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An employee survey as an assessment of employee attitude towards implementing Total Quality Management

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An employee survey as an assessment
of employee attitude
towards implementing Total Quality Management

by

Justina Christi Ervitarini

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE

Department: Civil and Construction Engineering
Major: Civil Engineering (Construction
Engineering and Management)

Signatures have been redacted for privacy

Iowa State University
Ames, Iowa

1995

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CHAPTER I. INTRODUCTION

Total Quality Management (TQM) is a thought revolution in management which achieves success across all parts of an organization. This approach has been used with tremendous success by Japanese manufacturing organizations and represents a new way of thinking about management and how people should relate and work in an organization. The basic ideas of the TQM program are: total satisfaction for both the internal and external customers; continuous improvement as a single strategy which combines quality, productivity, and profit improvement; structured teams for planning and problem solving; and openness and trust among members of an organization at all levels.

TQM requires a company-wide effort. Everyone in the organization must participate in the effort to improve performance. Burati *et al.* (1992) pointed out that "TQM is achieved through an integrated effort among personnel at all levels to increase customer satisfaction by continuously improving performance" (p. 113). The workplace must encourage employees to be involved in decision making and to think about better ways of performing their assignments (Sanders and Eskridge, 1993).

Employee involvement begins when upper management takes the message of the potential of full participation throughout their organization. The need for everyone's involvement should be clearly stated.

The idea of employee involvement is to encourage creativity and to develop knowledge of the human resources in the organization. Getting willing participation from employees to contribute ideas and concepts will

make the organization strategies come to life. Mutual benefits, including increased profits, making the job less laborious, and more job satisfaction are the most likely to occur. Therefore, management needs to motivate workers to freely give their ideas, comments, suggestions, and recommendations on how to make their jobs more satisfying and rewarding. Full and willing participation creates a win-win situation for all members of the organization (Poirier and Houser, 1993).

Employees have an important role to play in making TQM successful. They need to accept the continuous improvement culture and look for ways that they can do their work better. They also need to look for ways in which the overall operation of the organization can be improved. But, "nothing improves until it is measured, and as soon as something is measured, it automatically begins to improve" (Ludeman, 1992, p. 52).

An employee survey is considered to be a good way to "measure for improvement". It is the indicator of employees' progress toward involvement in the total quality environment.

An attitude survey is utilized to identify employee attitudes toward the company, the working environment, and TQM practices. This relevant information is required to understand the current level of employee satisfaction with their jobs, the organization, and many other important issues, to identify problem areas, and to find steps that increase satisfaction. George and Weimerskirch (1994) stated "companies that believe that employee satisfaction is an indicator of customer satisfaction know that they must do a better job of understanding and meeting employees' requirements" (p.134).

Employee surveys ask personnel to consider their attitude regarding the work, company, and management practices. This survey provides the mechanism for upward communication and enables managers to develop action plans which address employee concerns and recommendations (Blackburn and Rosen, 1993).

Goal of the Study

The study was designed to provide relevant information regarding employee attitudes and satisfaction toward company, work, TQM, and other related matters within a single construction and engineering organization.

Objectives of the Study

The objectives of the study were as follows:

1. To provide feedback to management on how well they are really doing in satisfying employees.
2. To identify areas of human resources dimensions which are satisfactory.
3. To identify problems and obstacles to institutionalizing TQM.
4. To provide recommendations for human resources dimensions which need special attention to increase employee satisfaction.

Statement of the Problem

In the total quality environment, the organization believes that employees are an important customer. It is management's task to assist employees in defining their requirements and striving to meet them, and to encourage them to provide feedback regarding their attitudes and satisfaction. Management should let the employees decide the improvement required, since the organization agrees that the priority is to meet the customers' need. The information provided reveals to the organization ways in which it has not been meeting employees needs.

Questions of the Study

The general research questions addressed were stated as: "What are the top prioritized human resources policies which need improvement to increase employee satisfaction?" and "What are the top human resources policies which are satisfactory?"

Assumptions of the Study

Assumptions of the study were:

1. Employees who completed the questionnaire responded honestly and correctly.
2. Employees interpreted the questionnaire items accurately.
3. The questionnaire, in terms of construction and administration, was reliable to measure employees' attitudes and satisfaction regarding TQM practices.

4. The questionnaire items adequately sampled the defined dimensions of human resources function.

Limitation of the Study

The scope of the study was limited to a midwest, midsize general contracting and engineering company operating across the U.S. and world.

Hypotheses of the Study

There is no significant difference between mean responses for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program, toward Total Quality Management practices regarding:

- a. Leadership
- b. Communication
- c. Employee involvement
- d. Job design
- e. Training and development
- f. Recognition
- g. Corporate relationship
- h. Employee job satisfaction

CHAPTER II. LITERATURE REVIEW

Total Quality Management (TQM) has become the most widely known buzzword used to describe quality-oriented management. American organizations of all kinds are becoming increasingly aware of the need for total quality in order to be competitive in today's global market. Spencer (1994) stated that "TQM establishes quality enhancement as a dominant priority and one that is vital for long-term effectiveness and survival" (p. 447). Sustaining total quality demands that a company make a long-term commitment to customer satisfaction and to continuous improvement. Presented in this chapter are: 1) the fundamental elements of TQM, 2) people dimensions of TQM, 3) employee job satisfaction, and 4) the three American quality gurus approaches to quality awareness.

Total Quality Management Overview

TQM is both a philosophy and a strategy for continuously improving an organization. The foundation of TQM is provided by the 1990s concept of quality: "Quality is defined by the customer. Quality is the ability to meet customer needs, then exceed expectations while maintaining a cost-competitive market position" (Domb, 1993, p. 249).

TQM is a company-wide effort for planning and implementing a continuous performance improvement process to increase customer satisfaction through an integrated effort among personnel at all levels (Burati *et al.*, 1992).

The philosophy of TQM emphasizes the requirement to meet the need of both internal and external customers, and to utilize human resources in multifunctional teams to develop its full potential to pursue corporate quality (Saylor, 1992). As a strategy, TQM goes beyond quality control and quality assurance (Johnson, 1993). The process strives for continual performance improvements in terms of both quality and productivity with a focus on the customer, and requires participation of everyone in the organization, including top managers and all employees.

TQM is an effective management practice that has proven successful in the United States, both in manufacturing and service. Based on the review of 20 major companies that were among the highest-scoring applicants in 1988 and 1989 for Malcolm Baldrige National Quality Awards, GAO reported companies which adopted quality management practices experienced an overall improvement in corporate performance and achieved better employee relations, higher productivity, greater customer satisfaction, increased market share, and improved profitability (GAO, 1991).

Fundamental Elements of TQM

The fundamental elements of TQM include: 1) Total Involvement, 2) Continuous Improvement, 3) Customer Focus, and 4) Fact-Based Decision Making (Domb, 1993). These are described below.

The elements of TQM which apply to human resources work together to improve the products and services of the company; to improve all of the

processes within the company; and to improve the company's ability to meet the customer requirements.

Total Involvement

The objective of total involvement is the empowerment of everyone in the organization. Total involvement means the entire organization and all of its functions get involved and have a responsibility to satisfy customers through a continuous improvement process at both the individual and team levels (Nadler *et al.*, 1992).

Total involvement begins with a change in management's attitude. Active leadership, involvement, and commitment of upper managers are fundamental requirements for success. Management must show a sincere interest in developing total involvement. As a result of the positive attitude initiated by managers, empowered people undergo motivational enhancement and become committed to the organization's quality goal.

Empowerment also means that individuals become involved in active problem-solving activities. They receive authority to make decisions and initiate improvement actions within their own work areas and expertise (Hunt, 1992). As a result of empowerment, employees become self motivated, and take pleasure in the responsibilities of their jobs, and demonstrate high levels of performance.

The power of total involvement is greatly enhanced by employee involvement and empowerment, team development and effectiveness, and responsiveness.

Continuous Improvement

A company should pursue continuous improvement to achieve the best results. Otherwise, performance drops to the previous level when the efforts' lifetime is ended, and the company will be left behind by more aggressive competitors.

Continuous improvement is an integrated system that requires that quality, productivity, and profit improvement be combined into a single strategy. Continuous improvement must be created throughout the organization and integrated into all units within the organization (Poirier and Houser, 1993).

Quality of products or services is improved by improving work processes through the use of quality teams, quality improvement tools, and training employees (Graves, 1993). A positive improvement is required to sustain a customer-focused organization. Continuous improvement depends on: 1) innovation resulting from new technology or research and development, and 2) small incremental improvement which are essential for maintaining and building on new performance achieved through innovation (Hunt, 1992).

Perhaps the most direct evidence to show that top management is serious about TQM is to link process improvement to performance review (Troy, 1992). People perform based on what they are measured by and rewarded for. Also people working in teams need to be rewarded for their individual performance as well as for their contribution as team members.

If management creates the correct environment, workers will continuously recommend ways to improve job performance. The teams

will continuously generate ideas on how to improve the quality of products and services. So, the power of ideas has become part of the culture and an organized means of sustaining continuous improvement.

Customer Focus

Quality relates to the customers' perception. Customer satisfaction, to the extent that their expectations and needs are met, is the key to business success. Juran (1992) defined a customer as "anyone who is impacted by the product or process" and customer satisfaction is "a result achieved when product features respond to customer needs" (p. 8). A customer-focused organization believes in the majority of internal as well as external customers. The concepts of external and internal customers are different in terms of membership of the company that produces the product.

EXTERNAL CUSTOMER. These are impacted by the product but are not members of the company that produces the product.

INTERNAL CUSTOMER. They are impacted by the product, and are also members of the company that produces the product. (Juran, 1992, p. 8)

It is important for a customer-driven organization to recognize the necessity of creating quality awareness and to provide appropriate education. Joiner (1994) pointed out that being a customer-driven quality organization will provide the company with the ability to identify and eliminate work which has little meaning or value to customers.

Customer focus provides the organization with continuous feedback. Measuring customer satisfaction, by conducting surveys, is a basic requirement. Measurement is important to help the organization

determine where it stands (Murphy, 1993). Measurement may include effectiveness of the existing company program and quality level. Through these measurements, the organization is able to identify areas for improvement, provide feedback for quality improvement processes, and improve the processes accordingly. Therefore, customer satisfaction, reduced cycle time, and reduced costs will be achieved.

Fact-Based Decision Making

Fact-based decision making is important to pursue continuous quality improvement. The organization requires that quality improvement plans are based on reliable information, data, and analysis. Facts, data, and analysis support a variety of company purposes such as planning, reviewing company performance, improving operation, and comparing quality performance with that of competitors (Hunt, 1992).

There is a method of improvement introduced by Shewhart, called "PDCA (Plan-Do-Check-Act) Cycle," that can be applied to any process (Walton, 1986). Once the process is understood, and issues have been selected and analyzed, the process improvement cycle begins. The process objective is to eliminate the root cause of any problem. The first step of the cycle is planning the implementation of process improvement. After the solution has been implemented on an experimental scale, effects of the solution should be observed and measured. This step provides information about whether the results are favorable or not. If improvement is demonstrated, the solution is permanently adapted to the process.

Deming recommended Statistical Process Control (SPC) and several charting methods to learn about the factors causing the quality problem and to look for ways to improve a process. These include: 1) Cause-and-Effect Diagram or Ishikawa Diagram, 2) Flow Chart, 3) Pareto Chart, 4) Run Chart, 5) Histogram, 6) Scatter Diagram, and 7) Control Chart (Walton, 1986).

It is a manager's job to provide the workforce training and facilitation on the use of data and statistical tools. Furthermore, employees should be trained how to act and make decisions based on root causes of any identified problem while maintaining the team focus.

Institutionalizing Total Quality Management is a long-term and challenging process since it concerns cultural change throughout the organization and creates visions, missions and overall guiding principles for world-class business success. Therefore, the improvement process should be started and worked in such a way that it continues as a permanent part of the business (Amsden and Amsden, 1992).

Many organizations today have been changed by the action done in quest of the US Malcolm Baldrige National Quality Award. This award has become the most important catalyst for transforming American businesses. The Baldrige Award not only classifies the principles of quality management, but also provides companies with a comprehensive framework for assessing their progress toward the new paradigm of management and goals such as customer satisfaction and increased employee involvement.

The examination by the Malcolm Baldrige National Quality Award addresses all the requirements necessary to achieve quality excellence. The examination focuses not only on results, but also on the conditions and processes that lead to the results. These concepts are addressed in seven categories of the Baldrige Award criteria framework, including:

1. Leadership
2. Information and analysis
3. Strategic quality planning
4. Human resources development and management
5. Management process of quality
6. Quality and operational results
7. Customer focus and satisfaction (U.S. Department of Commerce, 1994)

These seven interrelated areas of organizational excellence provide a roadmap for implementing a world-class management environment. The next section will describe two of seven categories of the Baldrige Award criteria framework which are classified in the people dimensions of quality management programs within the organization (Mahoney and Thor, 1994). Those categories are: 1) leadership and 2) human resources development and management.

Leadership for Quality

Johnson (1993) defined leadership as "the art and skill that cements everything together and makes it happen" (p. 57). The correct leadership approach is important to guide the process and to enhance continuous improvement. Nanus (1992) characterized leadership as follows: "Leaders take charge, make things happen, dream dreams and then translate them into reality. . . . Effective leadership empowers an

organization to maximize its contribution to the well-being of its members and the large society of which it is a part" (p. 10). Leaders are different from managers. Snyder *et al.* (1994) viewed three things that distinguish leaders from managers, those are vision, strong values and beliefs, and the courage to act to make their vision real.

To a leader, vision always deals with the future. It is the leader's responsibility to realize the vision. The president of the Proctor and Gamble Company, John E. Pepper, stated:

Vision is the broad picture. Vision helps one see the future much more clearly than is possible by following numbers of linear projections. Vision is extremely valuable for rallying the spirit, feeling and commitment of our people. It's a powerful motivation for every individual and the entire organization. . . . With vision, groups become a community. Vision is a powerful tool for communication and a catalyst for achievement. (McFarland *et al.*, 1993, p. 99)

Values and beliefs serve as the basis for policy and action which maintain the strength of the organization. Values are the permanent beliefs held to be important by the organization. Organizational values and beliefs should be widely shared within the organization. Focus on customer, continuous improvement, and employee empowerment are three values which are critical to survive in today's total quality environment (Snyder *et al.*, 1994).

It is difficult to promote quality without the CEO's involvement and commitment to the program. The CEO's involvement plays an important role in changing organizational culture which is essential in determining how the organization behaves in accordance with customer expectations.

There are five factors of effective leadership orientation identified by Poirier and Houser (1993) that must be observed to develop an enduring improvement program:

Effective leaders make certain the organization is prepared for the change process. Leaders must bring key managers and representatives of the key constituencies to discuss both the level of acceptance of the improvement effort and the readiness to implement. Leaders need to know clearly whether or not the group is prepared to execute. They will move forward only when the constituencies can be counted on to apply the improvement effort.

Effective leaders articulate the overall mission, vision, or task that must be accomplished in simple, acceptable terms. To make the improvement effort succeed, the implementers need a concept, a statement, or list of ideas that make sense to achieve their total effort. The guiding mission or vision statement should be delivered by leaders in a convincing manner so that people within the organization can clearly understand the driving message and accomplish it enthusiastically.

Effective leaders work with the constituencies to develop desired end results and mutual benefits. Successful improvement should be developed with top-down, bottom-up, and side-to-side input. All constituencies feel ownership and exhibit cooperative behavior since the relationship has mutual meaning.

Effective leaders model the behavior that the improvement process demands of all constituents. Continuous improvement requires leaders' discipline when such action is declared. As active participants in the process, leaders have to develop practices that support the improvement effort. Then they get out among the constituents and demonstrate those practices.

Effective leaders provide the necessary resources. Leaders and followers functioning in their mutual effort are essential to organizational success. They have to work together to be able to draw satisfaction from the results of their effort. Further progress is possible if certain resources are available. Leaders must supply both capital and noncapital resources to enhance the chances of success.

Managers must determine the direction of the organization and then be consistent in following that course; they must exhibit a constancy of purpose to motivate their organizations to achieve top performance (Deming, 1986). Managers should adjust for changes in the situation, and should remain alert to the direction and supporting ideas that have motivated performance.

The main reason for failure in the implementation of improvement efforts is the nonacceptance of the change process by key managers (Poirier and Houser, 1993). Some managers become reluctant to participate when the time comes to make unpleasant decisions. In spite of supporting the process, they refuse to make changes. This condition

occurs because those key managers endorse a change process without realizing the commitment they are making. The nonimplementation of the key personnel can affect those whose actions are necessary for successful implementation. As a result, the improvement process will begin to deteriorate.

Another barrier to organizational improvement may result from the senior managers reluctance to educate themselves about managing for quality (Cocheu, 1993). Therefore, limited experience and training in managing quality becomes an obstacle to the quality improvement efforts.

Leaders should act with determination and clear direction in order to make their followers accept the implementation process. An attitude of cooperation will start the organization toward the actual progress. To function in a team environment, the key managers and their people will make the improvement process succeed.

Human Resources Role in TQM

Perhaps the most important key to institutionalize TQM is human resources development. Human resources development and management is one of seven examination categories of US Malcolm Baldrige National Quality Award which ranks third highest in point value. Based on the data provided from those organizations who have won the Baldrige Award, Blackburn and Rosen (1993) stated that in a total quality environment human resources management functions "develop policies and procedures to insure that employees can perform multiple roles, improvise when

necessary, and direct themselves in the continuous improvement of product quality and customer service" (p. 50) and integration of human resources management functions and organization's quality goals result in "increased product reliability, greater customer satisfaction, and shorter product development cycles" (p. 49).

TQM is a cultural change. Transformation to a total quality culture requires change in the behavior of the people in the organization. Human resources, which are the heart of the organization, make quality happen and the system work.

Human resources management should be fully integrated with the company's strategy which strives for customer satisfaction and continuous improvement. Bowen and Lawler (1992) pointed out that to create total quality culture, an organization needs to develop human resources policies that support TQM effectiveness and sustain a total quality culture throughout the organization.

Based on the evaluation on the US Malcolm Baldrige National Quality Award winners, Blackburn and Rosen (1993) identified human resources policies which facilitate continuous improvement and reinforce the company's quality message, and include:

1. Communications
2. Employee involvement
3. Job design
4. Training and development
5. Performance appraisal
6. Corporate relationship

Those policies identified above are involved in establishing cultural changes to develop a total quality organization. Those changes are examined in the next section in a greater detail.

Communications

Communication is important to getting across the quality awareness message. Effective horizontal and vertical integration of information is central to the quality improvement. Communication allows organization members to coordinate actions and share information. Dean and Bowen (1994) stated that "total quality emphasizes the communication and reinforcement of value and the articulation and implementation of a vision" (p. 398).

Communication requires the ability and willingness to listen as well as to talk. Effective listening means understanding the entire message of the other people. Good listeners possess active behaviors which allow them to receive information and understand the problem (Saylor, 1992). Poor listeners miss important messages and emerging problems. As a result, they get inappropriate ideas, address the wrong problems, and create a distrusting environment.

Team briefing is a strategic tool for communicating and sending the message of quality culture (King, 1991). Through team briefing, a CEO communicates his commitment to the achievement of corporate goals, vision, and mission throughout the organization. Regular meetings ensure teams are getting the right information to allow for their contribution in achieving quality improvement. Honest and open

communication through regular meetings reinforces leadership and helps to build trust between the management team and the workforce.

Open communication in the organization contributes to the level of employee commitment. It breaks the barrier between organization levels and eliminates the fear of change or misunderstanding. Face-to-face communication allows employees to ask questions so they understand the reason for changes and the organization strategy (Young and Post, 1993). All this effort will be valuable if it is followed with management action. The action shows management support in the quality effort and quick response to employee needs.

Another process of communication is feedback which promotes employees' involvement and upward communication. Feedback is a primary tool for verifying whether or not information has been accepted and understood (Snyder, 1994). The mechanism allows response and input from workers. The proper feedback system leads to mutual understanding and increased trust within the organization.

Employee Involvement

Employee involvement is one of the most important principles of TQM practice. Employee involvement is a strategy that the company can use to help make employees feel and act more like owners, and therefore be more likely to take on the responsibility and be concerned with quality needed to achieve greater customer satisfaction.

The goal of employee involvement is the empowerment of everyone in the organization. "Empowerment means all individuals in the organization have the authority to do whatever is necessary to perform

and improve their work" (Saylor, 1992, p. 72). In the TQM culture, employees are expected to take responsibility for quality problems. They are expected to accept the continuous improvement culture and look for ways to improve the organization operation. Individually or in teams, employees are encouraged to make suggestions about ways to enhance the process.

Employees commit themselves to a goal of continuous improvement, striving to do each organization process the right way the first time. As a quality culture takes hold, employees are encouraged to participate in decisions affecting their work, and teams become the typical organizational unit.

Employee involvement begins with a change in management's attitude. Management must show a sincere interest in developing employee involvement. The organization can only have empowered employees if upper managers make the decision to have it. (George and Weimerskirch, 1994). The organization uses communication to proclaim management commitment and to encourage employee involvement in the TQM process.

Sustaining employee involvement is achieved by utilizing management review meetings, training, employee feedback, and self-managed teamwork. Much research has identified review meetings of quality achievement and objectives with senior managers as an important way to send a clear message about the importance of quality (Troy, 1991b).

Teamwork. Teams are essential to build a total quality environment. Teams foster employee involvement at all levels of an

organization. Everybody in the organization must be included in one of the teams, trained to participate as team members, and encouraged to actively contribute.

Dean and Bowen (1994) pointed out that “teamwork practices include identifying the needs of all groups and organizations involved in decision making, trying to find solutions that will benefit everyone involved, and sharing responsibility” (p. 395). Teams are given sets of responsibilities to solve problems, improve processes, create something, or execute a well defined task. Assignments are given to the team and the team organizes itself to achieve the goals. Research showed that to build successful teams, there should be four important features (Coffey *et al.*, 1994; Shonk, 1992; Larson and LaFasto, 1989). They are:

Clearly defined task. The task must be clearly communicated to the team along with the reason for the task or the relative importance of the results. This is accomplished through a combination of communication techniques including team briefings, training, and feedback.

The essential skills, abilities, and relevant knowledge.

Everyone should have skills and knowledge necessary to perform his or her own role in the team to achieve the desired team goal. Skills and knowledge must fit together to complete the assignment. Team members should have technical competencies related to the team tasks and personal competencies. Those competencies are

important to identify issues, address problems, and provide resolution.

A strong desire of team members to contribute. Team members need to understand the importance of their active contribution and responsibility in the given task to the overall success of the team. Their contributions, through openness and trust, will maximize degrees of information sharing to support the improvement effort.

The capability of team members to collaborate effectively. Collaborative effort is important to discuss issues and resolve problems related to the team task. The capability of working well with other team members reflects directly on the team output. A constructive approach is important to manage disagreement among team members as a result of their contribution of views, ideas, and strategies in the problem solving process.

Teams may vary in duration. Short-term teams are established to promote application of problem solving techniques and reinforcement of team processes (Troy, 1991a). Teams must meet over a short duration to investigate issues, solve problems, and provide recommendations. When the short-term team is reinforced, it is then expanded into a self-managed team of long-term duration. The teams are responsible for sustaining TQM practices and institutionalizing the continuous improvement process.

Self-managed teams are developed to do their own planning and execution, and partner with other teams to solve problems. Self-managed

teams have the authority to implement solutions for problems (Shonk, 1992). The members of self-managed work teams are typically cross-trained to perform most or all the jobs in the team's area. They monitor quality, schedule work, control cost, plan, interact with customers, and handle discipline.

Job Design

Job design is defined as: "The process of incorporating tasks and responsibilities into a meaningful, productive, and satisfying job" (Coffey *et al.*, 1994, p.167).

Jobs are designed in accordance with the purpose and direction of the organization. Those are stated in the organization's vision, mission, and strategy in achieving quality excellence. Jobs should be designed to fit employees or the degree of participation that employees should have in decision making (Anderson, 1994). Job descriptions and performance standards are established and communicated to provide guidelines for the continuous improvement process which emphasizes innovation, creativity, and problem solving (Baird, 1992).

Since teams play a key role in the process of quality improvement, the jobs assigned to any given team must improve team effectiveness while maintaining the relationship of its members. Team design can allow for the rotation of individuals through jobs within the team, into other operating teams, and into special assignments. Jobs should be designed to be motivational to help employees achieve organization objectives through the following strategies (Milkovich and Boudreau, 1988):

Work simplification. It is a narrow job scope. Employees are given a clearly defined task with standardized procedures. Several small jobs can be performed simultaneously and completed in a short time.

Job Rotation. This increases task variety by shifting employees among jobs involving several different assignments. People like to be challenged, to have a variety of different tasks to perform, and to have opportunities to learn, grow, and develop new skills.

Job Enlargement. It increases task variety by combining more than one task that was previously assigned to separate team into one sequential assignment. Through this design, teams are expected to increase career growth expectation.

Job Enrichment. It is a strategy to expand job scope and job depth by providing more responsibility and authority to get the job done. Teams are provided the opportunity to do some planning, control, and evaluation. When teams have some autonomy, and can arrange their own schedules and job assignments, then they are more likely to become high performing.

In a total quality organization, job enrichment is a way of promoting satisfaction and performance among individuals in teams. By increasing team authority, team members are most likely to respond favorably to growth need and will increase their achievement, competency, and satisfaction.

Employees need to obtain performance feedback to learn how they perform over time. Providing feedback to employees shows that managers are serious about the team effort. It proves the management support in the quality process (Shonk, 1992). As the team effort matures, teams will increase their capability, responsibility, and satisfaction.

Training and Development

Training is an essential element of creating and maintaining a TQM environment. Training is important for cultural change and skill development. Institutionalizing TQM requires training not only for new employees, but also for experienced employees. It is the responsibility of the human resources department to maintain training programs for employees and to monitor individual progress to make sure that individuals complete the program and receive adequate training.

Since TQM starts from a top-down commitment, the need for training extends as well to supervisors and managers. They should be prepared to understand the continuous process in both the technical and non-technical skill areas and to set the example for employees to follow (Jablonski, 1992). Training for supervisors and managers also prepares them to build work teams and facilitate group dynamics.

The training program itself must be integrated into the overall continuous improvement efforts. Winchell (1992) verified that to provide the desired results, training must focus on three areas, including:

1. Training program supports the quality improvement goals.
2. Training program addresses the needs of functional areas within the company.
3. Training program provides employees chances to improve capabilities.

Training and development are necessary to provide employees with information, knowledge, and skills they need to understand the basic concept of a total quality environment and to work as part of a team. A continuous education program helps employees to strengthen their knowledge and to understand the business structure and their own personal roles in contributing to the company success (Troy, 1991a).

A TQM training program for the entire workforce should cover such areas as the fundamental of quality as defined by the organization's goals, concepts and tools of TQM which include quality awareness, problem solving, interpersonal relations, teamwork, communication, meeting customer requirements, analysis, and improvement process.

Training maximizes personnel resources. Comprehensive training also results in improved job satisfaction and an elevation of worker skills through a greater understanding of work expectations. Effectively trained employees achieve greater skill competency and greater results.

Performance Appraisal

Linking quality achievement to performance appraisal, compensation and promotion may be the ultimate commitment of top management to TQM. The incentives tied to quality achievement range from

compensation, promotion, and formal award to informal acknowledgment and informal reinforcement of everyday behavior.

Performance Measurement. Based on Deming's philosophy, a Total Quality organization reviews employees' performance based on a personal planning and development system (Blackburn and Rosen, 1993). Measurement of employees' performance draws upon observable, measurable behaviors and results which focus on future-oriented development and continuous improvement. The measurement relies on positive reinforcement as the major way to maximize performance.

Managers are responsible to help employees develop new plans and actions to explore opportunities for career development and contribution in the quality improvement process (George and Weimerskirch, 1993). Through this process, performance appraisal fosters communication between manager and employee and provides feedback not only to the employee but also feedback on the manager's performance as it relates to the employee.

Compensation. Compensation, which is reflected in the pay system, is a reinforcement system to all employees and is tied to performance to support the organization's quality improvement process. Joiner (1994) discusses salary, salary increases, prosperity sharing, and special adjustment as four components attributed to the monetary portion of employees' total compensation.

Compensation policies need to be restructured based on extent of knowledge and skills and the premise that quality and continuous

improvement are achieved because of all employees' effort. The system should be employed consistently, equitably, and without discrimination (Schmidt and Finnigan, 1993).

George and Weimerskirch (1993) identified four characteristics of compensation policies which support total quality culture:

1. **Customer-focused:** Employees are paid based on the matter of satisfying both internal and external customers.
2. **Team-oriented:** Since TQM is a team oriented culture, compensation should be based on team achievement.
3. **Measurable:** Compensation draws upon reliable data toward the team performance in quality achievement.
4. **Have full employee participation:** The entire workforce, both individually and in teams, should be able to participate in the achievement of quality goals and the continuous improvement effort.

Reward and Recognition. A reward system provides the mechanisms for attracting and keeping high quality people and for reinforcing desired behavior. It is important for the organization to design jobs that are intrinsically rewarding. Russo and Snyder (1992) showed that designing a reward and recognition system within an organization would reinforce quality-related behaviors which support total quality transformation. The CEO's involvement in the design of a reward and recognition program is important to ensure that the process is in accordance with the organization strategy.

A reward and recognition program is found to be dominant in causing job satisfaction (Locke, 1983). The program will provide feedback concerning the employees' performance and offer appreciation for quality achievement which fulfills employees' need for self-esteem. Managers should recognize employees when they exhibit the attitude and behavior that will make the TQM practices a success. Managers recognize the achievement performed by individuals while they are supporting the team.

Based on research on developing the recognition process, Mayer *et al.* (1993) identified four important considerations for employee recognition for the company's goal improvement:

Recognition must be completely objective. Criteria of the program which the behavior of the employee is measured against are well defined and communicated to all employees.

The recognition process should promote cooperation. The program allows as many award recipients as necessary. Awards which are applicable for individuals and teams as well can increase cooperation for improvement throughout the company.

The review process for awards must be efficient and effective. Measuring performance against established criteria allow the committee to work efficiently and effectively.

The recognition committee must be credible with employees. Elimination of voting on award recipients, the measuring against standard criteria, the opportunity for all employees to receive any

award, and the ability for employees to nominate themselves will avoid subjectivity or favoritism.

Rewards do not have to be monetary. An organization can offer noncash awards as an initial step in building recognition for quality achievement (Troy, 1992). Noncash recognition for employee achievement is done in such a way as to make such an occasion memorable. Employee's quality achievement is recognized by giving symbolic awards at special events or by issuing commendation in company publications.

Career Development. Career development is designed to help employees choose the career path to attain their personal or team goals. The programs are oriented toward helping employees become aware of their own interest and potential, and the jobs available in the organization.

In a TQM organization, career paths include creating conditions in such a way that all employees are able to make the greatest possible contribution to the organization by giving them a progression of jobs, and responsibilities in problem solving. Blackburn and Rosen (1993) identified that career development should move toward "job rotation, liaison assignments, and task force leadership."

Corporate Relationship

Total quality organizations base corporate relationships on openness and trust. Trust makes work easier. Trust, which consists of honesty and integrity, demonstrates acceptance and integrity which are the heart of commitment. Sinetar (1988) stated that "trustworthy involves

relating to and receiving others so that they feel safe, accepted, and acknowledged, even when we disagree with them or they with us" (p. 74). When employees are open with each other, they develop relationships which lead to mutual feelings of openness, warmth, and trust. (Coffey *et.al.*, 1994). Employees share their thoughts, ideas, and opinions with others freely and respect what someone else says.

Trust is the central issue in human relationships, both within and outside the organization. Openness and trust are initiated by clear communication (Schmidt and Finnigan, 1993). Employees need the right information about the company's goals and expectations to accomplish the given task. It is difficult for employees to trust leaders who keep things to themselves so that they are unable to know what will happen in the future. The message should be understandable and consistent to create a climate of trust.

Trust within an organization is demonstrated through action - the way managers delegate responsibility, allow employees to participate, and check and control employees. Good leaders will provide guidance; they encourage and trust employees to do their assignments (Kouzes and Posner, 1987). Self confidence of employees, which is developed through delegation of authority, is essential to build trust. Leaders believe that employees have ongoing characteristics to accomplish the given task that permit leaders to trust them. To address problems when they arise, important steps should focus on issues and corrective action. Blaming people results in reluctance of employees to share information.

Anderson (1994) pointed out that "internal cooperation among employees enables higher individual performance by creating mutually beneficial situations among organizational members" (p. 483). An open and trusting climate is necessary to maintain a motivating and rewarding work environment. The more trust that is there, the more productive the relationship can be.

Employee Job Satisfaction

Job satisfaction is linked to the result of an interaction between a person and his environment. Locke (1969) defined job satisfaction as "the pleasurable emotional state resulting from the appraisal of one's job as achieving or facilitating the achievement of one's job values. Job satisfaction is a function of the perceived relationship between what employees desire from a job and what they perceive it as offering" (p. 316).

Employee well being and satisfaction is needed to support continuous improvement and customer satisfaction (Dean and Bowen, 1994). Employee satisfaction can be validly measured from different facets of the job by asking employees to rate aspects of their job. Overall job satisfaction is the sum of facet satisfaction, which is goal attainment or need fulfillment, across all facets of a job (Wanous and Lawler, 1972).

Porter (1961) stated that the term of goal attainment or fulfillment can be taught as the response to a "how much there is now" item for a particular job facet. One example of job satisfaction measurement is by having agree or disagree on a 5-point scale, i.e. strongly disagree -

disagree - neutral - agree - strongly agree, with descriptive statements about their jobs.

Ishikawa (1985) identified four dimensions of employee expectations which represent employees' requirement for satisfaction: 1) monetary desires, 2) personal growth, 3) doing a job well, 4) cooperating with others and being recognized by others. Employees may experience different levels of satisfaction toward each other.

An employee's monetary desires and aspiration can affect satisfaction. If an employee wants to be in a high-status position, gaining such position probably will enhance that employee's level of job satisfaction.

Doing a job well is an important factor in liking the task and job satisfaction. Baird (1992) identified three critical components of job accomplishment. First, employees have to understand the meaningfulness of work. Employees tend to do well and enjoy the job if they can make use of several different skills and can identify their responsibility. Second, the actual results of work activities should be informed as feedback to employees to derive the quality accomplishment. Third, employees have job autonomy to complete the job to provide responsibility for work results.

Locke (1969) pointed out that the causes of job satisfaction do not lie only on the job or on the employee's mind, but also on the relationship between employees, and between employee and the working environment. The job satisfaction of individuals within a group also may be influenced by both their coworkers and their supervisor or manager. A manager's

individual characteristics (warmth, understanding, integrity) will strongly influence employee attitudes. Likert (1967) wrote that to achieve high productivity, managers must have high performance goals and supportive relationships, and use the group as the decision-making unit. Therefore, employees will display favorable attitudes and high peer performance goals for themselves and the organization.

The Teaching of Quality Gurus

In the next sections will be explanations of the concepts and approaches to promote quality awareness throughout the company provided by Deming, Juran, and Crosby. They are quality gurus who had a major influence in the management culture of many organizations worldwide. All of them insist that quality improvement is a never ending process. Total commitment to quality improvement throughout the entire organization is their basic message.

W. Edwards Deming

W. Edwards Deming was an internationally recognized consultant whose approach greatly contributed to the Japanese manufacturing revolution for quality and productivity. Today's worldwide competition, which focuses on quality, has brought American enterprises to transform the success of Deming's management methods in Japan. In his book, Deming (1986) stated that:

The basic cause of sickness in American industry and resulting unemployment is failure of top management to manage. . . . The fact

is that management can not learn by experience alone which they must do to improve quality and productivity, and the competitive position of the company. . . . Long term commitment to new learning and new philosophy is required of any management that seeks transformation. (p. ix)

As quoted by Walton (1986), Deming enumerates the American quality crisis as the Seven Deadly Diseases. Those diseases include:

1. Lack of constancy of purpose.
2. Emphasis in short term profits.
3. Evaluation of performance, merit rating, or annual review.
4. Mobility of top management.
5. Running a company on visible figures alone ("counting the money").
6. Excessive medical costs.
7. Excessive costs of warranty, fueled by lawyers that work on contingency fees.

For this reason, Deming provided his famous Fourteen Points for management that outlined a philosophy for achieving quality and productivity. The methods incorporate the use of statistical tools and a monumental change in the corporate culture (Gitlow and Gitlow, 1987). Deming's Fourteen Points reveal the necessity of management commitment to change its thinking and behavior for survival and competitive success.

1. Create constancy of purpose toward improvement of product and service.
2. Adopt the new philosophy.
3. Cease dependence on mass inspection.
4. End the practice of awarding business on the basis of price tag alone.
5. Improve constantly and forever the system of production and service.
6. Institute training.
7. Institute leadership.
8. Drive out fear.
9. Break down barriers between staff areas.

10. Eliminate slogans, exhortations, and targets for the workforce.
11. Eliminate numerical quotas.
12. Remove barriers to pride of workmanship.
13. Institute a vigorous program of education and retraining.
14. Take action to accomplish the transformation. (Walton, 1986)

Placing Deming's philosophy at work requires management

responsibility for achieving competitiveness. Only management can change the system to allow the organization to stay in business and provide more jobs. The company must invest for the future by creating constancy of purpose for improvement of products and service through innovations, research and education, constant improvement, and maintenance (point 1).

The basic theme of Deming's philosophy is reducing variation in whatever a process produces. Measuring variation using Statistical Process Control (SPC) is fundamental to the principle of continuous improvement and to the achievement of competitive position and success (Snyder *et al.*, 1994). Quality performance of products or services improves as process variability decreases. Improved performance will decrease the cost due to reduction in mistakes, less rework, less waste of materials, and better use of resources. As the costs go down, the productivity increases. Better quality with lower cost will create a good market for the company. A good market leads the company to stay in business and to have a good reputation. As a result, they will be provided with more jobs by the old customers or the new ones.

Deming used the Plan-Do-Check-Act (PDCA) Cycle, or Shewhart Cycle, that symbolizes problem analysis steps for narrowing the gap between customer needs and present performance (Figure 2.1). This

procedure will incrementally improve methods by focusing on correcting and preventing defects. The root causes will be removed. New standards will be continually established and revised. Once the PDCA cycle is established, the new levels of performance must be maintained.

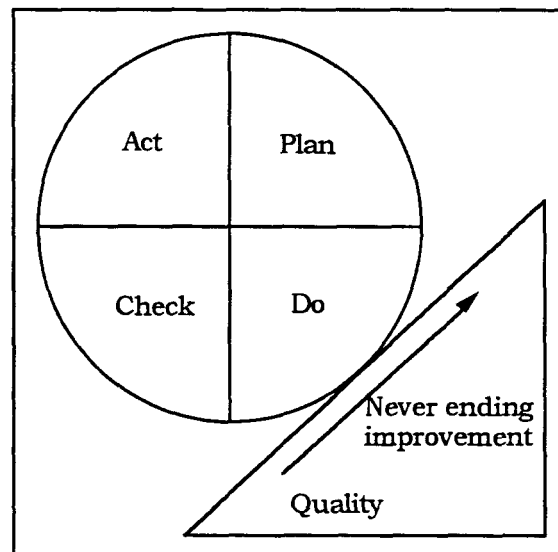


Figure 2.1 PDCA Cycle (Menon, 1992, p. 59)

In summary, Gitlow and Gitlow (1987) explain that Deming's philosophy emphasizes increasing productivity through the improvement of quality. The methodology, which is based on the application of statistical quality-control concepts and techniques provides an organization with the tools needed to improve quality, enhance the workers' state of mind, increase productivity, and allow a sharing of the benefits. It is also pointed out that the Deming philosophy involves the

concepts of the extended process so that quality control reaches from the individual plant to the source of its inputs, and forward through the customer. All efforts should be directed towards complete satisfaction. Furthermore, Deming's management method is universal and applicable in any size of corporate environment or government agency.

Joseph M. Juran

Joseph M. Juran is a pioneer in promoting Quality Control activities in Japan. His work and lectures influenced the Japanese to expand quality to include an overall concern for the entire management of an organization (Ishikawa, 1985). His lectures focused on planning, organizational issues, management's responsibility, and the need to set goals and targets for improvement (Garvin, 1988).

Juran defined quality as "fitness for use" and he stressed that quality must be implemented from the top down. Quality consists of those product features that meet customer needs. When product features satisfy the customer, they have a major effect on sales. His approach, which addressed managing for quality, is based upon three major processes, called the Juran Trilogy (Juran, 1992).

Quality planning

Quality planning deals with developing products and processes required to meet customers' needs as well as establishing quality goals and developing the products and processes required to meet those goals. Juran provided a quality planning road map comprising:

1. Identify who the customers are.
2. Determine the needs of those customers.
3. Develop the products and processes required to meet these needs.
4. Develop product features that respond to customers needs.
5. Develop processes that are able to produce those product features.
6. Transfer the resulting plans to the operating force.

Quality control

The quality control process is designed to keep a planned process in its planned state, detecting and correcting adverse change so that it remains able to meet the operating goals. This process consists of:

1. Measure actual quality performance
2. Compare actual performance to quality goals
3. Take action on the difference

Quality improvement

The quality improvement process focuses on breaking through to new levels of quality performance by reducing the chronic waste. Juran developed the sequence of this process as follows:

1. Prove the need for quality improvement.
2. Identify specific needs for improvement.
3. Establish a team for each project to conduct an analysis.
4. Provide the resources needed by the team to diagnose the causes, to stimulate establishment of a remedy, and to establish control.

Juran pointed out that the work force - customer, processor, and supplier - play important roles in planning for quality. The interrelationship among three roles within a processor team is known as the Triple Role Concept (Juran, 1992), as shown in Figure 2.2.

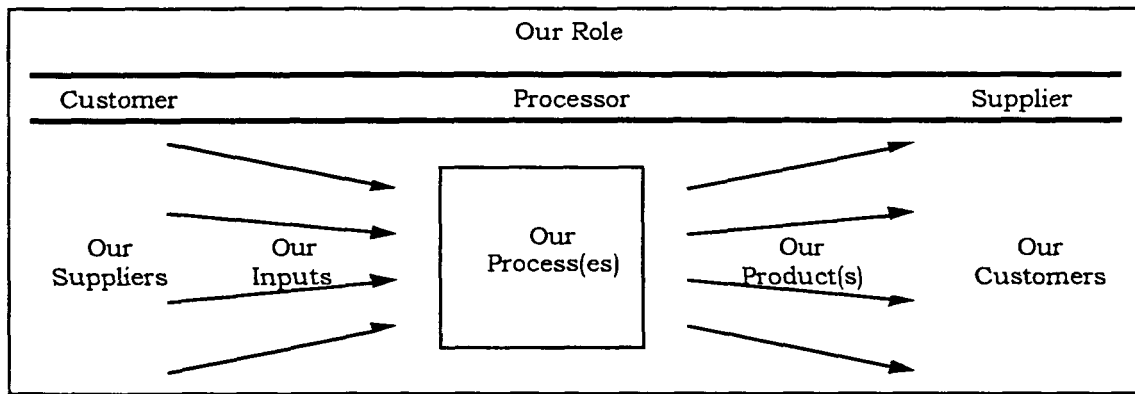


Figure 2.2 The Tripol Diagram (Juran, 1992, p. 23)

The three-fold roles of a processor team are: a customer of the suppliers who provides the input required to carry out the process; a processor that carries out the activities of producing products or services; and a supplier who supplies the products or services to customers.

The new importance of quality has required that the business plan be expanded to include quality goals. The quality goals created by a successful company include customer satisfaction, competitive quality, rate of improvement, reduction in cost, performance of key macro processes.

Quality goals remain useless until they are converted into realities by a process known as deployment. Under the deployment concept, the goals are communicated to the middle managers. These managers then identify the action to meet the goals, assign clear responsibility for doing the deeds, and estimate resources. Their proposals are sent back to upper managers. This process is followed by a series of negotiations to find the optimum and to balance the value of meeting the goals against the needed resources. The end result is enlisted action to be done, clear assignment of responsibility, and provision of the needed resources.

The deployment process requires prior training and experience in the processes of managing for quality. If the participating managers lack such training and experience, it is premature to put quality goals into the business plan. It should be noticed that business quality goals are in addition to the traditional quality goals at the middle and lower levels of the company.

Juran believes that upper management plays an important role in managing quality throughout the company to achieve extraordinary quality performance (Juran, 1989). His approach to applying quality management at the upper levels is by developing strategy "to establish a broad quality goal as part of the business planning, along with goals for sales, investment, and profit" (p. 210). To lead the organization to quality, management should do the following:

1. Undergo training in how to think about quality, how to plan for quality, and how to measure improvement. Management must create "the quality improvement program - including setting quality policies, plans, controls, and incentives."

2. Make the organizational changes necessary to meet the new quality goals and implement the new quality policies, focusing on coordination, teamwork, and the elimination of departmental boundaries.
3. Personally review and reward performance through a revised compensation system that includes measures of performance on quality improvement and control. This requires the development of accurate measures of quality.
4. Stay personally involved as the quality goals are communicated to lower levels of the organization.
5. Approve and fund expenditures necessary to achieve the established quality goals (Snyder *et al.*, 1994, p. 40).

Attaining world class quality is a lot of work. When successful companies relate their experiences, they point out that attaining world class quality required some painful changes, including new functions, changed priorities, new skills, and much training. All of those changes had to be absorbed while they were keeping the business running.

The process of managing for quality is universal and is applicable to any industry. The assertive difference is valid with respect to each market, but technology, associated skills, and such, with respect to managing for quality, are not different.

Philip B. Crosby

Philip B. Crosby is one of the American gurus who teaches quality management. His approach to quality aims to fight the enemies of quality, to develop a quality culture, and to get all employees to commit to quality (Schmidt and Finnigan, 1993). The Crosby theory of quality is

based upon the four "absolutes of quality management." Those four absolutes are:

Quality has to be defined as conformance to requirements, not as goodness. Crosby defines quality as "conformance to requirements." A quality product should meet customers' requirements. It is management's responsibility to communicate these requirements to the work force. Appropriate training and tools should be available to achieve the quality product.

The system for causing quality is prevention, not appraisal.

To produce quality products or services, organization must avoid opportunities for error in the design of work processes. Appraisal or inspection at the end of the work process is expensive and unreliable to improve quality.

The performance standard must be zero defects, not "that's close enough." "Zero defects" means that products completely conform to requirements. Perfect quality should be communicated to have the entire organization commit to the organization's goal and strive for continuous improvement.

The measurement of quality is the price paid, not indexes.

Crosby measures quality in terms of the price paid for failing to meet the requirements. The price of nonconformance should be reduced by applying quality improvement principles. Improved

products decrease the total cost production and increase organization's profit.

Crosby states that trouble with quality results in trouble with the customers. Beside customer dissatisfaction, he indicates that a troubled organization suffers by the presence of five symptoms:

1. The outgoing product or service normally contains deviations from published, announced, or agreed-upon requirements.
2. The company has an extensive field service or dealer network skilled in rework and resourceful corrective action to keep the customer satisfied.
3. Management does not provide a clear performance standard or definition of quality, so the employees each develop their own.
4. Management does not know the price of nonconformance.
5. Management denies that it is the cause of the problem (Crosby, 1985).

Crosby established Fourteen Steps to keep the quality improvement process never ending which includes:

1. **Management commitment:** to convince the workforce that management is involved in the process.
2. **The quality improvement team:** to guide and support the process of quality improvement.
3. **Measurement:** to provide information of the performance level and to identify areas which need improvement.
4. **The cost of quality:** to identify profitable areas of improvement.

5. **Quality awareness:** to raise awareness about quality and adoption of the company's culture through adequate system of communication.
6. **Corrective action:** to prevent errors and eliminate sources of problems.
7. **Zero defects planning:** to establish appropriate activities in the company and its culture to create zero defects program.
8. **Employee education:** to provide education needed to carry out quality improvement program.
9. **Zero defects day:** to remind the work force of the importance of quality and to demonstrate the commitment towards zero defects principle.
10. **Goal setting:** to encourage employees to establish improvement goals for themselves and their groups.
11. **Error-cause removal:** to encourage employees to inform management of any problems that cause error.
12. **Recognition:** to appreciate those who perform outstandingly and to help the improvement efforts in the right direction.
13. **Quality council:** to bring quality professionals together to support the quality improvement teams toward achievement of zero defects.
14. **Do it all over again:** to assure the continuance of the quality improvement process.

It is obvious that the quality improvement process requires special attention. In summary, Crosby identified that "the culture of the company

is going to change only when all employees absorbs the common language of quality and begin to understand their individual roles in making quality improvement happen. As their education takes effect, the employees will expect management to put quality first among equals. From that point on they expect to see management insisting on conformance to requirements and they expect to get used to it" (Crosby, 1985, p. 100).

Total quality is characterized by defect-free products and services. This performance is possible, but it requires supportive leadership that will make achievement feasible. Leaders have to keep the implementation of mutual relationships alive and move in the correct direction. The reward will be remarkable levels of personal satisfaction that occur only from outstanding achievement.

Within the organization, there should be sufficient knowledge, commitment, and understanding about how to use continuous improvement to create stronger, more competitive, and more satisfied customers. The end results will be greater customer satisfaction, increased job security, effective utilization of human resources, and greater job satisfaction (Poirier and Houser, 1993). TQM is one key to establish the network that will create those performances. The basic requirement is strong individual effort combined with teams working together for mutual benefit. People within each team should be willing to give as much as they take from the alliance. Trust and faith in those people's abilities are absolutely needed. In that sense TQM will offer a success strategy.

CHAPTER III. TOTAL QUALITY MANAGEMENT IN THE CONSTRUCTION INDUSTRY

In the construction industry, TQM is now becoming an important management focus. Research conducted by the Construction Industry Institute (CII) quality management task force identified that "construction companies are adopting and benefiting from total quality management" (Burati, 1990, p. 16). The opportunity to implement TQM will keep the construction industry healthy and capable of surviving the threat of global competition.

Deffenbaugh (1993) defined total quality in the construction industry as "a measurable process of continuous improvement that is focused on the needs and expectations of customers" (p. 382). Quality, which combines both product and service processes, is achieved when the completed project conforms to the requirements as set out in project plans and specifications.

Quality achievement integrates all of the project functions within a single construction project. It includes owners, designers, and constructors who will work together as a team to fully implement the TQM approach to improve quality of services and products. Applying the Juran's "triple role" concept to the construction industry, each team member has three roles: supplier, processor, and customer (Burati, 1990), which is illustrated in Figure 3.1.

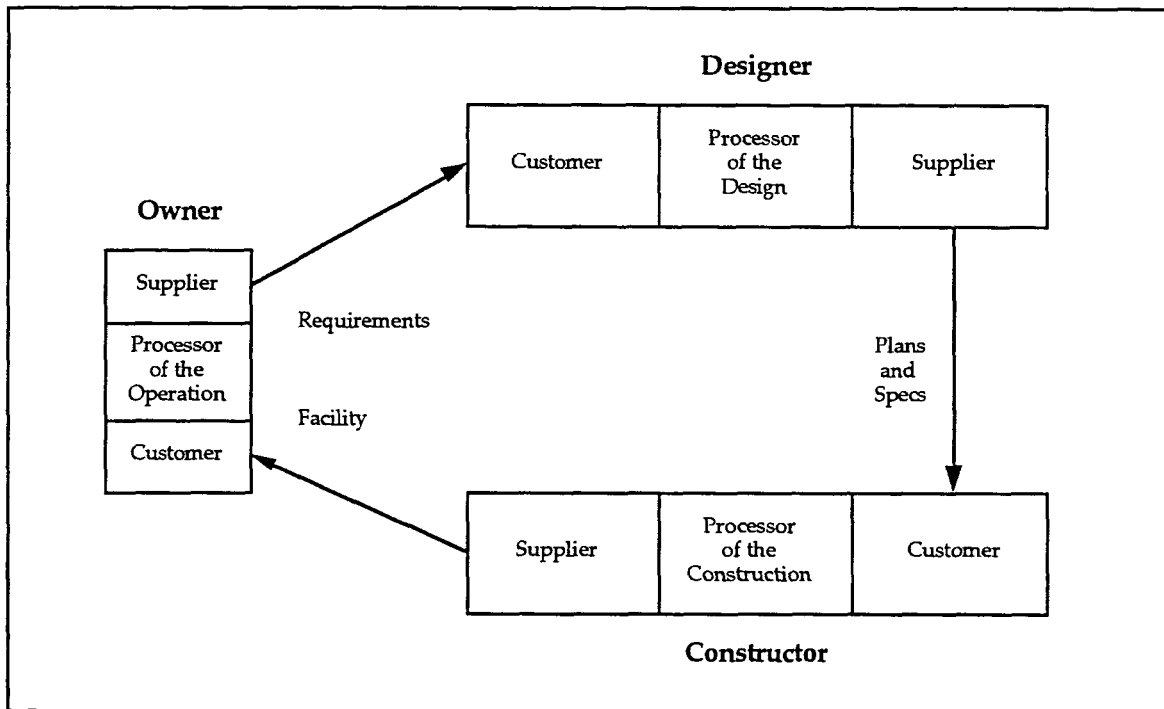


Figure 3.1 Juran's Triple Role Concept applied to construction
(Burati, 1990, p. 3)

The owner is responsible for establishing the project requirements and objectives; clearly and accurately communicating them to the project team; and providing adequate schedules and funds to achieve the project objective. The designer's role is providing a set of plans and specifications in response to the owner's need. The constructor is responsible for constructing the project according to the plans and specifications produced by the designer; and providing a quality facility which meets the owner's requirements, within budget and on schedule.

Based on the results of Total Quality Management in Building Design and Construction Workshop, Chase (1993) identified ten basic elements of TQM as applied to design and construction companies (Figure 3.2).

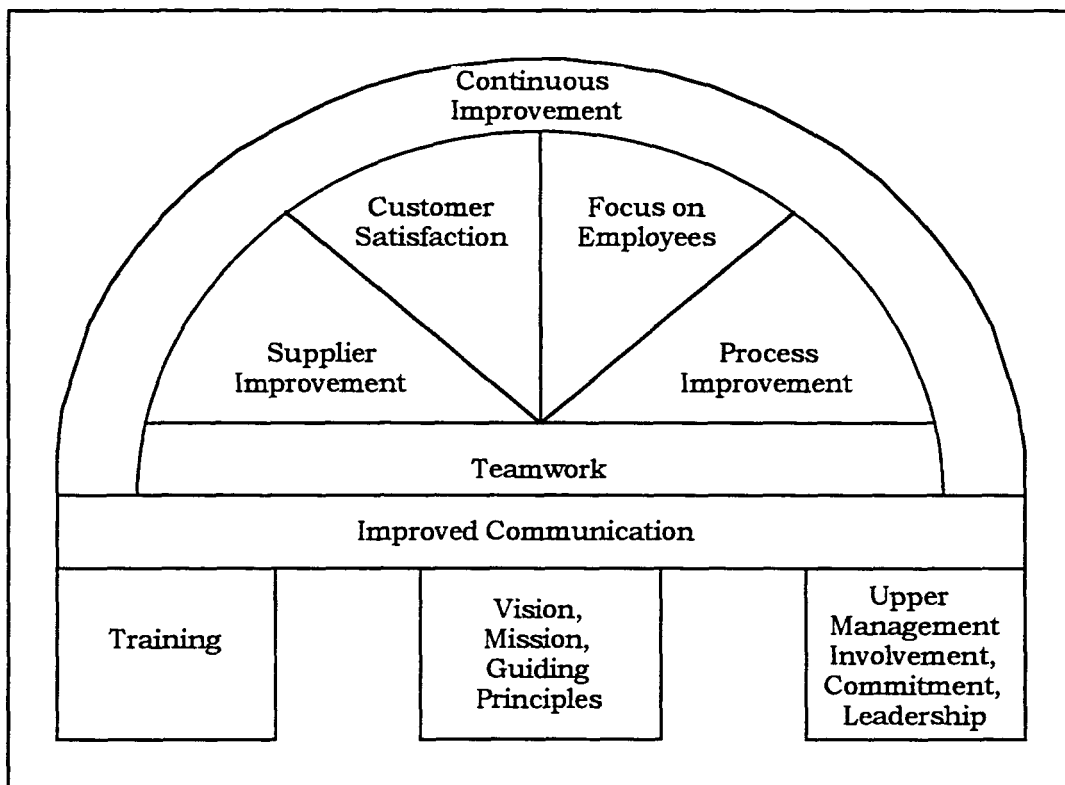


Figure 3.2 The structure of Total Quality Management (Chase, 1993, p. 21)

Chase pointed out that TQM as a “structured approach” requires foundation elements which consist of training; vision, mission, and guiding principles; and upper management involvement, commitment and leadership. Those three elements support the structure of TQM which

includes improved communication; teamwork; supplier improvement; process improvement; focus on employee; customer satisfaction and continuous improvement as the guiding principles.

A successful project requires careful attention to the requirements determined by the owner's needs and preferences, and a clear definition of the quality expected. Team members are expected to commit to the project objectives and to be competent in their roles. A strong team relationship with open communication is a key of a successful effort. As stated by Kubal (1994) "no quality management program will succeed in improving overall process or product quality if it is attempted under adversarial conditions" (p. 147). A successful project with satisfied owners will create a good market for the designer and the constructor and help them survive in today's business competition.

CHAPTER IV. METHODOLOGY

This chapter presents the procedures by which the study was carried out, which include: 1) background to the study and company profile, 2) design of the study, 3) development of the survey instrument, 4) procedures for administering the survey, 5) essential characteristics of a measurement, and 6) statistical analysis method.

Background to the Study and Company Profile

The employee survey measured employee job satisfaction and employee attitudes regarding the company, the working life, and the TQM program. The measurement of employee attitude focused on opinions related to human resources policies.

The company within which this study was conducted was a mid-sized general contractor in the Midwest area in the United States. The first time the company started institutionalizing its quality improvement process was in 1989. Up until 1993 the company had started four times with three false starts. It was in August 1993 that Mark O. Federle was hired as the Quality Director in the company. TQM was institutionalized to help the company survive in today's business competition. The company strives to continuously improve the performance by utilizing Performance Improvement Teams (PIT).

The company has developed and communicated a clear statement of its vision, missions and goals throughout the organization.

- Goal:** To provide pre-engineering metal building expertise to national owners.
- Vision:** Building to exceed customer expectation.
- Mission:** The value and service leader for building systems, specialty components, and construction services for nonresidential construction customers.
- Value* — the best balance between cost and benefit
- Service* — a critical part of our business
- Leader* — the preferred supplier, the highest regarded brand
- Customers* — why we are in business

Currently, the implementation strategy is to educate the entire organization which consists of 160 professionals. The education program includes total quality awareness, tools of quality, and team-building exercises. Performance Improvement Teams were established to address crucial problems as identified by senior management. General guidance for the quality improvement process is adapted from *The Team Handbook* (Scholtes, 1988). This book provides various steps a project team must go through to improve the process and methodology that can be employed by project teams to insure a thorough team process.

The company believes that the only way to improve the overall operation and processes at the company is by measuring employee satisfaction. Nothing improved until it was measured.

Development of the Survey Instrument

The survey instrument was carefully designed by faculty of Iowa State University, Mark O. Federle and James C. McElroy. A steering committee's input was also sought to address the company's specific questions. Each

question was expected to be clear and easy to understand, so that each respondent reading the question would interpret it the same way.

The employee survey is composed of seven parts which are summarized as follows:

- Part I:** Basic questions about the employee and the opportunity to receive training (6 items).
- Part II:** Attitudes regarding job satisfaction (20 items).
Response options:
1. Very dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Very satisfied
- Part III:** Perceptions of the work environment, which includes structure, culture, warmth, support, identity, and communication (34 items)
Response options:
1. Definitely disagree
2. Inclined to disagree
3. Inclined to agree
4. Definitely agree
- Part IV:** Attitudes and opinions regarding the job (11 items).
Response options:
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
- Part V:** Opinions regarding the work (15 items).
Response options:
1. Strongly disagree
2. Disagree
3. Somewhat disagree
4. Neutral
5. Somewhat agree
6. Agree

7. Strongly agree

Part VI: Opinions about the company (12 items).

Response options:

1. Strongly disagree
2. Disagree
3. Somewhat disagree
4. Neutral
5. Somewhat agree
6. Agree
7. Strongly agree

The probability to remain with the company (1 item)

Response options:

1. Very high
2. Strong
3. Uncertain (to leave)
4. Uncertain (to stay)
5. Low
6. Very low

Part VII: Opinions regarding company policies (48 items)

Response options:

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Each part of the survey has a different scale which ranges from four to seven-points. The difference in scale between parts is to ensure that respondents would read the instructions and examine each item carefully.

The employee survey was administered in October 1993. Its purpose was to give all employees an opportunity to express their opinions concerning the company, the working life, and the TQM program. The survey was utilized as a vehicle to answer the question "How satisfied are employees with their current role?"

Procedures of Administering the Survey

All employees received the questionnaire with their weekly pay checks. Employees were assured of confidentiality. Only the researchers at Iowa State University would have access to their individual questionnaires. Each employee completed the questionnaire and returned it in a sealed envelope to the research team via U.S. Mail. The questionnaire submitted was anonymous, but it was codified by the respondent himself. Therefore, the researchers would be able to learn an employee's opinion over repeated measures.

Measures

Items included in the questionnaire cover people dimensions of TQM practices which include leadership, human resources management, and job satisfaction, as listed below. The constructs comprising each dimension are given in Appendix A.

1. Management and leadership
2. Communication
3. Employee involvement
4. Job design
5. Training and development
6. Recognition
7. Corporate relationship
8. Employee job satisfaction

The questionnaire comprised a total of 141 questions (not including demographics), of which 25 were stated in the negative. These items were reversed (R) for analysis to maintain consistency for the overall survey responses.

Management and Leadership

Visionary leadership is the ability of management to establish, practice and lead a long-term vision for the organization's development. It includes the role top management plays in communicating the vision; implementing a plan of action; and inspiring and motivating the entire organization toward the fulfillment of the vision (Anderson, 1994). The questionnaire included four measurements of management and leadership as follows:

Organizational Structure

Stinnett (1992) pointed out that for an organization to change, a structure must be developed to accommodate the activities needed to make the change occur. A structure that is adequate to the task is comprehensive and correlated to the organization's direction. Also, everyone should have opportunity to be involved in the design of the structure. The items of the organizational structure measurement were:

1. The jobs in the company are clearly defined and logically structured.
2. In the company it is sometimes unclear who has the formal authority to make a decision. (R)
3. The policies and organization structure of the company have been clearly explained.

4. Red tape is kept to a minimum in the company
5. Excessive rules, administrative details, and red tape make it difficult for new and original ideas to receive consideration. (R)
6. Our productivity sometimes suffers from lack of organization and planning. (R)
7. In some of the projects I've been on, I haven't been sure exactly who my boss was. (R)
8. Our management isn't so concerned about formal organization and authority, but concentrates on getting the right people to do the job.
9. Meetings are held only as necessary and needed.
(Source: Litwin and Stringer, 1968)

Management Support

In a participative management organization, managers are delegating responsibility. Managers should clarify their expectations and support team efforts by providing information (Tenner and DeToro, 1992). They must participate with the teams and assist the teams by allocating resources to implement good ideas. The items, included in part III of the questionnaire, were:

1. You don't get much sympathy from higher-ups in the company if you make a mistake. (R)
2. Management makes an effort to talk with you about your career aspirations within the company.
3. People in the company don't really trust each other enough. (R)
4. This philosophy of our management emphasizes the human factor, how people feel, etc.
5. When I am on a difficult assignment I can usually count on getting assistance from my boss and co-workers.
(Source: Litwin and Stringer, 1968)

Management Commitment

Upper management commitment is a key element of TQM to establish quality as a top priority. As verified by Spencer (1994), the role of

management is “to create constancy of purpose for improvement and to create a system that can produce quality outcomes” (p. 447).

Upper level managers who communicate the need for quality as a serious objective of the organization, must take action to prove their commitment. Management must also be rewarded as they achieve improvement on the process. The items included were:

1. My supervisor or manager is more a "team leader" than a "boss."
2. Employees are being given the opportunity to be responsible for work quality.
3. Managers and supervisors at the company exhibit personal commitment to quality improvement.
4. the company management strongly encourages employee involvement in work unit decision making.
5. The company has embraced a team concept.
6. Managers at the company accept their responsibility for quality.
7. We have developed good systems for monitoring the quality of our work.
8. The company has made quality improvement a top priority.
9. I understand the vision of senior management.
10. Senior management demonstrates "constancy of purpose" toward TQM.

(Source: Morrow, 1993)

Communication

It is management’s responsibility to provide employees with information necessary to perform their assigned task. Employees must know what the organization really expects. Thus, communication techniques should be developed to both inform and instruct everyone in the practice, process, and approaches that are required for TQM to be successful (Tenner and DeToro, 1992). Management must be willing to

engage in open communication with their employees. Four items included in part III of the questionnaire were:

1. There are effective communication channels between departments in this organization.
 2. People in my work unit do not have to rely on "the grapevine" or rumors for information.
 3. People in my work unit have ample opportunity to exchange information with their supervisors.
 4. People in my work unit get the facts and information they need to do a good job.
- (Source: Nadler, 1975)

Employee Involvement

Employee involvement exists in some form and in varying degrees in all organizations. The organization needs the commitment of the employees to the basic mission of the organization. If the employees do not believe in the value of the success of the organization, their contribution becomes limited.

Several dimensions of employee involvement included in the questionnaire were as follows:

Organizational Identity

Reger *et al.* (1994) defined organizational identity as "the set of constructs individuals use to describe what is central, distinctive, and enduring about their organization" (p. 568). Employees support the company's efforts because of their beliefs that the organization is capable of change (Reger *et al.*, 1994). The items included in the questionnaire were:

1. People are proud of working at the company.
2. I feel that I am a member of a well-functioning team.

3. As far as I can see, there isn't very much personal loyalty to the company.
 4. In the company people pretty much look out for their own interests.
- (Source: Litwin and Stringer, 1968)

Job Involvement

Lodahl and Kejner (1965) defined job involvement as “the degree to which a person’s work performance affects his self-esteem” (p. 25).

The items, included in Part IV of the questionnaire, measure the degree to which employees of an organization believe that the organization continually satisfies their needs (Anderson, 1994). Those items were:

1. I am very much personally involved in my job.
 2. Most of my personal life goals are job-oriented.
 3. Most of my interests are centered around my job.
 4. I consider my job to be very central to my existence.
 5. I like to be absorbed in my job most of the time.
 6. The most important thing that happens to me involves my job.
 7. To me, my job is only a small part of who I am. (R)
 8. Usually I feel detached from my job. (R)
 9. I live, eat, and breathe my job.
 10. My perception of the company's success is based on my share of The Company Incentive Payment Plan.
 11. I have very strong ties with my present job which would be very difficult to break.
- (Source: Kanungo, 1982)

Organizational Commitment

Organizational commitment involves an active relationship between employees and the organization, such that they are willing to give something of themselves to contribute to the organization’s well being (Mowday and Steers, 1979). Commitment represents the extent of

agreement between the employee and the fundamental values and purpose of the organization, and the pride of workmanship (Anderson, 1994). The items concerning organizational commitment were included in Part VI of the questionnaire. Those were:

1. I am willing to put in a great deal of effort beyond that normally expected in order to make the company successful.
2. I talk up the company to my friends as a great organization to work for.
3. I would accept almost any type of job assignment in order to keep working for the company.
4. I find that my values and the company's values are very similar
5. I am proud to tell others that I am a part of the company.
6. The company really inspires the very best in me in the way of job performance.
7. I am extremely glad that I chose the company to work for over other organizations I was considering at the time I joined the company.
8. I really care about the fate of the company.
9. For me, the company is the best of all possible organizations to work for.
10. The company actively seeks input from external sources.
11. Senior management at the company is overly concerned with the bottom line. (R)
12. For me, the company is the best organization within the company group to work for.
13. Assuming things in your personal life and work remain about the same, what is the probability you will remain with the company in the near future. (R)

(Source: Mowday and Steers, 1979)

Teamwork

Teamwork is a sharing of responsibility and decision making that impacts the entire organization. Collaboration and teamwork build a new level of capability that the organization can increase its customers' satisfaction and continuously improve performance.

Evaluation of a team's success considers how well the team performs in the areas of team's goals, roles, process, development, and innovation (Tenner and DeToro, 1992). The items included in the questionnaire were:

1. Decisions are being made more by people doing the job than by managers.
 2. My work unit uses teams to solve problems.
 3. Many problems are now being solved through team meetings.
- (Source: Morrow, 1993)

Empowerment

Empowerment allows the people most involved in the work process to confidently make suggestions and decisions for improvement.

Empowered employees realize that their contributions are important to the success of the company and that upper management trusts them and will provide a quick response (Sanders and Eskridge, 1993).

The items as measures of empowerment were:

1. Employee ideas are encouraged -- even if they later do not work out.
 2. Employee suggestions are given a fair hearing by the company managers and supervisors.
 3. It is easy to get a new idea on the table for discussion.
 4. My boss really believes that we can improve our work continuously.
 5. The people my work unit serves, i.e., our customers, give us feedback on the quality of our work.
 6. We should do all we can to increase short term profits.
- (Source: Morrow, 1993)

Commitment to Continuous Improvement

A commitment to continuous improvement by all members of an organization is the heart of any quality improvement process and is a

must if the organization wants the business to remain competitive. The concept of continually achieving improvement relates to three levels of work activity: the individual, the team, and the entire organization (Predpall, 1994). The items of the questionnaire included:

1. My work unit understands the concept of "continuous improvement."
2. The company is moving away from an "inspection" orientation to a "do it right the first time" philosophy.
3. My work unit has accepted the goal of continuous improvement.
4. I am committed to continuous improvement in my work.
5. My co-workers have a good understanding of who their customer are.
6. Senior management sees continuous improvement as essential.

(Source: Morrow, 1993)

Customer-focused

Total quality organization requires a strong customer focus, including a desire to take the extra effort necessary to determine a customer's needs and expectations, both for internal and external customers, accurately and completely. The items included in the questionnaire were:

1. The people my unit work serves, i.e., our customers, meet with us regularly.
2. During team meetings, we make an effort to get all team members' opinions and ideas before making a decision.
3. People in my work unit maintain close contact with the people we serve.

(Source: Morrow, 1993)

Motivational Job Design

Job design integrates work content, the reward, and the qualifications required for each job in a way that meets the needs of employees and the organization (Milkovich and Boudreau, 1988). Managers should bring variety to employees' jobs, give employees control over given tasks and provide adequate feedback on performance. Hurston (1988) pointed out that job enrichment is a way to achieve increased motivation and morale of employees. The measurement of the motivational job design included in the questionnaire covers task/goal clarity, task resources, job enrichment, and conflicting demands. Those were:

1. I feel certain about how much authority I have.
 2. Clear goals and objectives exist for my job.
 3. I have to do things that should be done differently.
 4. I know that I have divided my time properly.
 5. I receive an assignment without the resources to complete it.
 6. I know what my responsibilities are.
 7. I have to buck a rule or policy in order to carry out an assignment.
 8. I work with two or more groups who operate quite differently.
 9. I know exactly what is expected of me.
 10. I receive incompatible requests from two or more people.
 11. I do things that are apt to be accepted by one person and not accepted by others.
 12. I receive an assignment without adequate resources and materials to execute it.
 13. Explanation is clear of what has to be done.
 14. I work on unnecessary things.
 15. I have enough time to perform my job in a professional manner.
- (Source: Nadler, 1975)

Training and Development

It is essential that employees have orientation in to the company to understand the organization's vision and values. They must also be trained

in appropriate skills so they can do the right things the first time. Focus must be on skills training and be consistent with TQM philosophy. The items included in the questionnaire covered the measurement of integrated and appropriate training, and quality awareness training program. Those items were:

1. Training provided by the company helps me do a better job.
 2. I have a good understanding of Total Quality Management (TQM).
 3. I receive all the training I need to do a good job.
 4. The quality of job related training I have received has been good.
 5. TQM training has helped me improve my job performance.
 6. I understand more "why" we do things than I did in the past.
 7. The job related training I have received has been very worthwhile.
 8. I have received adequate training in TQM.
 9. TQM ideas have been clearly explained to me.
 10. Information related to the quality of my unit's work is readily available to me.
 11. I find the TQM training sessions educational.
I find the TQM training sessions worthwhile.
- (Source: Morrow, 1993)

Reward and Recognition

Reward and recognition are the payoffs for the employees' efforts that are put forth to bring about the quality achievement. Management should also be rewarded for delivering process improvement. The items as measures of reward and recognition were:

1. If I improve quality, management will reward me.
2. The company managers and supervisors are rewarded for quality improvement.
3. I am never told whether I am doing a good job. (R)
4. My supervisor never comments about the quality of my work. (R)

5. The company employees are recognized for quality improvement.
 6. Improvements in quality are recognized in employee performance reviews.
- (Source: Morrow, 1993)

Corporate Relationship

The organization's overall culture influences the nature of employee relationships. The interpersonal relationship sets the stage for how open or defensive employees will be. Coffey (1994) pointed out that the interaction can be distinguished by four primary factors: openness, trust, owning, and risk to experiment. If a relationship makes each employee feels supported, adequate, and worthy, it will lead to a mutual feeling of closeness, warmth, and trust. The items included in the questionnaire were:

Culture

1. The people I work with really trust one another.
 2. Employees in my department can voice their opinions freely.
 3. If you make a mistake in the company, you will be punished.
 4. I can trust my manager or supervisor to represent my interests at higher levels.
 5. There is a great deal of criticism of the company by employees.
 6. In the company the recognition and encouragement you get usually outweigh the threats and criticisms.
 7. Innovation is strongly encouraged within the company.
- (Source: Litwin and Stringer, 1968)

Warmth

1. A friendly atmosphere prevails among the people in the company.
2. The company is characterized by a relaxed, easy going working climate.
3. It is very hard to get to know people in the company.
4. People in the company tend to be cool and aloof toward each other.

5. There is a lot of warmth in the relationships between management and workers in the company.
(Source: Litwin and Stringer, 1968)

Job Satisfaction

Job satisfaction is a pleasurable or positive emotional reaction to a person's job experience (Milkovich and Boudreau, 1988). The items included in the questionnaire were taken from the Minnesota Satisfaction Questionnaire (MSQ) which measured satisfaction with 20 work facets.

Those items covered in Part II were:

1. Being able to keep busy all the time.
2. The chance to work alone on the job.
3. The chance to do different things from time to time.
4. The chance to be "somebody" in the community.
5. The way my boss handles the staff.
6. The competence of my supervisor in making decisions.
7. Being able to do things that don't go against my conscience.
8. The way my job provides for steady employment.
9. The chance to do things for other people.
10. The chance to tell people what to do.
11. The chance to do something that makes use of my abilities.
12. The way company policies are put into practice.
13. My pay and the amount of work I do.
14. The chances for advancement on this job.
15. The freedom to use my own judgment.
16. The chance to try my own methods of doing the job.
17. The working conditions.
18. The way my coworkers get along with each other.
19. The praise I get for doing a good job.
20. The feeling of accomplishment I get from the job.

Method of Statistical Analysis of Data

Factor Analysis

Exploratory factor analysis was conducted in this research for each part of the questionnaire. Factor analysis is a statistical technique for the resolution of a set of variables included in the questionnaire in terms of a small number of hypothetical variables, called factors. Factor analysis is based on the fundamental assumption that some underlying factors are responsible for the covariation among the observed variables.

Principal component analysis with varimax rotation was completed in this study. Principal component analysis is a method of extracting factors, i.e., transforming a given set of observed variables into another set of variables. The analysis aims to determine the minimum number of common factors that would satisfactorily produce the correlations among observed variables and determine the communalities of each variable. Kaiser criterion for the number of factors suggests to retain factors with eigenvalues greater than one (Ford *et al.*, 1986).

Varimax rotation is used to simplify factors so that each variable tends to load highly on only one factor, while keeping the number of factors and communalities of each variable fixed, and the factors statistically uncorrelated (Kim and Mueller, 1978). Interpretation of the results is simplified because each factor is more clearly identified by a subset of variables that load high on it, but low on other factors (Hedderison and Fisher, 1993). Ford *et al.*, (1986) identified that only variables with loading greater than 0.40 on a factor should be considered significant and used in

defining that factor. This research set a minimum value of .45 to interpret the factor solution.

The scales identified in the factor analysis were then named and categorized based on the people dimensions of TQM practices which the researcher wanted to examine. Factor scores for the scales are the sum of response of the items that load on a factor. Those scores would be used in the next step of analysis, that is comparison analysis.

Reliability

The process of measuring attitude draws upon a measurement based on reliable behavioral data that contributes toward TQM practices. Reliability refers to the attribute of consistency in measurement (Gregory, 1992). As proposed by Cronbach (Cattell, 1967), among the varieties of reliability coefficients, the procedure for assessing attitude measurement is a generalized homogeneity coefficient or Cronbach Alpha. To reflect internal consistency, most recent studies have used $\alpha > 0.70$ as an adequate alpha level without comparing it with the number of items in the scale (Cortina, 1993). A value of Cronbach's alpha was computed for each factor to demonstrate the meaningful factor interpreted. To provide more information to the further analysis, factors that had α close to 0.70 were included. So, value of $\alpha = 0.65$ were chosen as the cutoff.

T-Test

Descriptive statistics were used as the basic for a *t*-test to determine if highly significant differences could be identified between those who perceived high and low quality regarding construct variables, i.e., the TQM

practices. High and low quality responses were determined from the scores for each scale with 0.50 times the standard deviation above and below the factor score mean respectively. Care was taken when interpreting the empirical significance of family wise t-test. Only items significant at $p < 0.01$ were considered.

CHAPTER V. RESULTS AND DISCUSSIONS

About 92 percent (N=103) of employees throughout the company participated in this study. The SPSS for MS Windows™ Release 6.0 package was utilized to analyze the data. The results of the data are presented in the following order:

1. Demographic
2. Factor analysis and reliability analysis
3. Factor scores
4. Dependent and independent variables
5. Hypothesis testing
6. Key findings and discussions

Demographic

The usable responses to the employee survey were primarily male employees, age 46 or over, who had college degrees and had been working for the company for more than five years.

As shown in Table 5.1, respondents were 67 percent males (N=69). About 53 percent (N=55) of employees had over five years of experience with the company and 45 percent (N=46) were 46 years of age or older. Almost 45 percent (N=46) of the employees had received a college degree and 27 percent (N=28) had some college education.

Table 5.2 presents the percentage of the evaluation of the employee involvement in the company training program. Each training course had been completed by less than 20 percent of the respondents. More than 36 percent of the employees did not know that the company offered such courses.

Table 5.1 Demographics

Category	N	Percent ^a
Number of years at the company		
Less than 2 years	34	33
Between 2 and 5 years	14	14
More than 5 years	55	53
Sex		
Male	69	67
Female	34	33
Age		
Under 30	10	10
30 - 45	44	43
46 or over	46	45
No response	3	3
Educational Level		
No high school diploma or GED	1	1
Completed high school or received GED	13	13
Some college	28	27
College degree (A.A., B.S., B.A., etc.)	46	45
Graduate degree (M.S., J.D.)	13	13
No response	1	1

^a The percentages may not sum to 100% due to rounding

Table 5.2 Percentages of responses regarding the evaluation of The Company College

Courses	Completed	Enrolled in Future Course	Plan to Take in 1994	May Take	Do Not Plan to Take	Didn't Know It Was Offered	No Response
A. Effective Listening	18	7	3	12	15	38	8
B. Effective Presentation	17	2	3	9	21	39	9
C. Ethics	9	1	5	7	24	41	14
D. Fundamentals of Communication	13	0	5	8	20	41	14
E. Fundamentals of Management	11	1	5	9	20	40	15
F. Facilitation and Problem Solving	13	4	5	9	18	39	13
G. Getting to Yes	13	3	6	11	18	36	14
H. Priority Setting, Delegating: Time Management	20	2	3	11	15	37	13
I. Team Building	8	6	7	14	18	39	9

Factor Analysis and Reliability Analysis

Following are the results of factor analyses for each part included in the questionnaire. The item (variable) comprising each part is defined in Appendix E. Each factor revealed was codified, named and addressed to the appropriate people dimension of the TQM practices.

Attitudes Regarding Job Satisfaction

The varimax rotation of the twenty items included in the job satisfaction measurement resulted in the five satisfaction scales. As presented in Table 5.3, there were three items loaded on two factors and one item (PART2_12 - The way company policies are put into practice) had factor loading less than 0.45. Those double-loaded items were accounted only for the one factor to which it was related most closely. PART2_7 (Being able to do things that don't go against my conscience) was included in JSAT1 (Satisfaction of doing the job). PART2_3 (The chance to do different things from time to time) and PART2_14 (The chances for advancement on this job) were accounted for JSAT2 (Satisfaction related to advancement opportunity). PART2_12 was excluded from the analysis since it had factor loading less than 0.45. Cronbach Alpha reliability testing of the factor scales gave α scores of 0.58 to 0.86. Two factors were dropped from the analysis:

1. JSAT4: Satisfaction related to co-workers - $\alpha=0.62$
2. JSAT5: Satisfaction related to monetary desire - $\alpha=0.58$

The three other factors identified that would be used in the next analysis were:

1. JSAT1: Satisfaction of doing the job
2. JSAT2: Satisfaction related to advancement opportunity
3. JSAT3: Satisfaction related to supervision

Table 5.3 Varimax rotated factor matrix for attitudes regarding job satisfaction

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
PART2_2	0.79783				
PART2_8	0.64892				
PART2_7	0.63827		0.48628		
PART2_1	0.63470				
PART2_9	0.62033				
PART2_16	0.57517				
PART2_15	0.56634	0.45363			
PART2_11		0.70147			
PART2_20		0.68666			
PART2_10		0.62291			
PART2_14		0.61767			0.48812
PART2_4		0.56760			
PART2_3	0.51712	0.54733			
PART2_19		0.51376			
PART2_5			0.80665		
PART2_6			0.77096		
PART2_17				0.79902	
PART2_18				0.61335	
PART2_12				0.42489	
PART2_13					0.90191
Name	JSAT1	JSAT2	JSAT3	JSAT4 (dropped)	JSAT5 (dropped)
Eigenvalue	60.94	10.83	10.47	10.20	10.00
α	0.86	0.86	0.75	0.62	0.58

Perceptions Regarding Organizational Structure, Corporate Culture, Warmth, Management Support, Organizational Identity, and Communication

The varimax rotated factor matrix of the organizational structure (Table 5.4) revealed three factors with three items loaded to two factors. STRUCT5 (R) (Excessive rules, administrative details, and red tape make it difficult for new and original ideas to receive consideration (R)) and STRUCT7 (R) (In some of the projects I've been on, I haven't been sure exactly who my boss was(R)) were included in MGMT2 (Perceptions regarding clear direction of leaders). STRUCT1 (The jobs in the company are clearly defined and logically structured) was accounted for MGMT1 (Perceptions regarding organizational structure and authority). Inter-item reliability scores ranged from 0.59 to 0.75. Factor 3 (MGMT5) contains items related to employees perception regarding coordinated action of upper management with $\alpha=0.59$. This factor was dropped from the analysis.

Table 5.4 Varimax rotated factor matrix for perceptions regarding organizational structure

Variable	Factor 1	Factor 2	Factor 3
STRUCT4	0.78448		
STRUCT3	0.76521		
STRUCT8	0.67501		
STRUCT6 (R)		0.75924	
STRUCT2 (R)		0.72054	
STRUCT7 (R)		0.66565	0.51960
STRUCT5 (R)	0.52333	0.55853	
STRUCT9			0.76274
STRUCT1	0.50017		0.58962
Name	MGMT1	MGMT2	MGMT5 (dropped)
Eigenvalue	30.45	10.25	10.11
α	0.75	0.67	0.59

Two constructs generated were:

1. MGMT1: Perceptions regarding organizational structure and authority
2. MGMT2: Perceptions regarding clear direction of leaders

The factor matrix structure of the corporate culture (Table 5.5) produced two factors related to trust demonstrated through action (factor 1) and corrective action of leaders in addressing and solving problems (factor 2), with reliability coefficient 0.76 and 0.47 respectively. Only factor 1 (COREL1 - Perceptions regarding trust) would be used in the further analysis.

Table 5.5 Varimax rotated factor matrix for perceptions regarding corporate culture

Variable	Factor 1	Factor 2
CULTURE1	0.78651	
CULTURE4	0.75896	
CULTURE2	0.68630	
CULTURE7	0.56803	
CULTURE5 (R)	0.49149	
CULTURE3 (R)		0.86908
CULTURE6		0.69335
Name	COREL1	COREL3 (dropped)
Eigenvalue	20.82	10.13
α	0.76	0.47

The varimax rotated factor matrix for warm corporate relationships (Table 5.6), management support (Table 5.7), organizational identity (Table 5.8), and communication (Table 5.9) resulted in unidimensional scales with α scores of 0.74, 0.71, 0.76, and 0.80 respectively.

Four factors identified from those for measures were:

1. COREL2: Perceptions regarding warm corporate relations
2. MGMT3: Perception regarding management support
3. EMPL1: Perception regarding organizational identity
4. COMM1: Perceptions regarding communication

Attitudes and Opinions Regarding Job Involvement

The varimax rotated factor matrix of the eleven items of attitudes and opinions regarding employee job involvement produced two factors with eigenvalues over 1.00 (Table 5.10). One item (JOBATT11 - I have very strong ties with my present job which would be very difficult to break) which had loading factor less than 0.45 was excluded from the analysis.

JOBATT10 (My perception of the company's success is based on my share of The Company Incentive Payment Plan) which had loadings greater than 0.45 on two factors was accounted for Factor 2. Factor 2 which consisted of items related to personal involvement and an incentive payment plan was dropped due to its low inter-item reliability ($\alpha=0.14$). One factor (EMPL2 - Attitudes and opinions regarding employee job involvement) would be included in the next analysis.

Table 5.6 Varimax rotated factor matrix for perceptions regarding warm corporate relationships

Variable	Factor 1
WARMTH1	0.80987
WARMTH5	0.72421
WARMTH3 (R)	0.70412
WARMTH2	0.69779
WARMTH4 (R)	0.60199
Name	COREL2
Eigenvalue	20.53
α	0.74

Table 5.7 Varimax rotated factor matrix for perceptions regarding management support

Variable	Factor 1
SUPPORT4	0.80368
SUPPORT2	0.75484
SUPPORT3 (R)	0.62299
SUPPORT5	0.60411
SUPPORT1 (R)	0.59232
Name	MGMT3
Eigenvalue	20.32
α	0.71

Table 5.8 Varimax rotated factor matrix for perceptions regarding organizational identity

Variable	Factor 1
IDENT2	0.86252
IDENT3 (R)	0.79638
IDENT1	0.71933
IDENT4 (R)	0.67937
Name	EMPL1
Eigenvalue	20.36
α	0.76

Table 5.9 Varimax rotated factor matrix for perceptions regarding communication

Variable	Factor 1
COMM4	0.81741
COMM1	0.78564
COMM3	0.78259
COMM2	0.77869
Name	COMM1
Eigenvalue	20.50
α	0.80

Table 5.10 Varimax rotated factor matrix for attitudes and opinions regarding job involvement

Variable	Factor 1	Factor 2
JOBATT3	0.82162	
JOBATT9	0.76703	
JOBATT2	0.75727	
JOBATT5	0.73541	
JOBATT4	0.70686	
JOBATT6	0.67483	
JOBATT7 (R)	0.65490	
JOBATT11	0.35489	
JOBATT1		0.73360
JOBATT8 (R)		0.72583
JOBATT10	0.48119	-0.49761
Name	EMPL2	EMPL10 (dropped)
Eigenvalue	40.35	10.40
α	0.85	0.14

Opinions Regarding Motivational Job Design

Four factors regarding the motivational job design with eigenvalues over 1.00 were generated. The varimax rotated factor matrix (Table 5.11) showed that one item (WORKOP7 (R) - I have to buck a rule or policy to carry out an assignment) had loading greater than 0.45 on two factors. This item was included in JOB2 (Opinions relate to task resources). Inter-item reliability scores range from 0.75 to 0.82. Four constructs of motivational job design that would be considered in further test were:

1. JOB1: Opinions relate to task and goal clarity
2. JOB2: Opinions relate to task resources
3. JOB3: Opinions relate to job enrichment
4. JOB4: Opinions relate to conflict demand

Table 5.11 Varimax rotated factor matrix for opinions regarding the motivational job design

Variable	Factor 1	Factor 2	Factor 3	Factor 4
WORKOP2	0.76908			
WORKOP6	0.76432			
WORKOP9	0.75853			
WORKOP1	0.67732			
WORKOP13	0.53405			
WORKOP12 (R)		0.83695		
WORKOP5 (R)		0.80235		
WORKOP15		0.66825		
WORKOP14 (R)			0.75978	
WORKOP3 (R)			0.64851	
WORKOP4			0.60971	
WORKOP7 (R)		0.46021	0.48554	
WORKOP10 (R)				0.82776
WORKOP11 (R)				0.81439
WORKOP8 (R)				0.61705
Name	JOB1	JOB2	JOB3	JOB4
Eigenvalue	50.84	10.82	10.33	10.03
α	0.82	0.80	0.77	0.75

Attitudes and Opinions Regarding Organizational Commitment

The varimax rotated factor matrix of the organizational commitment (Table 5.12) gave three factor solutions. Using a minimum loading value of 0.45, four items were found to be loaded on two factors. COMPANY2 (I talk up the company to my friends as a great organization to work for) and COMPANY6 (The company really inspires the very best in me in the way of job performance) are items related to employees loyalty. COMPANY5 (I am proud to tell others that I am a part of the company) relates to pride of workmanship, and COMPANY4 (I find that my values and the company's values are very similar) relates to employees acceptance to the organization's goal and values.

Coefficient α for factor 1, factor 2, and factor 3 are 0.78, 0.79, and 0.40, respectively. Factor 1 (EMPL3) consisted of items related to employees loyalty and desire to maintain membership in the organization. Factor 2 (EMPL4) included items related to pride of workmanship and willingness to put forth considerable effort on behalf of the organization. Factor 3 (EMPL11), which related to employees acceptance to the organization's goal and values, was dropped from further analysis.

Table 5.12 Varimax rotated factor matrix for opinion regarding the organizational commitment

Variable	Factor 1	Factor 2	Factor 3
COMPANY9	0.79089		
COMPANY3	0.77756		
COMPANY6	0.66231		0.49687
COMPANY10	0.63419		
COMPANY2	0.57237		0.54060
STAY (R)	0.53994		
COMPANY7	0.52765	0.46150	
COMPANY8		0.81179	
COMPANY1		0.74854	
COMPANY12		0.73985	
COMPANY5	0.45583	0.58899	
COMPANY11 (R)			0.81027
COMPANY4	0.49914		0.56461
Name	EMPL3	EMPL4	EMPL11 (dropped)
Eigenvalue	50.24	10.54	10.20
α	0.78	0.79	0.40

Attitudes and Opinions Regarding Company Policies

Table 5.13 shows the result of varimax rotated factor matrix of the obtained data for attitudes and opinions regarding company policies. Thirteen factors generated related to management and leadership (factor 1), employee involvement (factor 2, 5, 8, 9, 11, and 13), training and development (factor 3, 4, 7, and 12), and also reward and recognition (factor 6 and 10).

There were two items loaded on two factors at a minimum value of 0.45, COMPOL14 (Employees suggestions are given a fair hearing by the company managers and supervisors) and COMPOL25 (The people my unit serves, i.e., our customers, meet with us regularly). Item of COMPOL14 was included in the construct of opinions regarding empowered employees (factor 2). The construct regarding customer focused (factor 11) is defined by item COMPOL25. Five items which had loading factors less than 0.45 were dropped from the analysis (COMPOL8, COMPOL23, COMPOL35, COMPOL37, and COMPOL40).

Cronbach Alpha reliability of the factor constructs gave α scores of 0.44 to 0.92. Three constructs were dropped from the analysis due to the low α scores:

1. RECN2: Opinions regarding reward - $\alpha=0.62$
2. EMPL9: Opinions regarding customer focused - $\alpha=0.64$
3. EMPL12: Opinions regarding feedback - $\alpha=N/A$

Table 5.13 Varimax rotated factor matrix for opinions regarding company policies

Variable	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7
COMPOL36	0.80252						
COMPOL21	0.76833						
COMPOL31	0.74921						
COMPOL43	0.70058						
COMPOL30	0.68220						
COMPOL20	0.58515						
COMPOL32	0.57500						
COMPOL42	0.50791						
COMPOL37	0.44046						
COMPOL8	0.41213						
COMPOL23	0.35859						
COMPOL4		0.73258					
COMPOL16		0.69156					
COMPOL14		0.68861					
COMPOL18		0.46890				0.45011	
COMPOL9			0.79274				
COMPOL3			0.71557				
COMPOL6			0.63955				
COMPOL15			0.58309				
COMPOL28			0.46798				
COMPOL17				0.83644			
COMPOL19				0.79062			
COMPOL5				0.77210			
COMPOL26					0.67471		
COMPOL10					0.57715		
COMPOL33					0.53556		
COMPOL22					0.51715		
COMPOL39(R)						0.87956	
COMPOL24(R)						0.71408	
COMPOL40						0.39430	
COMPOL44							0.90035
COMPOL45							0.88740
COMPOL47							
COMPOL13							
COMPOL46							
COMPOL29							
COMPOL7							
COMPOL2							
COMPOL1							
COMPOL27							
COMPOL34							
COMPOL38							
COMPOL48							
COMPOL25		0.45998					
COMPOL12							
COMPOL11							
COMPOL41							
Name	QUAL1	EMPL5	QUAL4	TRAIN1	EMPL6	RECN1	QUAL5
Eigenvalue	140.42	30.01	20.72	20.44	20.00	10.71	10.68
α	0.92	0.81	0.79	0.82	0.77	0.76	0.87

Table 5.13 (cont.)

Variable	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12	Factor 13
COMPOL36						
COMPOL21						
COMPOL31						
COMPOL43						
COMPOL30						
COMPOL20						
COMPOL32						
COMPOL42						
COMPOL37						
COMPOL8						
COMPOL4						
COMPOL16						
COMPOL14						
COMPOL18						
COMPOL9						
COMPOL3						
COMPOL6						
COMPOL15						
COMPOL28						
COMPOL17						
COMPOL19						
COMPOL5						
COMPOL26						
COMPOL10						
COMPOL33						
COMPOL22						
COMPOL39(R)						
COMPOL24(R)						
COMPOL40						
COMPOL44						
COMPOL45						
COMPOL47	0.88763					
COMPOL13	0.73104					
COMPOL46	0.57718					
COMPOL29		0.75452				
COMPOL7		0.54013				
COMPOL2		0.51174				
COMPOL1		0.44765				
COMPOL27			0.70135			
COMPOL34			0.67568			
COMPOL38				0.58508		
COMPOL48				0.55727		
COMPOL25				0.47880		
COMPOL12					0.66962	
COMPOL11					0.57735	
COMPOL41						0.72208
COMPOL35						0.40137
Name	QUAL2	QUAL3	RECN2 (dropped)	EMPL9 (dropped)	TRAIN2	EMPL12 (dropped)
Eigenvalue	10.50	10.43	10.24	10.14	10.11	10.06
α	0.66	0.73	0.62	0.64	0.67	N/A

The ten factors identified and included in the hypotheses testing were:

1. QUAL1: Opinions regarding management commitment
2. EMPL5: Opinions regarding empowerment
3. QUAL4: Opinions regarding integrated training provided by the company
4. TRAIN1: Opinions regarding quality awareness training
5. EMPL6: Opinions regarding teamwork
6. RECN1: Opinions regarding recognition
7. QUAL5: Opinions regarding appropriate training provided by the company
8. QUAL2: Opinions regarding team commitment to continuous improvement
9. QUAL3: Opinions regarding individual commitment to continuous improvement
10. TRAIN2: Opinions regarding problem analysis training

Factor Scores

Eight people dimensions of quality management practice — management and leadership, communication, employee involvement, motivational job design, training and development, reward and recognition, corporate relationship, and job satisfaction — with a total of twenty seven constructs (factors) were generated from the factor analyses. For the next analysis, factor scores were computed by adding the employees responses to items included in the factor. Items that loaded on two factors were accounted only for the one factor to which it was related most closely, and items with loadings less than 0.45 were excluded.

Dependent and Independent Variables

Mean and standard deviation for each measure were computed (see Appendix B). To determine high and low quality scores of each scale, the scores of employees' responses then were standardized. The standard score states how far the given score is from the mean of the distribution, in standard deviation units. The mean of a set of standard scores is 0 and the standard deviation is 1. There is no change to the standard scores eventhough the scale of a set of scores is changed

Dependent Variables

Dependent variables are those constructs which measure the employees' perceptions of quality. Five dependent variables included were:

1. QUAL1: Management commitment
2. QUAL2: Individual commitment to continuous improvement
3. QUAL3: Team commitment to continuous improvement
4. QUAL4: Integrated training program

The training program should be integrated into the overall continuous improvement efforts.

5. QUAL5: Appropriate training program

The training program addresses the needs of functional areas within companies

High and low quality categories for each dependent variables were those scores which were 0.50 times the standard deviation above or below the factor score mean respectively. Those who did not response to the questions included in each construct were not included in comparisons.

Independent Variables

The twenty-two independent variables included in the comparison test were:

1. MGMT1: Organizational structure
2. MGMT2: Clear direction of leaders
3. MGMT3: Management support
4. COMM1: Communication
5. EMPL1: Organizational identity
6. EMPL2: Employee job involvement
7. EMPL3: Organizational commitment
8. EMPL4: Pride of workmanship
9. EMPL5: Empowerment
10. EMPL6: Teamwork
11. JOB1: Task and goal clarity
12. JOB2: Task resources
13. JOB3: Job enrichment
14. JOB4: Conflict demand
15. TRAIN1: Quality awareness training
16. TRAIN2: Problem analysis training
17. RECN1: Recognition
18. COREL1: Trust
19. COREL2: Warmth
20. JSAT1: Doing the job
21. JSAT2: Advancement opportunity
22. JSAT3: Supervision

Hypotheses Testing

Comparative analyses of perceived high and low attitudes quality toward for management and leadership, communication, employee involvement, motivational job design, training and development, reward and recognition, corporate relationship, and job satisfaction were conducted. The mean score of those who perceived high and low quality were subjected to an independent samples *t*-test with assumption of equal unknown standard deviations.

Those who perceive high or low quality for each dependent variables—management commitment, individual commitment to continuous improvement, team commitment to continuous improvement, integrated training program, and appropriate training program— developed high and low score categories regarding the twenty-two independent variables, which include management and leadership, six human resources dimensions, and job satisfaction.

The absolute values of the standardized means were tested to determine whether or not high and low scores for each independent variables were equal. The actual score for each measure is provided in Appendix B. Following are the hypotheses testing for each construct included in the people dimensions of TQM practices applied in the company.

Management and Leadership

Hypothesis 1 There is no significant difference between mean responses regarding organizational structure and authority for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous

improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 2 There is no significant difference between mean responses regarding the clear direction of leaders for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 3 There is no significant difference between mean responses regarding management support for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

As shown in Table 5.14, one of the three constructs of management leadership demonstrates significant difference between high and low score. Those who perceived high quality in team commitment to continuous improvement indicated a high score on the clear direction of leaders (MGMT2). Direction of leaders is perceived to be relatively successful in the company.

Communication

Hypothesis 4 There is no significant difference between mean responses regarding communication for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

It is evident that with regard to communication, the difference between high and low scores is statistically significant at $p < 0.01$ (Table 5.15). This indicates that employees, who perceived low quality regarding integrated training program, view communication as a problem for the organization.

Table 5.14 Comparison of low and high responses for management and leadership

Item		Low Score (z-score)			High Score (z-score)			t-test score
		Mean	Sd	n	Mean	Sd	n	
MGMT1	a	1.08	0.68	24	0.80	0.58	28	1.57 ns
	b	0.81	0.51	21	1.00	0.72	27	-1.01 ns
	c	0.77	0.63	28	0.85	0.59	41	-0.53 ns
	d	0.79	0.59	25	0.95	0.60	31	-1.03 ns
	e	0.81	0.64	46	0.80	0.52	42	0.09 ns
MGMT2	a	0.78	0.63	25	1.00	0.62	29	-1.18 ns
	b	0.77	0.51	21	0.88	0.60	26	-0.65 ns
	c	0.67	0.58	28	1.02	0.66	42	-2.25 *
	d	0.89	0.48	25	1.10	0.69	31	-1.27 ns
	e	0.77	0.66	46	0.84	0.59	44	-0.54 ns
MGMT3	a	0.95	0.68	26	0.87	0.59	27	0.46 ns
	b	0.70	0.57	20	0.92	0.68	27	-1.20 ns
	c	0.83	0.67	28	0.84	0.62	40	-0.05 ns
	d	1.03	0.58	26	0.78	0.58	30	1.57 ns
	e	0.77	0.63	44	0.85	0.57	43	-0.59 ns

Key

MGMT1 Organizational structure and authority

MGMT2 Clear direction of leaders

MGMT3 Management support

a High and low perception for the quality of management commitment

b High and low perception for the quality of individual commitment to continuous improvement

c High and low perception for the quality of team commitment to continuous improvement

d High and low perception for the quality of integrated training program

e High and low perception for the quality of appropriate training program

ns = not statistically significant

Two-tailed significance: * $p < 0.01$

Table 5.15 Comparison of low and high responses for communication

Item		Low Score (z-score)			High Score (z-score)			t-test score
		Mean	Sd	n	Mean	Sd	n	
COMM1	a	0.98	0.74	26	0.77	0.54	29	0.22 ns
	b	0.84	0.70	21	0.79	0.55	27	0.28 ns
	c	0.85	0.74	29	0.87	0.61	42	-0.07 ns
	d	1.02	0.73	26	0.64	0.70	31	2.42 *
	e	0.76	0.59	47	0.78	0.61	45	-0.16 ns

Key

COMM1 Communication

a High and low perception for the quality of management commitment

b High and low perception for the quality of individual commitment to continuous improvement

c High and low perception for the quality of team commitment to continuous improvement

d High and low perception for the quality of integrated training program

e High and low perception for the quality of appropriate training program

ns = not statistically significant

Two-tailed significance: * $p < 0.01$

Employee Involvement

Hypothesis 5 There is no significant difference between mean responses regarding organizational identity for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 6 There is no significant difference between mean responses regarding employee job involvement for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 7 There is no significant difference between mean responses regarding organizational commitment for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 8 There is no significant difference between mean responses regarding pride of workmanship for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 9 There is no significant difference between mean responses regarding empowerment for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 10 There is no significant difference between mean responses regarding teamwork for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

The results given in Table 5.16 show that those who perceive low quality in team commitment to continuous improvement indicate significant low score regarding pride of workmanship (EMPL4) and teamwork (EMPL6).

Table 5.16 Comparison of low and high responses for employee involvement

Item		Low Score (z-score)			High Score (z-score)			t-test score
		Mean	Sd	n	Mean	Sd	n	
EMPL1	a	0.84	0.67	23	0.73	0.66	25	0.57 ns
	b	0.83	0.61	18	0.84	0.67	23	-0.04 ns
	c	0.74	0.59	25	0.83	0.68	38	-0.60 ns
	d	0.81	0.69	23	0.84	0.67	27	-0.19 ns
	e	0.79	0.66	41	0.71	0.61	39	-0.58 ns
EMPL2	a	0.75	0.56	26	0.85	0.69	29	0.54 ns
	b	0.72	0.64	20	0.88	0.74	27	-0.76 ns
	c	0.83	0.65	29	0.77	0.64	41	0.35 ns
	d	0.88	0.61	26	0.76	0.69	31	0.72 ns
	e	0.82	0.60	46	0.79	0.58	45	0.29 ns
EMPL3	a	1.04	0.84	26	0.75	0.59	29	1.47 ns
	b	0.89	0.64	21	0.95	0.78	27	-0.29 ns
	c	0.94	0.78	29	0.72	0.57	42	1.40 ns
	d	0.87	0.66	26	0.75	0.65	31	-0.69 ns
	e	0.84	0.73	46	0.70	0.56	45	1.05 ns
EMPL4	a	0.86	0.65	26	0.76	0.44	29	0.62 ns
	b	1.00	0.74	21	0.74	0.46	27	1.47 ns
	c	1.02	0.71	29	0.68	0.45	42	2.44 *
	d	0.98	0.69	26	0.69	0.42	31	2.01 ns
	e	0.78	0.68	47	0.77	0.53	45	0.10 ns
EMPL5	a	0.99	0.94	26	0.84	0.61	28	0.67 ns
	b	0.80	0.60	21	1.06	0.95	26	-1.10 ns
	c	1.01	0.75	29	0.75	0.57	41	1.64 ns
	d	0.90	0.81	26	0.74	0.55	30	0.87 ns
	e	0.78	0.76	47	0.72	0.56	44	0.38 ns
EMPL6	a	1.12	0.78	26	0.72	0.56	44	0.38 ns
	b	0.83	0.55	21	1.00	0.69	26	-0.95 ns
	c	1.27	0.76	28	0.74	0.54	42	2.82 *
	d	0.92	0.70	26	0.87	0.66	31	0.29 ns
	e	0.88	0.54	46	0.73	0.69	45	1.11 ns

Key

EMPL1 Organizational identity

EMPL2 Employee job involvement

EMPL3 Organizational commitment

EMPL4 Pride of workmanship

EMPL5 Empowerment

EMPL6 Teamwork

a High and low perception for the quality of management commitment

b High and low perception for the quality of individual commitment to continuous improvement

c High and low perception for the quality of team commitment to continuous improvement

d High and low perception for the quality of integrated training program

e High and low perception for the quality of appropriate training program

ns = not statistically significant

Two-tailed significance: * $p < 0.01$

The other four constructs comprising the measurement of employee involvement do not reveal significant differences between mean responses of those who perceive high and low quality.

Motivational Job Design

Hypothesis 11 There is no significant difference between mean responses regarding task and goal clarity for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 12 There is no significant difference between mean responses regarding task resources for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 13 There is no significant difference between mean responses regarding job enrichment for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 14 There is no significant difference between mean responses regarding conflict demand for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Table 5.17 presents the results of hypotheses testing on constructs concerning the motivational job design in the company. The results indicate that employees who perceive high quality of individual commitment to continuous improvement viewed a significant high score regarding conflict demand (JOB4).

Table 5.17 Comparison of low and high responses for motivational job design

Item		Low Score (z-score)			High Score (z-score)			t-test score
		Mean	Sd	n	Mean	Sd	n	
JOB D1	a	0.96	0.66	26	0.90	0.51	29	0.39 ns
	b	1.00	0.54	20	0.93	0.62	27	0.34 ns
	c	1.02	0.57	29	0.91	0.52	41	0.87 ns
	d	1.06	0.68	26	0.87	0.48	31	1.24 ns
	e	0.88	0.57	46	0.78	0.55	44	0.86 ns
JOB D2	a	0.77	0.49	26	1.06	0.61	29	-1.96 ns
	b	0.82	0.49	21	0.99	0.61	27	-1.07 ns
	c	0.87	0.52	29	0.88	0.57	42	-0.09 ns
	d	0.84	0.58	26	0.93	0.57	31	-0.61 ns
	e	0.80	0.57	47	0.88	0.51	45	-0.70 ns
JOB D3	a	0.84	0.68	24	0.78	0.53	29	0.33 ns
	b	0.91	0.49	20	0.80	0.65	27	0.59 ns
	c	0.89	0.57	27	0.85	0.60	42	0.28 ns
	d	0.65	0.48	25	0.95	0.63	30	-2.01 ns
	e	0.89	0.64	45	0.75	0.49	44	1.17 ns
JOB D4	a	0.85	0.54	26	0.90	0.70	42	-1.32 ns
	b	0.58	0.44	21	1.01	0.63	27	-2.67 *
	c	0.67	0.53	29	0.87	0.70	42	-1.32 ns
	d	0.63	0.53	29	0.87	0.70	42	-1.32 ns
	e	0.79	0.64	47	0.80	0.58	45	-0.08 ns

Key

JOB D1 Task and goal clarity

JOB D2 Task resources

JOB D3 Job enrichment

JOB D4 Conflict demand

a High and low perception for the quality of management commitment

b High and low perception for the quality of individual commitment to continuous improvement

c High and low perception for the quality of team commitment to continuous improvement

d High and low perception for the quality of integrated training program

e High and low perception for the quality of appropriate training program

ns = not statistically significant

Two-tailed significance: * $p < 0.01$

None of the other three constructs — task and goal clarity, task resources, and job enrichment — has a significant difference between perceived high and low perception of quality for management commitment, individual commitment to continuous improvement, team commitment to continuous improvement, integrated training program, or appropriate training program.

Training and Development

Hypothesis 15 There is no significant difference between mean responses regarding quality awareness training for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 16 There is no significant difference between mean responses regarding problem analysis training for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Table 5.18 summarizes the results of hypotheses testing on each of the two constructs on training development. The results show that responses regarding problem analysis training (TRAIN2) has significantly different means between two groups of employees who perceive high and low quality of management commitment. Employees expose low scores with regard to the ability of analyzing problems.

Table 5.18 Comparison of low and high responses for training and development

Item		Low Score (z-score)			High Score (z-score)			t-test score	
		Mean	Sd	n	Mean	Sd	n		
TRAIN1	a	0.95	0.72	26	0.60	0.55	28	1.96	ns
	b	0.90	0.72	21	0.93	0.70	27	-0.15	ns
	c	0.82	0.76	29	0.77	0.65	42	0.32	ns
	d	0.77	0.74	26	0.84	0.69	30	-0.38	ns
	e	0.80	0.76	46	0.72	0.51	45	0.55	ns
TRAIN2	a	1.17	0.66	26	0.71	0.49	29	2.92	*
	b	0.92	0.68	21	0.95	0.66	27	-0.14	ns
	c	0.97	0.71	29	0.73	0.53	42	1.61	ns
	d	0.98	0.67	26	0.82	0.63	31	0.92	ns
	e	0.81	0.56	47	0.89	0.60	45	-0.69	ns

Key

TRAIN1 Quality awareness training

TRAIN2 Problem analysis training

a High and low perception for the quality of management commitment

b High and low perception for the quality of individual commitment to continuous improvement

c High and low perception for the quality of team commitment to continuous improvement

d High and low perception for the quality of integrated training program

e High and low perception for the quality of appropriate training program

ns = not statistically significant

Two-tailed significance: * $p < 0.01$

Reward and Recognition

Hypothesis 17 There is no significant difference between mean responses regarding recognition for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Table 5.19 shows the comparison of two groups of employees' responses to reward and recognition. The result indicates that there is significant difference in mean responses of the employees who perceive high and low quality of recognition practices. It leads to conclude that the company is at a low level of recognition practices.

Corporate Relationship

Hypothesis 18 There is no significant difference between mean responses regarding trust for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 19 There is no significant difference between mean responses regarding warm corporate relations for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Table 5.20 shows the comparison of groups of employees' responses to corporate relationships. The results reveal that there are no significant difference perceived in the quality of trust and warm corporate relations among employees within the company.

Table 5.19 Comparison of low and high responses for reward and recognition

Item		Low Score (z-score)			High Score (z-score)			t-test score
		Mean	Sd	n	Mean	Sd	n	
RECN1	a	0.93	0.77	26	0.64	0.43	29	1.69 ns
	b	0.76	0.65	21	0.81	0.60	26	-0.32 ns
	c	1.17	0.62	28	0.71	0.54	42	2.81 *
	d	1.00	0.67	26	0.84	0.57	31	0.96 ns
	e	0.80	0.56	46	0.84	0.66	45	-0.29 ns

Key

RECN1 Recognition

a High and low perception for the quality of management commitment

b High and low perception for the quality of individual commitment to continuous improvement

c High and low perception for the quality of team commitment to continuous improvement

d High and low perception for the quality of integrated training program

e High and low perception for the quality of appropriate training program

ns = not statistically significant

Two-tailed significance: * $p < 0.01$

Table 5.20 Comparison of low and high responses for corporate relationship

Item		Low Score (z-score)			High Score (z-score)			t-test score
		Mean	Sd	n	Mean	Sd	n	
COREL1	a	0.92	0.84	24	0.78	0.63	21	0.61 ns
	b	0.69	.61	19	1.03	0.85	21	-1.46 ns
	c	0.74	0.69	27	0.70	0.64	27	0.25 ns
	d	0.97	0.82	23	0.69	0.62	29	1.41 ns
	e	0.73	0.71	39	0.73	0.61	38	-0.03 ns
COREL2	a	1.01	0.70	26	0.92	0.56	29	0.54 ns
	b	0.81	0.58	21	0.93	0.58	27	-0.72 ns
	c	0.86	0.67	29	0.81	0.55	42	0.37 ns
	d	0.96	0.61	26	0.78	0.65	31	1.04 ns
	e	0.73	0.53	47	0.83	0.67	45	-0.81 ns

Key

COREL1 Trust

COREL2 Warm corporate relation

a High and low perception for the quality of management commitment

b High and low perception for the quality of individual commitment to continuous improvement

c High and low perception for the quality of team commitment to continuous improvement

d High and low perception for the quality of integrated training program

e High and low perception for the quality of appropriate training program

ns = not statistically significant

Job Satisfaction

Hypothesis 20 There is no significant difference between mean responses regarding satisfaction of doing the job for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 21 There is no significant difference between mean responses regarding satisfaction related to advancement opportunity for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

Hypothesis 22 There is no significant difference between mean responses regarding satisfaction related to supervision for those who perceive high and low quality for a) management commitment, b) individual commitment to continuous improvement, c) team commitment to continuous improvement, d) integrated training program, and e) appropriate training program.

As shown in Table 5.21, it is evident that those who perceive low quality of integrated training indicate significant low satisfaction related to advancement opportunity (JSAT2) and supervision (JSAT3). For satisfaction of doing the job (JSAT1), there is no significantly different scores between those who perceive high and low job satisfaction.

Key Findings and Discussions

The employees, who response high quality of team commitment to continuous improvement, clearly perceived positive responses regarding the clear directions provided by leaders. The allocation of responsibilities among the leaders enables action plans to be drawn up and the team plans are coordinated into the organization master plan for implementation. In

Table 5.21 Comparison of low and high responses for job satisfaction

Item		Low Score (z-score)			High Score (z-score)			t-test score
		Mean	Sd	n	Mean	Sd	n	
JSAT1	a	0.71	0.52	26	0.72	0.48	29	-0.04 ns
	b	0.61	0.53	21	0.73	0.53	27	-0.76 ns
	c	0.70	0.54	29	0.83	0.82	42	-0.74 ns
	d	0.79	0.51	26	0.68	0.44	31	0.85 ns
	e	0.77	0.53	47	0.62	0.47	45	1.44 ns
JSAT2	a	0.71	0.64	25	0.60	0.51	28	0.72 ns
	b	0.67	0.53	21	0.73	0.61	27	-0.39 ns
	c	0.86	0.77	27	0.67	0.63	42	1.11 ns
	d	1.11	0.86	25	0.51	0.40	31	3.39 **
	e	0.66	0.64	47	0.72	0.63	42	-0.47 ns
JSAT3	a	1.03	0.74	26	0.76	0.44	29	1.67 ns
	b	0.92	0.65	21	0.90	0.59	27	0.16 ns
	c	0.81	0.63	29	0.81	0.59	42	-0.04 ns
	d	1.17	0.70	26	0.75	0.42	31	2.49 *
	e	0.82	0.58	47	0.68	0.68	45	1.22 ns

Key

JSAT1 Doing the job

JSAT2 Advancement opportunity

JSAT3 Supervision

a High and low perception for the quality of management commitment

b High and low perception for the quality of individual commitment to continuous improvement

c High and low perception for the quality of team commitment to continuous improvement

d High and low perception for the quality of integrated training program

e High and low perception for the quality of appropriate training program

ns = not statistically significant

Two-tailed significance: * $p < 0.01$; ** $p < 0.001$

the operations within the company, leaders are able to promote, oversee, and coordinate the planning and implementation of TQM. Also they allocate responsibilities among the team members for key activities within the TQM process, and institute systems and procedures for improvement of quality.

Another positive response revealed is a significant high score on opinions related to performance standard for those who perceive high quality of individual commitment to continuous improvement. Conflicting demands are avoided by clearly describing what and how employees should achieve. Therefore, employees understand what is expected of them.

It is evident from the results of this study that those who perceive low quality of the integrated training program indicate significant problems with communication. Given the discussion in the previous chapter, it is highlighted that communication techniques to both inform and instruct everyone in the practice, processes, and approaches are required for TQM to be successful. Management should develop a two-way communication to create a reasonably accurate exchange of common understanding and information. Employees need to get clear requirements of what their jobs are and what they are going to do. An effective two-way communication process requires careful attention, especially if it involves several layers of the organizational structure. The reasons are the possibility of information distortion and that subordinates are reluctant to provide negative information to upper managers. Employees' fears of criticism result in insufficient and inaccurate information about the situation or problems.

Regarding training and development in TQM practices, employees who perceive low quality of management commitment gave low scores on

problem analysis training. The training and development function contributes significantly to the process of managing the short term and long term strategic plans of the organization. The employees of the company seem to lack knowledge of the training and development functions offered by the organization. This is shown by the low percentages of employees who had completed training programs provided by the company college. Consideration should be given to ensure that the training and development function is seen as a dynamic and essential part of the business and as part of employees' development and the human resources functions regarding career development.

The ability to analyze and solve problems is a key requirement of continuous improvement. Problem-solving training is required for all employees to learn the right approach to problem solving, including tools and techniques, as applied to everyday problems. Therefore employees, individually or as a team, are able to clearly define the problem, analyze the information and establish the root cause of the problem, and apply corrective actions to ensure that the problems never occurs in the future.

This study also reveals that employees who perceive low quality of team commitment to continuous improvement show significant low scores on pride of workmanship and teamwork. The company where this study was conducted, believes the achievement of a continuous improvement culture is reached by utilizing the Performance Improvement Team (PIT). However, to enhance a team's effort, Predpall (1994) contends it is necessary to establish the team's roles, appropriate communication techniques, and problem solving techniques. Team members are expected to know their

goals and roles, and maintain good relationships with other team members. It requires good planning and team leadership; full employee involvement and commitment to continuous improvement efforts; and opportunities for continuous education. As pointed out by Anderson *et al.* (1994) pride of workmanship and employees commitment are expected to increase the degree of employee fulfillment on the work that employees perform.

Another important finding regarding employees perception on the quality of team commitment to continuous improvement is that employees show low score regarding the recognition practice in the company. Recognition is a requirement for a total quality organization, to ensure quality achievement in the organization is properly recognized, and employee commitment to continuous improvement is reinforced. Recognition should be constant. When employees do good jobs, which contribute to the success of the organization, it is important that managers recognize it quickly, not only among their peers but also in the organization at all levels.

The last significant evidence revealed in this study is a low score regarding employees satisfaction related to supervision and advancement opportunity for those who response low quality of integrated training program. As pointed out by Likert and Katz (Robbins, 1983), a good supervisor will be able to create real participation by his subordinates. Employees experience meaningfulness of their work. They realize that they are personally accountable for the outcomes of their efforts. Employees should have job autonomy to accomplish the job to provide responsibility for work results. Employees have good morale when their supervisor asks their

opinions and is open-minded to suggestions. It is important to give employees a sense of real participation and involvement by holding discussions with employees in which they are given a chance to express their own ideas or share in decision making.

CHAPTER VI. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations can be drawn regarding an employee survey as an assessment of employee attitude towards the implementation of TQM.

Conclusions

1. The company makes concentrated and continuing efforts to show clear direction, clear description of the results expected from employees on the job, and consistent attention to total quality.
2. There are problems in maintaining the continuous improvement in the team process which include two-way communication, establishment of teams' roles, enthusiasm, commitment to training and development, problem-solving ability, and recognition.
3. Employees indicate low satisfaction with the manager's supervision and personal growth experienced as a result of task performance in relation to the importance of giving employees and team members a chance for participation.

Recommendations

1. Formal communication throughout the organization's department is an important consideration in assessing communication in the company. It relates to task coordination, problem solving, information sharing, conflict resolution, and peer support.

Information should be able to reach the individuals and teams that need it to perform their works. Skill of communication management training should be intensively provided. The company should employ well-planned and systematic methods such as team briefings, journals, and business reports. Communication improvement efforts should include providing a quality newsletter for written communication on the TQM plan progress.

2. The company should emphasize TQM awareness training for employees to enable everyone to practice continuous improvement; and to ensure that everyone is capable of solving problems. Training programs are expected to improve employees' knowledge of the company and their own skills to achieve the teams' goals.
3. Employees' quality achievement should be properly recognized to reinforce employees commitment to quality.
4. Continuous employee surveys would be necessary to study the longitudinal effects and results of TQM practices on employees attitudes and satisfaction.

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APPENDIX A
GUIDELINES FOR THE INSTRUMENT ITEM CONSTRUCTION

GUIDELINES FOR THE INSTRUMENT ITEM CONSTRUCTION

1. Management and Leadership

- a. Organizational structure
- b. Clear direction of leaders
- c. Management support
- d. Management commitment

2. Communication

3. Employee Involvement

- a. Organizational identity
- b. Job involvement
- c. Organizational commitment
- d. Pride of workmanship
- e. Empowerment
- f. Teamwork
- g. Commitment to continuous improvement

4. Job Design

- a. Task and goal clarity
- b. Task resources
- c. Job enrichment
- d. Conflict demand

5. Training and Development

- a. Integrated training
- b. Appropriate training
- c. Quality awareness training
- d. Problem analysis training program

6. Reward and Recognition

- a. Reward
- b. Recognition

7. Corporate Relationship

- a. Trust
- c. Warmth

8. Employee Job Satisfaction

- a. Personal growth
- b. Advancement opportunity
- c. Supervision
- d. Co-workers

APPENDIX B

**DESCRIPTIVE STATISTICS TABLES OF
DEPENDENT AND INDEPENDENT VARIABLES**

DESCRIPTIVE STATISTICS OF DEPENDENT AND INDEPENDENT VARIABLES

Table B.1 Descriptive statistics of measures

Item	Description	Median	Mean	Sd	Minimum	Maximum
Dependent Variables						
QUAL1	Management commitment	28.00	27.01	6.17	9.00	40.00
QUAL2	Individual commitment to continuous improvement	12.00	12.47	1.59	8.00	15.00
QUAL3	Team commitment to continuous improvement	15.00	14.66	2.49	9.00	20.00
QUAL4	Integrated training program	17.00	16.55	3.38	9.00	25.00
QUAL5	Appropriate training program	7.00	6.87	1.32	3.00	10.00
Independent Variables						
MGMT1	Organizational structure	8.00	7.51	1.91	3.00	12.00
MGMT2	Clear direction of leaders	10.00	10.33	2.30	6.00	16.00
MGMT3	Management support	13.00	13.13	2.81	7.00	20.00
COMM1	Communication	10.00	10.26	2.54	4.00	16.00
EMPL1	Organizational identity	12.00	12.23	2.09	7.00	16.00
EMPL2	Employee job involvement	19.00	19.33	5.44	7.00	35.00
EMPL3	Organizational commitment	36.00	36.28	6.97	13.00	49.00
EMPL4	Pride of workmanship	24.00	24.16	2.90	6.00	20.00
EMPL5	Empowerment	15.00	14.54	2.50	6.00	20.00
EMPL6	Teamwork	13.00	12.24	3.21	4.00	20.00

Table B.1 (cont.)

Item	Description	Median	Mean	Sd	Minimum	Maximum
JOB1	Task and goal clarity	25.00	23.86	5.94	11.00	35.00
JOB2	Task resources	11.00	11.85	4.51	3.00	21.00
JOB3	Job enrichment	18.00	17.53	4.59	6.00	28.00
JOB4	Conflict demand	10.00	10.41	3.91	3.00	21.00
TRAIN1	Quality awareness training	10.00	9.88	2.49	3.00	15.00
TRAIN2	Problem analysis training	6.00	6.18	1.58	2.00	10.00
REC1	Recognition	8.00	7.17	1.87	7.00	35.00
CORE1	Trust	15.00	14.44	2.70	7.00	20.00
CORE2	Warmth	14.00	13.41	2.10	8.00	18.00
JSAT1	Doing the job	29.00	29.01	4.22	7.00	35.00
JSAT2	Advancement opportunity	26.50	25.90	4.85	10.00	35.00
JSAT3	Supervision	8.00	7.71	1.99	2.00	10.00

Table B.2 Descriptive statistics of low and high responses for dependent variables

Item	Description	LOW			HIGH				
		Mean	n	Sd	Cut off Score	Mean	n	Sd	Cut off Score
Dependent Variables									
QUAL1	Management commitment	18.46	26	3.63	23.93	33.48	29	2.81	30.10
QUAL2	Individual commitment to continuous improvement	10.28	21	0.96	11.67	14.52	27	0.51	13.26
QUAL3	Team commitment to continuous improvement	11.52	29	1.27	13.41	16.88	42	1.38	15.90
QUAL4	Integrated training program	11.92	26	1.60	14.86	20.19	31	1.52	18.24
QUAL5	Appropriate training program	5.66	47	0.79	6.21	8.11	45	0.44	7.53

Table B.3 Descriptive statistics of low and high responses for independent variables

Item	Description	LOW			HIGH			
		Mean	n	Sd	Mean	n	Sd	
MGMT1	Organizational structure	a	5.54	24	1.41	8.75	28	1.43
		b	7.00	21	1.79	7.59	27	2.37
		c	6.46	28	1.60	8.41	41	1.76
		d	6.16	25	1.31	8.32	31	2.01
		e	7.52	46	1.99	7.62	42	1.83
MGMT2	Clear direction of leaders	a	9.32	25	2.13	11.14	29	2.62
		b	9.86	21	2.10	10.23	26	2.49
		c	9.86	28	2.01	11.02	42	2.73
		d	8.84	25	1.82	11.42	31	2.81
		e	10.43	46	2.35	16.34	44	2.39
MGMT3	Management support	a	10.88	26	2.42	15.15	27	2.20
		b	12.00	20	2.29	13.96	27	3.14
		c	11.61	28	2.59	14.48	40	2.62
		d	11.35	26	2.81	14.43	30	2.43
		e	13.04	44	2.80	13.60	43	2.86
COMM1	Communication	a	8.19	26	2.37	12.07	29	1.58
		b	9.00	21	2.51	10.96	27	2.38
		c	8.66	29	2.40	11.38	42	2.47
		d	8.27	26	2.22	11.39	31	2.55
		e	8.40	47	2.45	10.40	45	2.54

Table B.3 (cont.)

Item	Description	LOW			HIGH			
		Mean	n	Sd	Mean	n	Sd	
EMPL1	Organizational identity	a	10.96	23	1.87	13.40	25	1.71
		b	11.50	18	2.07	12.48	23	2.25
		c	11.32	25	1.77	13.28	36	2.01
		d	10.96	23	1.85	13.26	27	2.03
		e	12.17	41	2.17	12.54	39	1.95
EMPL2	Employee job involvement	a	17.92	26	4.96	22.45	29	5.12
		b	16.80	20	4.66	21.63	27	5.88
		c	17.69	29	5.53	21.17	41	5.17
		d	16.73	26	5.28	21.10	31	5.32
		e	19.11	46	5.58	19.80	45	5.35
EMPL3	Organizational commitment	a	30.23	26	7.09	40.76	29	4.97
		b	33.43	21	7.19	37.44	27	8.59
		c	32.45	29	7.69	39.60	42	5.49
		d	32.62	26	6.75	38.61	31	6.57
		e	35.35	46	7.75	37.67	45	6.10
EMPL4	Pride of workmanship	a	23.23	26	3.02	25.66	29	2.09
		b	22.76	21	3.38	26.11	27	1.63
		c	23.07	29	3.47	24.95	42	2.25
		d	23.08	26	3.36	24.77	31	2.28
		e	24.04	47	3.03	24.64	45	2.68

Table B.3 (cont.)

Item	Description	LOW			HIGH			
		Mean	n	Sd	Mean	n	Sd	
EMPL5	Empowerment	a	12.81	26	2.97	16.36	28	1.89
		b	13.43	21	2.27	15.15	26	3.54
		c	13.00	29	2.77	15.83	41	1.99
		d	12.85	26	2.53	15.97	30	1.83
		e	14.51	47	2.73	14.91	44	2.27
EMPL6	Teamwork	a	9.38	26	3.36	14.52	29	2.28
		b	11.48	21	3.14	13.04	26	3.87
		c	9.82	28	3.15	14.05	42	2.67
		d	10.23	26	3.14	13.61	31	3.25
		e	11.89	46	3.31	12.62	45	3.23
JOBDD1	Task and goal clarity	a	18.61	26	4.53	28.52	29	4.00
		b	21.20	20	6.26	24.70	27	6.66
		c	18.59	29	4.56	27.80	41	4.85
		d	18.08	26	4.75	27.64	31	4.13
		e	24.02	46	6.26	24.18	44	2.22
JOBDD2	Task resources	a	9.62	26	3.48	13.62	29	5.27
		b	11.05	21	4.31	11.67	27	5.31
		c	8.76	29	3.38	13.74	42	4.36
		d	8.96	26	3.58	14.55	31	4.13
		e	12.19	47	4.43	11.69	45	4.60

Table B.3 (cont.)

Item	Description	LOW			HIGH			
		Mean	n	Sd	Mean	n	Sd	
JOB3	Job enrichment	a	15.08	24	4.35	19.17	29	4.06
		b	15.65	20	4.43	17.04	27	4.76
		c	14.07	27	3.42	19.76	42	4.25
		d	14.76	25	2.44	20.70	30	4.22
		e	17.36	45	5.06	17.86	44	4.13
JOB4	Conflict demand	a	8.15	26	3.28	11.03	29	4.47
		b	9.18	21	2.71	9.38	27	4.55
		c	8.66	29	2.87	10.93	42	4.39
		d	9.15	26	2.80	11.48	31	4.86
		e	9.70	47	4.01	10.11	45	3.90
TRAIN1	Quality awareness training	a	8.85	26	2.81	10.86	28	1.80
		b	9.48	21	2.87	10.48	27	2.86
		c	9.10	29	2.70	10.26	42	2.49
		d	9.15	26	2.59	10.97	20	2.51
		e	9.33	46	2.71	10.69	45	2.07
TRAIN2	Problem analysis training	a	5.15	26	1.89	7.00	29	1.10
		b	5.76	21	1.79	6.33	27	1.84
		c	5.38	29	1.74	6.86	42	1.26
		d	5.46	26	1.75	6.90	31	1.47
		e	5.60	47	1.46	6.89	45	1.56

Table B.3 (cont.)

Item	Description	LOW			HIGH			
		Mean	n	Sd	Mean	n	Sd	
RECN1	Recognition	a	6.58	26	2.19	7.52	29	1.43
		b	7.05	21	1.88	6.69	26	1.85
		c	6.50	28	2.06	7.83	42	1.56
		d	6.19	26	2.02	8.22	31	1.12
		e	7.09	46	1.84	7.36	45	2.00
COREL1	Trust	a	12.67	24	2.87	15.86	21	2.33
		b	13.58	19	2.36	13.86	21	3.61
		c	13.41	27	2.56	15.94	33	2.09
		d	12.65	23	2.92	15.66	29	2.21
		e	14.33	39	2.76	14.68	38	2.58
COREL2	Warmth	a	11.81	26	2.04	14.44	29	2.03
		b	12.71	21	2.00	13.37	27	2.34
		c	12.76	29	2.23	13.67	42	2.06
		d	12.58	26	2.27	14.00	31	2.07
		e	13.43	39	2.76	14.68	38	2.58
JSAT1	Doing the job	a	27.69	26	3.51	30.79	29	3.21
		b	28.14	21	3.35	30.37	27	3.59
		c	27.21	29	3.30	30.29	42	4.79
		d	27.08	26	3.48	30.32	31	3.20
		e	29.23	47	3.97	29.67	45	3.25

Table B.3 (cont.)

Item	Description	LOW			HIGH			
		Mean	n	Sd	Mean	n	Sd	
JSAT2	Advancement opportunity	a	23.96	25	4.27	27.79	28	3.36
		b	25.33	21	4.15	26.70	27	4.61
		c	22.96	27	4.82	27.76	42	4.10
		d	22.36	25	5.87	27.64	31	2.67
		e	26.08	47	4.48	27.02	42	4.53
JSAT3	Supervision	a	6.58	25	2.28	8.93	29	1.25
		b	7.19	21	2.23	8.04	27	2.14
		c	7.07	29	1.96	8.48	42	1.76
		d	6.58	26	2.30	8.61	31	1.48
		e	7.87	47	2.00	7.84	45	1.64

Key

- a High and low quality of management commitment
b High and low quality of individual commitment to continuous improvement
c High and low quality of team commitment to continuous improvement
d High and low quality of integrated training program
e High and low quality of appropriate training program

APPENDIX C

DESCRIPTIVE STATISTICS TABLE OF THE RESPONSES

DESCRIPTIVE STATISTICS TABLE OF THE RESPONSES

Table C.1 Descriptive statistics of the questionnaire

Item	Median	Mean	Standard Deviation
Part II			
PART2_1	5.00	4.28	0.97
PART2_2	4.00	4.13	0.80
PART2_3	4.00	4.03	0.95
PART2_4	4.00	3.66	0.95
PART2_5	4.00	3.78	1.13
PART2_6	4.00	3.93	0.99
PART2_7	4.00	4.23	0.84
PART2_8	5.00	4.45	0.70
PART2_9	4.00	4.06	0.86
PART2_10	4.00	3.66	0.76
PART2_11	4.00	3.93	1.08
PART2_12	3.00	3.13	1.01
PART2_13	3.00	3.15	1.07
PART2_14	3.00	3.08	1.03
PART2_15	4.00	3.86	0.89
PART2_16	4.00	4.01	0.82
PART2_17	4.00	3.78	1.01
PART2_18	4.00	3.90	0.91
PART2_19	4.00	3.63	1.09
PART2_20	4.00	3.91	0.96
Part III - Structure			
STRUCT1	3.00	2.52	0.74
STRUCT2	3.00	2.63	0.74
STRUCT3	3.00	2.65	0.79
STRUCT4	2.00	2.34	0.82
STRUCT5	2.00	2.29	0.79

Table C.1 (cont.)

Item	Median	Mean	Standard Deviation
STRUCT6	3.00	2.72	0.82
STRUCT7	2.00	2.05	0.89
STRUCT8	3.00	2.55	0.77
STRUCT9	2.00	2.16	0.87
Part III - Culture			
CULTURE1	3.00	2.87	0.75
CULTURE2	3.00	2.99	0.73
CULTURE3	2.00	2.00	0.80
CULTURE4	3.00	3.01	0.80
CULTURE5	2.00	2.29	0.77
CULTURE6	3.00	2.88	0.81
CULTURE7	3.00	2.90	0.77
Part III - Warmth			
WARMTH1	3.00	3.26	0.61
WARMTH2	3.00	2.63	0.89
WARMTH3	2.00	1.90	0.74
WARMTH4	2.00	1.84	0.74
WARMTH5	3.00	2.58	0.81
Part III - Support			
SUPPORT1	3.00	2.50	0.67
SUPPORT2	2.00	2.41	0.88
SUPPORT3	2.00	2.20	0.75
SUPPORT4	3.00	2.43	0.88
SUPPORT5	3.00	2.98	0.90
Part III - Identity			
IDENTITY1	3.00	3.27	0.58
IDENTITY2	3.00	3.00	0.73
IDENTITY3	2.00	1.87	0.70
IDENTITY4	2.00	2.25	0.78

Table C.1 (cont.)

Item	Median	Mean	Standard Deviation
Part III - Communication			
COMM1	2.00	2.21	0.80
COMM2	2.00	2.45	0.84
COMM3	3.00	2.91	0.78
COMM4	3.00	2.69	0.79
Part IV			
JOBATT1	5.00	4.35	0.80
JOBATT2	3.00	3.04	1.05
JOBATT3	3.00	2.86	0.98
JOBATT4	3.00	3.14	1.13
JOBATT5	3.00	3.23	1.02
JOBATT6	2.00	2.27	0.95
JOBATT7	3.00	3.25	1.17
JOBATT8	2.00	1.99	0.79
JOBATT9	2.00	2.05	0.99
JOBATT10	2.00	2.66	1.01
JOBATT11	3.00	3.18	0.99
Part V			
WORKOP1	5.00	4.86	1.52
WORKOP2	5.00	4.44	1.68
WORKOP3	4.00	4.30	1.55
WORKOP4	5.00	4.78	1.49
WORKOP5	4.00	4.02	1.80
WORKOP6	6.00	5.49	1.39
WORKOP7	3.00	3.24	1.50
WORKOP8	5.00	4.83	1.51
WORKOP9	5.00	4.66	1.61
WORKOP10	4.00	4.11	1.64

Table C.1 (cont.)

Item	Median	Mean	Standard Deviation
WORKOP11	5.00	4.66	1.64
WORKOP12	4.00	3.92	1.71
WORKOP13	5.00	4.38	1.53
WORKOP14	4.00	3.75	1.70
WORKOP15	4.00	3.79	1.85
Part VI			
COMPANY1	6.00	6.02	1.03
COMPANY2	6.00	5.79	1.25
COMPANY3	4.00	3.80	1.83
COMPANY4	5.00	5.17	1.31
COMPANY5	6.00	6.03	0.91
COMPANY6	5.00	5.01	1.48
COMPANY7	6.00	5.65	1.15
COMPANY8	6.00	6.37	0.74
COMPANY9	5.00	4.85	1.41
COMPANY10	5.00	5.02	1.27
COMPANY11	4.00	4.45	1.62
COMPANY12	6.00	5.74	1.15
STAY	1.00	1.74	1.12
Part VII			
COMPOL1	4.00	3.76	0.86
COMPOL2	4.00	3.51	0.90
COMPOL3	4.00	3.49	0.96
COMPOL4	4.00	3.72	0.79
COMPOL5	4.00	3.59	0.96
COMPOL6	3.00	2.97	0.98
COMPOL7	4.00	3.64	0.79
COMPOL8	4.00	3.60	1.10
COMPOL9	4.00	3.49	0.83
COMPOL10	3.00	2.85	1.09

Table C.1 (cont.)

Item	Median	Mean	Standard Deviation
COMPOL11	3.00	3.00	0.86
COMPOL12	3.00	3.18	0.95
COMPOL13	4.00	4.34	0.65
COMPOL14	4.00	3.51	0.87
COMPOL15	4.00	3.62	0.77
COMPOL16	4.00	3.43	0.82
COMPOL17	3.00	3.00	0.95
COMPOL18	4.00	3.91	0.65
COMPOL19	3.00	3.30	1.00
COMPOL20	4.00	3.75	0.70
COMPOL21	4.00	3.53	1.00
COMPOL22	3.00	3.27	0.93
COMPOL23	3.00	3.28	0.91
COMPOL24	2.00	2.43	1.10
COMPOL25	3.00	3.12	1.09
COMPOL26	3.00	3.11	1.10
COMPOL27	3.00	3.01	0.93
COMPOL28	3.00	3.02	1.02
COMPOL29	4.00	3.76	0.80
COMPOL30	4.00	3.38	0.96
COMPOL31	4.00	3.41	0.93
COMPOL32	3.00	2.85	0.98
COMPOL33	3.00	3.01	1.01
COMPOL34	3.00	3.16	0.88
COMPOL35	3.00	3.26	0.92
COMPOL36	4.00	3.72	1.08
COMPOL37	3.00	2.98	0.92
COMPOL38	3.00	3.21	0.87
COMPOL39	2.00	2.37	0.98
COMPOL40	3.00	3.28	0.91

Table C.1 (cont.)

Item	Median	Mean	Standard Deviation
COMPOL41	3.00	2.57	1.05
COMPOL42	3.00	3.24	1.04
COMPOL43	3.00	3.13	1.07
COMPOL44	4.00	3.49	0.67
COMPOL45	3.00	3.39	0.73
COMPOL46	4.00	3.86	0.81
COMPOL47	4.00	4.26	0.56
COMPOL48	4.00	3.71	0.88

APPENDIX D
FREQUENCY DISTRIBUTION OF THE RESPONSES

Table D.1 Frequency distribution of responses for attitudes regarding job satisfaction

Item of Part II	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	Did not Respond
PART2_1	3	5	5	37	53	0
PART2_2	1	3	12	53	34	0
PART2_3	1	10	8	49	34	1
PART2_4	3	7	30	45	18	0
PART2_5	4	12	19	36	32	0
PART2_6	2	8	18	42	33	0
PART2_7	1	3	12	42	45	0
PART2_8	1	0	6	41	55	0
PART2_9	2	3	14	52	32	0
PART2_10	1	3	38	48	12	1
PART2_11	4	10	9	46	34	0
PART2_12	4	28	28	37	6	0
PART2_13	4	31	23	36	9	0
PART2_14	9	18	34	36	4	2
PART2_15	1	9	15	56	22	0
PART2_16	1	4	16	54	28	0
PART2_17	4	9	14	53	22	1
PART2_18	2	7	14	55	24	1
PART2_19	5	13	17	48	20	0
PART2_20	3	8	10	56	26	0

Table D.2 Frequency distribution of responses for perceptions regarding work environment

Item of Part III	Definitely Disagree	Inclined to Disagree	Inclined to Agree	Definitely Agree	Did not Respond
A. STRUCTURE					
STRUCT1	7	43	45	8	0
STRUCT2	8	30	56	8	1
STRUCT3	6	38	45	14	0
STRUCT4	16	41	38	6	2
STRUCT5	15	48	33	6	1
STRUCT6	9	26	53	15	0
STRUCT7	32	37	27	5	2
STRUCT8	9	35	48	8	3
STRUCT9	28	35	36	4	0
B. CULTURE					
CULTURE1	5	21	58	18	1
CULTURE2	4	16	60	23	0
CULTURE3	29	46	23	3	2
CULTURE4	3	23	47	30	0
CULTURE5	13	52	30	6	2
CULTURE6	7	19	56	21	0
CULTURE7	5	16	51	17	14

Table D.2 (cont.)

Item of Part III	Definitely Disagree	Inclined to Disagree	Inclined to Agree	Definitely Agree	Did not Respond
C. WARMTH					
WARMTH1	0	9	58	36	0
WARMTH2	11	32	42	17	0
WARMTH3	31	53	17	2	0
WARMTH4	36	50	15	2	0
WARMTH5	10	34	48	11	0
D. SUPPORT					
SUPPORT1	6	42	48	4	3
SUPPORT2	17	36	39	10	1
SUPPORT3	15	57	26	5	0
SUPPORT4	17	31	42	9	4
SUPPORT5	9	15	47	31	1
E. IDENTITY					
IDENTITY1	0	7	61	34	1
IDENTITY2	3	18	58	24	0
IDENTITY3	30	57	13	2	1
IDENTITY4	15	42	30	4	12

Table D.2 (cont.)

Item of Part III	Definitely Disagree	Inclined to Disagree	Inclined to Agree	Definitely Agree	Did not Respond
F. COMMUNICATIONS					
COMM1	20	45	34	4	0
COMM2	14	38	42	9	0
COMM3	6	18	58	21	0
COMM4	8	29	53	13	0

Table D.3 Frequency distribution of responses for attitudes and opinions regarding job involvement

Item of Part IV	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Did not Respond
JOBATT1	0	5	6	40	52	0
JOBATT2	4	35	24	33	7	0
JOBATT3	5	39	27	29	3	0
JOBATT4	8	25	25	35	10	0
JOBATT5	5	22	27	42	7	0
JOBATT6	20	48	24	7	3	1
JOBATT7	5	28	23	30	17	0
JOBATT8	24	62	10	5	1	1
JOBATT9	33	44	17	6	3	0
JOBATT10	10	42	27	21	3	0
JOBATT11	5	23	29	41	5	0

Table D.4 Frequency distribution of responses for opinions regarding motivational job design

Item of Part V	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Did not Respond
WORKOP1	0	10	14	12	23	32	12	0
WORKOP2	5	10	20	12	19	30	7	0
WORKOP3	2	14	17	19	20	23	5	3
WORKOP4	0	10	13	18	21	31	10	0
WORKOP5	7	23	13	10	26	16	8	0
WORKOP6	1	4	8	7	14	49	20	0
WORKOP7	7	36	20	16	15	7	2	0
WORKOP8	3	7	6	25	22	28	12	0
WORKOP9	3	8	18	12	23	27	11	1
WORKOP10	6	16	14	21	23	17	6	0
WORKOP11	3	15	7	10	32	26	10	0
WORKOP12	7	22	15	13	24	18	4	0
WORKOP13	3	5	30	12	23	22	7	1
WORKOP14	10	22	13	17	25	12	4	0
WORKOP15	16	11	23	12	16	20	5	0

Table D.5a Frequency distribution of responses for attitudes and opinion regarding organizational commitment

Item of Part VI	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Did not Respond
COMPANY1	0	1	2	4	19	38	39	0
COMPANY2	0	4	3	8	11	47	30	0
COMPANY3	13	18	15	17	18	15	7	0
COMPANY4	1	4	5	19	24	38	12	0
COMPANY5	0	0	1	7	14	47	34	0
COMPANY6	2	4	13	14	21	35	13	1
COMPANY7	0	1	4	14	15	45	23	1
COMPANY8	0	0	0	4	4	45	50	0
COMPANY9	1	7	5	30	23	24	13	0
COMPANY10	1	3	7	22	29	31	10	0
COMPANY11	2	13	14	24	18	19	12	1
COMPANY12	0	1	0	20	14	37	31	0

Table D.5b Frequency distribution of responses for opinion about staying at the company

Item of Part VI	Very High	Strong	Uncertain (leave)	Uncertain (stay)	Low	Very Low	Did not Respond
STAY	58	28	9	5	0	3	0

Table D.6 Frequency distribution of responses for opinions regarding company policies

Item of Part VII	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Did not Respond
COMPOL1	1	11	14	63	14	0
COMPOL2	3	11	27	53	8	1
COMPOL3	2	17	24	49	11	0
COMPOL4	2	4	26	60	11	0
COMPOL5	3	9	31	43	16	1
COMPOL6	6	29	33	32	3	0
COMPOL7	0	11	24	59	9	0
COMPOL8	6	13	15	51	18	0
COMPOL9	1	14	26	56	5	1
COMPOL10	12	29	30	27	5	0
COMPOL11	3	26	45	26	3	0
COMPOL12	6	19	31	45	2	0
COMPOL13	1	0	4	55	42	1
COMPOL14	2	10	35	46	10	0
COMPOL15	0	10	27	58	8	0
COMPOL16	2	11	36	49	5	0
COMPOL17	6	23	44	25	5	0
COMPOL18	0	1	23	62	16	1
COMPOL19	6	13	37	38	9	0
COMPOL20	0	6	23	65	9	0

Table D.6 (cont.)

Item of Part VII	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Did not Respond
COMPOL21	5	12	20	55	11	0
COMPOL22	5	15	34	45	4	0
COMPOL23	3	18	34	43	5	0
COMPOL24	16	52	15	12	7	1
COMPOL25	7	25	26	35	8	2
COMPOL26	9	23	24	40	6	1
COMPOL27	4	28	38	29	4	0
COMPOL28	5	32	27	34	5	0
COMPOL29	0	11	15	65	12	0
COMPOL30	4	14	33	43	9	0
COMPOL31	3	15	30	47	8	0
COMPOL32	6	36	33	24	4	0
COMPOL33	8	23	36	32	4	0
COMPOL34	5	13	51	29	5	0
COMPOL35	3	20	30	44	4	2
COMPOL36	4	13	15	47	24	0
COMPOL37	6	23	44	27	3	0
COMPOL38	2	19	42	35	5	0
COMPOL39	15	54	18	13	3	0
COMPOL40	5	10	46	35	7	0

Table D.6 (cont.)

Item of Part VII	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Did not Respond
COMPOL41	17	33	34	15	4	0
COMPOL42	6	18	33	36	9	1
COMPOL43	8	20	35	31	9	0
COMPOL44	0	8	38	53	2	2
COMPOL45	1	9	44	44	3	2
COMPOL46	0	7	20	55	20	1
COMPOL47	0	0	6	64	33	0
COMPOL48	1	8	29	47	18	0

APPENDIX E
VARIABLE NAME TABLE

VARIABLE NAME TABLE

Table E.1 Variable name

Item	Variable Name
Part II	
1. Being able to keep busy all the time.	PART2_1
2. The chance to work alone on the job.	PART2_2
3. The chance to do different things from time to time.	PART2_3
4. The chance to be "somebody" in the community.	PART2_4
5. The way my boss handles the staff.	PART2_5
6. The competence of my supervisor in making decisions.	PART2_6
7. Being able to do things that don't go against my conscience.	PART2_7
8. The way my job provides for steady employment.	PART2_8
9. The chance to do things for other people.	PART2_9
10. The chance to tell people what to do.	PART2_10
11. The chance to do something that makes use of my abilities.	PART2_11
12. The way company policies are put into practice.	PART2_12
13. My pay and the amount of work I do.	PART2_13
14. The chances for advancement on this job.	PART2_14
15. The freedom to use my own judgment.	PART2_15
16. The chance to try my own methods of doing the job.	PART2_16
17. The working conditions.	PART2_17
18. The way my coworkers get along with each other.	PART2_18
19. The praise I get for doing a good job.	PART2_19
20. The feeling of accomplishment I get from the job.	PART2_20
Part III - Structure	
01. The jobs in the company are clearly defined and logically structured.	STRUCT1
02. In the company it is sometimes unclear who has the formal authority to make a decision.	STRUCT2
03. The policies and organization structure of the company have been clearly explained.	STRUCT3
04. Red tape is kept to a minimum in the company	STRUCT4
05. Excessive rules, administrative details, and red tape make it difficult for new and original ideas to receive consideration.	STRUCT5

Table E.1 (cont)

Item	Variable Name
06. Our productivity sometimes suffers from lack of organization and planning.	STRUCT6
07. In some of the projects I've been on, I haven't been sure exactly who my boss was.	STRUCT7
08. Our management isn't so concerned about formal organization and authority, but concentrates on getting the right people to do the job.	STRUCT8
09. Meetings are held only as necessary and needed.	STRUCT9
Part III - CULTURE	
01. The people I work with really trust one another	CULTURE1
02. Employees in my department can voice their opinions freely.	CULTURE2
03. If you make a mistake in the company, you will be punished.	CULTURE3
04. I can trust my manager or supervisor to represent my interests at higher levels.	CULTURE4
05. There is a great deal of criticism of the company by employees.	CULTURE5
06. In the company the recognition and encouragement you get usually outweigh the threats and criticisms.	CULTURE6
07. Innovation is strongly encouraged within the company.	CULTURE7
Part III - WARMTH	
01. A friendly atmosphere prevails among the people in the company.	WARMTH1
02. The company is characterized by a relaxed, easy going working climate.	WARMTH2
03. It is very hard to get to know people in the company.	WARMTH3
04. People in the company tend to be cool and aloof toward each other.	WARMTH4
05. There is a lot of warmth in the relationships between management and workers in the company.	WARMTH5
Part III - SUPPORT	
01. You don't get much sympathy from higher-ups in the company if you make a mistake.	SUPPORT1
02. Management makes an effort to talk with you about your career aspirations within the company.	SUPPORT2
03. People in the company don't really trust each other enough.	SUPPORT3
04. This philosophy of our management emphasizes the human factor, how people feel, etc.	SUPPORT4
05. When I am on a difficult assignment I can usually count on getting assistance from my boss and co-workers.	SUPPORT5

Table E.1 (cont)

Item	Variable Name
Part III - IDENTITY	
01. People are proud of working at the company.	IDENTITY1
02. I feel that I am a member of a well-functioning team.	IDENTITY2
03. As far as I can see, there isn't very much personal loyalty to the company.	IDENTITY3
04. In the company people pretty much look out for their own interests.	IDENTITY4
Part III - COMMUNICATION	
01. There are effective communication channels between departments in this organization.	COMM1
02. People in my work unit do not have to rely on "the grapevine" or rumors for information.	COMM2
03. People in my work unit have ample opportunity to exchange information with their supervisors.	COMM3
04. People in my work unit get the facts and information they need to do a good job.	COMM4
Part IV	
01. I am very much personally involved in my job.	JOBATT1
02. Most of my personal life goals are job-oriented.	JOBATT2
03. Most of my interests are centered around my job.	JOBATT3
04. I consider my job to be very central to my existence.	JOBATT4
05. I like to be absorbed in my job most of the time.	JOBATT5
06. The most important thing that happens to me involves my job.	JOBATT6
07. To me, my job is only a small part of who I am.	JOBATT7
08. Usually I feel detached from my job.	JOBATT8
09. I live, eat, and breathe my job.	JOBATT9
10. My perception of the company's success is based on my share of The Company Incentive Payment Plan.	JOBATT10
11. I have very strong ties with my present job which would be very difficult to break.	JOBATT11

Table E.1 (cont)

Item	Variable Name
Part V	
01. I feel certain about how much authority I have.	WORKOP1
02. Clear goals and objectives exist for my job.	WORKOP2
03. I have to do things that should be done differently.	WORKOP3
04. I know that I have divided my time properly.	WORKOP4
05. I receive an assignment without the resources to complete it.	WORKOP5
06. I know what my responsibilities are.	WORKOP6
07. I have to buck a rule or policy in order to carry out an assignment.	WORKOP7
08. I work with two or more groups who operate quite differently.	WORKOP8
09. I know exactly what is expected of me.	WORKOP9
10. I receive incompatible requests from two or more people.	WORKOP10
11. I do things that are apt to be accepted by one person and not accepted by others.	WORKOP11
12. I receive an assignment without adequate resources and materials to execute it.	WORKOP12
13. Explanation is clear of what has to be done.	WORKOP13
14. I work on unnecessary things.	WORKOP14
15. I have enough time to perform my job in a professional manner.	WORKOP15
Part VI	
01. I am willing to put in a great deal of effort beyond that normally expected in order to make the company successful.	COMPANY1
02. I talk up the company to my friends as a great organization to work for.	COMPANY2
03. I would accept almost any type of job assignment in order to keep working for the company.	COMPANY3
04. I find that my values and the company's values are very similar.	COMPANY4
05. I am proud to tell others that I am a part of the company.	COMPANY5
06. The company really inspires the very best in me in the way of job performance.	COMPANY6
07. I am extremely glad that I chose the company to work for over other organizations I was considering at the time I joined the company.	COMPANY7
08. I really care about the fate of the company.	COMPANY8
09. For me, the company is the best of all possible organizations to work for.	COMPANY9
10. The company actively seeks input from external sources.	COMPANY10

Table E.1 (cont)

Item	Variable Name
11. Senior management at the company is overly concerned with the bottom line.	COMPANY11
12. For me, the company is the best organization within The Company Group to work for.	COMPANY12
13. Assuming things in your personal life and work remain about the same, what is the probability you will remain with the company in the near future.	STAY
Part VII	
01. My work unit understands the concept of "continuous improvement."	COMPOL1
02. The company is moving away from an "inspection" orientation to a "do it right the first time" philosophy.	COMPOL2
03. Training provided by the company helps me do a better job.	COMPOL3
04. Employee ideas are encouraged -- even if they later do not work out.	COMPOL4
05. I have a good understanding of Total Quality Management (TQM).	COMPOL5
06. I receive all the training I need to do a good job.	COMPOL6
07. My work unit has accepted the goal of continuous improvement.	COMPOL7
08. My supervisor or manager is more a "team leader" than a "boss."	COMPOL8
09. The quality of job related training I have received has been good.	COMPOL9
10. Decisions are being made more by people doing the job than by managers.	COMPOL10
11. TQM training has helped me improve my job performance.	COMPOL11
12. I understand more "why" we do things than I did in the past.	COMPOL12
13. I am committed to continuous improvement in my work.	COMPOL13
14. Employee suggestions are given a fair hearing by the company managers and supervisors.	COMPOL14
15. The job related training I have received has been very worthwhile.	COMPOL15
16. It is easy to get a new idea on the table for discussion.	COMPOL16
17. I have received adequate training in TQM.	COMPOL17
18. My boss really believes that we can improve our work continuously.	COMPOL18
19. TQM ideas have been clearly explained to me.	COMPOL19
20. Employees are being given the opportunity to be responsible for work quality.	COMPOL20

Table E.1 (cont)

Item	Variable Name
21. Managers and supervisors at the company exhibit personal commitment to quality improvement.	COMPOL21
22. The company employees are recognized for quality improvement.	COMPOL22
23. The company management strongly encourages employee involvement in work unit decision making.	COMPOL23
24. I am never told whether I am doing a good job.	COMPOL24
25. The people my unit work serves, i.e., our customers, meet with us regularly.	COMPOL25
26. My work unit uses teams to solve problems.	COMPOL26
27. If I improve quality, management will reward me.	COMPOL27
28. Information related to the quality of my unit's work is readily available to me.	COMPOL28
29. My CO-workers have a good understanding of who their customer are.	COMPOL29
30. The company has embraced a team concept.	COMPOL30
31. Managers at the company accept their responsibility for quality.	COMPOL31
32. We have developed good systems for monitoring the quality of our work.	COMPOL32
33. Many problems are now being solved through team meetings.	COMPOL33
34. The company managers and supervisors are rewarded for quality improvement.	COMPOL34
35. The people my work unit serves, i.e., our customers, give us feedback on the quality of our work.	COMPOL35
36. The company has made quality improvement a top quality.	COMPOL36
37. Improvements in quality are recognized in employee performance reviews.	COMPOL37
38. During team meetings, we make an effort to get all team members' opinions and ideas before making a decision.	COMPOL38
39. My supervisor never comments about the quality of my work.	COMPOL39
40. The TQM process will increase my share within the The Company Incentive Payment Plan.	COMPOL40
41. We should do all we can to increase short term profits.	COMPOL41
42. I understand the vision of senior management.	COMPOL42
43. Senior management demonstrates "constancy of purpose" toward TQM.	COMPOL43
44. I find the TQM training sessions educational.	COMPOL44
45. I find the TQM training sessions worthwhile.	COMPOL45

Table E.1 (cont)

Item	Variable Name
46. Senior management sees continuous improvement as essential.	COMPOL46
47. I see continuous improvement as essential.	COMPOL47
48. People in my work unit maintain close contact with the people we serve.	COMPOL48

APPENDIX F
QUESTIONNAIRE

PART I - PERSONAL STATISTICS

1. Number of years at the company (Circle Number): (1) less than 2 years
(2) between 2 and 5 years
(3) more than 5 years
2. Sex Male ____ Female ____
3. The company Department
4. Age (1) Under 30 (2) 30 - 45 (3) 46 or over
5. Educational level (Please circle highest grade level completed):
 1) No high school diploma or GED
 2) Completed high school or received GED
 3) Some college
 4) College Degree (A.A., B.S., B.A., etc.)
 5) Graduate Degree (M.S., J.D.)
6. Below is a partial list of the company College courses (from the 1993 catalog).
Please circle whether you have taken the course:

	COURSE TITLE	Completed	Enroled in future course	Plan to take in 1994	May take	Do not at this time, Plan to take	Didn't know it was offered
A.	Effective Listening	1	2	3	4	5	9
B.	Effective Presentations	1	2	3	4	5	9
C.	Ethics	1	2	3	4	5	9
D.	Fundamentals of Communication	1	2	3	4	5	9
E.	Fundamentals of Management	1	2	3	4	5	9
F.	Facilitation and Problem Solving	1	2	3	4	5	9
G.	Getting to Yes	1	2	3	4	5	9
H.	Priority Setting, Delegating: Time Management	1	2	3	4	5	9
I.	Team Building	1	2	3	4	5	9

PART II

The items below ask about your **job satisfaction**. Please ask yourself, "How satisfied am I with this aspect of my job?"

Very Sat. means I am very satisfied with this aspect of my job.

Sat. means I am satisfied with this aspect of my job.

N means I can't decide whether I am satisfied or not with this aspect of my job.

Dissat. means I am dissatisfied with this aspect of my job.

Very Dissat. means I am dissatisfied with this aspect of my job.

	<u>Very Dissat</u>	<u>Dissat</u>	<u>N</u>	<u>Sat</u>	<u>Very Sat</u>
On my present job, this is how I feel about:					
1. Being able to keep busy all the time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The chance to work alone on the job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The chance to do different things from time to time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The chance to be "somebody" in the community. ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The way my boss handles the staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The competence of my supervisor in making decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Being able to do things that don't go against my conscience.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The way my job provides for steady employment. ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. The chance to do things for other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. The chance to tell people what to do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. The chance to do something that makes use of my abilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. The way company policies are put into practice. ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. My pay and the amount of work I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. The chances for advancement on this job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. The freedom to use my own judgment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. The chance to try my own methods of doing the job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. The working conditions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. The way my coworkers get along with each other. ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. The praise I get for doing a good job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. The feeling of accomplishment I get from the job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART III

PERCEPTIONS OF WORK ENVIRONMENT - Please evaluate the accuracy of the following statements about your job by drawing around one of the four numbers beside each statement.

- 1 = Definitely Disagree
 2 = Inclined to Disagree
 3 = Inclined to Agree
 4 = Definitely Agree

A. STRUCTURE

01.	The jobs in the company are clearly defined and logically structured.	1	2	3	4
02.	In the company it is sometimes unclear who has the formal authority to make a decision.	1	2	3	4
03.	The policies and organization structure of the company have been clearly explained.	1	2	3	4
04.	Red tape is kept to a minimum in the company	1	2	3	4
05.	Excessive rules, administrative details, and red tape make it difficult for new and original ideas to receive consideration.	1	2	3	4
06.	Our productivity sometimes suffers from lack of organization and planning.	1	2	3	4
07.	In some of the projects I've been on, I haven't been sure exactly who my boss was.	1	2	3	4
08.	Our management isn't so concerned about formal organization and authority, but concentrates on getting the right people to do the job.	1	2	3	4
09.	Meetings are held only as necessary and needed.	1	2	3	4

B. CULTURE

01.	The people I work with really trust one another	1	2	3	4
02.	Employees in my department can voice their opinions freely.	1	2	3	4
03.	If you make a mistake in the company, you will be punished.	1	2	3	4
04.	I can trust my manager or supervisor to represent my interests at higher levels.	1	2	3	4
05.	There is a great deal of criticism of the company by employees.	1	2	3	4
06.	In the company the recognition and encouragement you get usually outweigh the threats and criticisms.	1	2	3	4
07.	Innovation is strongly encouraged within the company.	1	2	3	4

PART III (cont.)

C. WARMTH					
01.	A friendly atmosphere prevails among the people in the company.	1	2	3	4
02.	The company is characterized by a relaxed, easy going working climate.	1	2	3	4
03.	It is very hard to get to know people in the company.	1	2	3	4
04.	People in the company tend to be cool and aloof toward each other.	1	2	3	4
05.	There is a lot of warmth in the relationships between management and workers in the company.	1	2	3	4
D. SUPPORT					
01.	You don't get much sympathy from higher-ups in the company if you make a mistake.	1	2	3	4
02.	Management makes an effort to talk with you about your career aspirations within the company.	1	2	3	4
03.	People in the company don't really trust each other enough.	1	2	3	4
04.	This philosophy of our management emphasizes the human factor, how people feel, etc.	1	2	3	4
05.	When I am on a difficult assignment I can usually count on getting assistance from my boss and co-workers.	1	2	3	4
E. IDENTITY					
01.	People are proud of working at the company.	1	2	3	4
02.	I feel that I am a member of a well-functioning team.	1	2	3	4
03.	As far as I can see, there isn't very much personal loyalty to the company.	1	2	3	4
04.	In the company people pretty much look out for their own interests.	1	2	3	4
F. COMMUNICATION					
01.	There are effective communication channels between departments in this organization.	1	2	3	4
02.	People in my work unit do not have to rely on "the grapevine" or rumors for information.	1	2	3	4
03.	People in my work unit have ample opportunity to exchange information with their supervisors.	1	2	3	4
04.	People in my work unit get the facts and information they need to do a good job.	1	2	3	4

PART IV

JOB ATTITUDES AND OPINIONS - Listed below are statements that represent feelings that individuals might have about their work and the job they do. Please indicate in the space provided the extent to which you agree or disagree with each statement by noting the number that best corresponds to your opinion.

**1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree**

01.	I am very much personally involved in my job.	1	2	3	4	5
02.	Most of my personal life goals are job-oriented.	1	2	3	4	5
03.	Most of my interests are centered around my job.	1	2	3	4	5
04.	I consider my job to be very central to my existence.	1	2	3	4	5
05.	I like to be absorbed in my job most of the time.	1	2	3	4	5
06.	The most important thing that happens to me involves my job.	1	2	3	4	5
07.	To me, my job is only a small part of who I am.	1	2	3	4	5
08.	Usually I feel detached from my job.	1	2	3	4	5
09.	I live, eat, and breathe my job.	1	2	3	4	5
10.	My perception of the company's success is based on my share of The Company Incentive Payment Plan.	1	2	3	4	5
11.	I have very strong ties with my present job which would be very difficult to break.	1	2	3	4	5

PART V

WORK OPINIONS - Listed below are statements about your work. Please indicate how strongly you agree or disagree with the statement in respect to your work by drawing a circle around one of the seven numbers below each statement.

1 = Strongly Disagree
 2 = Disagree
 3 = Somewhat Disagree
 4 = Neutral
 5 = Somewhat Agree
 6 = Agree
 7 = Strongly Agree

01.	I feel certain about how much authority I have.	1	2	3	4	5	6	7
02.	Clear goals and objectives exist for my job.	1	2	3	4	5	6	7
03.	I have to do things that should be done differently.	1	2	3	4	5	6	7
04.	I know that I have divided my time properly.	1	2	3	4	5	6	7
05.	I receive an assignment without the resources to complete it.	1	2	3	4	5	6	7
06.	I know what my responsibilities are.	1	2	3	4	5	6	7
07.	I have to buck a rule or policy in order to carry out an assignment.	1	2	3	4	5	6	7
08.	I work with two or more groups who operate quite differently.	1	2	3	4	5	6	7
09.	I know exactly what is expected of me.	1	2	3	4	5	6	7
10.	I receive incompatible requests from two or more people.	1	2	3	4	5	6	7
11.	I do things that are apt to be accepted by one person and not accepted by others.	1	2	3	4	5	6	7
12.	I receive an assignment without adequate resources and materials to execute it.	1	2	3	4	5	6	7
13.	Explanation is clear of what has to be done.	1	2	3	4	5	6	7
14.	I work on unnecessary things.	1	2	3	4	5	6	7
15.	I have enough time to perform my job in a professional manner.	1	2	3	4	5	6	7

PART V

OPINIONS ABOUT THE COMPANY - Listed below are a series of statements that represent feelings that individuals might have about the organization they work for. With respect to the company, please indicate how you feel about each statement by drawing a circle around the one numbers below each statement.

1 = Strongly Disagree
 2 = Disagree
 3 = Somewhat Disagree
 4 = Neutral
 5 = Somewhat Agree
 6 = Agree
 7 = Strongly Agree

01.	I am willing to put in a great deal of effort beyond that normally expected in order to make the company successful.	1	2	3	4	5	6	7
02.	I talk up the company to my friends as a great organization to work for.	1	2	3	4	5	6	7
03.	I would accept almost any type of job assignment in order to keep working for the company.	1	2	3	4	5	6	7
04.	I find that my values and the company's values are very similar.	1	2	3	4	5	6	7
05.	I am proud to tell others that I am a part of the company.	1	2	3	4	5	6	7
06.	The company really inspires the very best in me in the way of job performance.	1	2	3	4	5	6	7
07.	I am extremely glad that I chose the company to work for over other organizations I was considering at the time I joined the company.	1	2	3	4	5	6	7
08.	I really care about the fate of the company.	1	2	3	4	5	6	7
09.	For me, the company is the best of all possible organizations to work for.	1	2	3	4	5	6	7
10.	The company actively seeks input from external sources.	1	2	3	4	5	6	7
11.	Senior management at the company is overly concerned with the bottom line.	1	2	3	4	5	6	7
12.	For me, the company is the best organization within The Company Group to work for.	1	2	3	4	5	6	7

13.	Assuming things in your personal life and work remain about the same, what is the probability you will remain with the company in the near future: 1. Very High - I am 95-100% sure I will stay or try to stay. 2. Strong - I am 75-95% sure I will stay or try to stay. 3. Uncertain - The chances I will continue are greater than the chances I will leave. 4. Uncertain - The chances I will leave are greater than the chances I will stay. 5. Low - I am 75-95% sure I will stay or try to leave. 6. Very Low - I am 95-100% sure I will stay or try to leave	1	2	3	4	5	6	7

PART VII

OPINIONS ABOUT COMPANY POLICIES- Listed below are sentences that suggest how the company people might feel about various company policies. For each sentence indicate the extent to which you agree or disagree by circling the appropriate number.

1 = Strongly Disagree
 2 = Disagree
 3 = Neutral
 4 = Agree
 5 = Strongly Agree

01.	My work unit understands the concept of "continuous improvement."	1	2	3	4	5
02.	The company is moving away from an "inspection" orientation to a "do it right the first time" philosophy.	1	2	3	4	5
03.	Training provided by the company helps me do a better job.	1	2	3	4	5
04.	Employee ideas are encouraged -- even if they later do not work out.	1	2	3	4	5
05.	I have a good understanding of Total Quality Management (TQM).	1	2	3	4	5
06.	I receive all the training I need to do a good job.	1	2	3	4	5
07.	My work unit has accepted the goal of continuous improvement.	1	2	3	4	5
08.	My supervisor or manager is more a "team leader" than a "boss."	1	2	3	4	5
09.	The quality of job related training I have received has been good.	1	2	3	4	5
10.	Decisions are being made more by people doing the job than by managers.	1	2	3	4	5
11.	TQM training has helped me improve my job performance.	1	2	3	4	5
12.	I understand more "why" we do things than I did in the past.	1	2	3	4	5
13.	I am committed to continuous improvement in my work.	1	2	3	4	5
14.	Employee suggestions are given a fair hearing by the company managers and supervisors.	1	2	3	4	5
15.	The job related training I have received has been very worthwhile.	1	2	3	4	5
16.	It is easy to get a new idea on the table for discussion.	1	2	3	4	5
17.	I have received adequate training in TQM.	1	2	3	4	5

PART VII (cont.)

18.	My boss really believes that we can improve our work continuously.	1	2	3	4	5
19.	TQM ideas have been clearly explained to me.	1	2	3	4	5
20.	Employees are being given the opportunity to be responsible for work quality.	1	2	3	4	5
21.	Managers and supervisors at the company exhibit personal commitment to quality improvement.	1	2	3	4	5
22.	The company employees are recognized for quality improvement.	1	2	3	4	5
23.	The company management strongly encourages employee involvement in work unit decision making.	1	2	3	4	5
24.	I am never told whether I am doing a good job.	1	2	3	4	5
25.	The people my unit work serves, i.e., our customers, meet with us regularly.	1	2	3	4	5
26.	My work unit uses teams to solve problems.	1	2	3	4	5
27.	If I improve quality, management will reward me.	1	2	3	4	5
28.	Information related to the quality of my unit's work is readily available to me.	1	2	3	4	5
29.	My CO-workers have a good understanding of who their customer are.	1	2	3	4	5
30.	The company has embraced a team concept.	1	2	3	4	5
31.	Managers at the company accept their responsibility for quality.	1	2	3	4	5
32.	We have developed good systems for monitoring the quality of our work.	1	2	3	4	5
33.	Many problems are now being solved through team meetings.	1	2	3	4	5
34.	The company managers and supervisors are rewarded for quality improvement.	1	2	3	4	5
35.	The people my work unit serves, i.e., our customers, give us feedback on the quality of our work.	1	2	3	4	5
36.	The company has made quality improvement a top quality.	1	2	3	4	5
37.	Improvements in quality are recognized in employee performance reviews.	1	2	3	4	5
38.	During team meetings, we make an effort to get all team members' opinions and ideas before making a decision.	1	2	3	4	5
39.	My supervisor never comments about the quality of my work.	1	2	3	4	5

PART VII (cont.)

40.	The TQM process will increase my share within the the company Incentive Payment Plan.	1	2	3	4	5
41.	We should do all we can to increase short term profits.	1	2	3	4	5
42.	I understand the vision of senior management.	1	2	3	4	5
43.	Senior management demonstrates "constancy of purpose" toward TQM.	1	2	3	4	5
44.	I find the TQM training sessions educational.	1	2	3	4	5
45.	I find the TQM training sessions worthwhile.	1	2	3	4	5
46.	Senior management sees continuous improvement as essential.	1	2	3	4	5
47.	I see continuous improvement as essential.	1	2	3	4	5
48.	People in my work unit maintain close contact with the people we serve.	1	2	3	4	5
<p>Feel free to make additional comments on the back or on a separate sheet of paper. Thank you for taking the time to complete this survey. Please return it in the envelope provided.</p>						

What-else should have been asked that wasn't ?