



EMPLOYEE INVOLVEMENT IN CONSTRUCTION

by

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**A Report to
The Construction Industry Institute
The University of Texas at Austin**

**Under the Guidance of
the Employee Effectiveness Task Force**

**from
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Employee Involvement in Construction

Introduction

Based upon a proposal from its Employee Effectiveness Task Force, the Construction Industry Institute awarded a grant to Prof. William F. Maloney of the University of Michigan to conduct a preliminary examination of employee involvement and its potential applications in the construction industry. The proposal framed the issue of employee involvement in construction in the following manner.

The construction industry in the United States has been suffering from declining or stagnant employee and organizational effectiveness. Productivity, quality, safety, and other measures of performance have not improved significantly or at all over the past twenty years. Unlike manufacturing in which the rate of production may be machine determined, the rate of production in construction is determined by the individual or group of individuals performing the task. Historically, construction firms have been preoccupied with control. Jobs are planned and estimated in great detail, schedules developed to allow tight control, narrow work rules created, tasks sub-divided to reduce training time and increase proficiency, workers never let in on decisions, and no consequential information about the business or work shared with the workers. The goal appears to be to engineer the worker out of the job. In doing so, managers are attempting to reduce the variability or uncertainty in performance. To do this, management employs a traditional scientific management approach to the organization of work. Each job is divided into finite tasks, the "optimal" method of performing each task is identified, workers with the necessary skills for the task are hired or are trained in those skills, and the performance of the job is closely monitored to ensure that the prescribed method is followed. Thus, uncertainty and variability of performance are reduced.

The problem with this approach is that the skills and abilities of the workers are never fully tapped. Variability in performance is reduced, but the opportunity for significant improvement in performance is foregone because the knowledge of the workers is not used in planning the work. Workers are hired as a strong back and a pair of hands. The extent of employee involvement is for the workers to listen to management directives and respond "Yes Sir!"

The opposite of this approach is for the workers to be members of self-managing work teams in which the workers elect their own leaders, determine how the work is to be done, and plan, schedule, and control the work. In addition, the workers manage the members of the team to ensure appropriate behavior is exhibited. The knowledge of the workers is fully utilized. However, for this to take place, management must relinquish some control.

Construction is a labor intensive process. Consequently, the performance of a construction task is a function of the motivation of the workers performing the task. Worker motivation has been found to be directly related to the involvement of the workers in the task. Employee involvement has been found to result in improved productivity, improved quality, lower absenteeism, and lower turnover. Little is known of the utilization of employee involvement in the construction industry in the United

States and the benefits derived from that involvement. If employee involvement is to be seriously considered, there is a significant need for an analysis of employee involvement and the potential for its utilization in construction. The analysis, which must develop an understanding of employee involvement and its costs, benefits, limitations, and constraints, is important to construction organizations as they attempt to develop human resource management strategies to improve their cost effectiveness.

There were four major objectives of the study:

1. Conduct a detailed review of the literature on employee involvement.

A detailed review of the construction management, management, and organizational behavior literature focusing on employee involvement was conducted with the objective of identifying paradigms of employee involvement and developing detailed descriptions of each paradigm. This description includes an analysis of the assumptions underlying each paradigm, the nature of the employee involvement utilized in that paradigm, the conditions necessary for the success of the involvement, the costs required for the involvement, and the benefits derived from the involvement.

2. Develop a continuum of employee involvement paradigms..

The paradigms of employee involvement were organized into a continuum of increasing employee involvement ranging from no involvement to total involvement.

3. Identify construction applications of employee involvement paradigms.

Members of the Employee Effectiveness Task Force were consulted to identify construction applications of the various employee involvement paradigms. Where possible, the use of employee involvement in the construction industry of countries with a history of employee involvement were examined.

4. Develop recommendations for further research into employee involvement.

The paradigms with the greatest potential for improving organizational and employee effectiveness in construction organizations were identified. Research questions about these paradigms were identified and recommendations for further research into these paradigms were developed.

Study Findings

Initial Paradigm Change

The bibliography generated from the literature review is presented in Appendix II. An examination of that literature revealed a shift in work paradigms early in the 20th century, which can be viewed in terms of the Craft vs. Scientific Management Paradigm.

Construction work has historically been organized on a craft basis where each craft was organized according to specific skill categories. Membership in a craft was obtained after serving a lengthy apprenticeship during which the apprentice learned the utilization of particular skills. The apprentice learned from a master craftsman. The acquisition of skill and knowledge and the performance of the craft's work were limited to members of the craft guild who conducted the work with a great deal of freedom and involvement. Quoting from an analysis of work organization

Once an apprentice mastered the skills of his craft, he was able to exert considerable control over most facets of his work life. Depending upon his level of competence, he was able to decide upon the type and quality of his goods and services to produce; he could choose his raw materials, his tools, and his methods of production; and he could market his goods and often develop new products and techniques of production. The performance of these activities enabled the craftsman to use and involve himself totally in his craft. Because of his acquired knowledge and experience, he was able to employ his sense organs to scan the work environment and to detect subtle types of information helping him to guide his behavior. (Cummings and Srivastva, 1977)

Craft type work was extremely rewarding; workers were well-rewarded economically as well as being socially and psychologically satisfied. The craftsman's ability to produce a high quality product ensured him of economic support and recognition in the community. It also provided him with a social identity that provided a sense of belonging and social significance. Although he was economically well rewarded, the craftsman's primary motivation to perform his work was derived from the intrinsic rewards associated with work that was meaningfully designed and worthy of self-respect.

Through his total involvement, the craftsman was able to create a work structure that was both adaptive to environmental demands in terms of customer requirements and also responsive to the craftsman's own needs. He was able to sense changes and to regulate his behavior in response to the changes, which was done through goal-directed activity. Craftsmen were able to gather sensory data, which was used to create a variety of adaptive responses. The result was that the craftsman was empowered, able to make decisions about his work structure and organization. He exercised ownership.

Craft work was the norm until the advent of the Industrial Revolution and the development of "Scientific Management" by Frederick Taylor. Taylor advocated the determination of the **one best way** of organizing work. He believed that it is the management expert's responsibility to determine the one best way and that the improvement of work involves an analysis of the entire context and environment within which the work is done. Motion study was developed as a means of analyzing work. The objective of motion study is to determine a preferable work method with consideration to raw materials, product design, order of work, tools, equipment, workplace layout, and the hand and body motions required by the workman. A result of motion study was the decomposition of work into its simplest elementary

components, specifying in detail the tasks of each component, and using the components as building blocks to produce a specified component sequence. Scientific management proposed the rationalization of work in terms of efficiency. The rationalization yielded predictability of results. Man became an extension of the machine and the more the machine is simplified, the more costs are lowered.

Once the "best" method had been determined, workers were to be scientifically selected and trained in the method. Supervision's responsibility became that of insuring that all of the work is done in accordance with the specified method. Workers compensation was to be a function of their performance.

In contrast with the craftsman, the worker whose job was organized using scientific management principles was severely constrained. He possessed little control over his work life. He was relegated to performing a series of highly prescribed quasi-mechanical tasks. His involvement in his work was significantly reduced. Worker discretion was limited. In a practical sense, the worker became a set of hands. A brain was not necessary. The workplace gradually evolved into a social hierarchy based on different gradations of discretionary power. At the bottom of this pyramid was the worker, reduced to performing a task that was no longer under his control or worthy of his full involvement.

Although economically rewarding, the scientific management type jobs were greatly diminished in terms of social identity, self-respect, and significance. Motivation became a function of the extrinsic rewards associated with the job rather than the job itself. The worker no longer had ownership of his job. He simply followed directions.

Construction, the most craft-oriented industry, has been influenced significantly by the philosophy of scientific management. If the scientific management paradigm is placed at one end of a continuum representing worker power and discretion and the craft paradigm at the other, construction today falls somewhere in between, but probably more toward the scientific management end of the continuum.

Craft work has been broken down into elements and workers trained to perform those elements. For example, a "carpenter" today may only be able to construct concrete forms or to do finish carpentry rather than the full range of skills in the carpentry craft. Management promotes detailed activity level planning and scheduling in an effort to reduce the variability in performance. As the competition in the construction markets increases, contractors are accelerating the movement from the craft to the industrial paradigm, from more to less involvement.

The shift toward scientific management can best be summarized as follows:

...it seemed as if American managers had discovered the ultimate approach to management: a combination of careful controls, centralized top-down decision making, and carefully programmed and prescribed tasks for production employees. In short, separate thinking from doing and concentrate expertise, decision-making power, and information at the higher levels of organizations, where highly trained managers can make the decisions. (Lawler, 1986).

However, the scientific management approach began to receive serious criticism and many business organizations began to shift back toward a craft paradigm. The construction industry, which entered the scientific management movement late, appears to have continued to move toward the scientific management paradigm. There are serious questions as to the efficacy of this trend.

Nature of Construction

Construction is a labor intensive process in which human, material, and equipment resources are brought together for a finite duration to produce a constructed facility. A construction project may be considered as a temporary organization, which can be defined as a set of diversely skilled people working together on a complex task over a limited period of time. It may be more appropriate to define a construction project as a temporary multiorganization because of the numbers of different organizations involved in a project. Individuals involved in a construction project recognize and anticipate its transient nature. As a result of this transience, construction has unique employment characteristics:

- Considerable shifting of employees among work sites and employers.
- Very unstable employment opportunities.
- Identification by the worker with his craft or occupation, not with his employer.
- Intermixture of employees of different employers at a single project site.
- Relatively large proportion of skilled workers.
- Dangerous and often difficult working conditions.
- Opportunity for much self-supervision.

Competition

Competition has always been a fact of life in the construction industry. However, the level of competition in the United States' construction industry is increasing, not only between union and open shop contractors, but also between American contractors and foreign contractors or their wholly owned United States' construction subsidiaries. Foreign contractors are entering and expanding into United States' markets with increasing speed. As the world economy slows because of the normal effects of the business cycle and the economic shock resulting from the doubling of world oil prices, the world's construction industry will increasingly perceive the United States' construction market as a primary source of opportunities. These contractors are winning jobs from American contractors and generating profits using American workers. With the United States' construction market constricting along with the rest of the world's, the level of competition for available work will continue to escalate.

The management of American construction firms can no longer continue to do business as usual. To quote a leading management researcher

Clearly, American organizations need to be more effective simply to be competitive - and not just somewhat more effective, but dramatically

better. It is unlikely that dramatic improvements can come about through the use of traditional management approaches. It is very unlikely that research breakthroughs are going to tell us how to make the traditional approaches to management operate more effectively. Certainly, they can be better executed than they typically are, but it is hard to believe that better execution will lead to the kind of improvement that is needed. This kind of improvement seems much more likely to come from a new approach than from simply doing the old better. (Lawler, 1986)

The construction industry needs to begin to use a different paradigm than the quasi-scientific management one that is currently in use. The current paradigm is contrasted with a new paradigm below (Weisbord, 1989):

Old Paradigm

- Technology first
- People as machine extension
- People as spare parts
- Narrow tasks; simple skills
- External control; procedures book
- Many levels, autocratic style
- Competitive
- Organization's purpose only
- Alienation: "It's only a job"
- Low risk-taking

New Paradigm

- Social/technical systems optimized together
- People complement machine
- People as scarce resources
- Multiple tasks, broad skills
- Self-control: teams and departments
- Flat organization, participative style
- Cooperative
- Individual and social purposes included
- Commitment: "it's **my** job"
- Innovation and increased risk taking

The old paradigm is characteristic of scientific management; the new paradigm is very similar to the craft paradigm. The difference between the old and the new is the extent of worker involvement, responsibility, and accountability.

Required Employee Behaviors

To be successful, all organizations require four behaviors from their employees:

1. Join the organization.
2. Perform the minimum requirements of the organization in terms of productivity, quality, attendance, punctuality, cooperation, innovation, etc.
3. Remain with the organization.
4. Perform beyond the minimum requirements.

People are motivated to engage in specific behaviors if those behaviors are seen as leading to the means of the people satisfying their needs. Human needs can be placed into three categories: existence, relatedness, and growth. Existence needs are those that involve the existence of the person as a human being and include hunger, thirst, shelter, physiological and psychological security, etc. Relatedness

needs reflect the fact that people are social creatures and have a need for interaction with others such as coworkers, supervisors, peers, family, golfing buddies, etc. Growth needs address the human desire to develop and utilize one's skills and abilities, to be the best that one can be.

The jobs offered by today's construction organizations provide a content and context which gives an incentive for workers to engage in the first three behaviors required by successful organizations. Employment and the wages or salaries and benefits that come with it attract people to an organization. Performance at acceptable levels, the minimum level of performance, is necessary to maintain employment. Failure to perform at minimum levels is cause for discharge. Benefits and advancement opportunities (which are much more limited in today's organizations) that are linked to service with the organization serve to entice people to stay with the organization. Some firms provide such extensive benefits that the benefits are termed "golden handcuffs" because they function to keep people from leaving the organization because comparable benefit packages are not available elsewhere. Workers are able to satisfy their existence and relatedness needs by engaging in the three behaviors.

However, most organizations today fail to provide people with the incentive to engage in the fourth behavior, perform beyond the minimum requirements of the job. People may perform at various levels of their potential. The minimum requirements of the organization are established as the acceptable level of performance by the organization. Workers perceive the risk of discharge in performing below this level and little incentive to perform above it. Workers view a job in terms of a reward-effort bargain. Their effort is a function of the rewards received. Limited rewards result in limited performance. What is considered acceptable performance by the organization is accepted by the worker as the quid pro quo for the rewards provided by the job. This is illustrated in Figure 1, which is not drawn to scale.

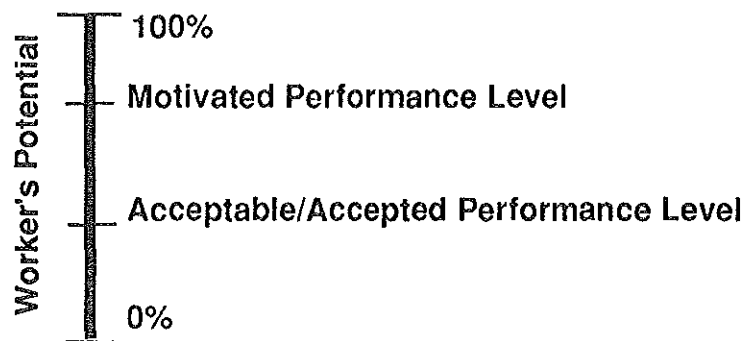


Figure 1 - Performance Levels

Workers cannot work at 100% of their potential for extended periods of time because of fatigue and external factors. However, workers can work at levels above the acceptable level. Whether the acceptable level is at 30% or 40% of the worker's potential is irrelevant. What is important is that performance can be improved to a new level, termed the motivated performance level.

What is needed to improve performance from the acceptable level to the motivated level? The fundamental answer in many organizations today appears to be

empowerment or employee involvement, an idea whose time has come. It is necessary to restore the concept of ownership to workers. Make them stakeholders in the process rather than simply hired hands.

Many organizations believe that they are using progressive approaches through human resource management. This is not sufficient to meet the needs of today's organizations. As stated by one writer

..we should not mistake human resource management for new-paradigm practices. A major limitation on action is the belief that a human resource department on the eighth floor, just like the strategic planning department on the fourteenth, somehow makes us immune from reductionistic, linear, rigid solutions. Staff-centered activity is not necessarily conducive to productive workplaces, whether named "participative management" or "dynamic synergistic holistic transformation." *It doesn't matter what you call it. If people don't join in planning their own work, it's old Fred Taylor all over again, with social-psychological window dressing instead of time and motion study* (Emphasis added). (Weisbord, 1989)

Construction is an extremely diverse industry. There are numerous examples of employee involvement in the industry. There needs to be an examination of employee involvement in the construction industry to develop the knowledge necessary to expand employee involvement. Employee involvement is reported to have lead to productivity gains of as much as 40% in other settings. It is important to identify the nature of employee involvement in construction in light of the temporary nature of the construction project.

There is interest on the part of construction workers in being involved in their work. In a recent study of carpenters in Southeastern Michigan, the following responses relating to employee involvement were obtained from approximately 2000 unionized carpenters, which represented a 26% response rate. The following tables are from *Attitude Survey of Union Carpenters in Southeastern Michigan* by William F. Maloney.

Table 1 - Employee Involvement

How much say would you like in the following areas of your job?	Percentage of Respondents Reporting				
	None	To a Slight Degree	To Some Degree	To a Large Degree	Let Me Decide
The way the work is done	2.3	10.2	49.7	30.3	7.6
In keeping track of quality	2.9	9.7	41.8	39.3	6.3
Determining how long a task or activity should take	5.0	14.7	47.8	25.9	6.6
In the use of new technology on your job	3.3	12.6	44.1	34.9	5.1
How much work you should do in a day	4.1	14.8	46.3	26.5	8.4
Who should do what in your work crew	11.0	18.6	37.2	21.6	11.6
When the work day begins or ends	12.5	22.1	37.0	19.7	8.7
Handling complaints or grievances	19.0	21.1	38.0	16.5	5.4
Who should be fired if he does a bad job	25.3	20.3	28.3	16.8	9.3
Who should be hired into your work crew	21.6	21.5	31.6	17.3	8.0
The selection of your foreman	19.4	20.2	33.1	19.9	7.4

If the two responses "To a Large Degree" and "Let Me Decide" are combined, the strongest desire for involvement is for "In keeping track of quality, "In the use of new technology," and "The way the work is done." These all address the basic questions of how the work is to be performed and how well it is being performed.

Table 2 - Responsibility

	No	Yes
If you want a say in these areas, are you willing to take the responsibility for the decisions you make?	1.9	98.1

As seen in Table 2, the overwhelming majority of respondents are willing to take the responsibility for decisions that they would make, if they were allowed to make the decisions.

Table 3 - Actual Involvement

On your job, how likely are you to:	Percentage of Respondents Reporting				
	Never	Seldom	Sometimes	Often	Always
..make suggestions to improve quality/efficiency on the project	1.9	7.0	32.6	46.3	12.2
..keep up on what is happening on the project by reading announcements on project bulletin boards	11.2	18.4	26.0	34.1	10.3
..warn your foreman in advance of some defect that may develop in the construction process.	1.2	5.4	25.2	41.8	26.3
..report any wastage of materials, tools, etc. outside your work area.	9.1	22.8	35.8	22.8	9.5
..report any wastage of materials, tools, etc. within your work area.	4.2	10.3	33.0	36.0	16.5
..help out a fellow worker on the job.	0.1	0.9	11.3	46.3	41.4
..raise an issue of some organizational policy or practice with your foreman.	7.3	21.7	41.5	21.3	8.3

As shown in Table 3, the majority of the respondents want to ensure that the project is run in an efficient manner.

Employee Involvement Approaches

Nine paradigms of employee involvement have been identified and established as a Continuum of Employee Involvement as shown in Figure 2

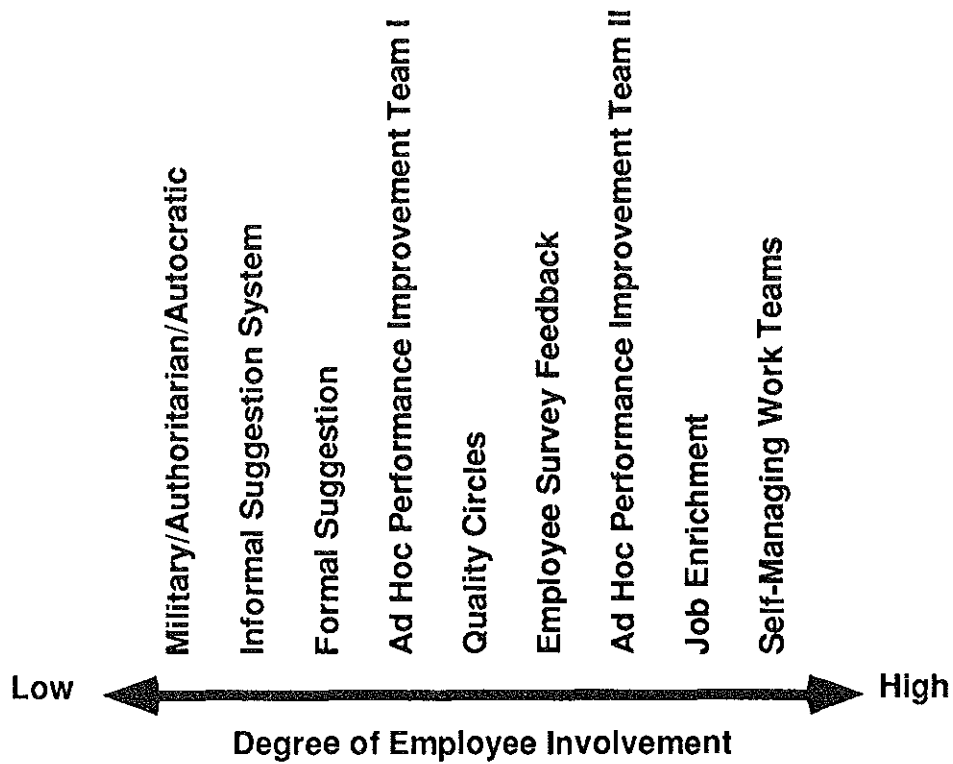


Figure 2 - Employee Involvement Continuum

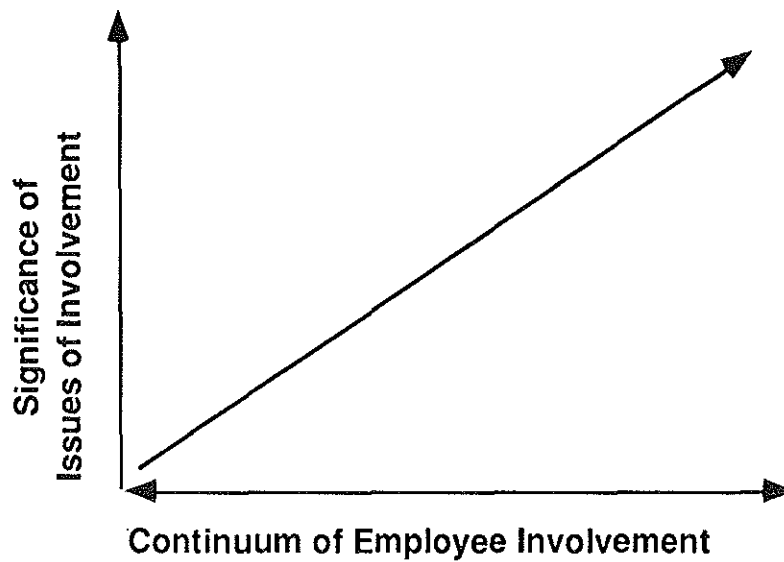


Figure 3 - Employee Involvement and Significance of Issues

If the nine paradigms of employee involvement are placed on the continuum as shown in Figure 2, a second dimension could be added to indicate, as shown in Figure 3, that as one moves from left to right on the continuum, the significance of the issues in

which employees are allowed to become involved increases. On the left side of the continuum, workers may be allowed to become involved in decisions such as what food should be served at the company picnic or what color to paint a change shack. On the right side, workers are allowed to become involved in decisions of how to perform specific tasks and what work schedule will be followed, i.e. the workers are involved in decisions of importance to them and ones that allow them to use their expertise and exercise some control over their worklife.

The nine paradigms are briefly discussed below.

- **Military/Authoritarian/Autocratic** - the traditional or scientific management paradigm. Plans are developed and methods determined by "experts." Communication is top down and workers are told what to do and how to do it. The involvement of employees consists of obeying commands. The attitude that construction workers are "hands" is consistent with this paradigm.
- **Informal Suggestion System** - a system in which employees offer solicited or unsolicited suggestions to management as to how to improve performance within the organization. The employee decides whether to offer unsolicited suggestions or to respond to management's solicitation. Management decides whether and to what extent to adopt the suggestion. There is no formal system for generating or rewarding suggestions.
- **Formal Suggestion System** - a formalized system that establishes a procedure for submitting, evaluating, and rewarding suggestions. The suggestions provided by workers are normally unsolicited and may address any issue within the organization. Employees initiate the suggestions and management controls their adoption.
- **Ad Hoc Performance Improvement Team I** - a paradigm in which management establishes teams of workers to analyze assigned problem areas and to develop solutions to the problems. Management controls the problem statement and team composition. A much more structured means of soliciting employee input than suggestion systems. For example, a team of workers may be assigned to analyze a proposed tool distribution system to identify and eliminate inefficiencies. Similarly, a team may be created and assigned to evaluate design drawings. The team develops a proposed solution to the problem and presents it to management for consideration. Management reserves the right to accept, modify, or reject the team's recommendations.
- **Quality circles** - an approach in which **volunteers** are solicited and formed by management into teams to study performance in an organization and to identify means of improving that performance. Management may establish parameters that focus the team's study. Proposals to make changes that will improve performance are presented to management for its consideration. There is more employee involvement in quality circles than in the Ad Hoc Performance Improvement Team I because the circle members are typically free to examine any issue of performance while the performance improvement teams are assigned issues.

- Employee Survey Feedback - a procedure whereby management designs and administers a survey questionnaire to its workforce or sample of the workforce to solicit opinions on particular topics. The survey questionnaire is designed specifically for the organization to solicit employee opinions on issues of particular concern to management. For maximum effectiveness, the survey process must be part of an on-going process of communication between employees and management. It will not be successful if it is viewed as a one time utilization. Management, either with its own staff personnel or outside consultants, develops the questionnaire, administers it, analyzes the responses, develops appropriate actions, and communicates the findings and proposed actions to the employees. Management decides what, if any, action will be taken on any issue. Unless management demonstrates to the employees that it is sincere in taking action to address the issues and concerns raised by the employees' responses, the employee survey paradigm will not be effective.
- Ad Hoc Performance Improvement Team II - similar to the Ad Hoc Performance Improvement Team I discussed above with the exception that workers form the teams and identify the issues to be investigated.
- Job Enrichment - a paradigm that is geared to the job design of the individual worker. The basis of job enrichment is giving individuals a whole piece of work to do and holding them accountable for the performance of the work. Jobs are designed to give the individuals performing them some autonomy or freedom to do the job in the way that the worker believes is best. The worker has the power to make decisions about the best way to do his job within the parameters that are established by management. Ideally, management provides minimal specification.
- Self-Managing Work Teams - the paradigm of total employee involvement. If the least involvement end of the continuum is represented by the Military/Authoritarian/Autocratic paradigm with its value of workers as "hands," the opposite end of the continuum is self-managing work teams, which encompasses a "holistic" view of workers. Workers are seen as having brains as well as hands and the objective is to get the whole person involved in the work process. With the paradigm of self-managing work teams, management provides minimal specification of how to do the required the work. It may simply provide schedule quality, and budget parameters. The team may elect its own leader and decide who is to do what tasks, the methods to be used, the resources required, the schedule for the work, and coordination with other teams. The team is accountable for its performance.

Employee Involvement Paradigms

Each of the nine employee involvement paradigms will be analyzed using the following framework:

- Description of the paradigm
 - Knowledge required of workers
 - Information provided workers