve, the practice must affect the important needs of the individual; and for the practice to improve capability, the individual must have the ability to learn.

Also not shown in the figure is the important fact that for these three factors to lead to an increased productivity, the situation and key technological elements must allow room for people to influence productivity. In certain situations, the intervention may improve motivation, for example, but may not lead to higher productivity if the technology does not allow higher productivity. Overall however, it is possible to look at a QWL intervention in terms of whether it improves one or more of these three factors and, based on this, then make a reasonable estimate regarding whether the intervention will lead to improved productivity.

Figure 2 carries the thinking about the relationship between QWL interventions and the productivity one step further. It shows that if a particular QWL intervention improves productivity directly, it also can influence productivity indirectly.

As Figure 2 shows, the intervention may directly improve employee satisfaction because it provides a better work environment for the individual; it may improve employee satisfaction because it leads to improved productivity which, in turn, leads to greater rewards. Where employee satisfaction increases, as a result of the intervention and improved productivity, there can ultimately be a positive influence on productivity by attracting good employees to work for the organization and by reducing turnover.

Overall, the argument here is that there are a number of ways that a QWL intervention can have a positive effect on productivity. However, improving productivity is dependent on the degree to which the intervention increases employee satisfaction, communication, motivation, and performance capability. Indeed, there is reason to believe that the intervention may have to influence motivation, communication, and capability in order to lead to improved productivity. This rationale is based on the view that for productivity to increase, motivation, performance capability, and coordination all need to be high in an organization. If any one of these is low or missing, the organization cannot be effective. However, since each one usually exists to some degree when the intervention is made, improvement in any one of them may lead to some improvement in productivity.

Gain-Sharing Plans

When fully and properly implemented, gain-sharing plans, like the Scanlon Plan, should lead to improved productivity and also to employee well-being and satisfaction. The rationale for this is rather

straightforward. Gain-sharing plans include organizational structures to improve communication and coordination; they relate pay to performance, therefore improving motivation; and in most cases they include a training component that improves performance capability.

There are three basic characteristics of the Scanlon Plan. First, a philosophy of management is developed. The philosophy stresses the importance of cooperation (including cooperation with the union in unionized settings), teamwork, open sharing of information between employees and management, management leadership, and employee participation in decision making. Second, a bonus formula is developed. A historical baseline is established for the level of labor productivity in the organization; sometimes, similar baselines are established for other forms of productivity as well, such as material and supply usage in relation to total output. Any improvement in productivity is reflected in cost savings, which go into a pool. After reserving a specified percentage of the pool (e.g., for months in which productivity may drop), the pool is divided between the company and employees each month. All employees (including managers) receive the same percentage of their wages as a bonus for increased productivity. The relevance of productivity measurement to this feature should be obvious: Organizations that cannot accurately measure productivity cannot use the Scanlon Plan or any other gain sharing plan.

The third feature of the Scanlon Plan is a set of structures for participation. Employees are urged to continually submit suggestions for productivity improvement to a committee in their department or area. The committee includes representatives of management, employees, and in

organized settings, the union. When possible, this committee implements worthwhile suggestions. More complicated proposals are passed on to an organization-wide committee (which again represents all parties). The organization-wide committee monitors the plan and develops policies.

Conditions for Success

In the Scanlon Plan, productivity improvements are passed on to the employee; thus the plan indirectly leads to employee well-being and satisfaction, which in turn lead to attraction and retention. In addition, work-place changes that lead to more comfortable and safer working conditions are often made. Thus the prediction is that the Scanlon Plan should increase both employee well-being and productivity. Indeed, our research and that of others generally supports this prediction.

Two reviews of the published Scanlon Plan cases have concluded that it has about an 80 percent success rate in improving productivity. This estimate is undoubtedly high since many failures go unreported. Nevertheless, in our own installations we have found well above a 50 percent success rate. Interestingly, the plan seems to be particularly successful in already participative plants. The climate here is right and, as a result, the plans are easily installed and accepted. It seems to be most difficult to install plans in unionized settings and in service organizations. Some unions oppose them; in other cases collective bargaining agreements make it difficult to position them. In service organizations the needed measures often are not present. Not surprisingly, gain-sharing plans typically have been installed only in manufacturing plants.

No discussion of gain-sharing plans is complete without noting that several companies have had gain-sharing plans for decades. Herman Miller, Lincoln Electric, and Donnelly Mirrors all attribute part of their considerable success to a long-term commitment to gain sharing. Each has a dominant position in its field and excellent records of year-to-year productivity improvement.

One important caveat: there are a number of situational factors that can limit the degree to which the Scanlon Plan can improve motivation and, therefore, productivity. Specifically, organization size, labor-management trust levels, managerial attitudes toward the plan, an inadequate basic pay system, and so on can affect the degree to which people see pay as tied to performance and, therefore, the degree to which the plan affects their motivation. In addition, there are situational factors that may lead to stronger employee motivation without enough productivity improvements to generate a bonus. A shrinking market for the organization's product and poor management are typical of such factors.

Employee Problem-Solving Groups

There are several kinds of employee problem-solving groups, including union-management QWL committees and quality control (QC) circles. The discussion here will be limited to the design of union-management QWL committees.

Typically, a hierarchy of committees is created in the organization, parallel to the management and union hierarchies. In large organizations, a national level union-management committee is created to set overall QWL policy, create and support site level committees, and help solve problems that local committees do not have the authority to solve. A site level steering committee (for a plant or equivalent organizational unit) is created to set local QWL policies, develop specific interventions affecting the site as a whole, and manage the QWL effort. Finally, department or work team committees are established to develop changes in particular areas of the site and to suggest plant-wide changes to the site level committee.

If properly designed, a hierarchy of union-management QWL committees can be a powerful vehicle for developing organizational changes. Such a committee structure is capable of generating a great deal of employee participation in designing specific changes that benefit employees, the organization, and the union. A great advantage of such QWL committees is that they link the activities of employee QWL groups with the centers of decision-making power in the organization and the union. This also is true of the Scanlon Plan committee structure, which is very similar to the QWL committee structure.

However, some QWL committees not only fail to reach their potential but fail to survive any longer than a few years. Our research suggests that QWL committees which experience difficulties usually have been poorly designed from the outset. We have identified several key issues in the design of union-management QWL committees.

Key Factors in Design

First, properly determining the number of layers of committees and their location in the management and union hierarchies is a critical factor. Too many levels in the committee structure lead to a paralysis of decision making, while too few may overburden each committee and exclude important centers of decision-making power from the QWL process. Committees that are located at the wrong hierarchical level may have no real authority to make decisions, or may be too far away from day-to-day problems to be helpful.

A second and equally critical issue involves membership on the committees. Committees that are too large cannot function effectively. Optimally, no committee should have more than ten members; committees of more than fifteen members rarely function well. QWL committees also cannot function effectively unless at least some active members have decision making powers. Hence, the committees should always include management and union representatives appropriate to the level of the committee (e.g., top local managers and members of the local union bargaining committee should sit on the site-level committee). The site and work team committees should also include representatives of as many major segments of the work force (race, sex, union-nonunion, age, and other groups) as possible.

There are other important issues as well in designing QWL committees. Committees frequently need various kinds of training, such as in group-process and problem-solving skills and in specific topics related to the desired changes as well. Consulting assistance is often needed to help union and management learn to work together, to conduct training, and to

help with specific interventions. The <u>relation-</u>
<u>ship between the QWL committees and other important groups</u> must evolve
over time if the committee system is to continue receiving the support of
management, the union, and others.

Finally, it is important that QWL committees develop a clear set of
objectives and goals, as well as some clear guidelines about what types of
topics they can deal with. Many committees get in trouble because they
talk about contractual issues or because they fail to focus on
productivity improvements.

Designing union-management QWL committees is a delicate and arduous
task. The entire QWL project can be inadvertently sabotaged before it
really begins if design errors are built into the committee structure.
Moreover, initial errors often are not correctable, even if the mistakes
are discovered early in the project's history. It is difficult, for
example, to eliminate unnecessary or inappropriately constituted
committees; committee members fight to preserve their group, even if
objectively the group is ineffective or worse. The pitfalls in creating
effective QWL committees make it imperative that the groups be carefully
designed from the outset. Properly designing committees is often a slow
process--it may take months. In addition, external consulting help from
those experienced in QWL committee design and start-up may be crucial if
no one inside the organization has the skills and experience needed to
avoid basic mistakes.

Union-Management QWL Committees and Productivity

A union-management QWL committee structure by itself does nothing to
improve productivity. Indeed, it may harm productivity because it takes

time away from production. As indicated, productivity increases can be expected only if the committees adopt or cause the organization to adopt organizational changes that improve communication and coordination, motivation, or performance capabilities. What kinds of organizational changes can affect these factors? Various union-management QWL committees have considered a vast number of potentially powerful changes. Some of the more prominent include the following.

1. A Scanlon Plan can be adopted through the QWL committee structure. As indicated above, the Scanlon Plan can positively affect all three determinants of productivity.

2. Other incentive systems can increase motivation, and group-based incentives can increase communication and coordination. One innovative incentive plan was adopted in a QWL project in the southern auto parts factory mentioned earlier. The productivity incentive was for time off rather than money. In areas of the plant where plans were feasible, employees adopted their own variation of the time-off bonus. Some employees earned two hours or more in time off per day primarily by working extremely hard during their hours on the job.

3. Other changes in the reward system, including changes in performance appraisal, promotion, and employee recognition processes, can increase motivation by linking performance to valued rewards.

4. There are many kinds of job design changes, ranging from simple job rotation to individual job enrichment to team-based plans such as autonomous work groups. All these changes can improve employee performance capabilities; all except job rotation may increase the intrinsic motivation of the work; and team-based approaches also can include provisions for improved communication and coordination.

5. Open information sharing is a common QWL strategy for improving communication about organizational performance.

6. Skills training can obviously improve individual performance capabilities, and it is frequently adopted through the committee structure.

7. Participative decision making is not only the process by which other changes may be implemented through the QWL committee structure; it can become a broader management style. Participation often leads directly to increased motivation to implement decisions as well as to communication.

The changes listed here are some of the more common ones adopted through union-management QWL committees. The types of changes attempted in any particular organization are limited only by employee and management knowledge, experience, and imagination.

Case Studies

Some data is available to help us determine whether QWL processes are associated with higher productivity. The authors of this article, together with Stanley E. Seashore and Cortlandt Cammann of the University of Michigan's Institute for Social Research (ISR), are currently engaged in a study reviewing eight major union-management QWL projects conducted during the 1970s. The eight projects were intensively studied over a period of at least three years by independent assessment teams associated with the Institute for Social Research's Quality of Work Life Program. (The review study, funded by the U.S. Department of Labor, will be published by Wiley-Interscience as part of the Wiley-Interscience Series on Organizational Assessment and Change.)

Table 1 summarizes several aspects of the eight projects that are relevant to understanding the relationship between QWL processes and productivity. First, the table indicates whether productivity data from the organization was analyzed by the independent assessment team. The general pattern is that productivity data was available for the industrial organizations, but that no data was available for the four organizations in government and service sectors. The only exception is the wood products plants project. In this case, data was available but was not analyzed because the project was terminated before the QWL project had an opportunity to affect productivity. The overall availability pattern of productivity data for assessment purposes is consistent with our earlier discussion of productivity measurement problems. The difficulties with outcome measurement in government and service organizations mean that productivity data often is simply unavailable. We should note, however, that indirect evidence (e.g., duration of the project, attitude measures, and so on) suggests that productivity probably did not significantly improve in the service and government organizations.

The table also provides examples of productivity-related changes attempted in each project. These examples indicate a wide variety of changes attempted within particular organizations and across all eight sites. This reflects a basic tendency toward diversity in organizational change efforts using employee problem-solving groups. Involving many different employees, managers, and union leaders in the change effort encourages a "shotgun" approach as different individuals and groups pursue changes of interest to them.

Such an approach differs from the single-intervention "rifle" approach common in top-down, management-directed change efforts. The shotgun approach has both strengths and weaknesses. Since organizational problems are complex and interrelated, a variety of more or less simultaneous changes usually is needed to deal adequately with the problems. Thus, multifaceted interventions are more effective than single interventions in some circumstances. However, the shotgun approach also can be the sign of a poorly managed change process. Decision making groups may be unable to devote enough attention to any one change, and the lack of consensus about overall strategy may lead to interventions that work at cross-purposes. For example, the popularity of survey feedback in these cases had nothing to do with a well-conceived strategy for using the data (except in the case of the utility company). Rather, QWL committees tended to invest a large amount of energy in survey feedback primarily because the data was made available to them by the independent assessment teams, and survey feedback "seemed like a good idea."

The column on productivity-related changes attempted is incomplete in two respects. First, there is no indication of how successfully the changes were implemented. Most projects experienced difficulty in implementing, supporting, and sustaining productivity-related changes. In general, the more complex (and powerful) the change, the less likely it was to be well implemented. For example, gain-sharing plans and job redesign are complex, and probably require specialized outside consulting skill and experience during implementation. Each of these changes was seriously considered or attempted by at least four of the eight organizations. Only in the case of the coal mine was a job redesign

intervention implemented, largely through the efforts of consultants with a great deal of experience in sociotechnical systems. Even in the coal mine, however, the job redesign effort was not sustained in the long run. Despite discussion and, in several cases, agreement that they should do it, none of the sites installed gain sharing.

A second way in which the column on changes attempted is incomplete is that it does not list attempts to improve work-place amenities. Except for the coal mine experiment, all the QWL projects devoted at least some attention to improving work-place amenities. Indeed, several projects were far more oriented toward creating a more pleasant work environment than anything else. As noted earlier, it is generally a mistake for QWL projects to become excessively absorbed in such issues.

The final column in Table 1 concerns productivity outcomes. It is apparent that the productivity outcomes of the eight projects are unimpressive. There was a significant increase in productivity in only one case--the auto parts factory. The factory's change in the reward system--namely, the time-off bonus plan--was clearly the QWL project's most important contribution to productivity. Before the intervention, employees received no reward or punishment for reaching the daily production standard. When 90 percent of the hourly work force began earning time off for meeting production standards early, productivity levels increased sharply. There was a slight, but statistically nonsignificant, increase in productivity in the coal mine. It is difficult to separate the effects of each aspect of the intervention, but job skills training and the autonomous work group were probably most important. It is worth pointing out that after the intervention, the miners still had no incentive for improved productivity.

No change in productivity took place in the bakery, even though one intervention permitted much better communication and cooperation between different departments. Interdepartmental conflict had been a barrier to improving productivity at the bakery, so it was logical to assume that the intervention might have a positive effect. In this case, however, the experimental change was carried out on only one of seven lines in the bakery, and the target line was by far the most automated of the seven. The degree of automation was such that the need for improved communication and coordination was low on the line. Hence, the same intervention might have led to improvements in the productivity if it had been used on other lines where the need for communication and coordination was greater. Unfortunately, the experiment did not spread to other lines until after the termination of the independent assessment activities, so this possibility was not tested. The example does, however, illustrate the importance of situational determinants of productivity.

In the eight case studies, union-management QWL committees were generally not associated with productivity improvements. However, these were pioneer projects and thus could be expected to make mistakes. Some more recent union-management QWL committees seem to be doing better. The newer projects tend to be much better linked to the management and union hierarchies, receive better assistance from a widening circle of experienced consultants, have more realistic goals, and use more sharply focused organizational change strategies.

Summary: Employee Problem-Solving Groups

It is not practical to make an overall prediction regarding their impact on productivity. More information is needed before a specific prediction can be made. Generally, employee problem-solving groups can have a positive impact if they install practices and policies that are likely to influence the major determinants of productivity--skills, motivation, and communication and coordination. If the groups fail to accomplish this, then their mere existence will not necessarily lead to productivity improvement.

Summary and Implications

Does productivity improvement result from an improved quality of work life? Clearly this question does not lend itself to a simple yes or no answer. Indeed, the analysis presented here suggests that a good place to start may be with definitions of QWL and productivity. If inadequate measures of productivity exist, their development should receive a high priority. The data suggests that those who start a QWL program with an eye toward productivity should be very careful to determine whether a particular program being installed is targeted toward factors that will improve productivity. They should be careful to determine that there are not individual factors or situational factors that would block the intervention from producing the processes in the organization which will in turn improve productivity. In many cases, this type of analysis is not done, and as a result, productivity improvement programs relying on QWL interventions fail to produce the desired results. This is not so much a failure of the QWL intervention as it is a failure of people to understand the relationship between QWL improvement and productivity improvement.

Table 1: Productivity Effects of QWL Processes

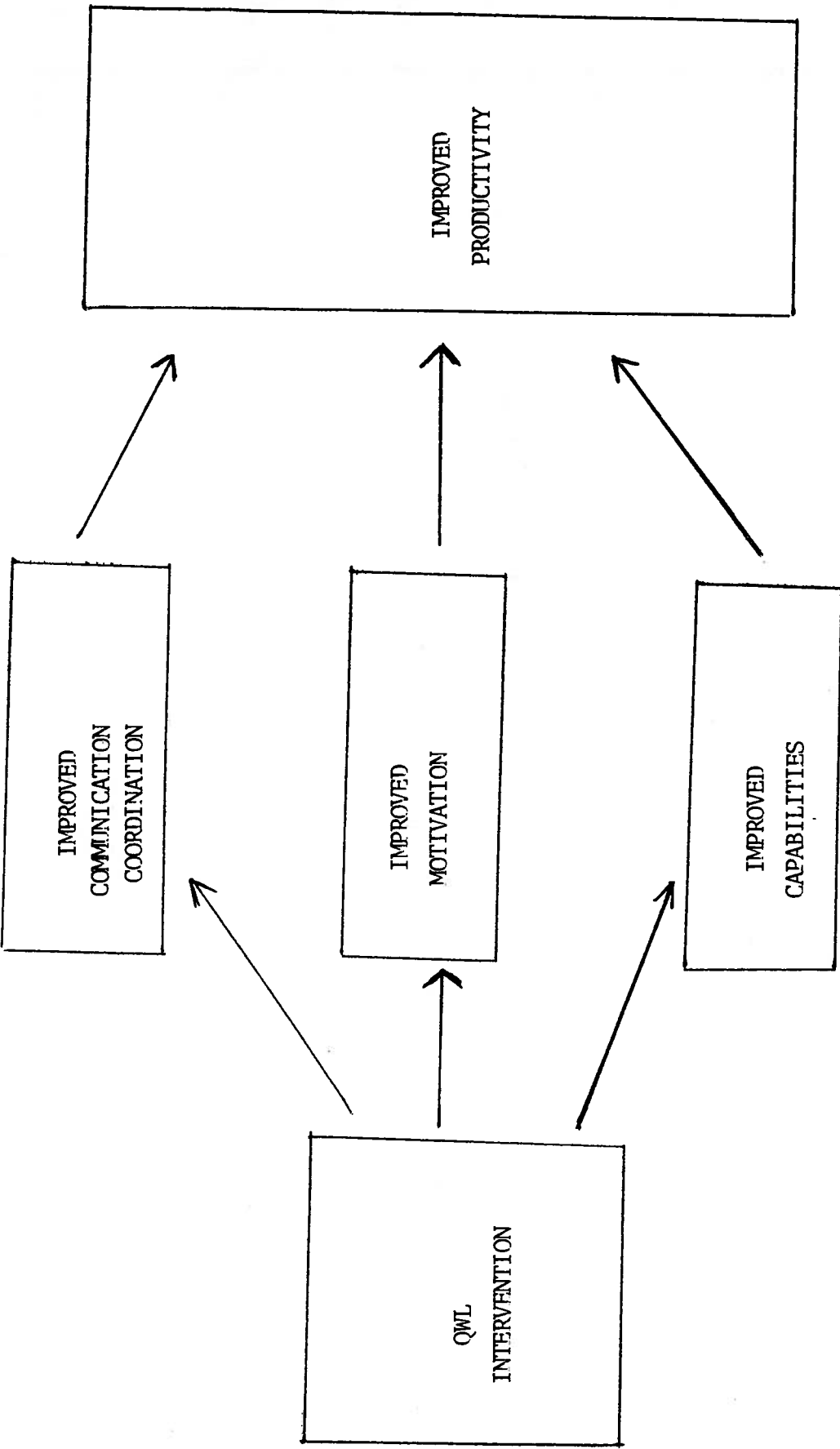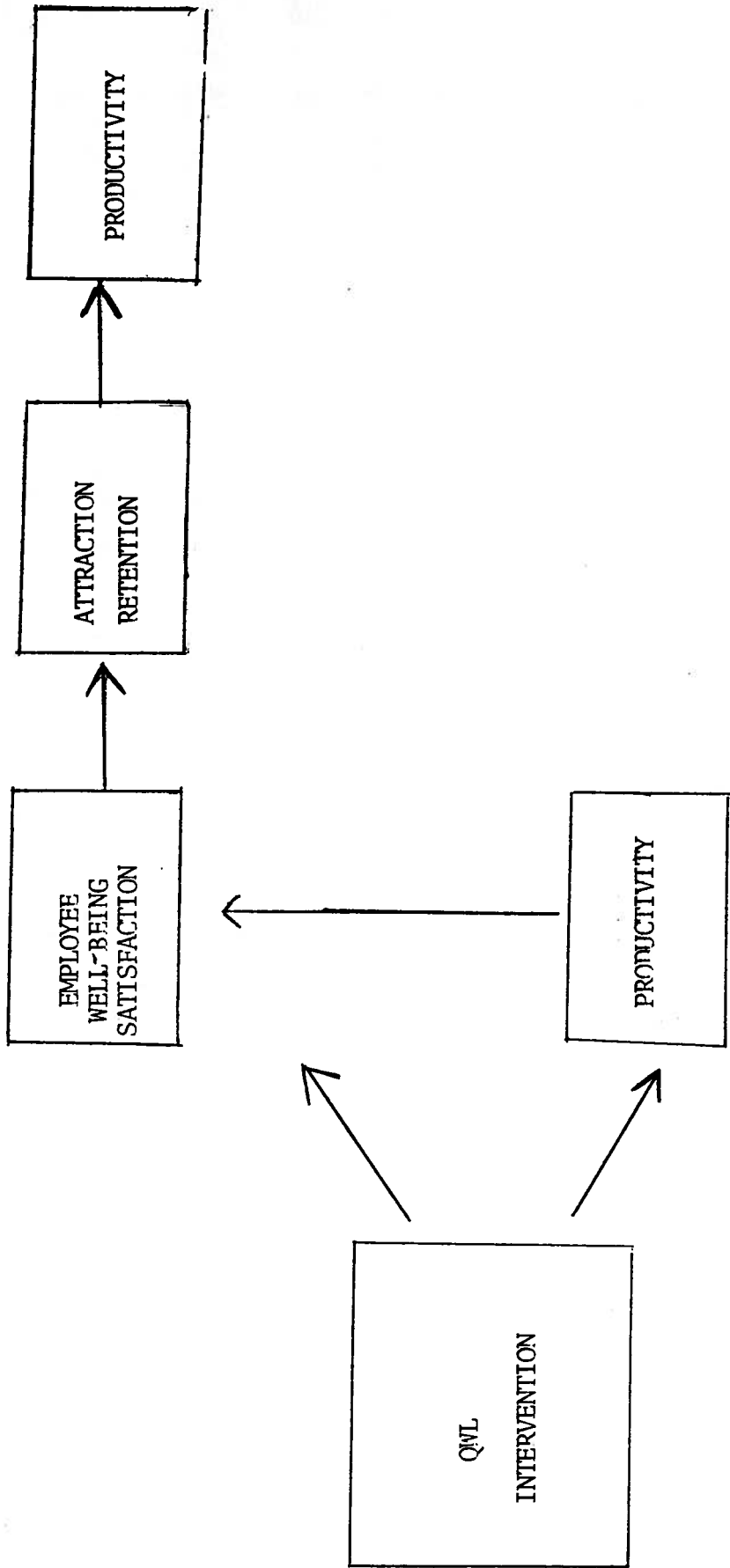| Type of Organization	Was Productivity Data Analyzed?	Productivity-Related Changes Attempted	Productivity Outcomes
1. Coal mine	Yes	Autonomous work groups; job training; supervisor training; pay changes; intershift communication	Slight but statistically nonsignificant increase
2. Auto parts factory	Yes	Time-off bonus incentives; training; union-management cost reduction to retain business; safety program; plant newsletter	Significant positive increase
3. Wood products plants	No	Survey feedback and other communication activities	(No data available, but probably no change)
4. Bakery	Yes	Survey feedback; newsletter; new equipment; job training; interdepartmental coordination	No significant change
5. Federal utility co. (engineering div.)	No	Merit pay; performance appraisal; four-day workweek; survey feedback; other communication activities	?
6. Hospital	No	Survey feedback; staff meetings and training; management development; attempts to increase interdepartmental coordination	?
7. Municipal transit system	No	Survey feedback; management development; work team system; communication efforts	?
8. Municipal government	No	Better equipment; increased communication	?

IMPROVED PRODUCTIVITY

IMPROVED COMMUNICATION COORDINATION

IMPROVED MOTIVATION

IMPROVED CAPABILITIES

QWL INTERVENTION

FIGURE 1

FIGURE 2