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**Gainsharing: Congruence with High
Involvement Organization Design**

**CEO Publication
G 87-10 (101)**

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Abstract

Gainsharing is thought to be especially congruent with high involvement organization designs, but little prior research exists concerning the effectiveness of gainsharing, the effectiveness of high involvement designs, or the congruence of the two. The research reported here presents longitudinal case study data concerning the effectiveness of gainsharing in the context of a very successful high involvement plan, the TRW Oilwell Cable Division. The gainsharing plan generated significant savings for the organization and payouts for employees during the first year of operation. Questionnaire data indicate that the plan had positive effects on cognitions and attitudes directly related to gainsharing, but had no effect on cognitions, attitudes, and behaviors that are more indirectly related to gainsharing. The gainsharing plan was perceived by employees to be highly congruent with the high involvement design.

Gainsharing: Congruence With High Involvement Organization Design

Gainsharing and high involvement organization design are two of the most comprehensive, promising, and under-researched human resource innovations that contemporary organizations are adopting. This paper represents one of the first longitudinal case studies of employee attitudes toward gainsharing. It also considers how well gainsharing and high involvement design fit together--that is, whether gainsharing is an effective reward system for high involvement organizations.

Gainsharing

Incidence. Gainsharing plans include the Scanlon Plan, the Rucker Plan, the Improshare Plan, and innumerable custom-designed plans. According to several estimates (General Accounting Office, 1981; McKersie, 1986), 1,000 or more gainsharing plans of this kind exist in the U.S. today. Until recent years, such plans were adopted primarily by small, often privately held companies such as Donnelly Mirror Co. and Herman Miller, Inc. (McKersie, 1986). Gainsharing has become more visible in recent years, as it has diffused to very large companies such as Motorola, Dana, Mead, General Electric, and Honeywell (Lawler, 1986). A study of 1,598 organizations by the American Productivity Center and the American Compensation Association (O'Dell, 1987) found that thirteen percent used gainsharing, and that 73,0 of existing plans had been implemented within the last five years.

Characteristics. Gainsharing plans have several characteristics. The plans pay bonuses to employees from the pool of savings created by improvements in organizational performance above a baseline level. There is usually a set formula by which this is done. Formulae vary greatly according to the situation and type of plan. By measuring performance at the organizational level (usually at the plant level or equivalent), gainsharing is intended to reward employee cooperation, and thus recognize organizational interdependence, in contrast to individual piece rates or small group incentives. Bonuses are based on quantified savings in cost or other indicators of organizational performance. Usually, the pool of savings is divided into a company share and an employee share, and the employee share is distributed as a percentage of base pay. Gainsharing contrasts with profit sharing, which pays a percentage of company profits to employees. Gainsharing is based on performance measures that contribute to profits, but such performance measures may rise while profits fall, and vice versa.

Gainsharing plans, such as the Scanlon plan, usually entail explicit attempts to increase employee involvement. In most cases, this is done through the creation of a hierarchy of special committees that solicit and process employee suggestions for cost savings. These committees are important, since employee suggestions are the key to improving organizational performance in gainsharing plans. These committees are not unlike quality circles in that the committees are a parallel organization, existing side by side with the

normal hierarchy, and are dependent on the normal hierarchy for final approval and for implementation of employee suggestions.

There is as much variation in the ways organizations handle the involvement side of gainsharing as there is in the forms of the formulas used. Some plans make no special involvement provision. The rationale for some sort of involvement structure lies in the belief that if workers and management are going to work together to increase productivity, there must be a mechanism through which ideas for how to do so are surfaced and put into practice.

Effects. Although gainsharing is approximately fifty years old and has shown much promise, it has been the subject of surprisingly little research. In their review of the literature, Bullock and Lawler (1984) found 33 gainsharing cases that were reported in such sources as the business press, books, dissertations, government documents, and other sources. Yet, they found not a single case in any scientific research journal, and they found no case that measured employee attitudes before and after the intervention. We are aware of only one case study that has been published in a scientific journal since the Bullock and Lawler review (namely, Schuster, 1984), and that case did not report attitudinal data. The paucity of systematic research means that caution is required in discussing the effects of gainsharing.

Nevertheless, gainsharing advocates argue that organizations adopting the intervention can expect a number of benefits. Successful plans result in bonuses for employees as a result of increased organizational performance. Bullock and Lawler (1984) found that two-thirds of 33 reported gainsharing plans appeared to be successful in generating tangible organizational benefits such as significant cost savings or increased productivity. The U.S. General Accounting Office (1981) studied financial data from 24 firms with gainsharing plans, and found that the plans were generally successful; labor cost savings averaged almost 17 percent, and averaged 29 percent in firms with gainsharing plans for at least five years. Payouts to employees from successful gainsharing plans can be substantial. For example, Frost (1982) reported that employees at Herman Miller, Inc. received an average bonus of nearly 11 percent for 30 years under their Scanlon Plan.

In addition to objective effects on organizational performance and on employee pay, supporters of gainsharing also claim a wide variety of indirect organizational changes in successful cases. Figure 1 displays the possible effects of gainsharing, arrayed in a two-dimensional matrix. Columns represent types of changes that may result from gainsharing. The effects can be categorized as cognitive changes, attitudinal changes, behavioral changes, and objective changes. Rows offer a rough ordering of the degree to which the effects are directly related to gainsharing. Each entry in the matrix represents a hypothesis about an effect of gainsharing.

- Figure 1 -

Hypothesized Direct and Indirect Effects of Gainsharing

Most Direct

<u>Cognitive Changes</u>	<u>Attitudinal Changes</u>	<u>Behavior Changes</u>	<u>Objective Changes</u>
Understanding of Gainsharing Concept**	Attitudes Toward Gainsharing**	Employee Suggestions***	Organizational Performance Gains*
Understanding of Gainsharing Impacts**	Attitudes Toward Pay*	Employee Effort*	Increased Employee Pay*
Understanding of Fit Between Gainsharing and Organization**	Attitudes Toward the Job*	Problem Solving*	
Understanding How to Improve Performance*	Attitudes Toward the Organization*	Cooperation Within Work Groups*	
Understanding Organizational Functioning***		Cooperation Between Work Groups*	
		Improved Team Functioning*	

Most Indirect

- * = Measured at both Time 1 and Time 2 in this study
- ** = Measured at Time 2 only in this study
- *** = Not Measured in this study

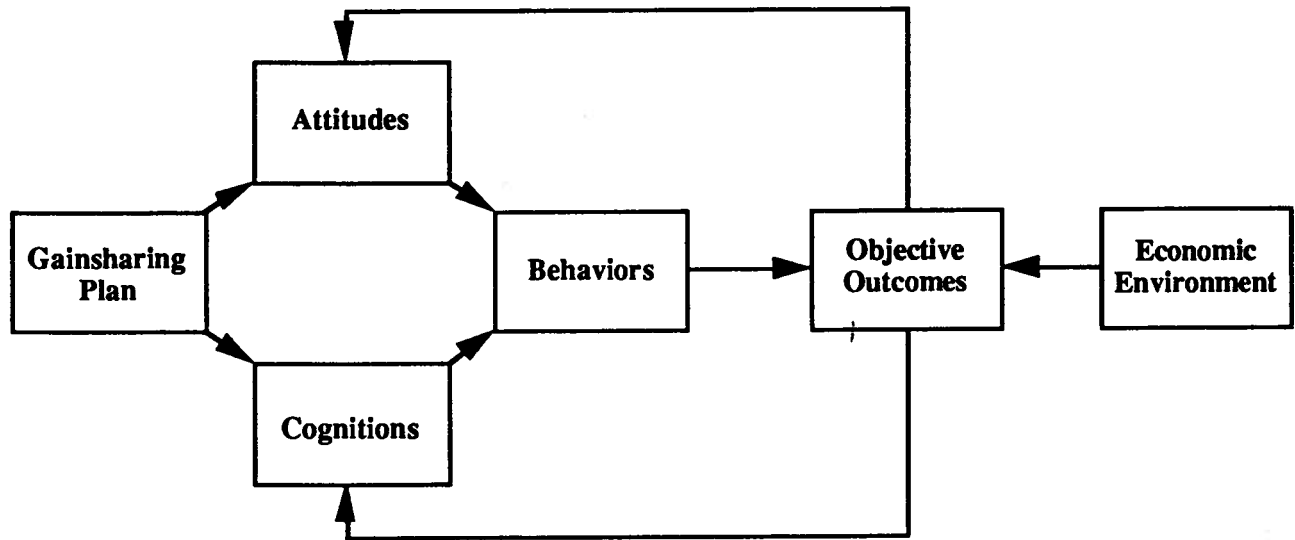
For example, effective gainsharing plans should result in attitudinal changes. The attitudes most directly related to the intervention are attitudes about gainsharing itself. Even if no other attitudes were affected by the intervention, it is reasonable to assume that employees would have positive feelings about the gainsharing plan (assuming that there have been gainsharing payouts). The next most closely related attitudes are attitudes toward pay, since gainsharing bonuses result in increased overall pay. Next, attitudes toward the job also may be affected, because the gainsharing plan may lead employees to value their job more and may lead indirectly to changes in the way work is done. Finally, attitudes toward the organization may change as employees increasingly value their membership in the organization.

Each of the columns in Figure 1 is ordered in a similar sequence from elements that are most closely associated with gainsharing to those most indirectly related. Each column of elements functions as a kind of scale that calibrates the strength of gainsharing impact. The further down each column we find positive results, then the more pervasive the impact of gainsharing. All the entries in Figure 1 have been touted as possible effects of gainsharing plans.

There is another sequence of relationships among the entities in Figure 1. These relationships are pictured in Figure 2. The logic is as follows: when the gainsharing plan is communicated and implemented,

- Figure 2 -

Hypothesized Sequence of Gainsharing Effects



it results in an initial formation of cognitions about the plan and attitudes toward the plan. These attitudes and cognitions eventually result in behaviors. The behavior may be increased effort or better teamwork or more participation in problem solving. To some extent, these behaviors will further affect attitudes and understanding, but the primary effect of the behaviors is to impact objective organizational outcomes such as productivity and subsequent gainsharing payouts. Of course, any payouts, or lack thereof, will serve to further affect attitudes, cognitions, and behaviors. For instance, through these objective experiences, employees will come to better understand the relationship between their behaviors and subsequent payouts. But outcomes are also a result of the economic environment the organization is in. To the extent that the formula and payout are sensitive to these environmental forces, these will also be a basis for subsequent attitudes and cognitions.

This study looks at the impact of a gainsharing plan on most of the constructs depicted in Figure 1. But this study is not simply a study of gainsharing. We are interested in the particular effects of gainsharing in high involvement work settings.

High Involvement Organization Design

High involvement organizations are structured in ways that incorporate high levels of employee participation in most or all major elements of the organization. These designs have reached their most advanced form in new organizations, especially greenfield manufacturing plants, that are built "from the ground up" around employee involvement principles.

Incidence. There are no hard data about the number of high involvement organizations (also termed new design plants or high commitment work organizations). Walton (1985) speculated that over 1,000 such organizations currently exist. Lawler (1986) suggests that at least 40 large corporations, including General Motors, AT&T, Procter & Gamble, Rockwell, TRW, Sherwin-Williams, Mead, and Cummins Engine, have one or more high involvement plants. Some corporations have a number of these plants; Procter & Gamble, for example, has over 20.

Characteristics. Because high involvement organization designs tend to be adapted to business, technological, and other external conditions, there is no set of design characteristics that is always present in such organizations. The most common design elements of high involvement organizations include the following (Lawler, 1982):

1. Organizational structure tends to be relatively flat and lean, with few hierarchical levels and support personnel; tends to be organized around work teams and mini-enterprises; and often includes a formal participative structure, such as a work council, for making major decisions.
2. Job designs tend to be either self-managing work teams or individually enriched jobs.
3. Information systems tend to be highly open, inclusive, decentralized, and team based, and to involve goals that are set participatively.
4. The career system tends to provide multiple career tracks and extensive counseling, and to entail open job posting.
5. Selection processes tend to use a realistic job preview, to be conducted by team members, and to be oriented toward future potential and process skills, as well as current technical skills.
6. Training is extensive, and usually includes economic education and training in interpersonal skills as well as technical skills; peers are often the trainers.
7. The reward system tends to use all-salaried systems, skill based pay, gainsharing and/or employee ownership, flexible benefits, and relatively egalitarian distribution of perquisites.
8. Personnel policies tend to emphasize employee stability and tend to be determined participatively.

9. Physical layouts tend to be designed around organizational structure, to emphasize egalitarian values through symbols, and to be safe and pleasant.

This set of design characteristics is intended to operate as a harmonious, mutually reinforcing whole. The design is intended to advance core values of employee involvement and commitment, as well as high performance (Mohrman, Ledford, Lawler, and Mohrman, 1986; Walton, 1985).

Effectiveness. There is very little research on the effectiveness of high involvement plants. As with gainsharing, most of the available evidence is to be found in sources other than scientific journals. No cross-sectional data of any kind is available; there are only a few case examples.

The famous General Foods plant at Topeka, Kansas was found to have extremely positive employee attitudes in a study by the Institute for Social Research, and in an internal corporate study, was found to have production costs that were 40 percent lower than those of a comparable traditionally organized plant (Walton, 1972). Based on the internal corporate data, Walton (1982) estimated that General Foods saved \$1 million in the early 1970s by using the high involvement design. A Digital Equipment Corporation circuit board plant in Enfield, Connecticut similarly was reported to be highly successful (Proctor, 1986). Compared to traditional plants, Enfield achieved equivalent output with one-half the number of employees, reduces scrap 50 percent, reduced overhead 40 percent, and saved \$1 million in plant layout. Not all high involvement plants are successful. Perkins, Nieva, and Lawler (1983) provide a detailed study of a medical products plant in which results were mixed at best. Overall, Lawler (1986) suggests that most high involvement design plants are highly successful in terms of their levels of productivity, costs, and quality of working life.

Congruence of Gainsharing and High Involvement Design

The concept of congruence, or fit, is one of the most central concepts in organization theory. Yet, although the terms congruence and fit have a variety of meanings, they are rarely defined precisely (Fry and Smith, 1987). A recent review (Van de Ven and Drazin, 1985) identified three uses of "fit" in the structural contingency theory literature. Each type of congruence is conceptually distinct and implies different means of theory testing, and each is evolving in new directions. The *selection* approach assumes that fit is found in the conformance of organizational design characteristics to external, contextual requirements. The *interaction* approach assumes that organizational performance results from the fit (interaction) between organizational context and structural characteristics. That is, the right combination of contextual conditions and organizational design characteristics is needed to produce high performance. Finally, the *systems* approach assumes that performance levels are determined as much by the internal consistency of organizational elements as by the match between structure and external environmental demands. The interaction approach and systems approach are relevant for purposes here.

Interaction Approach. The interaction approach might claim that the effectiveness of gainsharing in improving organizational performance is the result of interaction between characteristics of the gainsharing plan and contextual conditions (for example, technology, market type, union status, size, etc.), and/or implementation factors (degree of employee involvement, degree of adaptation of the plan over time, support at higher organizational levels, etc.). Many interaction effects for gainsharing are claimed in the literature. For example, Lawler (1981, 1985) points to a number of organizational conditions that are conducive to gainsharing, and White (1979) found that employee participation and managerial attitudes were related to success in a study of 23 gainsharing plans.

A single case study cannot demonstrate interaction effects, nor can it determine whether particular factors may have main (direct) effects rather than interaction effects. However, it is important for case studies to provide enough information about conditions that may produce interaction effects so that future reviews of the literature can explore such effects across cases. Thus, this paper provides considerable detail about contextual and implementation factors that the literature suggests may be important in gainsharing success. Such description is rarely provided in existing gainsharing cases (Bullock and Lawler, 1984).

Systems Approach. The systems approach to fit emphasizes that gainsharing results in improved organizational performance to the degree that gainsharing is consistent with other internal organizational characteristics. This approach is common in the gainsharing literature. Gainsharing proponents repeatedly emphasize that the plans depend on employee participation for success, and thus that structural vehicles for participation (such as suggestion committees) and a strong value on employee participation are necessary (for example, Doyle, 1983; Frost et al., 1974; Lawler, 1981; Lawler, 1986). Participation is thought to be important because it permits employees to develop and propose suggestions for improving organizational performance, and because of the motivational impact of participation on performance-related behavior.

Because gainsharing is thought to be most effective in participative organizations, it is often argued that gainsharing is a reward that fits (that is, is internally congruent with) high involvement organizations (Lawler, 1986; Mohrman et al., 1986; Walton, 1985). Consistent with the thinking of the systems approach to congruence, McKersie (1986, p. 8) indicates that ". . . in a number of situations today, gainsharing is being introduced as a final piece that locks in place a new system of work organization and involvement." This use, he argues, represents the basis for a new generation of gainsharing plans that are adopted for different reasons than earlier plans, which were adopted to solve specific crises, to replace ineffective individual or group incentive plans, or to satisfy management values about sharing economic gains with workers.

There is very little evidence, however, that gainsharing actually is especially congruent with high involvement designs, or that organizational performance and quality of work life will improve in high involvement organizations that adopt gainsharing. Bullock and Bullock (1984) report the only example in the literature of a greenfield high involvement plant that adopted a gainsharing plan (the plan apparently was

successful). It can be argued that one more participative design feature on top of an already highly participative work organization may make little incremental difference in the overall design. Indeed, the performance level of many high involvement organizations is so high that there may not be significant room for improvement. In addition, it is not clear that members of high involvement organizations see gainsharing as congruent with the organization design, regardless of whether organization theorists perceive a fit between the two.

Although gainsharing usually is claimed to be congruent with a high involvement design, there are alternative beliefs. The extrinsic rewards provided by gainsharing might drive out or replace the intrinsic motivations engendered by other involvement practices (Deci, 1975; Staw, 1976). The extrinsic nature of the incentive might also create negative conflict dynamics. For instance, gainsharing could lead to conflict within the organization if some employees felt that other employees were not "pulling their weight" in achieving productivity gains. Conflict studies (Pondy, 1967) have shown that interdependence can lead to conflict as well as cooperation. Overcoming conflictual dynamics may depend on suspending individualistic tendencies in favor of the cooperative tendencies fostered by high involvement settings. Monetary incentive plans, no matter how group oriented, may exacerbate individualistic tendencies. A variation on this line of thought is the prediction that incentives exacerbate success and failure dynamics. Conflicts may disappear when teams are winning and compound when they are losing.

Another argument against gainsharing in high involvement organizations is that employees may be tempted to divert effort from activities that they do not see as immediately and directly productive. Thus, planning, problem solving meetings, and other activities that are central to employee involvement may be sacrificed in favor of short-term productivity gains.

If gainsharing does not fit with high involvement work settings, then the lack of fit should be manifested in a number of areas in Figure 1. First, the lack of fit should be perceived by employees themselves. If gainsharing substitutes extrinsic satisfaction for intrinsic satisfaction, we would expect attitudes toward pay to go up while attitudes toward the job would go down. Finally, if gainsharing leads to a focus on behavior that is directly productive at the expense of involvement, then we should see less problem solving and other participation activities.

This study reports some of the first data concerning whether there is a systems fit between high involvement design and gainsharing.

The data reported in this study are from a very successful high involvement plant that adopted gainsharing several years after start-up. The facility, located in Lawrence, Kansas, is owned by TRW, a Fortune 500 corporation. The next two sections describe the organizational context within which a gainsharing plan was adopted and describe the plan itself.

The Organizational Context

The TRW-Lawrence plant started up in early 1975 and first shipped products in May 1976. In the early '80s, the name of the plant changed to the Oilwell Cable Division (OCD) of TRW. The facility produces electrical cable for powering submersible oil well pumps. The cable must be able to withstand the extreme pressures, temperatures, and corrosive environments experienced within the wells. The operation is capital intensive; only about ten percent of total costs are labor-related. The major market for OCD's product is another division of TRW that manufactures oil well pumps. Since 1980, however, cable increasingly has been supplied to other users as well.

Product and Technology

Cable is produced in spools. Each spool length of cable goes through several stages of production that add layers of material to give the cable its electrical and protective characteristics. The layers include the copper wire of the cable core, various rubber and plastic coatings, and metal shields and plastic outer casings. Spools of cable travel from stage to stage in this process. At each stage, additional layers are added. During the addition of these layers, the production process assumes the characteristics of a continuous process technology. Machinery set-up and process monitoring are important labor skills. Each cable must be completely tested and, if necessary, repaired.

Each cable is designed for a particular mix of environmental characteristics and uses. Therefore, the products can be quite specialized. Scores of different cable products are possible, each requiring a particular mix of layers and specifications. Research and development continues on new product variations and old product improvements.

The Workforce

The average age of the workforce in 1985 was 33.5 years. This average was higher than in the early start-up years simply because many of the same employees remained throughout the entire time. The workers were not unionized. At the beginning of gainsharing planning in 1980, the total number of employees was approximately 120. In early 1986, employment returned to about 120 after a 20 percent drop in 1983, caused by a severe business downturn. Four percent of employees (5 of 120) were classified as managers.

Employee Involvement

OCD has all the basic design characteristics of high involvement organizations, as described earlier. Here, design elements are discussed in detail only if they are especially central to the organization design at OCD (for example, job design), or if they are especially relevant to gainsharing (for example, the base pay system).

From its inception, OCD has been designed around the concept of a high involvement, all-salaried work force organized by "teams." Teams are defined in terms of functional tasks that are performed during the stages of the manufacture of the cable. Each stage, and therefore team, has an associated set of tools and technology. Some teams, such as the armoring team and the braiding team, are responsible for the direct production of cable. Other teams are responsible for support and managerial functions, such as the administration team, the management team, and the technical team.

Each of these teams meets at least weekly to plan their work and work assignments. Consistent with the idea that the teams are self-managing, the teams have been given responsibility for making human resource management decisions that would, in other organizations, be made by supervisors or personnel specialists. The teams do their own disciplining, hiring, firing, counseling, training, and performance appraisal.

Early in the facility's history, most teams had area managers who were responsible for managing the teams as they made these decisions. Ten years later, the ranks of area managers have thinned. Most are now assigned to more than one team, and as the teams have become truly self-managing, area managers have assumed more inter-team responsibilities. Area managers are on a resource team. Area managers report to the operations manager. The operations manager, general manager, manager of human resources, manager of R and D and the finance manager form the management team. Thus, there are only four hierarchical levels at OCD.

In addition to daily involvement as a member of a self-managing work team, employees periodically are involved in policy decisions through a committee process. Typically, representatives from the various teams are used to form committees to tackle particular issues. The team structure facilitates plant-wide participation on policy issues. Each team receives reports from its representatives on a weekly basis and makes input to the next task force meeting. Thus, every employee at OCD has either direct or indirect input into policy-oriented task force decisions. The gainsharing system was designed and planned using this committee structure.

Base Pay System

Eighty-three percent of the work force at OCD is on a skill-based pay system. (See Lawler and Ledford [1985] for a general discussion of skill-based pay, and Ziskin [1986] for additional details on the OCD skill-based pay plan.) In brief, skill based pay is determined by the number of skills employees possess, not the job they are performing at a given time. Within a traditional work setting, the tasks in a work group would be divided into different jobs that would be performed by different individuals, who would be paid according to the assessed value of their jobs. Under skill-based pay, employees are rewarded for learning skills associated with a variety of jobs.

One objective of the skill based pay plan at OCD is to gain workforce flexibility. Flexibility is achieved because employees can be assigned where they are needed to handle work flow, and because it is

possible to avoid disruptions when individuals with key skills are absent. Another objective is to build team identity. Originally, employees were encouraged to reach the top pay level by learning as many of their team's skills as possible. Since 1982, however, cross-team training has been emphasized as a means of building flexibility, organizational identity, and job security. The pay system reinforces the job design, by providing incentives for employees to obtain and practice the skills necessary for team members to manage themselves effectively. Finally, the pay system enhances value of employee participation in problem solving, since employees with broader skills have a better understanding of facility operations.

Under the skill-based pay plan at OCD, employees are paid for the number of skills they have acquired, as well as for their proficiency in using the skills. The skill and proficiency dimensions are arrayed on a two-dimensional matrix that includes nine pay levels. Typically, it takes an employee four years to progress to the highest pay category. It is possible for employees to learn additional skills that are not associated with additional base pay compensation. Skill levels are high enough that it is not feasible for employees to learn all of the operations in the plant.

Most employees had reached the top pay level prior to the development of the gainsharing plan. Therefore, additional base pay raises for most employees were entirely dependent upon across-the-board pay adjustments based on market surveys and general business conditions.

Organizational Effectiveness of OCD

By almost any relevant measure, OCD was an extremely effective organization prior to the adoption of gainsharing. OCD was the highest quality and lowest cost producer in its industry. Employee attitudes were highly favorable when measured in 1980, as will be apparent from data presented in the Results section. The plant manager indicated in 1982 that the plant needed one-third fewer employees to achieve the same output than a cable plant using a traditional organization design (Strippoli, 1982). He also indicated that productivity had increased 80 percent since 1978, with only a 12 percent increase in employees, while return on assets and profits had increased "by multiples"; the absenteeism rate was two percent; turnover was ten percent. In the year prior to the adoption of the gainsharing plan, absenteeism dropped to less than one percent, and voluntary turnover was non-existent. Given this record of performance, gainsharing obviously was not intended to overcome performance problems, but to improve an already excellent organization.

The Gainsharing Intervention

Motivation for Adopting Gainsharing

When the plant was originally designed, it was anticipated that gainsharing would be adopted after employees hit salary limits under skill-based pay. Gainsharing was deemed appropriate as a means of

additional pay because bonuses would be contingent on, and therefore would reinforce, performance of the plant as a whole. Gainsharing also was seen as a means of encouraging employees to work together in order to improve facility performance. Furthermore, many people felt that gainsharing would strengthen the high involvement style of the plant and even help institutionalize it. At the time, there was some concern that the management style of the plant was dependent on the vision and presence of the plant manager.

Gainsharing Design Process

In 1979, the division manager initiated planning for gainsharing. A gainsharing task force was created with representation from each of the teams. The design process was managed by the human resource manager. Three external consultants were used for various purposes. The primary consultant, Ed Lawler, oriented the committee, educated them on the philosophy and theory behind gainsharing, recommended gainsharing sites for them to visit, and provided a "road map" of issues to be addressed by the committee. Another consultant, Monty Mohrman, helped the committee work through the various gainsharing design issues and worked with the committee to devise a survey that would be used to help evaluate the effects of the program. The third consultant, R. J. Bullock, also helped devise the survey and worked with the plant's financial group to devise the gainsharing formula.

Gainsharing Task Force. The design process lasted for over one and a half years, and included a number of activities. First, the task force arranged for people from other companies to visit and talk about the successes and failures they had experienced in designing and implementing gainsharing programs. They also visited several locations and saw first-hand how management and employees reacted to different gainsharing systems.

Communication with Employees. As the committee worked through the design issues, employee teams at the plant received regular reports from their representatives on the gainsharing task force. Employee responses to gainsharing issues and design alternatives were then incorporated into the final decisions made in committee. Some issues were particularly difficult and were revisited many times throughout this process. At the end of the process, the final design was submitted to employees for formal ratification before being sent on for corporate approval. This extremely participative design process was employed in part to minimize the chances of the facility not ratifying the plan that evolved. It served this purpose well. Over 98 of plant employees voted to accept the plan.

Absence of Special Suggestion Committees. Unlike typical gainsharing plans, the task force plan did not call for setting up a committee structure to solicit and process employee suggestions for cost saving improvements. The gainsharing committee felt that there was no need for a problem solving structure that was parallel to the existing team structure. The self-managing teams were designed to encourage employees to contribute their ideas and suggestions for organizational improvements and to permit employees to be highly involved in implementing changes.

Gainsharing Formula and Bonus Plan. The traditional Scanlon plan formula, based on labor productivity, was inappropriate for OCD because labor inputs represented a small percentage of total costs. A complex, custom-designed formula was developed that took into account savings in materials and labor costs. A production function was used to depict conversion of various inputs into products.

Calculations were particularly troublesome because different cable products contained many different combinations of materials, labor, and other inputs. In effect, each cable product has its own production function. However, the formula could not be recalculated on a product-by-product basis because products changed frequently; such an accounting approach would have been unworkable. Therefore, the production parameters on each product had to be inferred using multiple regression. Developing the formula took time.

The formula counted outputs as sales plus inventory charges minus product returns. In this way, and also because additional material costs would be incurred by rework, product quality considerations were built into the formula. The formula also indirectly penalized absenteeism and turnover, which would result in increased labor costs.

The bonus system called for monthly payouts to employees, based on performance measured according to a three-month rolling average. That is, each month's bonus was dependent on the average plant performance during the three previous months. The monthly payout provided the motivational advantages of relatively frequent bonuses, and the three-month rolling average smoothed the variations in product mix that occur month to month and that would have caused bonus fluctuations not controllable by the plant under a purely monthly plan. Any savings accrued according to the formula were divided between employees and the organization, with 50 percent to each. Bonus payments were made only if payouts exceeded two percent of payroll; however, a running balance would be kept on the books until the next month. Also, if organizational performance declined, a negative balance would build up that would have to be eliminated through additional savings before bonus payments would be made in future months.

The complexity of the formula meant that it was difficult to educate employees on exactly how they could impact the bonus, other than to say that savings in the use of materials, labor, and other inputs would result in payouts for employees. Employees interest in details about the formula was highest at three crucial times: when the plan was announced, when the first payout was made, and in months when no payout was made.

Final Approval of the Gainsharing Plan

By mid-1982, the gainsharing design was finished, accepted by plant employees, and submitted for corporate approval. Approval was slow in coming. One reason for the slow progress was the need for high-level managers to become comfortable with the gainsharing concept, which was foreign to the experience of most TRW managers. Upper management no less than employees at the plant level needed to work through

the design issues until they could feel comfortable with the design decisions taken by the plant design committee.

Another reason for slow progress was a drastic downturn in the oil business in late 1982. In rapid succession, OCD experienced a number of changes that created enough uncertainty to throw gainsharing far into the background. A 20 percent reduction in workforce was the most impactful event. This was a maturing experience for the teams, one that made them realize the impact of market factors. The reduction in workforce was forestalled for a while by reduced working hours. When layoffs came, teams were given reduction targets and requested to make the layoff decisions themselves. This was a very difficult and stressful time for OCD employees.

In 1983, other significant changes took place. The original general manager moved on to another division. A new division general manager and a new human resource manager arrived at about the same time. Area managers began rotating their positions once a year in order to promote a larger plant-wide orientation and to keep teams from identifying too much with area managers. Renewed attention was paid to cross-training after the experience with layoffs that were based partly on the number of skills attained.

In 1984, the industry was recovering, and there was a new company president who was a personal supporter of high involvement organizations. The gainsharing program won relatively swift corporate approval with some changes. The baseline data used to devise the gainsharing formula were updated and recalculated, and the proposal was approved. The gainsharing plan was finally implemented at the division late in 1984.

The gainsharing committee has continued to meet since implementation of the plan. It monitors progress under the gainsharing plan and considers means of improving the functioning of the plan.

Methods

The data in this study were collected through questionnaires, archival records, and participant observation.

Participants: Questionnaire Data

There were two waves of questionnaire data. The first questionnaire was administered to all plant employees in 1980 during the early stages of the design process. Employees at OCD had heard of gainsharing at that point, but knew very little about it. Even those on the gainsharing task force knew little more than general goals and expectations for gainsharing. Table 1 reports the demographic characteristics of the Time 1 sample. Of the 120 employees present in 1980, 101 completed the questionnaires (for a response rate of 84 percent).

The second survey was administered in late 1985, after the gainsharing program had been operating for one year. At time 2, 66 people responded to this survey out of a population of 110 (response rate of 60 percent). Table 1 also reports the demographic characteristics of the Time 2 sample.

- Table 1 -
Demographic Characteristics of Respondents

	<u>Time 1</u>	<u>Time 2</u>
Sex (Percent Male)	77%	78%
Age (Mean, Standard Deviation)	31 yrs./8.3 yrs.	34 yrs./9.5 yrs.
Education Level (Percent):		
Some high school	3%	N/A
Graduated from high school	35%	
Some college	48%	
College degree or higher	15%	
Organizational Tenure (Mean, Standard Deviation)	3 yrs./3 yrs.	6 yrs./3 yrs.
Job Tenure (Mean, Standard Deviation).	2 yrs./3 yrs.	4 yrs./3 yrs.
Part/full owner of small business (Percent)	7.8%	13.6%
Percent on Skill-Based Pay System	82%	64%

N/A = Not Available

The gainsharing committee managed the questionnaire administration process at both Time 1 and Time 2. The lower response at Time 2 probably occurred because the gainsharing committee was not as involved in designing the survey and in planning survey feedback as at Time 1. Although the attitudes of those not completing the survey were not measured, it appears to the division human resource manager (a co-author of this paper) that the attitudes toward gainsharing of those completing the questionnaire are representative of the views of all plant employees.

A matched sample of 34 people who completed both questionnaires also was identified. This permitted additional analyses of changes in employee attitudes over time.

Questionnaire Measures

Questionnaires at both Time 1 and Time 2 included 27 multiple-item measures. These included four measures of perceived gainsharing effects, six measures of attitudes toward pay, three measures of general

attitudes, five measures of individual and team involvement in the change process, three measures of cooperation/work style, five measures of work team functioning, and a measure of self-reported effort.

Another 15 measures were included only in the Time 2 questionnaire. These included four measures of perceived gainsharing impact, four measures of the degree of fit between gainsharing and key elements of organization design, and seven measures of attitudes toward gainsharing.

Most responses to the questionnaire items were on a seven-point scale, except for the four measures of the degree of fit between gainsharing and organization design elements. The latter were measured on a five-point response scale. The particular wording and directionality for each response scale is indicated in the Appendix. The Appendix lists the various attitudinal measures used in this study, as well as the individual questionnaire items constituting the measures. Scale reliabilities, determined by the Chronbach alpha statistic, are also reported in the Appendix. The particular wording for each response scale is indicated in the Appendix.

The core of the questionnaire items came from the Michigan Organizational Assessment package (Cammann et al., 1983). The original adaptation of these items into a gainsharing-oriented instrument was done by R. J. Bullock. Several additional measures were created especially for this study. Measures were chosen to represent the range of hypothesized effects depicted in Figure 1.

Results

Effectiveness of the Gainsharing Plan

The gainsharing plan was successful objectively in that it led to significant measurable savings to the organization and resulted in significant bonuses for employees. The plan paid bonuses during 11 of the first 12 months of its operations, and averaged 11.6 percent of base pay. (Specific dollar benefits of the gainsharing plan are considered proprietary by the company.) The Time 2 questionnaire was administered at this point.

In the next 18 months, the gainsharing plan did not always result in payouts. Payouts under the plan have followed market conditions fairly closely at OCD. That is, when the industry is healthy and facility volume is high, it is possible for employees to earn significant bonuses; indeed, bonuses reached 17.7 percent of base pay during 1985. When business volume is low, however, it has not been possible to operate the facility at a level of efficiency high enough to earn a bonus.

OCD has remained an effective organization, despite the vagaries of the oil well cable market. It continues to be the leader in its market in cost and quality. Indeed, quality performance has improved since the gainsharing plan was adopted. Scrap rates have dropped from 3.7 percent to 3.0 percent; warranty costs are now at one-tenth of one percent of sales. Absenteeism and turnover have remained almost nonexistent.

Questionnaire Results

We report the questionnaire results using the framework and hypotheses presented earlier and summarized in figures 1 and 2. Table 2 presents the results of T-tests of differences between before and after questionnaire measures. Paired T-test results are reported for the matched sample, and group T-test results are reported for the complete samples at Time 1 and Time 2. Table 3 reports means and standard deviations of scales measured at Time 2 only.

Cognitions

Multiple indicators suggest that employees perceived the gainsharing plan as working effectively. In questionnaire scales measured before and after adoption of gainsharing, respondents indicated that they personally shared in organizational performance gains (Personal Gainsharing), as did employees generally (Sharing Performance Gains), and that they received a payoff for contributing ideas and suggestions for organizational performance improvements (Payoff for Ideas). Results on all three measures are highly significant for both the matched sample and for the total group T-tests ($<.001$). Indeed, the differences are quite dramatic; in all but one instance, the mean response moves from a negative to a positive point on the scale, and the change is more than one full point in a positive direction on a seven-point response scale. On the other hand, Payoff For Behaviors (that is, payoff for working smarter, controlling costs, and cooperating) was significant for the group T-tests but less dramatically different, and the difference on this measure was positive, but not significant for the matched sample. This result may indicate that the payoffs for these behaviors is more distantly connected with gainsharing.

The other cognitions measured are conceptually removed from gainsharing. The link between pay and individual performance, for instance, would theoretically be affected by gainsharing only to the extent that people saw their individual performance having a direct effect on the gainsharing pool. The results shown in Table 2 show no change for this measure. Understanding how to improve performance is also a cognition that might be a by-product of gainsharing, but not one we would expect to be directly impacted. We have evidence to refute this expectation since this measure did not significantly change.

Post-intervention only measures of gainsharing effectiveness also were uniformly favorable (see Table 2). Gainsharing was seen as having a positive impact on facility performance, employees' quality of work life, and employee-management relations. The employees also believed that there was a fairly strong fit between gainsharing and the way tasks were designed in the organization, the organization's communication and problem solving processes, input from the teams, and the pay system of the organization. The means of all these fits were very high (above 4.1 on a five-point scale).

- Table 2 -
T-Tests Between Before and After Measures

	Paired T-Tests			Group T-Tests		
	MEAN Before N = 34	MEAN After	T-Value	MEAN Before N = 101	MEAN After N = 66	T-Value
COGNITIONS:						
<i>Understanding Gainsharing Effects</i>						
Personal Gainsharing	3.72	5.49	-6.50***	3.67	5.58	-9.64***
Sharing Performance Gains	3.09	5.45	-9.03***	2.90	5.32	-13.41***
Payoff for Ideas	4.12	4.96	-4.20***	3.93	5.04	-6.39***
Payoffs for Behaviors	5.30	5.64	-1.84	5.18	5.73	-3.90***
<i>Understanding Link Between Pay and Individual Performance</i>						
Pay Individual Performance Link	4.61	4.38	.92	4.51	4.50	.06
<i>Understanding How to Improve Performance</i>						
Work Style Effect	5.93	5.99	-.50	5.89	5.93	-.34
ATTITUDES:						
<i>Attitudes toward Pay</i>						
Pay Satisfaction	3.93	5.07	-4.93***	3.82	5.17	-7.85***
Pay is Fair	4.05	4.83	-3.09**	4.09	5.00	-4.65***
Pay Administration	4.71	5.10	-2.32*	4.61	5.03	-2.43*
Local Area Equity	4.36	4.96	-3.05**	4.38	4.98	-4.53***
Internal Equity	4.37	4.71	-1.24	4.42	4.82	-2.01*
<i>General Attitudes</i>						
Job Satisfaction	5.28	5.50	-1.34	5.33	5.59	-1.94
Trust in Organization	5.11	4.79	1.68	5.06	4.89	.95
Voice	4.96	4.29	2.27*	4.84	4.38	2.00*
BEHAVIORS:						
<i>Effort</i>	6.21	6.06	1.09	6.20	6.05	1.40
<i>Problem Solving and Change Process</i>						
Individual Initiation of Ideas	5.44	5.31	.75	5.42	5.15	1.92
Individual Change Implementation	5.11	5.41	-1.60	5.01	5.20	-1.21
Team Initiating of Ideas	5.35	5.12	.85	5.28	5.02	1.30
Team Change Implementation	5.24	5.01	.88	5.15	4.87	1.43
Change Success	5.16	5.01	.75	5.05	4.95	.71
<i>Cooperation</i>						
Working Cooperatively	4.73	4.46	1.01	4.74	4.61	.66
Interteam Cooperation	3.94	4.15	-.83	4.32	4.02	1.41
<i>Team Functioning</i>						
Encouragement of Participation	5.11	5.27	-.71	5.32	5.27	.29
Structuring	4.62	4.80	-.63	4.77	4.78	-.06
Production Orientation	5.08	4.81	.95	4.92	5.03	-.63
Consideration	5.00	4.94	.22	4.90	4.87	+.15
Assistance of Members	5.12	5.07	.20	5.05	5.07	-.10

*p ≤ .05

**p ≤ .01

***p ≤ .001

Attitudes

Like cognitions, we can order attitudes from those most directly concerned with gainsharing to those more general in nature. Attitudes toward the gainsharing plan were measured only at Time 2 and appear in Table 3. These were measured on a seven-point scale. Respondents expressed a very strong preference for gainsharing (mean = 6.14 on a seven-point response scale). They also indicated that gainsharing had a positive motivational effect, that the plan was administered well, that they understood the plan, that the plan was fair, and that the plan was likely to be a permanent design feature of the organization. However, respondents indicated that they needed more information about the gainsharing plan.

- Table 3 -

Perceptions after Implementation of Gainsharing

Scales	Mean	Std Dev	Valid N
COGNITIONS:			
<i>Understanding of Gainsharing Impacts</i>			
Impact on Plant Performance	5.62	.56	60
Impact on Employees' Quality of Work Life	5.21	.63	62
Impact on Employee-Management Relations	4.63	.85	63
<i>Understanding of Fit Between Gainsharing and...</i>			
Task Design	4.45	.69	60
Communication/Problem Solving	4.10	.76	62
Team Input	4.27	.65	60
Pay System	4.30	.78	60
ATTITUDES:			
<i>Attitude about Gainsharing</i>			
Preference for Gainsharing	6.15	.59	64
Equity of Gainsharing	5.32	1.04	64
Motivational Effect	5.41	.79	64
Gainsharing Administration	5.26	.90	64
Permanence of Gainsharing	5.34	.86	62
Understanding of Gainsharing	5.52	.79	65
Need for More Gainsharing Information	5.38	1.09	64

The remaining attitudes were measured at both Time 1 and Time 2. The first set of these, attitudes toward pay, are one step removed from gainsharing, but we reasonably expected they would show some change, since gainsharing is a form of compensation. Table 2, in fact, shows that satisfaction with pay, pay fairness, pay administration, and local area equity all changed significantly in the positive direction. Even internal equity showed some tendency to change over time (in the group t-tests).

The most general attitudes we measured did not show improvement over the duration of the evaluation. Gainsharing does not appear to have had a generalized positive affect on attitudes, such as job satisfaction and organizational trust. In fact, voice in the organization shows a significant (though not large) decrease over time, for reasons we cannot identify.

Behaviors

Given the fact that the cognitions and attitudes most directly related to gainsharing show significant positive changes, we expect that behaviors will follow suit. The fact that OCD did experience the productivity results discussed earlier leads us also to expect that behaviors must have changed.

The results in Table 1 indicate that the behaviors we measured did not show any significant change. There were not significant increases in the problem solving and change processes we measured, neither for generating ideas nor for implementing them. Thus, any productivity changes do not appear to be the results of new (and "smarter") ways of functioning. Similarly, there was no increase in self-reported effort or in cooperation within teams or between teams. Finally, other aspects of team functioning that refer to the self management styles of the teams show no significant change; no change in participation, no change in task structuring, no change in production orientation, no change in consideration, no change in assisting one another.

Discussion

Effects of Gainsharing

When we consider the results just discussed in the context of Figure 2, we find an interesting development. Apparently the gainsharing plan has had a number of the hypothesized effects. Most importantly, there was increased productivity, and because of the plan, employees shared in these gains. The plan itself and the fact that it resulted in payouts seems to have positively affected a number of employee attitudes and cognitions, and the plan seems to have produced no negative effects.

Direct versus Indirect Effects. Not all the hypothesized effects of gainsharing were realized. However, there is a clear and interesting pattern regarding which effects were realized and which were not. Attitudes and cognitions with a closer, more direct connection to gainsharing (for example, understanding of the gainsharing concept and attitudes toward gainsharing) changed in a positive direction, while attitudes and cognitions with a more distant, indirect connection (for example, understanding organizational functioning and attitudes toward the organization) remained unchanged. In general, relatively indirect behavioral effects were measured, and these also were unchanged.

This pattern of findings has implications for theory and practice that go beyond the nature of gainsharing. It suggests that in many situations, organizational interventions--even relatively powerful ones,

such as gainsharing--will not have wide-ranging effects on organizational functioning. In one sense, this is disappointing for interventionists. It suggests that multiple well-targeted interventions are needed in order to realize wide-ranging effects. In another sense, however, this finding reconfirms established wisdom about the systems character of organizations. It suggests that organizational changes often are unsubtle; only direct and obvious effects can be expected from organizational interventions.

Behavioral Effects

Our results did not show that there were changes in behaviors comparable to changes in some cognitions and attitudes. Without changes in behavior, it is difficult to see how the gainsharing plan can be given credit for any productivity changes. Nevertheless, productivity did change, and we are faced with explaining why. Here we explore four possible explanations.

Inappropriate Measures. Behavioral effects were measured by questionnaires, which may be inappropriate. As has been noted, we did not measure one behavior that is most directly linked to gainsharing, namely employee suggestions. Employee effort was measured crudely. We also did not measure the extent to which effort and other behavior became more focused on productivity-related targets. For instance, gainsharing may have caused employees to focus more on aspects of their work that were critical to productivity. The failure to better measure the direct behavioral effects of gainsharing proved unfortunate, given the pattern of strong direct effects and non-existent indirect effects for cognitions and attitudes.

Economic Influences. It is possible that changes in performance resulting from the economic environment, rather than changes in employee behavior, are the key determinant of gainsharing payouts. This is a real possibility in highly cyclical industries. At times when business volume is heavy, productivity tends to increase because the sales price of outputs tends to increase, and because costs tend to be spread over more units of production. When volume is low, productivity tends to decrease because sales prices weaken, and cost reductions tend to lag declines in output. This is especially true for high involvement organizations such as OCD, which tend to add less expensive temporary employees during times of unusually heavy volume and to lay off employees during bad times only as a last resort. OCD experienced wild swings in demand for its product during the period of study. Payouts under the gainsharing plan consistently mirrored market changes.

If the payout or lack of payout under the gainsharing plan is due primarily to economic conditions rather than to changes in employee behavior, then gainsharing at OCD (and in other organizations in cyclical industries) would tend to operate more like profit sharing than traditional gainsharing. It would be difficult for employees to earn a payout during times when profits are low, and easy to earn a bonus when profits are high. This is not necessarily bad; it can tie changes in compensation to the organization's ability to pay, and it can stimulate employee interest in the economics of the business. However, profit sharing plans

usually do not have much effect on employee motivation and behavior because employees cannot easily influence the payouts (Lawler, 1981).

The potential for economic conditions to influence gainsharing effectiveness has implications for future research. Case study reports of gainsharing should indicate whether there are changes in the company's economic condition that may account for payouts or lack of payouts under the plan.

Design of the Plan. Most gainsharing plans entail establishing a hierarchy of suggestion committees to increase employee participation in developing ways to improve performance. That was not the case at OCD. It was felt that there was already a high level of employee participation through work teams, and that special groups were not needed. It is possible, however, that special suggestion groups may have been beneficial in focusing employee energy on behaviors relevant to the plan.

Measurement Error. Three kinds of measurement error may explain the apparent lack of behavioral effects from gainsharing: ceiling effects, lag effects, and beta changes. A ceiling effect is one in which attitudes are so high ("at the ceiling") that there is no room for improvement. Indeed, all behaviors measured except inter-team cooperation were reported to be highly favorable prior to gainsharing. Lag effects are those that are not captured because they occur following measurement. The Time 2 questionnaire was administered after only one year of functioning under gainsharing. Indirect effects (in behaviors as well as attitudes and cognitions) may not be realized until several years have passed. Finally, "beta" changes (Golembiewski et al., 1973) are shifts in respondents' internal calibration between measurements. It may be that employees expected more and were more critical of their own efforts at problem solving and inter-team cooperation following gainsharing, for example, and thus responded less favorably even though changes in behavior were actually positive or neutral. ~one of the three types of possible measurement error can be adequately assessed with the data available.

Congruence Between Gainsharing and High Involvement Organizations

As a case, this study illustrates the degree of potential fit between gainsharing and high involvement organizations. To repeat, there are two approaches to understanding this potential fit: the interaction approach and the systems approach. A single case study cannot test the interaction approach. However, much detail about the organizational context and the design of the plan have been provided in order to aid future attempts to review interaction effects across cases. Our discussion has proposed several types of possible interaction effects that can be assessed in future research. These include cyclicity of the organization's industry, economic conditions during the time of the operation of the plan, and existence of a special suggestion committee structure.

From a systems perspective on congruence, none of the possible indicators of incongruence showed up in the results. Although attitudes for pay went up, they did not do so at the expense of the intrinsic satisfactions respondents felt in their jobs. There is also no indication that gainsharing created such a strong focus on productivity that it detracted from participation activities.

It is clear that employees perceived there to be a high level of "fit" between gainsharing and several design elements of the high involvement organization. These include the way tasks are designed, the processes of communication and problem solving, the practices of team input, and the skill-based pay system. This finding provides the first empirical confirmation that there is a good fit between gainsharing and high involvement design, a conclusion that social scientists have reached on theoretical grounds. The finding also suggests the value of a simple but novel research approach for detecting whether there is a fit between organizational elements: we can ask organizational members directly whether they perceive congruence. When the issue is whether different elements of a system fit together, employee perceptions are as valid as the perceptions of any other group. The concept of system congruence is partly aesthetic in nature, and employees' tastes should count as least as much as social scientists'.

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Appendix: Scale Names, Reliabilities, and Component Items

UNDERSTANDING GAINSHARING CONCEPTS

(Time 1 and Time 2)

All items in this section were responded on a 7-point scale: (1) Strongly Disagree, (2) Disagree, (3) Slightly Disagree, (4) Undecided, (5) Slightly Agree, (6) Agree, (7) Strongly Agree.

Personal Gain Sharing ($\alpha = .84$)

- a. I share in the financial gains of this division...
- b. When this division is successful, I share in the rewards...

Sharing Performance Gains ($\alpha = .62$)

- a. When we cut costs, we get part of the savings...
- b. When our performance measures increase, we get a payout from gainsharing...
- c. Increased productivity means higher pay to employees...

Payoff for Ideas ($\alpha = .78$)

- a. It pays to submit suggestions and ideas...
- b. Ideas and suggestions help me make more money...
- *c. It doesn't make any difference if I contribute my ideas...
- d. I am likely to make more money if I contribute an idea or suggestion...

Payoff for Behavior ($\alpha = .77$)

- a. Working smarter pays off around here...
- b. It pays for us to control costs...
- c. It pays to cooperate here...

UNDERSTANDING HOW TO IMPROVE PERFORMANCE

(Time 1 and Time 2)

Work Style Effect ($\alpha = .77$)

- a. If people here cooperate, our total performance improves...
- b. When we all work together, our productivity increases...
- c. I can increase the productivity of this organization by the way I work

UNDERSTANDING LINK BETWEEN PAY AND INDIVIDUAL PERFORMANCE

(Time 1 and Time 2)

Pay-Individual-Performance Link ($\alpha = .78$)

- a. How much pay I receive depends entirely on how well I perform my job...
- *b. How much pay I get has nothing to do with how well I do my job...
- c. Pay raises around here depend on how well you perform...
- d. It pays to work hard here...
- e. My pay level is determined by my individual job performance...

*Responses reversed when item was combined into the scale.

Understanding Gainsharing Impact (Time 2 only)

Each of the below completed the question:

"How much impact has gainsharing had at OCD in each of the following areas?"

Response options were a 7-point scale: (1) Very Negative, (2) Negative, (3) Slightly Negative, (4) No Impact, (5) Slightly Positive, (6) Positive, (7) Very Positive.

Impact: Plant Performance ($\alpha = .85$)

- a. Control of production costs...
- b. Scrap level...
- c. Effective use of manpower...
- d. Product quality
- e. Productivity levels...
- f. Developing innovations...
- g. Company costs...
- h. Absenteeism...

Impact: Employees' Quality of Work Life ($\alpha = .85$)

- a. Safety conditions..
- b. Team members' quality of work life...
- c. Communication..
- d. The desirability of employees' jobs...
- e. Employee pay and benefits...
- f. Employee participation in decision making...
- g. Employee feelings of involvement at work...
- h. The availability of tools, equipment, and materials...
- i. Employee skills and ability...

Impact: Employee-Management Relations ($\alpha = .88$)

- a. The way supervisors treat employees...
- b. Trust between employees and managers...

Understanding of Fit Between Gainsharing and Organization (Time 2 only)

Stem is: *"In your view, how good is the fit between gainsharing as it functions now and each of the following aspects of organizational functioning?"*

Response options were: (1) Strongly misfit with gainsharing, (2) Some misfit, (3) Undecided, (4) Some Fit, (5) Strong fit with gainsharing, (6) Not relevant to gainsharing.

Only the first five options used in calculation of means, etc.

Task Design ($\alpha = .73$)

- a. The ability of employees to perform a variety of different jobs...
- b. My team taking responsibility for doing whatever needs to be done...
- c. Opportunities for job rotation...
- d. My team's control over its own performance...

Communication/Problem Solving ($\alpha = .71$)

- a. Communication in this organization...
- b. Feedback on written suggestions...
- c. Relations between my team and management...
- d. Our level of communication and problem solving training...

Team Input ($\alpha = .76$)

- a. My team's input into decisions about its work...
- b. Team problem solving meetings...
- c. Team input into proposed changes around here...

Pay System ($\alpha = .65$)

- a. The skill-based pay plan...
- b. The use of temporary employees when needed...
- c. The all-salaried workforce...

Attitudes Toward Gainsharing (Time 2 only)

Response categories range from (1) Strongly Disagree to (7) Strongly Agree.

Preference for Gainsharing ($\alpha = .79$)

- a. I like the idea of gainsharing...
- b. The gainsharing plan is good for employees...
- c. The gainsharing plan is good for the division...
- d. The gainsharing idea makes sense to me...

Equity of Gainsharing ($\alpha = .79$)

- a. The way gainsharing works is fair to employees...
- b. The gainsharing formula is fair...

Motivational Effect ($\alpha = .63$)

- a. Opportunities for gainsharing payouts motivate me to do my best...
- b. The gainsharing plan strongly affects how we operate day to day...
- c. Different teams cooperate better as a result of gainsharing...

Gainsharing Administration ($\alpha = .68$)

- a. The gainsharing committees have done an excellent job...
- b. All in all, the gainsharing plan has been administered very well...

Permanence of Gainsharing ($\alpha = .67$)

- a. Gainsharing is here to stay at this facility...
- *b. The gainsharing plan is on the way out at this facility...
- c. I can't imagine the division abandoning the gainsharing plan...

Understanding Gainsharing ($\alpha = .82$)

- a. I understand the gainsharing plan...
- b. I understand how to generate a higher gainsharing payout by decreasing scrap...
- c. I have a real understanding of how the gainsharing plan works...

Need Gainshare Information ($\alpha = .82$)

- a. I would benefit from more information about the gainsharing plan...
- b. I need more information on how I personally can increase the gainsharing payout

*Responses reverse coded.

Attitudes Toward Pay (Time 1 and Time 2)

All items in this section were responded on a 7-point scale from (1) Strongly Disagree to (7) Strongly Agree.

Pay Satisfaction ($\alpha = .82$)

- a. I am very happy with the amount of money I make...
- b. Considering my skills and the effort I put into my work, I am very satisfied with my pay...
- *c. I am very dissatisfied with my pay...

Pay is Fair ($\alpha = .91$)

- a. All in all, my pay is about what it ought to be...
- b. Considering my skills and effort, I make a fair wage...
- c. My pay is fair...

Pay Administration ($\alpha = .66$)

- a. I have a real understanding of how the pay system works here...
- b. All in all, pay is administered very well in this organization...
- c. I am very content with the way my team handles pay increases and decreases based on performance...

Local Area Equity ($\alpha = .61$)

- *a. Other companies in this area pay better than this one does...
- b. This organization pays a fair wage...
- c. My pay is fair compared to what other places in this area pay...

Internal Equity ($\alpha = .85$)

- a. My pay is fair given what my co-workers make...
- b. My pay is fair compared to the pay of others in this company...
- c. My pay is fair considering what other people in this organization are paid...

*Responses reversed when item was combined into the scale.

General Attitudes (Time 1 and Time 2)

Most items in this section were responded on a 7-point scale from (1) Strongly Disagree to (7) Strongly Agree.

Items B17, B19, and B21 were responded on a 7-point scale from (1) Strongly Dissatisfied to (7) Strongly Satisfied.

Job Satisfaction ($\alpha = .74$)

- a. In general, I like working here...
- b. All in all, I am satisfied with my job...
- c. The way you are treated by the people you work with?
- d. The changes you have to accomplish something worthwhile?
- e. The opportunity to develop your skills and abilities?

Trust in Organization ($\alpha = .64$)

- a. I feel I can trust the people in the Oilwell Cable Division...
- *b. People here feel you can't trust this organization...
- *c. This organization will take advantage of you if you give it a chance...

Voice ($\alpha = .74$)

- *a. It is hard to get people higher up in this organization to listen to me...
- *b. Decisions are made around here without asking the people who have to live with them...

Self-Report on Effort

- a. I work hard on my job.

* Responses reversed when combined into scales.

Problem Solving Change and Improvement Behaviors (Time 1 and Time 2)

Items in this section were responded on a 7-point scale from (1) Strongly Disagree to (7) Strongly Agree.

Individual Initiation of Ideas ($\alpha = .77$)

- a. I often bring up opportunities for improvement I have noticed...
- b. I often make suggestions about how to improve the way we do things around here...

Individual Change Implementation ($\alpha = .85$)

- a. I often help work through issues that arise from changes that are made...
- b. I help determine the best way to accomplish proposed changes...

Team Initiation of Ideas ($\alpha = .89$)

- a. My team often discusses opportunities for improvement we notice around here...
- b. My team comes up with a lot of suggestions for improving things...

Team Change Implementation ($\alpha = .94$)

- a. My team helps plan the best way to put change into practice...
- b. My team helps make sure that changes are properly implemented...

Change Success ($\alpha = .77$)

- *a. Changes here always seem to create more problems than they solve...
- b. I think that changes in this organization tend to work well...

Cooperation Behaviors (Time 1 and Time 2)

Items in this section responded on a 7-point scale from (1) Strongly Disagree to (7) Strongly Agree.

Working Cooperatively ($\alpha = .82$)

- a. We all work together as a team here...
- b. All the employees here cooperate to get the job done well...
- c. When problems arise, everybody involved works together to solve them...

Inter-team Cooperation ($\alpha = .86$)

- a. My team's dealings with other teams go smoothly...
- b. My team gets cooperation from other teams...

Responses reverse scored when items combined into scale.

Team Functioning Behaviors (Time 1 and Time 2)

Item responses from (1) Strongly Disagree to (7) Strongly Agree.

My team...

Encouragement of Participation ($\alpha = .87$)

- a. Encourages its members to participate in making important decisions...
- b. Encourages people to speak up when they disagree with a decision...

Structuring ($\alpha = .81$)

- a. Makes sure that its members have clear goals to achieve...
- b. Plans out work in advance...

Production Orientation ($\alpha = .79$)

- a. Demands that its members do high quality work...
- b. Insists that its members work hard...

Consideration ($\alpha = .94$)

- a. Is concerned about me as a person...
- b. Feels each member is important as an individual...

Assistance of Members ($\alpha = .78$)

- a. Helps me discover problems before they get too bad...
- b. Helps its members develop their skills...
- c. Helps me solve work-related problems...

