Total Quality Management and Training Within North Carolina Apparel/Textile Product Manufacturing Organizations to Determine a Model for TQM Training

by

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TOTAL QUALITY MANAGEMENT AND TRAINING WITHIN NORTH CAROLINA APPAREL/TEXTILE PRODUCT MANUFACTURING ORGANIZATIONS TO DETERMINE A MODEL FOR TQM TRAINING

by

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(ABSTRACT)

The U.S. apparel/textile product manufacturing environment has traditionally been a very labor intensive industry. As the quality movement is adopted in the U.S. apparel/textile product manufacturing environment, there is a growing focus on the human side of the enterprise.

The purpose of this research was to examine the quality training of three case studies of N.C. apparel/textile product manufacturers and to build a model for TQM training. The case study method (i.e., personal interviews, surveys, group activities) was used to investigate the quality practices and training practices, as well as the organizational culture of the three case studies.

The participating companies were drawn from a published directory of N.C. manufacturers. Several companies were contacted and three were chosen using research criteria. Data collection was done in six phases using Mink et. al. (1993) Total Transformation Management Process (TTMP), a model for managing change within an organization, as the conceptual framework. The six phases were (a) examining the need for change, (b) future state of the organization, (c) present state of the organization, (d) analyzing the planning of

the change strategy, (e) examining the organization's reaction to change, and (f) measuring the overall effectiveness of the change. Method triangulation was used to distill TQM, firm-based training, and organizational culture findings to identify a parsimonious model of TQM implementation strategies.

All three case studies had appropriate reasons for why a quality change was needed for their particular organization, even though the three case studies differed in product produced, production method used, company size, competitive strategy, worker compensation, and training practices. Company A has addressed training problems of adult learners (Gordon, 1993) in a vestibule training program, and Companies B and C rely on co-worker, on-the-job training. Employee turnover rate is also in sharp contrast among the three case studies, with Company A having about a 30% turnover rate, and Companies B and C having approximately 100% turnover rate. The company that has worked through all of the TTMP phases, including training and employee empowerment, is the company that is achieving the best results. This research showed that an organized training program in quality corresponded with effective results, which is also in agreement with the current training and organization development literature (Dodge, 1993a; Hodgetts et al., 1993; Jones & Reid, 1993; Nilson, 1990; Parry, 1993). The case studies also revealed that employees' basic needs (i.e., wages) need to be addressed before employees' training needs (i.e., quality training) can be successful and effective. This finding is consistent with training, quality, and organizational development literature (Dick & Carey, 1993; Goldstein, 1993; Hodgetts et al., 1993; Jones & Reid, 1993; Nilson, 1990; Parry, 1993; Troy, 1991). These findings also provide empirical support for theories in training and quality.

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CHAPTER I

Introduction

The global economy is entering a new paradigm, a fundamental shift with new rules and boundaries. To prosper in the face of economic restructuring, many apparel manufacturers are learning about, planning for, and implementing major organizational changes (Mink, Esterhuysen, Mink, & Owen, 1993). Two realizations must be part of this new paradigm (Mink et al., 1993): (a) acknowledgement of organizations as human systems consisting of many interrelated parts and (b) acknowledgement that every individual matters and that what each individual does affects everybody else.

Any single change in the existing system affects all parts of the system. A complex change, such as may be needed to meet competitive challenges, has virtually unlimited ramifications. Any program that seeks to introduce change into an organization will fail if it is not grounded in this system-wide view of the organization (Mink et al., 1993). Total Quality Management (TQM) is such a program. TQM is an organizational strategy that drives an ongoing, continuous process, one that requires radical changes in organizational design and day-to-day operations (Hodgetts, Luthans, & Lee, 1993).

An organization working on strategies, which will affect change, needs to focus on its people, one individual at a time, while also keeping the overall picture clearly in mind. Organizational change is by its very nature complex. It is a dynamic process, involving relationships between individuals and between

groups of individuals. Often these relationships have been in place for years, and they are intertwined and interconnected in myriad ways and are hard to alter (Mink et al., 1993; Logothetis, 1992).

In an increasingly chaotic business world, most problems and challenges can be attributed to two overriding forces that affect virtually all organizations: increased competition and increased consumer demand for quality (Mink et al., 1993). Either one alone can cause tremendous changes in an organization. When they coexist as they usually do in American apparel/textile product manufacturing, their combined impact on a company increases geometrically (U.S. Congress, Office of Technology Assessment, 1987).

Two management functions become very important in a changing organization: planning and training. A plan or a model that the organization change will follow is vital for initial and long-term success of the change (Mink et al., 1993). A model for organizational change, such as the Total Transformation Management Process (TTMP), can be a catalyst for sparking change and an aide for maintaining change momentum (Mink et al., 1993). Mink et al. (1993) state that TTMP helps managers deal with organizational change by addressing the learning needs of both individuals and groups. Training helps to disseminate the change to individual employees, as well as communicate the change to groups, and the whole organization (Nilson, 1990). Training helps individual employees control or manage change by enabling each trainee to master new knowledge, attitudes, and competencies (Nilson, 1990). Training

is also an organized, step-by-step, coordinated system whose goal is behavior change, and this function of training can help groups and the whole organization adapt to the new behavior (Nilson, 1990).

Background of the Problem

Today's market is characterized by an accelerating differentiation of demand for consumer products that is coupled with heightened consumer awareness and expectation of quality. Apparel producers, facilitated by a rapid introduction of new technology, are responding to this market shift by diversification of apparel offerings (Kurt Salmon Associates, 1994). Greater competition in variable and fragmented markets forces American apparel manufacturers to change business management techniques.

As customers needs and perspectives change, apparel manufacturers must change. Companies need to be attuned to emerging challenges as environmental jolts occur and to get their customers' changing perspectives (Mink et al., 1993). This situation means that companies must be open to new information and listen to customers. Companies must respond to what they hear. They need to act forcefully and solidly, and to develop world-class competitive products and services (Godfrey, 1993; Mink et al., 1993; Wilesmith, 1993;). To do so, leaders must foster a climate of adaptability. Everyone, at all levels of the organization, must be ready to make the necessary changes.

The ability to become a competitive and strategically focused organization is linked directly to adaptability to emerging socioeconomic and technical revolutions. Organizations are confronting the need for change at an ever-increasing rate. They must plan in advance for the impact of change and

the inevitable conflicts that changes will bring. Organizations must initiate, create, and confront needed changes to become or remain viable, to adapt to new conditions, to solve problems, to learn from experience, and to move toward greater maturity (Mink, et. al., 1993). Change is a complex psychological, interpersonal, intergroup dynamic process, and any change within an organization introduces a complexity of factors (Deane, 1993; Logothetis, 1992; Mink et al., 1993). Changes are occurring much more rapidly; therefore, companies can no longer afford the luxury of slow progression or failure (Mink, et. al., 1993). They need a process to effectively manage their transformation.

To meet these market conditions, firms are pursuing varying combinations of adjustment strategies that include technological innovation and adoption, reorganization of the labor process, and changes in labor recruitment strategies (Benton, Bailey, Noyelle, & Stanback, 1991). Both Total Quality Management (TQM) and firm based training are management strategies that change how a company operates. Both strategies are planned by management, and both depend on clear and repetitive communication at the individual, group, and organizational levels. If TQM is adopted by an apparel manufacturer, then training needs to accompany and augment the TQM change (Troy, 1991). Even if a company does not choose a TQM strategy, many apparel manufacturers still need to improve and expand training in the workplace. Firm based training is needed to educate work forces to use and create advanced technologies, to serve an increasingly diverse and

geographically dispersed customer base, and to function in a rapidly changing work environment (Benton et al., 1991; Dodge, 1993; Godfrey, 1993; Parry, 1993) .

Top management in many U.S. firms searches for ways to sustain the momentum of the transformation in corporate organization and culture begun in the 1980s. Evidence that corporate training programs promise to become a crucial tool in this effort is plentiful in firms that have already embraced total quality as a management process (Godfrey, 1993; Troy, 1991). Training programs build quality awareness in employees, help managers to lead the quality movement in their units, and instill the skills needed to calculate costs and document improvements resulting from a quality focus. The Conference Board's U.S. Quality Council researched training programs of 13 companies, including IBM, Johnson & Johnson, 3M Company, and Milliken & Company. These 13 companies, who are Quality Council members, compared and contrasted their own training programs to those of firms with quality process at a similar stage of advancement. Typical quality courses within Council members' training programs included: (a) quality awareness, a basic course where total quality is defined and its relationship to the corporate culture is explored; (b) team building, a course that stresses a cooperative approach to goal setting, identifying and solving problems, project implementation and evaluation; (c) process management training, a course that helps employees and managers learn the tools and techniques to define, document and continuously improve processes while trying to reach a zero defects goal; (d) customer awareness training, a course where employees and managers become attuned to

demands and expectations of markets and product users; (e) quality measurement, courses that equips employees and managers with tools to gauge the impact of poor quality on basic processes, and to establish production controls; and (f) statistics training, courses that enables employees and managers to engage in continuous improvement of processes, design experiments, and to reach decisions based on collection and analysis of data (Troy, 1991). There is evidence in the literature (Troy, 1991) that corporate training programs promise to become a crucial tool in embracing total quality as a management process.

Change Theory

Modern organization theory calls for change: change in concepts, change in philosophy, and change in practice. Change recommendations from the applied behavioral sciences include substituting democratic for autocratic leadership, improving the interpersonal relations among people by reducing conflict, and switching the organizational climate from bureaucratic repressiveness to one that allows for individual self-realization (Bennis, 1969). According to Bennis (1969), there are two main reasons for change in organizational life. First, change is taking place in society, most commonly referred to as the technology and knowledge explosions. The other reason is man's historical quest for self-awareness, (i.e., for using reason to achieve and stretch his potentialities and possibilities). Bennis (1969) hypothesizes that this deliberate self-analysis has spread to large and more complex social systems, such as organizations. Organizations are opening their operations to self-

inquiry and analysis. Bennis (1969) defines organizational revitalization as a complex social process which involves a deliberate and self-conscious examination of organizational behavior and a collaborative relationship between managers and academics to improve performance. A fundamental change has occurred in the basic philosophy which underlies managerial behavior, reflected most of all in the following three areas:

1. A new concept of man, based on increased knowledge of his complex and shifting needs, which replaces the oversimplified, innocent push-button idea of man.

2. A new concept of power, based on collaboration and reason, which replaces a model of power based on coercion and fear.

3. A new concept of organizational values, based on humanistic-democratic ideals, which replaces the depersonalized mechanistic value system of bureaucracy (Bennis, 1969). These concepts are being used as a basis for policy formation today, but more research is needed if these concepts are being put into practice. Even though this research was done in 1969, these concepts are still in pre-theory stages, and little or no empirical research in changing organizational values was found in the literature.

Bennis (1969) proposed and summarized the changes affecting organizations resulting both from the behavioral sciences and from societal trends (see Table 1). The table shows five major categories, which Bennis (1969) describes as the core tasks confronting the manager in coordinating the human side of an enterprise. However, he had a vacant cell, filled only with question mark (?), in the entry of Bureaucratic solutions under Revitization.

Table 1. Human problems confronting contemporary organizations (Bennis, 1969)

	Problem	Bureaucratic solutions	New Twentieth-century conditions
Integration	The problem of how to integrate individual needs and management goals	No solution because of no problem. Individual vastly oversimplified, regarded passive instrument or disregarded.	Emergence of human sciences and understanding of man's complexity. Rising aspirations. Humanistic-democratic ethos.
Social Influence	The problem of the distribution of power and and sources of power and authority	An explicit reliance on legal-rational power but an implicit usage of coercive power. A confused, ambiguous, shifting complex of competence, coercion and legal code.	Separation of management from ownership. Rise of trade unions and general education. Negative and unintended effects of of authoritarian rule.
Collaboration	The problem of managing and resolving conflicts	The rule of hierarchy to resolve conflicts between ranks and the rule or coordination to resolve conflict between horizontal groups. Loyalty.	Specialization and professionalization and increased need for interdependence. Leadership too complex for one-man rule or omniscience.
Adaptation	The problem of responding appropriately to changes induced by the environment of the firm	Environment stable, simple, and predictable; tasks routine. Adapting to change occurs in haphazard and adventitious ways. Unanticipated consequences abound.	External environment of firm more "turbulent," less predictable Unprecedented rate of technological change.
Revitalization	The problem of growth	(?)*Total Quality Management*	Rapid changes in technologies, tasks, manpower, norms and values of society all make constant attention to the processes of the firm and revision imperative.

Total Quality Management (TQM) would be an appropriate bureaucratic solution to rapid changes in technologies, tasks, manpower, norms, and values within an organization. Many company presidents, quality directors, and academic researchers are reporting that TQM can provide a framework for dealing with rapid business changes and organizational stresses (Deane, 1993; Fooks, 1991; Mohr-Jackson, 1993; Wilesmith, 1993). When Bennis (1969) proposed his "Human Problems Confronting Contemporary Organizations", TQM had not started as a revolution. The late 1970s and early 1980s was the time frame for large corporations, such as Xerox, Corning, 3M Company, and Westinghouse, to embark on a TQM change (Fooks, 1993; Jacobson, 1993; Luther, 1993; Wilesmith, 1993).

Today's organizations, including apparel manufacturing, operate in a constant flux (Beckhard & Pritchard, 1992; Belasco, 1991; Brooks, 1980; Mink et al, 1993; Naisbitt & Aburdene, 1985; Tomasko, 1993). Corporate transformation is defined by Mink et al. (1993) as the process by which organizations examine what they were, what they are, what they will need to be, and how to make the necessary changes. Any one of hundreds of situations could call for transformative change. The following corporate objectives are some typical examples proposed by Mink et al. (1993): (a) to implement TQM, (b) to integrate changes in operational systems and procedures, (c) to implement continuous improvement processes, (d) to implement strategic planning, and (e) to introduce new marketing plans with benchmarking.

To plan successfully for a change, it is helpful to understand the process or life cycle that an organization goes through when implementing a transformative change. That process follows a predictable pattern that Levy (1986) breaks into four sequential stages: (a) decline or crisis occurs when needs,either internal or external, are not appropriately met; (b) transformation occurs when the need for change is accepted and commitment to the change is made; (c) transition occurs when plans, ideas, and visions related to the change are translated into actions; (d) stabilization and development occur when a second-order change has been institutionalized, tuned up, maintained, and developed by first-order changes. Most U.S. apparel manufacturers are in the transformation and transition phases of the change cycle ("Quality Management," 1993).

The concepts of total quality organizations, learning organizations, and world class organizations take the framework of transformative change another step. According to Hodgetts, Luthans, & Lee (1993), a total quality organization is adaptive to change, a learning organization keeps ahead of change, and a world class organization strives for continuous improvement to become and sustain being the best. A total quality organization formulates a quality vision, commits top management involvement, plans and organizes the quality effort, and implements and controls the quality process (Hodgetts et al., 1993). A learning organization not only adapts to change, but they learn and stay ahead of change. Learning organizations are not content simply to manufacture to meet quality expectations; they are continually increasing quality in order to exceed and anticipate customer demands (Hodgetts et al., 1993). World class

organizations are recognized as the best and have all the characteristics of total quality and learning organizations leading to a synergistic, additive effect (Hodgetts et al., 1993).

Overall Purpose of the Research

On the surface, a total quality program seems to be the logical solution for companies facing the twin problems of consumer demand for higher quality and competition from other organizations whose products appear to satisfy that demand. Yet, the evidence shows that total quality management is not always the instant savior one would expect (Deane, 1993; Luther, 1991; Mink et al., 1993; Mohr-Jackson, 1993; Troy, 1991). American manufacturing companies can find many difficulties adopting a TQM approach. With a new quality focus, a company may find that it needs to change its vision statement, and management can fail to communicate the new TQM vision to all employees (Luther, 1991; Mink et al., 1993; Mohr-Jackson, 1993; Schein, 1991). Management can also overlook the importance of dealing with individual and group issues (Mink et al., 1993; Mohr-Jackson, 1993; Schein, 1991).

Mink et al. (1993) and Wiggenhorn (1991) found that TQM training was initially rejected by the work force, because it was viewed as the program-of-the-month from corporate headquarters. Other difficulties arise when an organizational culture is not adaptive to respond rapidly to the new requirements of TQM and management has not developed a climate of openness in which employees can excel (Deane, 1993; Evans, 1991; Mink et al., 1993; Mohr-Jackson, 1993). Mink et al. (1993) observed TQM problems

when implementation schedules were not initially well planned. Deane (1993) and Mink et al. (1993) found when management had not provided for individual and group concerns, the implementation process faltered. Management expectations were that if a new program was put in place, it would be so thoroughly embraced by all employees that it would run on its own (Mink et al., 1993). It is not sufficient simply to introduce changes into an organization. They must also be managed (Deane, 1993; Mink et al., 1993; Mohr-Jackson, 1993). Training is expected to be a part of this management process.

The purpose of this research was to assess the current perceptions and practices regarding TQM and training within each company's organization and to develop a model for TQM training within apparel manufacturing. This research examined how three North Carolina apparel manufacturers are managing the change to TQM. The research described how apparel manufacturers are planning for a TQM organizational culture transition, executing the change to a TQM organizational culture, measuring the effectiveness of the TQM changes, and sustaining the TQM change. Using the case study method, this work investigated the change process of implementing TQM and served as a process base for designing a decision model. A model was built using the gathered information from the case studies. The model had inputs of an organizational culture classification and level of company TQM involvement and the model output was a TQM training needs approach.

This model can serve as an internal benchmarking tool for apparel manufacturers who seek to institute or change their TQM training program. Benchmarking was defined by Spendolini (1992) as a continuous, systematic

process for evaluating the products, services, and work process of organizations that are recognized as representing best practices for the purpose of organizational improvement. Spendolini (1992) states that internal benchmarking assumes that some of the work processes that exist in one part of the organization may be more effective or efficient than the work processes in other parts of the organization.

The research findings would allow any North Carolina apparel manufacturer to do an initial TQM training needs assessment. Using this model as a training needs assessment aide would save time, energy, and money for North Carolina apparel manufacturers. This model could be used by a in-house trainer or an instructional designer consultant when working with management to systematically design a TQM training program.

As an organization is formulating a TQM training program or altering an existing program, this model will help companies to consider organizational culture and level of TQM involvement within a specific department or the entire organization. Given two pieces of company information from the following list: organizational culture, level of TQM involvement, and TQM training, the model can provide any one piece from the list that remains. For example, if a company has purchased a TQM training program and has no desire to change its organizational culture, then the model can suggest an appropriate stage of TQM involvement, given their two restraints. This model would provide direction over time of how a training program should change, given changes in level of TQM involvement or changes in organizational culture. This process model could be

validated and expanded to become an expert system, a tool for decision analysis.

This dissertation will help academics and practitioners to move from abstract thinking about the issues of change to real-world organizational change processes within a specific industry. These research findings will be useful to other apparel manufacturers and their business partners when they examine the benefits of and barriers to TQM training. These findings will also contribute to the literature about apparel manufacturing training. Keys to successful sustainment and barriers to adoption of training initiatives, such as Total Quality Management (TQM) training, need to be shared throughout the entire apparel manufacturing industry to support U.S. competitiveness and long-term survival.

Organizational climates that foster and nurture people promote successful change (Mink et al., 1993; Wilesmith, 1991; Harding, 1991). Addressing the people side must be a number-one priority for American apparel manufacturers. Companies must select and develop new employees, and companies must treat them well throughout the TQM change. A healthy work environment and TQM training must be provided for all employees, at all format levels: individual, group, and the entire organization.

CHAPTER II

Review of Literature

The major business focus of apparel/textile product manufacturers currently is producing a quality product within a flexible apparel/textile product production environment. To achieve this goal, manufacturers are training their work force by utilizing a variety of techniques and philosophies, including Total Quality Management (TQM). This review of literature will examine the components of apparel/textile product manufacturing, organizational culture, Total Quality Management (TQM), and training.

The Manufacturing Environment

Agricultural, Industrial and Information Eras

As the nature of a work force changes over time, one broadly-defined group of workers diminishes in numbers while another group increases in numbers. For example, during the period 1890-1910, the major proportion of the work force in the U.S. shifted from agriculture to industrial production (See Figure 1) (U.S. Bureau of the Census, 1975). Relentless technological developments gave rise to new job classifications and to increased employment opportunities in industrial production. As the same time, technological developments diminished employment opportunities in another field, in this case agriculture (Baker, Boser, & Householder, 1992). The intersection of the two curves charting the demand for agricultural occupations and industrial occupations occurred during a time of rapid societal change, which was, in turn, a significant driving force for major educational change (Baker et al., 1992).

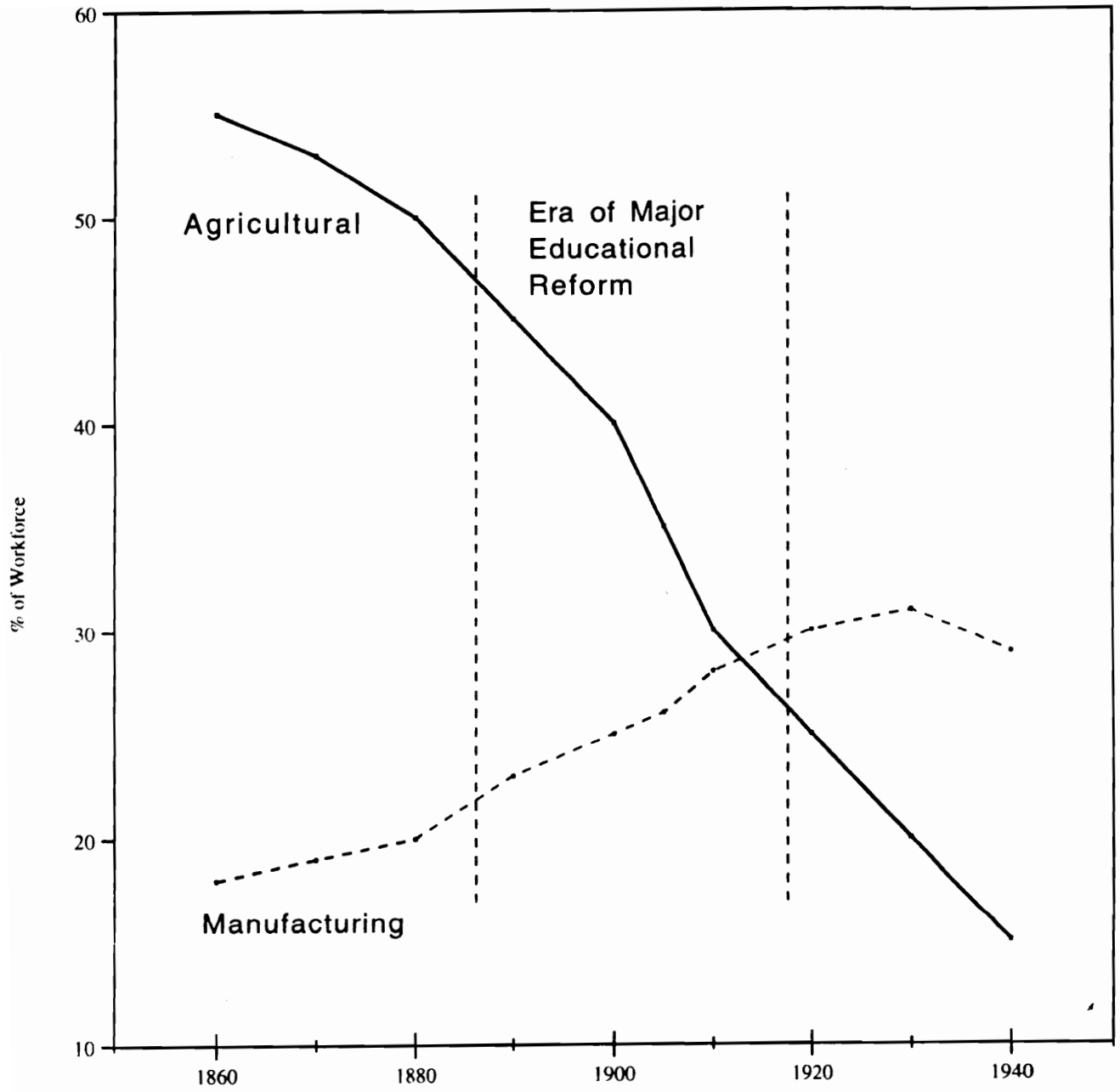

Figure 1. Labor force transition and educational reform (Baker et al., 1992).

Toffler (1980, 1990) has written on the applications of wave theory as an explanation of social change and prediction of likely change. Toffler identified three great waves that transformed human society: (a) agricultural, (b) industrial, (c) post-industrial or information. Ayers (1990a) identified five long economic cycles since the beginning of the industrial revolution that have been affected not only by exhaustible natural resources, but also by technological advances. Combining the agricultural, industrial, and information waves delineated by Toffler (1980, 1990) with the five economic cycles described by Ayers (1990a) clearly identifies periods of unusual social stress and can serve as a framework for reviewing changes in education (Baker et al., 1992).

First long cycle. A cluster of inventions in Great Britain about 1775 made possible the development of the steam engine, wrought iron, and cotton textiles (Ayers, 1990a). These developments, coupled with a shift to coal as a major energy source fueled the first long cycle. Power, manufacturing and transportation were the hub of the new technology which emerged (Baker et al., 1992). From this shift from agrarian to industrial economies, two societal stresses also developed. First, populations shifted to urban areas, and secondly, demands for trained industrial workers began to develop (Baker et al., 1992). Education was viewed as important for all individuals growing up in the society and was viewed as a contributor to the solutions of social problems (Baker et al., 1992). This educational influence was felt in the U.S., as this nation underwent similar shifts in economy and society.

Second long cycle. The first and second long cycles together make up what is commonly referred to as the industrial revolution (Ayers, 1990a). The

second cycle, which began in Britain about 1825 was stimulated by technological inventions and improvements that led to a railroad construction boom and the accompanying telegraph network (Baker et al., 1992). These two innovations created faster, more efficient transportation systems coupled with new communications networks that established an infrastructure which further expanded the opportunities for economic development (Baker et al., 1992). In the U.S., the events were somewhat later, but very similar (Baker et al., 1992).

While workers in the first cycle of industrialization needed only minimal skills to perform their jobs, many second cycle workers were required to develop much higher levels of technical competence (Baker et al., 1992). By 1875, few U.S. students finished high school and had employable skills despite a growing need for technically proficient workers (Baker et al., 1992). Society was expecting schools to prepare its youth, but schools were based on a classical educational pattern. Applied science and engineering schools, which stressed "learning by doing", appeared throughout Europe (Baker et al., 1992). Land-grant colleges for the study of agriculture and mechanical ares were established in 1862 in the U.S. (Baker et al., 1992).

Third long cycle. The third cycle, the second industrial revolution, began about 1880 (Ayers, 1990a). Major technological breakthroughs of this era include: (a) development of steel, (b) widespread application of the internal engine combustion engine, (c) creation of networks to transmit electricity, and (d) the evolution of a manufacturing system based upon mass production and interchangeable parts (Baker et al., 1992). In the third cycle as never before,

much of the technological innovation was devoted to the development of consumer products and services, such as telephones and household appliances (Baker et al., 1992).

By the time of the 1920 census (U.S. Bureau of the Census, 1975), employees in the manufacturing sector outranked agricultural workers in the U.S. for the first time. The increase of the employment curves (Figure 1), signaled the need for change in education. This period was a time of social upheaval and great debate in the responsibility of work force training in public schools (Baker et al., 1992). The Smith-Hughes Act, which was passed in 1917, marked the beginning of federal funding for secondary vocational education in the public schools.

Fourth long cycle. While the fourth long cycle did not have a clear starting or ending point, Ayers (1990b) located its origins in the depression of the 1930s and its end in the mid 1970s. The leading economic sectors in this cycle included the automobile, electrical and electronics, chemical, and aerospace industries. Ayers (1990b) stated that despite the array of technological developments, only television, semiconductors, and electronic computers were new technological innovations of this era.

A relatively stable period in manufacturing education occurred from the passage of the Smith-Hughes Act in 1917 until about 1940 (Baker et al., 1992). In 1956 the number of white collar workers surpassed total employment of blue collar workers for the first time (Baker et al., 1992). The change in work force demographics, coupled with the response to Sputnik in 1957, released a massive burst of school reform and curriculum innovations. In the early 1970s,

the systems approach, a new method to solve technical problems, came into existence (Baker et al., 1992; Bureau of Training, 1969).

Fifth long cycle. The long cycles described by Ayers (1990b) average approximately 50 years in length. They generally began with a cluster of innovations that occurred during the economic slow down between cycles. The fourth long cycle concluded in the mid 1970s; the fifth long cycle is still evolving (Baker et al., 1992). Ayers (1990b) suggested that the computer chip revolution has yet to have significant impact upon manufacturing and that computer integrated manufacturing (CIM) will be a major influence on the fifth long cycle.

The recently recognized shift in employment patterns from manufacturing based employment to information based employment has influenced the shift from an industrial materials content base to a technology systems base in contemporary technology education programs (Baker et al., 1992). Baker et al. (1992) state that current technology education programs include an emphasis on: (a) problem-solving capabilities; (b) an interdisciplinary approach that emphasizes alternatives and compromises; (c) an integration of context in an approach to recognize systemic functions, and; (d) an assessment of the consequences of technological activities.

Apparel/Textile Product Manufacturing

Current market conditions and changes. The apparel/textile product industry has operated as a traditional mass market industry (U.S. Congress, Office of Technology Assessment, 1987). However, rapid technological developments combined with new approaches to marketing have greatly shortened product life-cycles (Zand, 1993). Keeping pace with these new

technologies and changes is necessary for apparel/textile product manufacturers to survive (Berkstresser & Buchanan, 1986). New product teams bring new products to market more quickly than ever before. What should our product line be three years from now and what will competitors be offering are daunting questions for apparel/textile product manufacturers (U.S. Congress, Office of Technology Assessment, 1987; Zand, 1993).

Globalization has increased the number of competitors in a given market and has increased the number of markets in which a competitor competes. Japanese, American, and European companies now compete with each other in markets around the globe (Zand, 1993). Globalization also accelerates the domestic trend towards diversity. The work force is also changing, and it now includes many subcultures (Zand, 1993). Globalization, by decentralizing a company's manufacturing, marketing and research to different countries around the world, increasingly requires that mangers work with people from different nations and different cultures (Zand, 1993).

Regional trade agreements are removing trade barriers and opening gigantic market areas. The European Community and the North American Free Trade Agreement are driving companies toward acquisitions, minority investments, and joint alliances for manufacturing, marketing, and research within these regional markets (Zand, 1993).

In the past, managers were expected to know more than their subordinates. However, education has become more common, and organizations have become more complex. It is not unusual that many subordinates know more theory, more analytic techniques, and more operating

details than their manager (Zand, 1993). Managers need to learn that seeking help does not mean a loss of control (Zand, 1993).

Companies are moving into an age where knowledge is distributed across an educated, culturally-diverse work force, in flat organizations that are under conditions of growing uncertainty and change (Zand, 1993). The primary weapon of competition has become the ability to gain access to and mobilize with the knowledge dispersed in an organization (Zand, 1993).

Characteristics of Apparel/Textile Product Manufacturing. U.S. apparel/textile product manufacturing is typified as being labor-intensive, easy to enter, high fragmented and as having easily accessible raw materials, less capital outlay requirement, and less technical knowledge requirement than other manufacturing industries (Ghadar, Davidson, & Feigenoff, 1987; Jernigan & Easterling, 1990). The apparel/textile product sector is characterized by relatively simple technology and high degree of labor intensity (U.S. Congress, Office of Technology Assessment, 1987). The number of U.S. apparel workers has only slightly decreased in the last few years (See Figure 2), despite a decline in textile workers over the same time period, and an overall decline in manufacturing workers (See Figure 3) (Reichard, 1993).

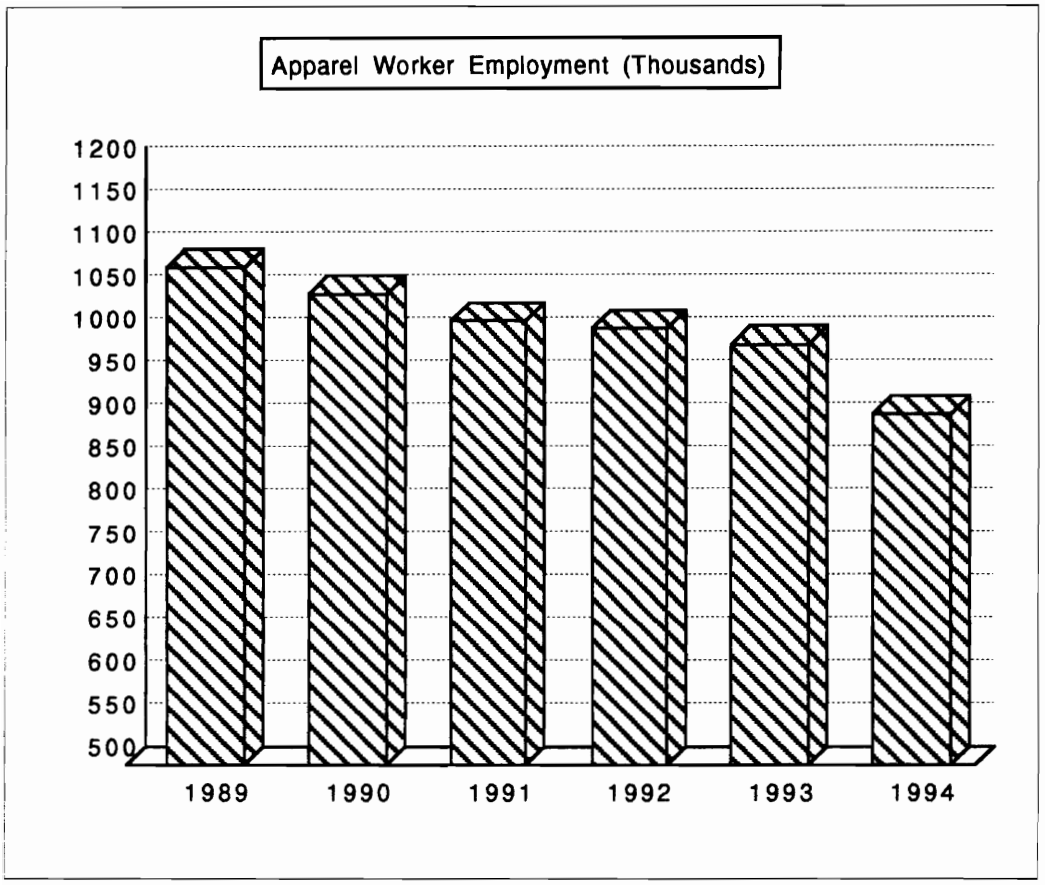

Figure 2. Apparel Worker Employment (Reichard, 1993)

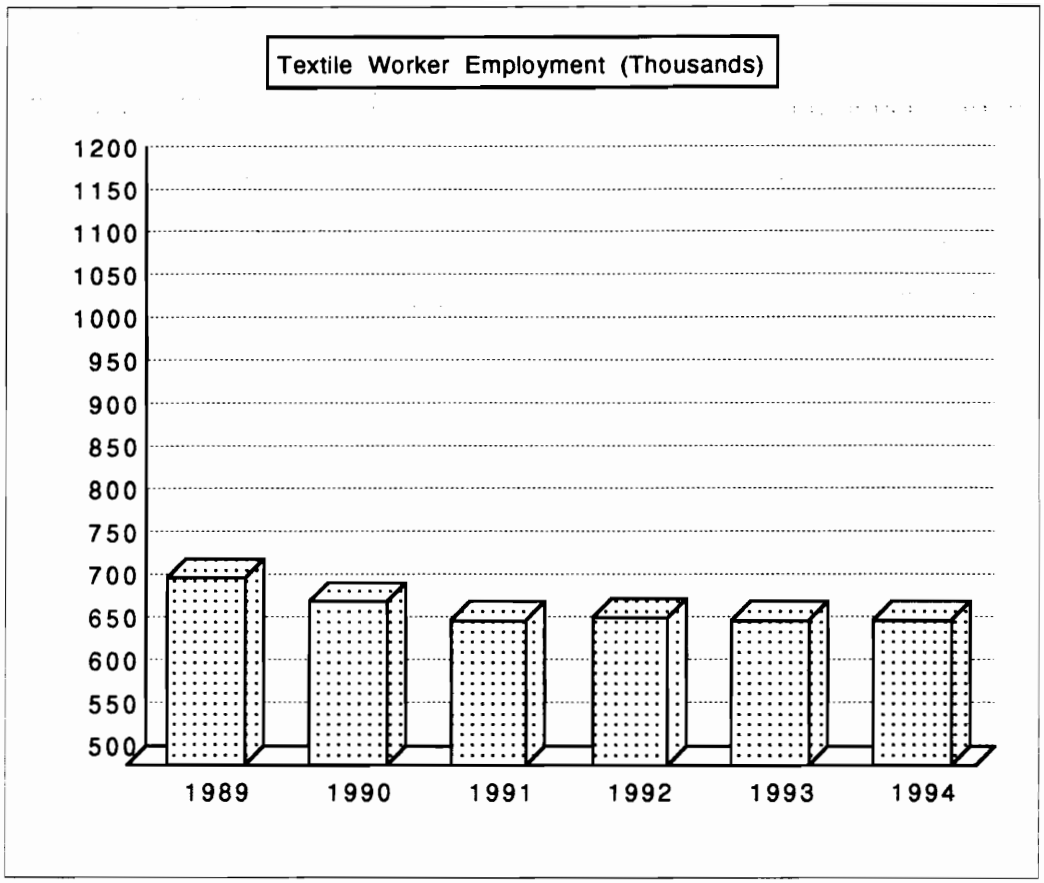

Figure 3. Textile Worker Employment (Reichard, 1993).

Fragmentation of apparel product presents a barrier to automation (U.S. Congress, Office of Technology Assessment, 1987). For the foreseeable future, apparel manufacturing will continue to need a large, highly skilled work force to survive (Im, 1994). In contrast, automation of virtually all textile production processes is underway. In the textile industry, new technology is increasing productivity while reducing labor content (U.S. Congress, Office of Technology Assessment, 1987). In U.S. apparel/textile product manufacturing, concentrating on the human side of the enterprise and reacting deftly to change are the keys to the industry's survival (Black, 1994).

Carrere & Little (1989) characterize apparel/textile product manufacturing as a reactive industry, changing only when external forces dictate that the current approach or strategy will no longer satisfy the prevailing business environment. The 1980s can be highlighted as the decade when apparel/textile product manufacturing was subjected to significant changes in the business environment (Carrere & Little, 1989). Many new practices developed which stimulated the search for improved systems, technologies and management practices (Carrere & Little, 1989).

Current Issues and Approaches

New apparel/textile product industry paradigms must be developed that integrate past knowledge with present technologies (Black, 1994). A part of this new apparel/textile product industry paradigm must incorporate new business strategies and integrate people with technology (Black, 1994; Carrere & Little, 1989). Firm-based training can be both a new business strategy itself, as well as, a coping mechanism to adopt other strategies. Textile/Clothing Technology

Corporation ([TC]^2) has the 1995 goal of establishing a format for companies to assess the educational efforts of their organizational and benchmark their performance against others in the industry ("Firms Benchmark," 1994).

Employee-centered issues. Several management strategies and broad initiatives have been promoted to achieve increased productivity and performance, while focusing on the human side of the organization.

Using the mastery-performance model, an apparel/textile product manufacturer would identify star performers, identify their work strategies, and in turn, teach those strategies to average and below average performers (Froiland, 1993). This model, also known as the star performer model, has been advocated by performance technologists in human resources development for decades; however, large companies, such as Bell Labs, Du Pont, and Sprint, are just starting to apply the mastery-performance model (Froiland, 1993). Froiland (1993) suggests that the reasons for slow business adoption is that training is based on an education model and that the mastery-performance approach uses an engineering model and lacks a corporate identity, a department, within an organization. He also states that the mastery-performance model will help companies to evaluate performance, as the emphasis on measuring accomplishments against corporate goals becomes an important business strategy (Froiland, 1993). The steps in the model are: (a) identifying a deficit in performance, (b) identifying the star performer, (c) eliciting from the star performers the real reasons for their superior performance, and (d) training average performers in the ways of the star performer.

The concept of empowered employees involves the incorporation of many new ideas to apparel manufacturing. Empowered employees are in control of themselves and have the means to measure the quality of their own work processes, to interpret measurements and compare them to goals, and to take action when the process is not working (Godfrey, 1993). Employees know how to improve the efficiency process. In addition, they understand who their customers are; what the customers need, want and expect; and how to design new goods and services to meet these needs (Godfrey, 1993). Godfrey (1993), chairman and CEO of the Juran Institute, states that empowered employees understand and use the three basic processes of the Juran Trilogy for managing quality: quality planning, quality control and quality improvement.

Modular manufacturing units, work cells, or flexible manufacturing systems can be incorporated into the concept of modular production unit (MPU) (Gilbert, 1990). A MPU is defined as a contained manageable work unit of 5-17 people performing a measurable task. The operators are interchangeable among tasks within the group to the extent practical, and incentive compensation is based upon the team's output of first quality product. Motivators are the factors that meet the human need for psychological growth, especially achievement, responsibility, advancement, opportunity, and recognition (Carrere & Little, 1989). Carrere and Little (1989) examined 11 manufacturing situations within eight apparel and textile firms and found the following benefits to modular manufacturing: (a) quality improvement, (b) waste elimination, (c) increased manufacturing flexibility, (d) reduced turnover and absenteeism, and (e) organizational/cultural growth.

Recognition is an ongoing activity through which people call attention to and express appreciation for another's value and contribution (Tragash, 1991). Helping to build a sense of self-esteem is vital to developing the momentum for continuous process improvement (Evans, 1991; Tragash, 1991). According to Carrere and Little (1989) and Tragash (1991) financial reward is only one form of recognition. Other forms include: (a) communicating job-related information; (b) getting employees truly involved in the business; (c) providing performance feedback, including people in special projects, and; (d) saying 'thank you'. According to Tragash (1991), recognition is a great untapped opportunity. It can reinforce a company's total quality commitment and support a continuous improvement culture (Evans, 1991; Harding, 1991; Tragash, 1991). Unfortunately, recognition benefits are being supported only by theoretical articles published in apparel/textile product trade literature at this time and not through empirical testing.

Management approaches. Apparel/textile product manufacturers do not usually play a leading role in the development of new technology or new manufacturing systems but have been successful in efficiently transferring new technology from other industries and adopting new management approaches to problem solving (Carrere & Little, 1989).

Quick Response (QR) can be defined as a time-based competitive business strategy and is being applied by textile, apparel, and many other consumer product industries (Kincade, Cassill, & Williamson, 1993). Kincade, Cassill, & Williamson (1993) classified the QR system to be broader in scope than other business strategies, including TQM. QR has three basic principles

(Kincade, Cassill, & Williamson, 1993): (a) the communication of information between trading partners, (b) the reduction of time and inventory in the soft goods pipeline, and (c) the responsiveness to the consumers' demands. Many aspects of QR involve the human side of an organization and not just hard technology implementation.

According to Logothetis (1992), TQM is a culture. Inherent in this culture is a total commitment to quality and an attitude expressed by everybody's involvement in the process of continuous improvement of products and services, through the use of innovative scientific methods.

Karnes and Kanet (1994) did an exploratory survey to find current customs and attitudes toward quality and quality costs in the apparel industry. Eighty-six apparel manufacturers in SC, GA, and NC responded from the original 201 mailed surveys (Karnes & Kanet, 1994). The survey (Karnes & Kanet, 1994) was divided into four sections: (a) company background, profiled responding firms in terms of type of manufactured product, type of owner ship, type of technology used, size, competitive strategy, and form of worker compensation; (b) company quality philosophy, determined how companies define quality, how they measure quality, who is responsible for quality, and what role quality plays in their business philosophies; (c) company quality practices, determined the functional areas that have quality systems, to what extent quality tools are being used, and where in the production processes quality is being ensured; and (d) company cost-of-quality practices focused on the prevalence of cost-of-quality systems in the apparel industry. Survey results indicated that apparel manufacturers need to: (a) improve their understanding

of customer requirements, (b) actively work with suppliers to improve the quality of raw materials, (c) involve employees more in quality improvement activities, (d) actively seek methods to monitor and quantify all costs of quality, (e) implement more modern quality concepts, and (f) institute formal quality training programs (Karnes & Kanet, 1994). There has been no empirical research in the area of TQM training within in the apparel/textile product industry.

In 1987, the International Standards Organization (ISO) created the ISO 9000 Series of quality standards (Mahoney & Thor, 1994). Companies that meet these standards can register as ISO 9000 companies. More than 10,000 company sites are registered in over thirty nations (Mahoney & Thor, 1994). The ISO 9000 Series is intended to stimulate trade by providing third-party assurance of an organization's ability to meet specifications and perform to negotiated standards. The focus is on basic organization and policy in regard to quality (Mahoney & Thor, 1994). Although production processes are reviewed, the standards have little control over how the organization chooses to manage itself and its customer relations. Therefore, ISO 9000 certification cannot be used to imply that a company is best, elite, or world-class (Mahoney & Thor, 1994).

The Deming Prize was created by the Japanese Union of Scientists and Engineers (JUSE) in 1951 to honor W. Edwards Deming, who contributed greatly to Japan's post-World War II recovery and to its adoption and standard use of quality principles (Mahoney & Thor, 1994). The Deming Prize is not an annual contest, but it is recognition following an application that an organization has attained a certain quality standard (Mahoney & Thor, 1994). Following an

indefinite period (typically from two to five years) of coaching by JUSE consultants, the applicant for the Prize is assigned a team of examiners who interpret both the organization's current business situation and the status of a series of checklist items. Within the checklist items, the Particulars, there is no mention of customer satisfaction. The emphasis is on rigorous statistical approaches and aggressive problem solving throughout the line operation of the organization (Mahoney & Thor, 1994).

The Malcolm Baldrige National Quality Award was named after former Secretary of Commerce, Malcolm Baldrige, who advocated a U.S. quality award as part of a national strategy to increase U.S. quality competitiveness. The award was created by an act of Congress in 1987 to stimulate quality awareness in the U.S. (Mahoney & Thor, 1994). The Award is administered by a private sector agent (currently the American Society for Quality Control [ASQC]). The Award's judges and examiners are drawn mostly from private-sector companies. In any year, there can be a maximum of two winners in each of three categories (i.e., manufacturing, service, and small business).

Unlike the Deming Prize and ISO 9000, the Award places greatest emphasis on customer satisfaction (Mahoney & Thor, 1994). Judgment is made on approach, deployment, and results. According to Mahoney & Thor (1994), approach considers the methods used: Are they prevention-based, effective, and well measured and evaluated? Deployment requires total quality management throughout the organization, not only on the plant floor, but also in

support areas and offices. Results include quality level and trend, evidence of sustained improvement, and a demonstrable link between quality practice and result (Mahoney & Thor, 1994).

All of these influences, both external and internal, have implied changes in the way employees are trained (Benton, Bailey, Noyelle, & Stanback, 1991). Some tasks have changed substantially, and many more jobs require at least literacy and a mastery of basic arithmetic. Workers must also interact more often and in new ways on the job, both with one another and with managers (Benton et al., 1991). Traditional patterns for internal promotion have been disrupted at the same time that more value has been placed on employee knowledge of the wider production process (Benton et al., 1991). The apparel/textile product industry has not been able to rely heavily on recruiting a different, more educated and better trained work force; therefore, it has been forced to consider upgrading the education and skills of existing workers. Training must become a much more prominent part of the overall competitive strategies of U.S. apparel/textile product manufacturers.

Organizational Culture

Any major change in a company involves the organization's culture. In fact, the change process might even be seen as a plan for moving from one culture to another. Organizational culture can be characterized in a number of ways.

Culture serves as a road map for dealing with the environment (Belasco, 1990). It governs internal relationships (Beckhard & Pritchard, 1992) and

defines appropriate behaviors and the way values are expressed (Mink et al., 1979). It determines the way information is processed (Beckhard & Harris, 1987). It explains motivations and asserts solutions to problems (Belasco, 1990; Mink et al., 1979). It determines the reward systems and the application of rewards (Bennis, 1969; Brooks, 1980). When managed creatively, culture becomes a tool for change (Belasco, 1990; Brunsson, 1985; Hampden-Turner, 1990; Mink et al., 1993; Tomasko, 1993).

Culture evolves out of conflict and dilemma (Beckhard & Harris, 1987; Brooks, 1980). Cultures offer a balance point between reciprocal values and conflicting needs, such as the need for stability versus the need to change and grow (Bennis, 1969; Brunsson, 1985; Hampden-Turner, 1990; Mink et al., 1979; Tomasko, 1993). Fundamentally, cultures are responses to the dilemmas people encounter as they try to work together toward a common goal (Bennis, 1969; Tomasko, 1993). One such dilemma is the need to balance group interests with individual interests (Mink et al., 1993). Cultures are learned ways of acting, thinking, and feeling that enable groups to deal with this and other dilemmas (Bennis, 1969). Cultures are created by establishing rewards and routines that nurture and support, that reward some behaviors while punishing others (Hampden-Turner, 1990; Mink et al., 1993).

Cultures are created by individuals (Beckhard & Harris, 1987). Cultures lie within the potential of their individual members. Cultures are the habitat of individual ideas, beliefs, and feelings, and provide the environment in which these can be expressed and rewarded (Beckhard & Pritchard, 1992). Individually and collectively, people create environments in which they can

express and receive support and recognition for their own uniqueness (Beckhard & Harris, 1987). Organizational transformation involves the joint creation of environments in which individuals can fulfill their potential and achieve valued rewards (Brunsson, 1985;Hampden-Turner, 1990). Cultures are formed by individuals; therefore, change of cultures must be initiated and nurtured by individuals.

Cultures have boundaries that serve to affirm certain things about life while excluding others (Bennis, 1969). These affirmations tend to be self-fulfilling. In other words, actions tend to follow logically from the beliefs and assumptions of the culture (Mink et al., 1993). Cultures are readable and understandable in terms of certain rules and norms and provide a frame of reference, a source of individual identity (Hampden-Turner, 1990). For change to be effective, individuals must affirm the purpose and direction of the change.

Cultures are self-perpetuating (Mink et al., 1979). Cultures are cybernetic systems that persevere in directions despite obstacles and setbacks (Hampden-Turner, 1990). Cultures are holistic (Mink et al., 1979). Cultures are patterns, like holograms. Cultures are synergistic (Hampden-Turner, 1990). Cultures learn (Beckhard & Harris, 1987; Naisbitt & Aburdene, 1885). They must know how to learn to survive (Hampden-Turner, 1990; Naisbitt & Aburdene, 1885).

Culture is an integral part of any organization. Changes for an organization necessitate changes in the organizational culture. Since cultures are formed by individuals and perpetuated by individuals, change must be approached by individuals, both as individuals and as a collective whole. The

characteristics and behaviors of a company's culture have major implications for an changes, strategies, or actions which a company may attempt.

Organizations, through culture change, can mature from a manufacturing, process-focused organization to a a customer-focused, premiere provider organization. The transformation requires numerous change in culture, process, people, and product. The process involves three major levels: (a) total quality organization, (b) learning organization, (c) world-class organization (See Figure 4).

Total Quality Organization

According to Hodgetts, Luthans, & Lee (1993), a total quality organization adopts an organizational strategy that drives an ongoing, continuous process, one that requires radical changes in organizational design and day-to-day operations (See Figure 4). Hodgetts et al. (1993) identified ten core values of a total quality enterprise: (a) customer-driven--methods, processes and procedures meet internal and external customer expectations; (b) leadership--top management fully understands the quality process and supports the strategy through both words and deeds; (c) full participation--everyone in the organization is provided with quality training; (d) reward system--quality is rewarded to ensure continual support for the overall effort; (e) reduced cycle time-- a strong effort is made to reduce the cycle times, in product or service output; (f) prevention, not detection--quality is designed into the product or service, so that errors are prevented; (g) management by fact--managers use data-based feedback to measure progress; (h) long-range outlook--there is a constant monitoring of the external environment; (i) partnership development--

the organization promotes cooperation with vendors as well as customers; (j) public responsibility--corporate citizenship and responsibility are fostered by sharing quality-related information and eliminating product waste generation and product defects or recalls. Total quality organizations formulate a quality vision, get top management actively involved, plan and organize the quality effort, and implement and control the quality process (Hodgetts et al., 1993).

Learning Organization

In a true "learning organization," everyone is encourage to learn whenever necessary to improve a process, a product, or a service (See Figure 4). Great care is taken to store all that learning in the organization's memory to ensure good, adaptive responses in all the operations (Mink et al, 1993). According to Hodgetts et al. (1993), learning organizations are characterized by anticipating change and possessing an intense desire to learn. Another closely related characteristic is a strong commitment to generating and transferring new knowledge and technology. This process is facilitated by information gathering and training programs (Hodgetts et al., 1993). A key characteristic of a learning organization is its openness to the external environment. It is responsive to what is going on in the outside world and its members have developed values that emphasize shared vision and systems thinking (Hodgetts et al., 1993). Learning organizations possess all the characteristics of total quality organizations with the added ability to anticipate change, rather than just reacting to change (Hodgetts et al., 1993).

World-Class Organization

According to Hodgetts et al. (1993), some companies have managed to go beyond the learning organization stage to become world-class organizations (See Figure 4). A world-class organizations can be described as being the best in its class or better than its competitors around the world, at least in several strategically important areas. Some of the important elements that support the customer-based pillar of the world-class organization include: (a) shared vision for customer service; (b) shared ownership of the customer service tasks and solutions; (c) organizational structure, processes, and jobs designed to serve the customer; (d) empowered teams for generating new ideas and approaches to improve customer service; (e) information systems designed to monitor and predict the changing needs of the customer; (f) management systems that ensure prompt translation of the customers' requirements to organizational actions; and (g) compensation systems designed to reward employees for excellent service to customers. World-class organizations typically have flat structural designs so that everyone can be close to customers, constantly gathering information about the customers' current and future needs (Hodgetts et al., 1993). World-class organizations create new demands for their goods and services and learn to be faster, more efficient and more effective than competitors, and they do this worldwide (Hodgetts et al., 1993).

Characteristics of Organizations in the Future

Jones and Reid (1993) describe a technique known as the Delphi Method, used in a visioning exercise. The aim of this technique was to pool the

judgments of forward-thinking individuals who are actively involved in facilitating organizational change, as they predict the probable characteristics of standard-setting organizations in the year 2020.

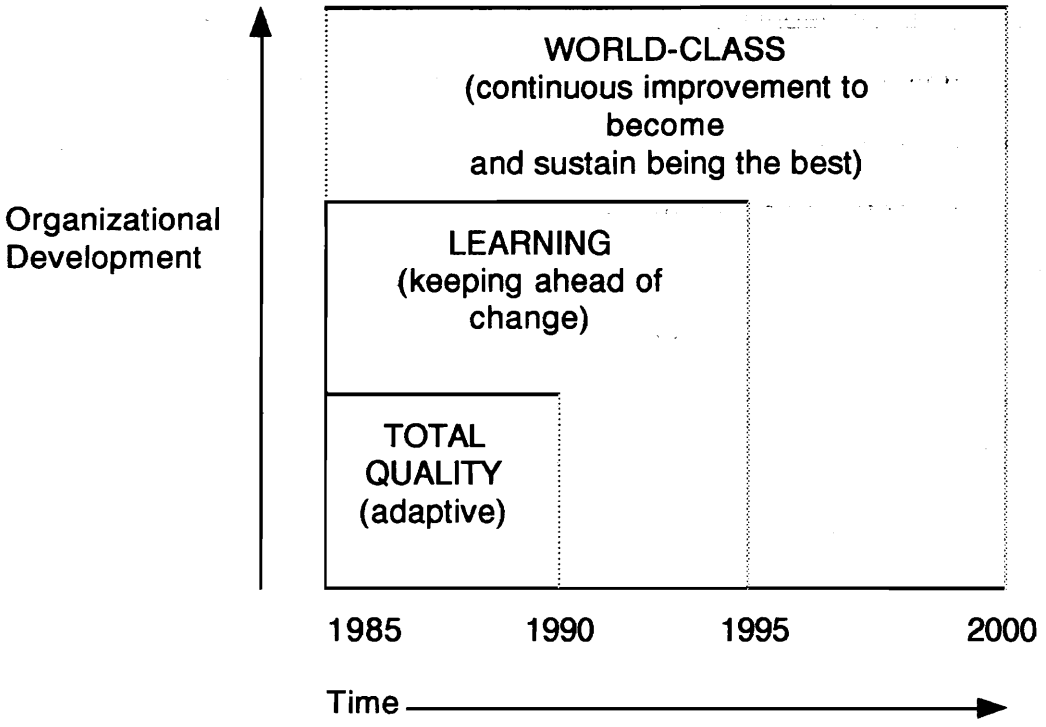

Figure 4. New Paradigm Organizations (Hodgetts et al., 1993)

The classic Delphi approach is a procedure for gathering the judgments of experts on a given subject, usually a large number of people who are geographically dispersed (Jones & Reid, 1993). Eighteen practicing change facilitators, including the authors, assembled for a weekend retreat, and focused on future organizations and organizational development. Clear themes emerged in the data (Jones & Reid, 1993). According to the 18 experts, organizations of the future must have: (a) timely information that flows multi

directionally, using state-of-the-art technology; (b) quality; (c) continuous learning; (d) competence; (e) customer emphasis; and (f) capability of anticipating and reacting to change. Organizations that set the pace in the year 2020 will be information saturated and feedback focused (Jones and Reid, 1993). According to Jones and Reid (1993) employees in the year 2020 will be shaping the organizations' future through team activity and learning. Change facilitators will influence the organization's functioning by coaching its leaders to engage people in achieving their vision through active participation in decision making, problem solving, action planing, and change (Jones & Reid, 1993). As organizations move toward world class status, they must work with individuals within the organization to make the necessary changes. The work by Jones and Reid (1993) indicated how important employee involvement and employee training is to the achievement of an organization's goals.

Organizational Vision

On one hand, an organization seeks to maximize its rewards from its position in the external environment and, on the other hand individuals in the organization seek to maximize their reward from their participation in the organization (Bennis & Nanus, 1985). Bennis and Nanus (1985) state when the organization has a clear sense of its purpose, directions and desired future state and when this image is widely shared, individuals are able to find their own roles both in the organization and in the larger society of which they are a part. This empowers individuals and confers status upon them because they can see themselves as part of a worthwhile enterprise (Bennis & Nanus, 1985; Berszinn, 1994; Dodge, 1993a; Nilson, 1990).

When individuals feel that they can make a difference and that they can improve the society in which they are living through their participation in an organization, then it is much more likely that they will bring vigor and enthusiasm to their tasks and that the results of their work will be mutually reinforcing (Bennis & Nanus, 1985; Nilson, 1990). Under these conditions, the human energies of the organization are aligned toward a common end, and a major precondition for success has been satisfied (Bennis & Nanus, 1985).

A shared vision of the future suggests measures of effectiveness for the organization and for all its parts (Bennis & Nanus, 1985). It helps individuals distinguish between what is good and what is bad for the organization and what is worthwhile to achieve. A shared vision also makes it possible to distribute decision making widely (Bennis & Nanus, 1985; Lippitt, 1982). People can make difficult decisions without having to appeal to higher levels in the organization each time because they know what end results are desired. Individual behavior can be shaped, directed, and coordinated by a shared and empowering vision of the future (Bennis & Nanus, 1985; Nilson, 1990).

Leaders inspire their employees to high levels of achievement by showing then how their work contributes to worthwhile ends. It is an emotional appeal to some the most fundamental of human needs (i.e., the need to be important, to make a difference, to feel useful, to be a part of a successful and worthwhile enterprise). With all these benefits of a shared vision, management does not take time to develop a clear image of the desired future (Bennis & Nanus, 1985; Dodge, 1993a). Visions of many organizations are out of focus

and lack coherence. The lack of organization vision can be attributed to the following reasons (Bennis & Nanus, 1985):

1. Within the past several decades, important new interpretations have been given to the role of the family, the quality of life, the work ethic, the social responsibility of business, the rights of minorities, and many other values and institutions that were once thought to be enduring and permanent.

2. Telecommunications and rapid transportation have helped make the world increasingly interdependent for products, ideas, jobs, and resources.

3. The quickening pace of innovation as led to the specialization of experts and massive problems of coordinating technical workers.

4. The general willingness to experiment with new social forms and norms has fractured society into a diversity of life-styles, each with its own product preferences.

5. Workers are seeking and receiving a much greater voice in decisions that were once the exclusive territory of management.

Total Quality Management

To meet the challenges of the new global environment, companies have started considering quality as an integral part of their strategic business plans (Chandra, 1993; Ronen & Pass, 1994). Total Quality Management (TQM) is a much-heralded approach to productivity improvement, participation and empowerment of people, and the development of individuals and teams (Lee & Lazarus, 1993). When employed properly, it continuously and significantly improves the processes that control the quality of products and services, overcomes resistance to change, and builds networks with internal and external customers and with suppliers. It is an organization-wide effort to achieve quality. Quality comprises the entire range of business processes from concept through delivery (Krygier, 1993; Ronen & Pass, 1994). Quality refers to the ability of a product or service to meet or exceed customer expectations consistently (Lee & Lazarus, 1993).

TQM is a management philosophy that emphasizes the need to meet customer wants precisely and the importance of both doing the right thing and doing things right. The driving force of TQM is customer satisfaction and customer success. Staff involvement and commitment at all levels of the organization, many hours of training, and continuous improvement are the main characteristics of this approach (Whalen & Rahim, 1994). TQM can actually serve as a catalyst for achieving world-class status. Thus, quality is viewed as a change in the purpose and environment of an organization. Quality improvement programs now stress customer focus, employee training and

empowerment, top management support and commitment. This section will examine the components of TQM as a strategy/philosophy to help a company cope with change.

History of the Quality Movement

From the early 1900s to 1930s, American companies were trying to cope with factory growth and inspectors were hired to judge quality of factory workers' production. Frederick Taylor initiated a management approach that found the best way to do a job, selected the right person to do it, trained and quickly rewarded that person for doing it correctly (Miller, 1993). This approach built in high quality. Taylor believed that production workers were not capable of evaluating their own work. Inspectors had to judge quality. Thus the term "quality" came to mean inspection (Lee & Lazarus, 1993; Miller, 1993). All finished products were examined and any defects were corrected (Schroeder, 1993).

The human-relations movement and the behavioral sciences also contributed to the quality movement. Management realized that empowered, motivated, effectively-supervised, and educated employees can help to improve product and service quality to meet, and perhaps even exceed, customer expectations, wants and needs (Lee & Lazarus, 1993; Miller, 1993). This realization changed the working environment to be more supporting, rewarding, co-operating, and inviting for people to learn with and from one another. In this democratic, participative environment, employees are encouraged to become self-managing, and, thus, to take responsibility for the quality of their performance (Miller, 1993).

Statistical Quality Control (SQC) was broadly introduced to American management by W. Edwards Deming in the 1950s. Deming (1982) offered 14 points as the path to quality. His basic proposition was that quality should be continuous improvement of systems. Many of his points relate directly to training as a vehicle of change. Deming's sixth point is to institute training and his thirteenth point is to institute a rigorous program of education and self improvement. Point eight is to drive out fear. Management should create a culture of openness in which workers should not be afraid to speak up or to ask questions. Break down barriers between staff areas is point nine. Point ten is to eliminate slogans, exhortations, and targets for the work force. These do not help workers in doing their job. Workers should be encouraged to formulate their own slogans.

In the 1960s and 1970s, quality meant: (a) conforming to specification, (b) prevention of defects, and (c) total control. In these two decades statistics and operations research were applied to manufacturing. Genichi Taguchi applied the tools of statistical quality control (SQC) and statistical process control (SPC) (Huge, 1990; Miller, 1993). SQC is a method of analyzing deviations in manufactured materials, parts and products, and SPC is an expansion of this concept that analyzes the deviations in production processes during manufacturing (DiPietro, 1993). Initiation of SPC requires a great deal of skill specific training. Most employees need training to participate in a regular on-line SPC activity. This need has generated a wealth of SPC training materials.

Philip Crosby (1979) wrote Quality is Free and popularized the Zero Defect movement and the concept "do it right the first time." Crosby stressed that any level of defects is too high, and companies should use quality programs which will move them continuously towards the goal of zero defects. To achieve zero defects, Crosby advocated top down training and cross functional training. companies that institute Crosby quality programs must include company wide training programs to initiate the program. Cross functional teams are formed to help maintain the progress toward zero defects. Crosby also stressed the importance of realizing and understanding the costs of not producing quality. A larger frame of reference is now coined as continuous improvement process (CIP) which searches for ever higher levels of quality by isolating sources of defects with the ultimate aim of zero defects (DiPietro, 1993).

To promote quality awareness and recognize quality achievements of U.S. companies, the Malcolm Baldrige National Quality Award was established by the U.S. congress in 1987. During the 1980s, hundreds of companies jumped on the quality bandwagon. In 1991, more than 210,000 companies requested application guidelines for the Malcolm Baldrige National Quality Award (Bahis, 1992). The Malcolm Baldrige Award Criteria has several guidelines that use training as a method to achieve quality in an organization.

Definition of TQM

TQM, unlike quality control, is not an independent function in a company, but is an integral part of management functions at all levels (Chandra, 1993). TQM is a management philosophy that has, as its major objective, customer

satisfaction with products and services (Chandra, 1993). TQM is a management philosophy that emphasizes that need to meet customer wants precisely and the importance of both doing the right thing and doing things right. DiPietro (1993) identifies quality as an absence of variation from customer expectations. This customer-driven focus has led to marketing's emphasis on total customer service (TCS) as a more relevant or at least more congruent acronym, with bottom line profitability, than TQM (DiPietro, 1993). Staff involvement and commitment at all levels of the organization, many hours of training, and continuous improvement are needed to make this approach successful.

TQM requires constant improvement through understanding and improving systems. It teaches apparel/textile product manufacturers if they do not do things better, competitors will (Lee & Lazarus, 1993). TQM at its most essential level is a collection of tools and methods that enhance individual and team learning (DiPietro, 1993). TQM objectives can be summarized as involving management at all levels, continuous improvement of products, services and processes, education and training of employees, and participation of all employees in problem solving (Chandra, 1993).

TQM brings suppliers into the decision process, for example, into cross-functional teams that increase innovation, speed the process, and cut costs. TQM tends to reduce the supplier base. It suggests the use of only the very best, certified suppliers, and the need to work very closely with them (Lee & Lazarus, 1993). TQM's driving force is harmonization with an emphasis on linkages and interfaces (DiPietro, 1993). To improve quality from the customer perspective, each market is being broken down into three areas: (a) the core

product--primary benefits, (b) the tangible product--features and their advantages, and (c) the augmented product--after-sales service, relationship marketing and imagery (DiPietro, 1993).

Burr (1993) has identified four general principles common to most TQM models: (a) creating a steering committee to oversee implementation; (b) developing measures of quality and quality costs before implementation begins; (c) providing support to the teams (i.e., training team members as facilitators and nurturing the team by following up on its progress), and; (d) rewarding success.

Maul and Gillard (1993) state that a common aspect of TQM implementation is to create a learning organization aimed at both the acquisition of new knowledge of processes, tools and problem-solving methods and the development of an understanding of systems and their optimization. In addition to formal training, informal mentoring is often a key to TQM success (Maul & Gillard, 1993).

Tools for TQM

Quality Function Deployment (QFD) transforms customer expectation into design and production requirements. QFD essentially amounts to translating the voice of the customer by letting a company know what the customer wants and needs (Chandra, 1993).

Benchmarking is a process which a company uses to compare its performance on customer requirements with the performance of its best

competitors and with the performance of companies known for their superior performance in certain functions (Chandra, 1993). The three types of benchmarking are (Chandra, 1993):

1. Internal benchmarking involves comparing the performance of one department with the performance of another department within the same organization to identify the internal performance standards of the organization.

2. Competitive benchmarking compares specific products and services with processes used by its competitors.

3. Function or generic benchmarking involves comparing business functions (e.g. payroll processing, customer billing), regardless of the industry, to identify the best practices in any type of organization that is known for excellence in that particular business area.

Concurrent engineering is another TQM tool that is a teamwork-oriented approach to product design (Blaich & Blaich,1993; Chandra, 1993). Multifunctional teams, of individuals from R&D, marketing, manufacturing and other related areas, work together and consider all the elements of the product life cycle from concept through disposal, including quality, cost, schedule, and user requirements (Blaich & Blaich,1993; Chandra, 1993).

Statistical techniques, such as Statistical Quality Control (SQC), Statistical Process Control (SPC), and Design of Experiment (DOE), are all TQM tools that measure variation of machines, people, raw materials, and methods used in the entire manufacturing process. Statistical techniques provide information to companies for decisions to improve processes and products.

Artificial intelligence (AI) technologies such as expert system, computer vision, and intelligent robotics have significant roles in automation of manufacturing processes which result in higher quality products (Chandra, 1993). Expert systems mimic human thoughts and can help management in performing tasks such as planning and designing in addition to control and monitoring.

Empowerment (i.e., employee involvement, participative management, consensus, stake holders) is one of the newest tools for TQM (Parry, 1993). Central to the message of Total Quality Management (TQM) is that quality is not an attribute that is superimposed on products and services, nor is it what is left when defects and rejects have been eliminated through more rigorous inspections. Rather, quality is the integral value that accrues in a product or service as each employee contributes to it. Some companies have recognized the importance of employees in this process and have begun to change the way they deal with employees (Parry, 1993).

Quality is not sufficient in itself to guarantee the success of a company. Occasionally, management focuses totally on the quality of the product and forgets about the consumer interest, needs, and changing market conditions (Miller & Cangemi, 1993). This approach produces a quality product, but that product may not be marketable. Quality must be an obsession for everyone within the organization (Miller & Cangemi, 1993). TQM can actually serve as a catalyst for achieving world-class status. Thus, quality is viewed as a change in the purpose and environment of an organization (Lee & Lazarus, 1993). Employees jointly develop and own a vision of the organization, participate in

the necessary training to accomplish this vision, and are empowered with sufficient authority to produce the quality standard represented in the vision (Miller & Cangemi, 1993).

Measurement of TQM Involvement/Adoption

The key to success in the 1990s and beyond will involve the transition in leadership from a controlling organizational management to a learning organizational culture, based on a nurturing, coaching leadership style (DiPietro, 1993). Corporations will have to go through a radical transformation in the routine functions they perform: from controlling to setting direction; from giving orders to coaching and facilitating; and from making decisions to providing guidance, supplying information, and offering support (Chandra, 1993). The ever-changing challenges of a global economy, new technologies, environmental and social diversity, and customer-oriented management should be incorporated into the new organization (Lee & Lazarus, 1993). Sink (1991) states that successful companies in the 1990s will be those that can improve at competitive rates of change. He further suggests that competitive rates of change can only be achieved by effectively linking planning, measurement, and improvement. Sink (1991) believes that this triad for change measures and indicates the direction and rate of improvement and results can be compared to the strategic plan.

Cupello (1994) suggests four reasons for measurement in a triangular format, suggesting a parallel to the various organization levels who perform these functions: (a) planning, (b) screening, (c) control, and (d) diagnosis. The

triangle top is planning and is usually the domain of senior management. Planning measures are used to evaluate compliance with strategic vision and mission statements, and capture the performance of the entire organization (Cupello, 1994). Screening measures are the domain of middle managers and focus on the performance of functional areas in relation to the organizations strategic goals (Cupello, 1994). Control measures are the domain of workers and capture the performance of individual employees, machines, products, services, and processes. Diagnosis measures can be used to determine whether an organization's TQM process is having the desired effect (Cupello, 1994). Cupello (1994) maintains if processes such as empowering employees and satisfying customers truly improve organizational performance, then measuring these processes is a way to monitor and ensure the quality of organizational performance. Employee attitudes are frequently measured by annual employee attitude survey. Continuous improvement is objective of cross-functional teams and natural work groups, and their performance is measured by the results of their projects (Cupello, 1994).

The concept of diagnostic measures suggests a different way of introducing measurement into an organization. This paradigm contends that the types of measures an organization embraces and when those measures are introduced are a function of the maturity level of an organization's TQM progress (Cupello, 1994). There are four levels of TQM maturity: playing (P), demonstrating (D), committed (C), and actualized (A). The PDCA model is similar to Bhote's (1991) four stages of innocence, awakening, commitment/implementation, and world class.

The playing (P) level of maturity refers to those organizations that are playing with or just beginning the TQM process to see whether they really want to get involved (Cupello, 1994). The demonstrating (D) level refers to those organizations that have demonstrated meaningful improvement using the TQM process (Cupello, 1994). Cupello (1994) states that the types of improvements consist of initial process improvements derived from the efforts of cross-functional teams or quality circles. The committed (C) level refers to those organizations that are committed to the degree that employees to the TQM process. Employees at the committed (C) level acknowledge and identify a change in organizational culture that is attributable to the TQM process (Cupello, 1994). The actualized (A) level consists of those organizations that have actualized total quality and are world-class quality organizations (Cupello, 1994). They tend to be Baldrige Award winners or are acknowledged as quality organizations in the business world (Cupello, 1994). Cupello (1994) states that these maturity levels can be used to determine what a company measures and when these measurements are implemented.

TQM Adoption in Apparel Manufacturing

Unfortunately, extremely limited research about TQM adoption in apparel manufacturing is available in juried journals. The body of information about TQM comes from surveys supported and published by other industries (Troy, 1991) and from theoretical articles in trade literature (Godfrey, 1993; Mohr-Jackson, 1993; Schein, 1991) or a combination of both cases (Evans, 1991; Harding, 1991; Jacobson, 1991; Luther, 1991; Tragash, 1991; Wilesmith, 1991).

Trade literature articles are often anecdotes, case studies, or demographic census. Trade studies often represent narrow views of the situation with small or biased samples (Kincade & Cassill, 1993).

The only study was found in Quality Progress. Karnes and Kanet (1994) focused on the quality philosophies, practices, and costs in 86 southeastern apparel manufacturing companies. The research was supported in part by a Department of Defense (DOD) contract (Karnes & Kanet, 1994). No research was found with respect to TQM adoption within apparel manufacturing.

Training

Characteristics of Traditional Classroom Training

Corporate training has traditionally modeled itself on the classroom approach: a group of individuals gathered in a classroom led by an expert in a specific subject (Berszinn, 1994). Using a combination of source materials, workbooks, and lectures, the teacher attempts to help the students achieve an understanding of the important points of the subject and how it relates to his or her specific job responsibilities (Berszinn, 1994). To measure retention and to reinforce the message, some courses include periodic exams or quizzes administered in the classroom. Many companies solely use this classroom approach.

Traditional forms of what is generally referred to as training reflect a school-based model of learning which is based on behavioristic concepts. In this model, the power is vested in a teacher who assumes responsibility for defining who is to learn, what is to be learned, and how it is to be learned

(Dodge, 1993a). The teacher or trainer seeks to influence the learner in ways which will elicit behavior consistent with the desires of the trainer, who is directing the process. That is, authority for the management and process of learning is retained by someone other than the learners. While a degree of the authority may pass to the learners, it remains at the discretion of the teacher (Dodge, 1993a). When the objective of the learning is to have the learner emulate the knowledge or skills of the the teacher, this system can be effective. Achievement of the learning objectives reflects the learner who is performing a defined task in the manner and form envisioned by the trainer. For the organization of the future, this method may be inadequate. Unleashing the potential of the individual necessitates a fundamental shift in our conception of the organization or work (Dodge, 1993b). The role and process of work-based learning needs to be reconceptualized (Dodge, 1993b).

Characteristics of Modern Training Approach

In an era of cost cutting and scarce resources, the use of individuals to perform routine tasks is an extravagance (Dodge, 1993a). The key to competitiveness and service delivery rests with unleashing the potential of the individual and facilitating both their learning and opportunity to contribute to the organizational mission (Dodge, 1993a). Traditional approaches to training have sought to develop systems to identify performance weaknesses, or specific areas for development linked to job performance. The difficulty with this deficiency-based approach is that it is backward looking and reactive. To break this cycle, organizations need to shift fundamentally the way in which they think

of work and learning and the respective roles played in the equation. Individuals need to make a contribution and have an impact if they are to be committed to the end product (Dodge, 1993a).

Today, rapid technological change has forced an evolution both in the nature of work and in how people are prepared for that work (Berszinn, 1994). Nothing is getting simpler, and there is a continuous growth in the amount of information that one needs to know to do one's job effectively. Conversely, if the job is simple (i.e., low paying) such as a production line job and to be more valuable to the employer and make more money, production workers must learn the skills of several jobs and make rapid transitions from one to the other. Greater job demands call for increased training (Berszinn, 1994).

Fortunately, many companies are beginning to realize that employed adults learn best by relating what is new to what is already part of their experience (Nilson, 1990). Adults bring to the learning situation a vast store of information, of knowledge gained by trial and error, of patterned responses, of approaches that work for them, and of comfortable learning styles (Nilson, 1990). Training programs for organizations should be designed with an adult learner focus. The first step in designing a training program is performing a needs assessment. The second task is to determine the best way to present the training information to each employee so that only such training as is required is presented and so that it is learned in an appropriate amount of time (Nilson, 1990). The third task is to get the right training to the right people so that the resources it uses are an investment in productivity (Nilson, 1990).

To meet the changing environment, companies have an increased interest in developing an instructional system that will reinforce training programs (Parry, 1993). According to Parry (1993) an instructional system should include: (a) Action plans that spell out what each participant will do to apply what was learned. Trainees share these plans with fellow employees and others who are stake holders in their success; (b) Individual development plans that form a "contract" between participants and their managers; (c) Coaching back on the job is needed as participants apply and refine their new skills and competencies; and (d) Progress appraisals by work groups, the members of which now have a common vocabulary for apprising the group's performance.

Empowerment training. The restructuring of work and work relationships involves individuals assuming responsibility for a much broader span of individual influence and control. Empowered learning and work are inextricably linked and tend to develop geometrically (Dodge, 1993a). Applying empowerment to work is becoming the watchword of organizational revitalization (Dodge, 1993a). Learner-employees must become proactive partners in a learning environment which facilitates their taking an active role in defining their career and developmental objectives, assessing their potential value to the organization and development of an individual learning strategy which will enable them to reach their full potential and more fully contribute to the organization's mission (Dodge, 1993a).

Mink et al. (1993) maintain that the sense of empowerment that effective leaders help create releases creativity in human systems and facilitates work.

Bennis (1984) finds that empowerment can be evident in four themes: (a) people feel significant; (b) learning and competence matter; (c) people are part of the community; and (d) work is exciting. Bennis studied (1984, 1985) ninety leaders who had proven track records, but very different skills and personalities, and found that they shared four leadership competencies: (a) management of attention, (b) management of meaning, (c) management of trust, and (d) management of self. Lippitt (1982) states that successful organizational change and transformation depend on the behavior of leaders at all levels, and should possess characteristics similar to Bennis' (1984,1985) findings.

Continuous learning. The concept of continuous learning recognized the workplace as a changing environment with changing needs (Dodge, 1993a). It recognizes that the skills a person brings to the workplace will not be sufficient for his/her entire career and that people must, and are, learning all the time (Dodge, 1993a). It sees employees taking responsibility for their work-related learning in an organization which focuses and facilitates that learning. Managers must become career counselors, coaches, and mentors (Dodge, 1993a).

It is no longer sufficient to wait for training needs to appear and react to them, nor is it reasonable to encourage employees to assume power and responsibility in operational areas and and deny them a role as partners in determining and implementing learning strategies required to meet the organization's needs of tomorrow (Dodge, 1993a).

Learner centered training. Management has been switching to a a more humanistic position. Behavioristic conceptions of a teacher predetermining the context, process and outcome no longer provide a sufficient basis for a comprehensive learning program in a dynamic corporate environment. An organization, by its very nature, is a group of individuals organized around a specific mission (Dodge, 1993a).

Management must accept the concept of a mature learner who is motivated to learn and must provide learners with the freedom and support required to acquire significant learning as related to an agreed aim (Dodge, 1993a). The employee receives the opportunity for personal growth and the possibility of achieving full potential with the organizational context, while the employer enjoys a systematic approach to the development of human resources in accordance with organizational objectives and anticipated requirements primarily through the individual's own efforts (Dodge, 1993a).

For the future organization to succeed, the work force must be well versed in the mission and long-term plans of the organization. A management philosophy must be in place that accepts individual development as an integral part of management and views the workplace as a learning environment (Dodge, 1993b).

The essence of learner centered development is the application of the principles of empowerment to the field of learning. The adult learner must have a participative role in their learning, not simply be cast in the role of passive recipient (Dodge, 1993a). The learner becomes the dominant partner in defining his/her needs, determining appropriate means to address them and

evaluating when they have been met. The organization's role becomes one of providing direction, giving a clear indication of the organization's objectives and mission, and highlighting the individual's evolving role (Dodge, 1993a).

Senge (1990a, 1990b) extends individual leadership characteristics to the organization itself. He believes that leadership is vital in creating a learning organization--one that not only adopts change but is capable of generative learning or creating new ways to view the world.

Purposes of Training

The training effort should be focused (Troy, 1991). Initially, training many people is less important than training the right people (e.g., managers who will return to their units to lead the quality training effort, skilled employees who can be trained to serve as trainer, and coaches for their work group). Just-in-time training works best (Troy, 1991). Trainees need to apply their new knowledge and skills immediately after training takes place. Corporate training departments or outside groups many design and deliver training courses, but line management is responsible for seeing that training occurs. Line managers need to be involved early and often to assure their "buy-in" to the training process.

The purposes of training can be identified as: to increase productivity, to improve quality, to contribute to personal growth, to build competencies and to promote organizational change. Productive work groups have certain characteristics (Nilson, 1990): (a) their members focus on problems, how to solve them and how to prevent them; (b) they see problems as opportunities to improve; (c) they share information and intuition; (d) they design quality into

processes as they go along and into products during the early stages of product design and development; (e) they monitor and check each other's work.

Increase productivity. In companies of the future, employees will get paid not for their position on the organization chart, but for their productivity (Naisbitt & Auberdene, 1985). Managers can help productive work groups continually improve productivity by providing leadership that demonstrates a commitment to quality at every level of product, process, and service. Managers can help employees by providing training in testing methodology, in measurement options, in systems analysis, in monitoring and evaluation strategies, in giving and receiving feedback, and in standards of the business.

The productive employee is also a problem solver, analyst, and communicator. The productive individual will also continually monitor his/herself will also continually monitor his/herself against corporate standards (Nilson, 1990). Training in standards and measurements is critical, as is providing opportunities for employees to see the results of their work (Nilson, 1990). Productivity improvement involves defining and quantifying factors that enhance and magnify the inputs to increase the quality of outputs. Productivity improvement also also involves reducing the inputs, that is, reducing the work expended or the resources expended, so that the outputs outweigh the inputs in terms of value to the organization in terms of quality (Nilson, 1990).

As companies recognize that flexible schedules and appropriate training increase both commitment and productivity, the future workplace will look more like clusters of self-employed people and entrepreneurs (Naisbitt & Auberdene, 1985).

Improve quality. Productivity ratios are related to quality ratios (Nilson, 1990). Quality ratios are generally expressed as some degree of approximation or conformance to standards (Nilson, 1990). There are sometimes defined as how ready a process is for application, or how ready a product is for the marketplace (Nilson, 1990). Training and retraining will help managers' efforts to conform to standards (Nilson, 1990).

Training is perhaps the most direct way of improving work and of ensuring the wise use of resources (Nilson, 1990). Good training can be expected to significantly improve both productivity and quality (Nilson, 1990).

Contribute to personal growth. Learning is an inherent part of the nature of work and an integral component of corporate culture (Dodge, 1993a). How organizations think about, structure, and operationalize learning both reflects the organization's underlying philosophy and determines the role learning will play in defining and achieving the organization's mission (Dodge, 1993a). Pay for performance will replace pay for just showing up in the morning (Naisbitt & Auberdene, 1985). Training is an important vehicle for attracting competent employees and creating an environment where they will remain interested in and stimulated by their work (Naisbitt & Auberdene, 1985).

Build competencies. Competencies differ from skills, in that skills tend to be situational and specific. Competencies represent broader "sets" of skills, applicable virtually every day in a wide variety of situations (Parry, 1993). Nilson (1990) states that competent workers will be a subject-matter experts that: (a) instinctively understand the ways to go about dealing with the content of their jobs, (b) the effects of certain actions on that content, (c) the approaches

to analysis of that content, (d) how to prioritize and connect parts of the content, and (d) the procedures to use most effectively with that content to improve work.

Promote change. Companies are moving into an age where knowledge is distributed across an educated, culturally-diverse work force, in flat organizations that are under conditions of growing uncertainty and change (Zand, 1993). Organizational transformation involves the joint creation of environments in which individuals can fulfill their potential and achieve valued rewards (Brunsson, 1985; Hampden-Turner, 1990). Cultures are formed by individuals; therefore, change of cultures must be initiated and nurtured by individuals. According to Jones and Reid (1993) employees in the year 2020 will be shaping the organizations' future through team activity and learning. Change facilitators will influence the organization's functioning by coaching its leaders to engage people in achieving their vision through active participation in decision making, problem solving, action planing, and change (Jones and Reid, 1993). Nilson (1990) maintains that training can help employees: (a) understand change, (b) see their positive contributions to the change process, (c) identify options for dealing with change, (d) realize some benefits from the change.

Measurement of Training Programs

Summative evaluation is the measurement of training program effectiveness and appraises the training program in relation to training objectives (Dick & Carey, 1993; Goldstein, 1993). A summative evaluation has two main phases: expert judgment and field trial (Dick & Carey, 1993). The expert judgment phase determines whether presently used materials or other

candidate materials comply with the organization's training needs (Dick & Carey, 1993). The expert judges evaluate the utility of the training materials, determine the satisfaction of current users of the materials, evaluate learner performance and attitudes, evaluate instructor attitudes, and evaluate the implementations procedures and resources (Dick & Carey, 1993). The purpose of the field trial phase is to document the effectiveness of possible materials with trainees in the intended setting (Dick & Carey, 1993).

Dick & Carey (1993) maintain the importance of the expert judgment phase when the organization is unfamiliar with the training materials and their developmental history. The expert judgment phase uses congruence analysis to determine if there is agreement between organization's needs, trainee characteristics, purchasing and implementation costs, and the proposed training. The quality of the materials can be evaluated on accuracy and completeness, adequacy of the training design, utility of materials, and current users of the materials (Dick & Carey, 1993). Field trials have the main purpose of locating strengths and weaknesses in the training materials for a specific organization (Dick & Carey, 1993).

Apparel/Textile Product Manufacturing Training

Step-wise progression of skill acquisition. Traditional training programs in apparel manufacturing are designed to overcome the difficulties, step by step, that a new employee meets in acquiring the skills, routines and knowledge necessary to becoming an experienced industrial sewing-machine operator (King, 1964). After some time in a classroom concentrating on steps 1 through 3: (a) basic skills, (b) handling cloth, (c) operating the machine, (See Figure 5)

the new employee is sent to the factory floor (King, 1964). After meeting his/her supervisor and being shown restrooms and the lunch area, the new employee sits down to start an assigned operation (King, 1964). The supervisor demonstrates the operation two to three times, and then leaves the employee alone to build mastery and production (King, 1964).

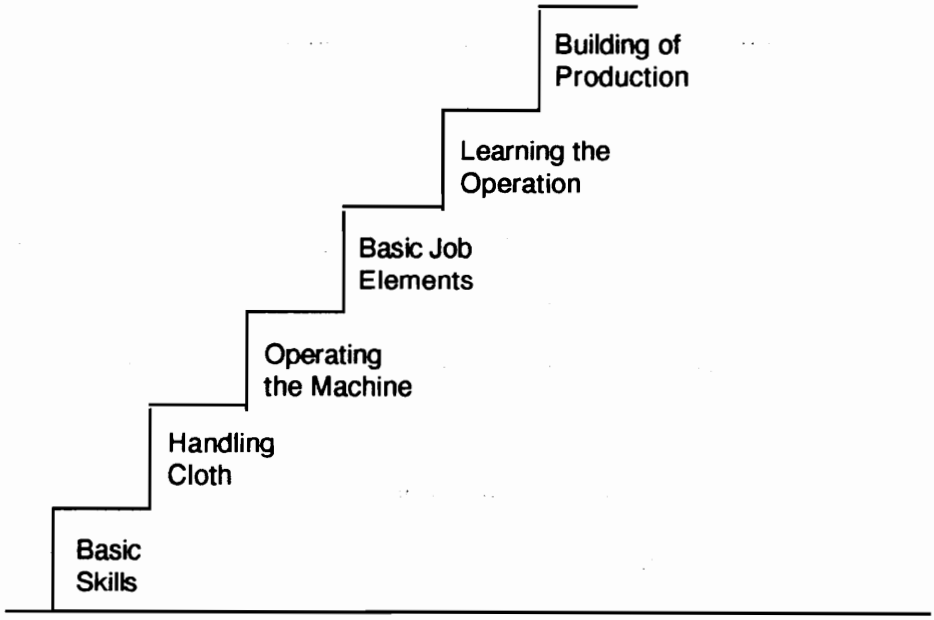

Figure 5. Six step-wise production stages in the traditional apparel/textile manufacturing training course

Traditionally, step-wise progression of skill acquisition is how training is administered to new production workers and is still very widespread use in apparel/textile product manufacturing today. New production techniques, new technologies, and new management philosophies have not necessary made this step-wise skill progression obsolete. This training method needs to be

integrated into the myriad of other skills that an apparel manufacturing production worker needs in today's work force. There was no current research found on apparel/textile product manufacturing training and integration of new production techniques, new technologies, and new management philosophies.

Vestibule training. Vestibule training provides instruction in a classroom environment which is a manufacturing setup independent of the production line (Denova, 1971). An instructor can maintain a controlled learning environment and the trainee's self-confidence can improve away from the noise and pressure of the production floor (Denova, 1971). Vestibule training disrupts production less and causes less work spoilage than on-the-job training (Denova, 1971). A major limitation is the expense of providing duplicate equipment and the cost of maintaining an instructional staff (Denova, 1971).

In a study of apparel workers involved in vestibule training, findings showed that a significant determinant of the high rate of personnel turnover among a population of female sewing machine operators was inadequate initial training (Lefkowitz, 1970). Lefkowitz (1970) hypothesized that high personnel turnover was linked with poor initial training and his hypothesis was confirmed by the results of an attitude survey conducted among employees in a sewing factory. Many employees reported that one of the primary reasons people left this factory was inability to adjust to the pressure of the job (Lefkowitz, 1970). In 1967, an apparel manufacturing plant of 750 employees had a turnover rate of 68%; 30% of that figure had less than 1 month on the job and 40% had less than two months on the job.

Two hundred eight new trainees received either 1,2, or 3 days' vestibule training. The longer the training, the lower the turnover rate, but the lower the productivity as well. Both effects were statistically significant, but the effects on productivity were deemed of less practical significance. A fourth training group received 3 days integrated vestibule and on-the-job training and achieved the best balance of productivity and employee retention. The more difficult the operation on which a trainee was placed the more likely she was to terminate her employ. Another significant determinant of resignations was employees' encountering a job which was contradictory to their expectations (Lefkowitz, 1970).

Modular manufacturing. Carrere & Little (1989) examined 11 manufacturing situations within eight apparel and textile firms and through their case study work found several different types of training being employed in modular manufacturing. Carrere & Little (1989) found the following types of production worker training being employed in their apparel case study organizations: (a) problem-solving training, (b) goal-setting training, (c) behavior modeling training, (d) line-balancing team meetings, (e) resolving conflict training, (f) preventative maintenance training, (g) on-the-job training, (h) decision making training, (i) brainstorming training , (j) leadership effectiveness, (k) cross-training, (l) quality and quality circles training, (m) JIT training, (n) listening skills training. There is no description of training content in this article, rather it is a survey article describing modular manufacturing in apparel manufacturing.

A form of modular manufacturing in the apparel/textile product industry is Toyota Sewing Management System (TSS). TSS is characterized by team sewing in a production cell and the team is manufacturing one particular garment style or product (JSN, 1989, May). A U-shaped layout is used for the sewing machines and each sewing operator is cross-trained and operates two to three sewing machines (JSN, 1989, May). Operators usually work standing up and rotate jobs and tasks to maximize efficiency and productivity.

Intersection of TQM and Training

Job relevance and applicability are crucial to the success of quality training programs. The Conference Board's U.S. Quality Council, which includes Milliken and Co., reports that any quality training strategy must be aligned with critical company priorities (Troy, 1991). Training curricula and courses help employees and managers link corporate priorities first to quality concepts and techniques and then to job-related tasks, problems and work processes (Jones & Reid, 1993). The Conference Board's U.S. Quality council suggested the following key guidelines for companies initiating or reassessing quality training: set strategy, focus effort, evaluate approaches, and strive for continuous improvement.

When moving to a TQM organization, companies should set training strategy by gathering data through a top-down/bottom-up process (Troy, 1991). Performance reviews are an opportune time to assess employee training needs. Other sources of feedback include employee surveys and exit interviews. Corporate mission, goals and strategies should be factored into the

process, preferably with the involvement of top management or a senior-level training task force. Senior management involvement is crucial when initiating a total quality process and an accompanying training program. Top management's continued involvement elevates the status of the training process. In one company, members of top management are participants in the first class in each new training course; in another firm, a top executive kicks off every quality training course (Troy, 1991).

Classroom training is a primary vehicle for training delivery, but alternative approaches can be successful (Troy, 1991). Among those approaches used by U.S. Quality Council-member firms are small group workshops closely aligned to on-the-job application; live, interactive television broadcasts; and self-study materials. Often, quality training is not incorporated into other corporate training courses, but most member-firms report offering several specific courses such as quality awareness, customer sensitivity, quality improvement process, statistical process control, design of experiments and benchmarking.

Continuous improvement is the rule with quality training as with quality processes (Troy, 1991). Help from outside experts or quality gurus can be valuable when designing or improving courses or soliciting technical expertise. Council-member firms report that such input ultimately becomes an ingredient in their own customized training program (Troy, 1991). Training needs evolve as the quality process takes hold. Many member firms placed heavy emphasis on quality awareness and attitudinal change during the introductory phases of the total quality process, but now devote as much as 80 percent of their training

hours to skill building. A philosophy of employee participation, an empowerment of people to assume a broader scope of involvement and decision making, offers the promise of developing and utilizing the full potential of individuals (Dodge, 1993b). Generic competencies are essential to the success of empowerment and TQM, and these competencies can be taught and refined in training programs. According to Parry (1993) examples include: (a) analytical thinking--recognizing faulty logic, shaky premises, non-sequitur conclusions, fallacies, confusions of causation and correlation, (b) listening/organizing--clarifying, identifying inconsistencies, summarizing, storing and retrieving, confirming understanding, (c) asking questions--directive vs. open-ended, use of bias and influence, reply vs. response, using probes effectively, and (d) reinforcing behavior--uses and abuses of feedback, applying positive and negative reinforcement, affixing responsibility, performance management. These broader tools can help an employee transfer from training to work situation.

If TQM rests on empowerment, then both employees and managers must be brought into this change together; this transition must occur at the same time and pace. If either group, management or workers, arrives too far ahead of the other group, the effect will be to undermine the program (Parry, 1993). Employees may not change, are not ready for change, or question the motives behind the change. A company runs its workers through "empowering" courses in decision making, problem solving, statistical process control, team building, but may do so without bringing managers into the picture (Parry, 1993). This leaves supervisors unclear about their role and suspicious of the motive of top

management. Managers may wonder if this is really a prelude to some "downsizing" scheme that will cost the supervisors their jobs? Is it an attempt to expand each supervisor's span of control and work load? The right training is essential to the success of any empowerment effort.

Companies should consider these questions: How often do you change your total quality training programs? What percentage of your training budget is spent on quality awareness? team building? changing attitudes? quality skill building? Typically, evaluation forms are used to assess the success of individual courses. Ascertaining the overall effectiveness of quality training remains a challenge, but some current indicators include the ability of employees to apply new skills on the job, performance measurement statistics, customer and employee survey results, and employee turnover statistics (Dodge, 1993a; Nilson, 1990; Troy, 1991).

Summary

American companies, including apparel/textile product manufacturers, are attempting to respond to the twin forces of worldwide competition and increased demand for quality. In recent years, nearly every business organization has introduced a new philosophy, a new approach, or a new system to keep up with these challenges. These efforts are often substantial, requiring several years to implement. These new programs take many forms, but they all have one thing in common: they represent some degree of change, sometimes very fundamental change, in the way the organization does business. They have something else in common as well: a very high rate of failure (Mink et al., 1993; Whalen & Rahim, 1994).

Why do so many of these programs fail? Why, when so much effort, money, and good intentions are invested, do they fall short of the mark? Indications in change theory (Beckhard & Harris, 1987; Beckhard & Pritchard, 1992; Belasco, 1991; Mink et al., 1993;), organizational management literature (Berzinn, 1993; Brooks, 1980; Evans, 1991; Hodgetts, Luthans, & Lee, 1993; Logothetis, 1992; Mahoney & Thor, 1994), training guides (Bureau of Training, U.S. Civil Service Commission, 1969; Gordon, 1993; Troy, 1991), and trade study anecdotes (Black, 1994; "Firms Urged," 1994; Im, 1994; Karnes & Kanet,1994) are that training is critical for the implementation and successful sustainment of any new strategy, including TQM. TQM requires a well-educated work force and although companies invest heavily in quality awareness and statistical process control, often the training is too narrowly focused (Whalen & Rahim, 1994). Although much information is reported in trade literature about successes and failures of TQM (Whalen & Rahim, 1994), limited empirical research exists to substantiate these reports (Newall & Dale, 1990), and no previous empirical research investigates these issues in the apparel/textile product industry. The purpose of this research is to assess the current perceptions and practices regarding TQM and training within each company's organization and to develop a model for TQM training within apparel/textile product manufacturing.

CHAPTER III

Statement of the Research Problem

This chapter presents the conceptual framework of the research, which was based on the strategic concepts of change, firm-based training, and Total Quality Management (TQM) as applied business strategies. The research purpose statement, and the delineated objectives of the study are also presented. Finally, the assumptions and limitations of the research are discussed.

Models are vehicles to explain and represent theories. A model that accurately represents a theory provides a useful tool for observing, for gathering and using information, for testing and revising ideas, and for getting organized (Mink et al., 1993). The change model that guided this research was the Total Transformation Management Process (TTMP). The premise of the TTMP model is that to successfully institute change, the entire organization must be considered, with a special focus on the human side of the enterprise (Mink et al., 1993).

Conceptual Frameworks

The conceptual framework for the study was based on the concepts of organizational change, training, and Total Quality Management (TQM), all of which are widely implemented business strategies. Change theory helped the research to examine the importance of TQM and of training, and change theory

blended the concepts of TQM and firm-based training. The conceptual framework identified and explained the perspectives on the nature of planned organizational change.

Change Theory

When a company strategically decides to implement TQM, Mink et al. (1993) state that (a) the TQM change must be defined; (b) the levels and degrees of change required must be evaluated; (c) the sources of demand for change must be examined, and their power must be determined; (d) the company culture must be examined; and (e) the amount of choice involved must be evaluated. These five steps can be defined as a needs analysis. Performing a needs analysis for a human system involves comparing the current situation or present state (i.e., what is) with the desired outcome or desired future state (i.e., what will be) (Mink et al. ,1993) .

A needs analysis for a human system is usually not done formally or even consciously when there is a first-order change. First-order change deals with routine activities, issues, and problems, and are minor adjustments and improvements that do not change the system's core (Levy, 1986). Second-order change represents a fundamental shift in the organization and usually requires a needs analysis (Mink et al., 1993). Second-order change or transformational change questions an organization's basic assumptions and deals with new and unknown elements in its environment (Mink et al., 1993). To maintain such change, an organization must address issues that affect its very core. Transformation change, therefore, always involves the organization's vision, mission, values, goals, and strategies. Shifting an organization to TQM

requires this type of change. Amir Levy (1986) developed four components of second-order change: (a) the organizational paradigm, the propositions or underlying assumptions that unnoticeably shape perceptions, procedures, and behaviors; (b) the organizational mission and purpose; (c) the organizational culture, including beliefs, norms, and values; (d) the core processes, which include the organizational structure, management, throughput and decision-making processes, recognitions and rewards, and communication patterns. Levy's (1986) four components illustrate the importance of studying an organization's behaviors, mission, culture, and processes when researching an organizational change.

There are multiple models of change. The change model that was used for this research was the Total Transformation Management Process (TTMP), developed by Mink, Esterhuysen, Mink, & Owen (1993).

Total Transformation Management Process

To be successful, an organization must be able to adapt its culture to a changing environment (Mink et al., 1993). Mink et al. (1993) devised the Total Transformation Management Process (TTMP) as a conceptual model for managing change within an organization (see Figure 6). The model is grounded in the belief that anyone who would successfully institute changes in an organization must address the entire system, with a special focus on the human side of the enterprise (Mink et al., 1993). The center portion of the model illustrates the major components of the TTMP. The outer ring and its inward-pointing arrows represent the ongoing probing and reflection that take place through action research. Action research is a way of improving a process,

based on findings obtained from data gathered which that process is still going on (Mink et al., 1993).

Mink et al. (1993) integrated several proven theories into the TTMP model. The six theories are: (a) Open Organization Model, (Mink, Shultz, & Mink, 1979); (b) Concerns-Based Adoption Model (CBAM) (Hall, Wallace, & Dossett,1973); (c) Group Development Model, (Mink, Mink, & Owen, 1987); (d) Linking Pin Model (Likert, 1961); (e) Organizational Transition Model (Beckhard & Harris, 1987); and (f) Action Research Model (Argyris & Schon, 1974).

The Open Organization Model, developed by Mink, Shultz, and Mink (1979), describes the interrelationships between individuals, groups, and organizations by investigating three characteristics: unity, internal responsiveness, and external responsiveness. Unity refers to integrated wholeness or coherence, which enables adaptability. Internal responsiveness refers to openness and interchange within the system. External responsiveness refers to openness and interchange with the environment. The Open Organization Model looks at an organization as a system made up of component parts or subsystems (Mink, Shultz, & Mink, 1979). Each person and each group is a subsystem, and each one has independent meaning, but they all function interdependently. The Open Organization Model looks at the interrelationships that underlie all organizational life, between and among individuals, groups, and the organization as a whole, and describes them in terms of unity, internal responsiveness, and external responsiveness (Mink, Shultz, & Mink ,1979).

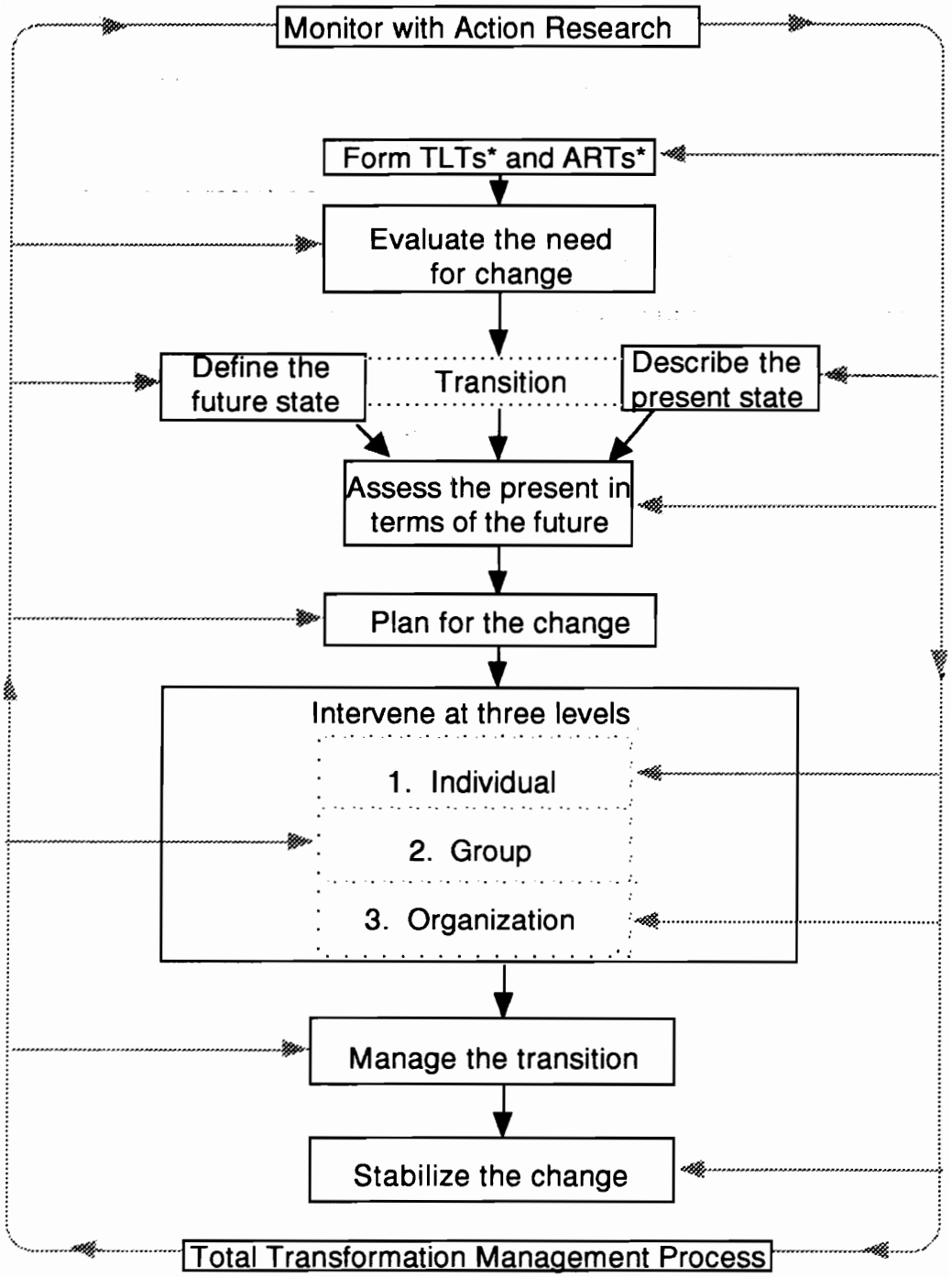

Figure 6. Total Transformation Management Process (TTMP) (adapted from Mink et al., 1993).
Note: TLT = Transformation Leadership Team; ART = Action Research Team

The Concerns-Based Adoption Model (CBAM) was developed by Hall, Wallace, and Dossett (1973). Through studies that extended over a ten-year period, the CBAM researchers determined that: (a) change is a process, not an event; (b) change is accomplished by individuals; (c) change is a highly personal experience; (d) change involves developmental growth, both in feelings and in skills; (e) change is best understood in operational terms, and; (f) the focus of facilitation should be on individuals, innovations, and the context, in that order. The Concerns-Based Adoption Model describes how organizations and individuals adopt changes. One of very few models that center on the individual, the CBAM asserts that interventions must address people first and the innovation second.

The Group Development Model, originally published in Groups at Work (Mink, Mink, & Owen, 1987), describes a five-step process by which a high level of effectiveness can be created and nurtured. The steps include (a) developing trust, (b) recognizing and accepting individual differences, (c) giving and receiving feedback, (d) solving problems, and (e) letting go of the past. This process is incorporated into the group-intervention phase of the TTMP.

The Linking Pin Model (Likert, 1961) asserts that successful managers form a link between two groups: those who they supervise and those to whom they report. The work of organizations is accomplished by interlocking groups, connected by these linking individuals. The Linking Pin Model (Likert, 1961) views individuals in organizations not merely as individuals but as members of groups. In the TTMP, the Linking Pin Model is incorporated into the unity dimension of the organization level.

The Organizational Transition Model (Beckhard & Harris, 1987) provides a five-step process for managing the transition between the present and the future. Open organizations must be flexible enough to change when needed (i.e., the future state) and yet stable enough to carry on daily operations effectively (i.e., the present state). This process is incorporated into the TTMP, in evaluating the need for change, defining the future state, describing the present state, assessing their differences, and managing the transition.

In the TTMP, this process of fine tuning is accomplished through action research (Argyris & Schon, 1974). A learning organization is continually monitoring and adjusting what it is doing, simultaneously acting and reflecting on those actions. It is represented graphically by the outer ring that surrounds all the other steps. The continual cycle of interacting, reflecting, and evaluating is critical to the change process, and should never be overlooked.

The TTMP major components are (Mink et. al, 1993): (a) forming the Transformation Leadership Team (TLT) to provide strategic direction and the Action Research Team (ART) to monitor the change process; (b) evaluating the need for change with a thorough problem analysis; (c) defining the future state and creating a dream to which people can be committed; (d) describing the present state by examining the organization's culture, values, and operating principles; (e) comparing the present and future states to generate the energy for change; (f) planning the change by determining goals and strategies; (g) intervening at individual, group, and organizational levels, while taking individual concerns and feelings into account; (h) managing the transition and

keeping the change rolling; (i) stabilizing the change to prevent reversion to the organization's former state, and; (j) monitoring the change through action research.

Forming the Transformation Leadership Team (TLT) and the Action Research Team (ART). The Transformation Leadership Team (TLT) has the job of leading the organization through transformation and sponsoring change. Usually, according to Mink et al. (1993), the TLT is made up of the organization's top management group, or at least a group that is clearly sponsored by top management and has immediate access to it. The TLT can also coordinate a multitude of needed improvement efforts (Mink et al., 1993). The Action Research Team (ART) plans and facilitates some aspect of the change process. Members of the TLT may be active in a given ART, or they may simply share information about needed projects or target dates (Mink et al., 1993). The major purpose of the the ART is to evaluate the transformation on a continual basis and to determine whether the planned results have been achieved (Mink et al., 1993).

Evaluating the need for change. Mink et al. (1993) state there is one critical step that many organizations overlook: determining whether the change is actually needed. Activities at this stage include: (a) defining the problem, (b) reflecting on the level and degree of change required, (c) identifying the sources of demand for change and determining their power, (d) examining the company culture, (e) examining the change through force field analysis, and (f)

evaluating the level of choice involved. The TLT analyzes the need for change and develops a better understanding of its potential impact in this phase of TTMP (Mink et al., 1993).

Defining the future state of the organization. Perhaps one of the basic reasons many change programs fail is that organizations do not define their future states properly, or in enough detail, or in such a way that meaning is communicated effectively to the people who are to make the change effort work (Mink et al. ,1993). Until they are presented with a more desirable scenario and given the hope of achieving it, most people tend to be satisfied with the status quo (Mink et al. ,1993). According to Saskin (1986), all visions must address three basic content areas: (a) change--either a transformative change or an incremental improvement in quality; (b) goal--the goal may seem trivial to outsiders, but it must be critically important to those inside the organization; and (c) people--a vision must center around people (both customers and employees), for only people can make a vision real. A vision must include ways to involve people, to give them responsibility, and to let then take charge of and "own" the vision. The best vision statements have two dimensions: strategic (focused on what customers want) and emotional (focused on inspiring commitment from all members in the organization) (Mink et al. ,1993).

Describing the present state of the organization. Describing the organization's present status is the most important step in initiating change (Harding, 1991; Mink et al. ,1993). This process is called a strategic audit and should include the organization's vision, mission, goals, culture and values, systems and structures. According to Mink et al. (1993), the company's

strengths weaknesses, opportunities, and threats must be carefully analyzed. This acronym (SWOT) identifies the success factors that are critical to change and to the company (Harding, 1991).

Comparing the present and future states of the organization. The differences between present state and future state can be highlighted and used as inputs for the planning process (Harding, 1991; Mink et al., 1993). Situational aspects of the organization's present state should also be documented, such as: potential problems, resistance to change, readiness and capability for change, logical work groups and the critical mass.

Planning the change. The elements of the planning process are more than a mere exercise in strategic thinking. Planning sets the direction in which the organization will go and determines how it will get there (Haymon, 1990; Hochgraf, 1990; Levy, 1986; Mink et al., 1993; Seiler, 1990). The planning process also provides an opportunity to build alignment and commitment, while empowering people to achieve (Beckhard & Harris, 1987; Mink et al., 1993; Seiler, 1990; Sterett, 1991). At this stage of the TTMP, the TLT and ART should identify the most promising strategies and consider their potential consequences carefully (Mink et al., 1993). Planning is not a one-time effort but an ongoing, never-ending process (Deane, 1993; Hochgraf, 1990; Mink et al., 1993; Seiler, 1990).

Intervening at the individual, group, and organization level. Intervening at the individual, group, and organization level, is really the heart of the TTMP (Mink et al, 1993). At the individual level, employees' stages of concern, motivation patterns, goal directedness, and self-management capacity are

examined. Using diagnostic tools, surveys, instruments, and activities, any feelings that may impede the change process are identified (Mink et al, 1993). Intervention at the group level is comprised of five steps (Mink et al, 1993): (a) developing mutual trust, (b) recognizing and accepting individual differences, (c) giving and receiving feedback, (d) solving problems, and (e) letting go of the past. For organizational intervention, the interrelationships among individual, group, and organizational levels, as well as the the internal and external environments are explored (Mink et al., 1993). Training can be formal, structured, or preplanned activities to develop positive attitudes, knowledge, and skills related to the change, during the intervention phase (Mink et al., 1993).

Managing the transition. In this phase performance standards are addressed and conditions for optimal success are identified (Mink et al, 1993). The challenge of this phase is to keep up the momentum of the change process. The discrepancy between the vision and the current state generates the energy for change (Mink et al., 1993). Training is important in this phase to remind employees at the individual, group, and organizational level that TQM actually changes the entire organizational culture (Mink et al., 1993).

Stabilizing the change. This TTMP phase focuses on ensuring the change becomes a routine part of the organization, and the underlying goal of this phase is to enable successful transformation (Mink et al., 1993). Constraints that might hamper change are identified and methods to remove or reduce them are activated, because constraints often make employees feel that certain issues are undiscussible or that certain feelings are unexpressible (Mink

et al., 1993). TQM can take years to accomplish because of the major attitudinal and behavioral shifts involved, and only internalized behaviors will stabilize the change (Mink et al., 1993).

Monitoring the change. Monitoring the change is not the final step of the TTMP; rather, it is an ongoing learning process (Mink et al., 1993). Action research provides a framework for broadening the basis of learning and participation, and, in turn, strengthening commitment to the organization's goals. In the action research process, data are collected and feed back for problem analysis and goal setting, reflection, and evaluation (Mink et al, 1993).

Firm-Based Training

Changing company systems alone will not assure continuing improvement (Mitchell, 1993; Scherkenbach, 1988). Deming's sixth point in quality is to institute training on the job (Deming, 1982). Many major American companies are recognizing the success of a quality program hinges on a continuing training and education commitment to all employees (Berzinn, 1993; "Firms Urged," 1994; Godfrey, 1993; Mitchell, 1993).

Changing to a TQM strategy, according to Mink et al. (1993), requires major behavioral and attitudinal learning. TTMP (Mink et al., 1993) has been designed to help make the transition to and stabilize during the change to a new business strategy, such as TQM. TTMP uses learning theories and concepts as its foundation and its approach to change, such as: (a) Open Organization Model, (Mink, Shultz, & Mink, 1979); (b) Concerns-Based Adoption Model (CBAM) (Hall, Wallace, & Dossett,1973); (c) Group Development Model, (Mink, Mink, & Owen, 1987); (d) Linking Pin Model (Likert,

1961); (e) Organizational Transition Model (Beckhard & Harris, 1987); and (f) Action Research Model (Argyris & Schon, 1974).

The concepts, methods and tools for modern quality management are new for most members of the company (Godfrey, 1993). Training is key to ensuring that the employee fully understands his total job, the policies of the company, and his customers' and suppliers' needs (Goldstein, 1993; Mitchell, 1993; Scherkenbach, 1988). If training is so important, why hasn't it been very effective? It has not been very effective because of a series of inhibitors. Because management has not changed to use the training, untold millions of dollars are being wasted on training (Mitchell, 1993; Scherkenbach, 1988). Training typically deepens the knowledge a person has about a subject (Mitchell, 1993). However, if management does not remove the barriers to using that knowledge, then it remains untapped (Mitchell, 1993). Many corporate training programs fail because they subject adults to the same conditions that caused them to fail in school (Gordon, 1993). Typically, classes are too large, making it difficult to individualize instruction. Little effort is made to adapt commercially produced materials or to modify teaching methods in order to address specific worker learning problems (Gordon, 1993). Many employees bring to the workplace a history of undiagnosed learning problems (Gordon, 1993).

The fallacy of too many firm-based training programs is assuming that the employee already knows "how to learn" new skills and then to apply them on the job (Goldstein, 1993; Gordon, 1993). To be effective firm-based training programs must first diagnose learning strengths and weaknesses (Goldstein,

1993; Dick & Carey, 1993; Mitchell, 1993). This diagnosis means asking specific questions and gathering anecdotal information about each adult learner (Mitchell, 1993). From this information will emerge a picture of the adult's learning needs, interests, and personal goals (Dick & Carey, 1993; Goldstein, 1993; Gordon, 1993). The instructor then uses this information to adapt instructional content and teaching methods to show the employee how to learn and apply what has been learned (Dick & Carey, 1993; Goldstein, 1993; Mitchell, 1993).

The investment in education and training is high, as reported by a number of companies (Troy, 1993). At present, one of the Baldrige winners in the Quality Council is averaging 100 hours of training per employee, per year, but expects it to grow to 150 hours within the next 5 years (Godfrey, 1993). For many companies, this investment in training and education is already producing at least 1 to 2 percent of total revenues (Godfrey, 1993;Troy, 1993).

Total Quality Management

Total Quality Management (TQM) is an organizational strategy that drives an ongoing, continuous process, one that requires radical and second-order changes in organizational design and day-to-day operations (Hodgetts, Luthans, & Lee, 1993; Levy, 1986). A company must handle major shifts in culture to become a total quality organization (Hodgetts, Luthans, & Lee, 1993; Ronen & Pass, 1994). While there are no universal criteria for identifying a total

quality enterprise, ten core values are generally recognized as characteristic (Hodgetts, Luthans, & Lee, 1993; Ronen & Pass, 1994):

1. Customer-driven. Methods, processes, and procedures are designed to meet both internal and external customer expectations.

2. Leadership. Top management fully understands the quality process (often having been through the same training given to the others) and supports the strategy through both words and deeds.

3. Full participation. everyone in the organization is provided quality training. from top to bottom, everyone has the perspective, goals, and the necessary tools and techniques for improving quality.

4. Reward system. There is a system in place that rewards quality to ensure continual support for the overall effort.

5. Reduced cycle time. There is a strong effort to reduce the cycle times, in product or service output as well as support functions, following the maxim "If it cannot be done any better, focus on doing it faster."

6. Prevention, not detection. Quality is designed in to the product or service, so that errors are prevented from occurring rather than being detected and then corrected.

7. Management by fact. Managers use data-based feedback to measure progress; intuition and gut feel are put on the back burner.

8. Long-range outlook. There is a constant monitoring of the external environment in order to answer the question: What level of quality or service will have to be provided to customers over the next 12 to 36 months, and how can this goal be attained?

9. Partnership development. The organization promotes cooperation with vendors as well as customers, thus developing a network system that helps drive up quality and hold down costs.

10. Public responsibility. Corporate citizenship and responsibility are fostered by sharing quality-related information with other organizations, and by

working to reduce negative impacts on the community by eliminating product waste generation and product defects or recalls.

Research Problem and Objectives

The findings of this research will help apparel companies institute TQM. Many apparel manufacturers are implementing TQM to stay competitive in a quality-conscious market; however, many companies are finding transition and maintenance are difficult. Apparel manufacturers need to communicate the TQM culture change through training to all of their employees. Change theory literature emphasizes that employees who are empowered and trained in TQM practices are facilitators and sustainers of the TQM philosophy (Bahis, 1992; Berzinn, 1993; Deane, 1993; Fooks, 1993; Hodgetts, Luthans, & Lee, 1993; Mink et. al., 1993; Tomasko, 1993; Zand, 1993). TQM training has not been researched, in general, nor has TQM training been researched specifically within apparel manufacturing.

The purpose of this research was to examine the intersection of firm-based training and TQM and to determine how these two business strategies are being combined and applied in North Carolina apparel manufacturing (see Figure 7). The research question identified companies' organizational culture and level of TQM involvement and developed a model of possible training approaches given a particular culture and TQM stage. The research approach was a mix of qualitative methods to achieve an accurate model of how organizational culture, TQM involvement, and training interact. Method

triangulation was used to distill organizational culture, TQM, and firm-based training findings to identify a parsimonious model of TQM implementation strategies.

The objectives of this study were:

1. (Phase 1) to examine and map the need for TQM change within each case study company through interviews and written surveys.

2. (Phase 2) to describe the future state of the organization through interviews and review of written corporate documents.

3. (Phase 3) to describe the present state of the organization through a survey.

4. (Phase 4) to analyze the planning of the change strategy and training and TQM approaches and interventions, examined in this phase through interviews.

5. (Phase 5) to examine each case study company's reaction to change through two surveys.

6. (Phase 6) to measure the overall effectiveness of the TQM change and was assessed using two surveys and a group activity.

7. (Phase 7) to identify a matrix-model for TQM implementation strategies given case study data. Results from the case studies were used to build a matrix-model outlining various TQM training programs.

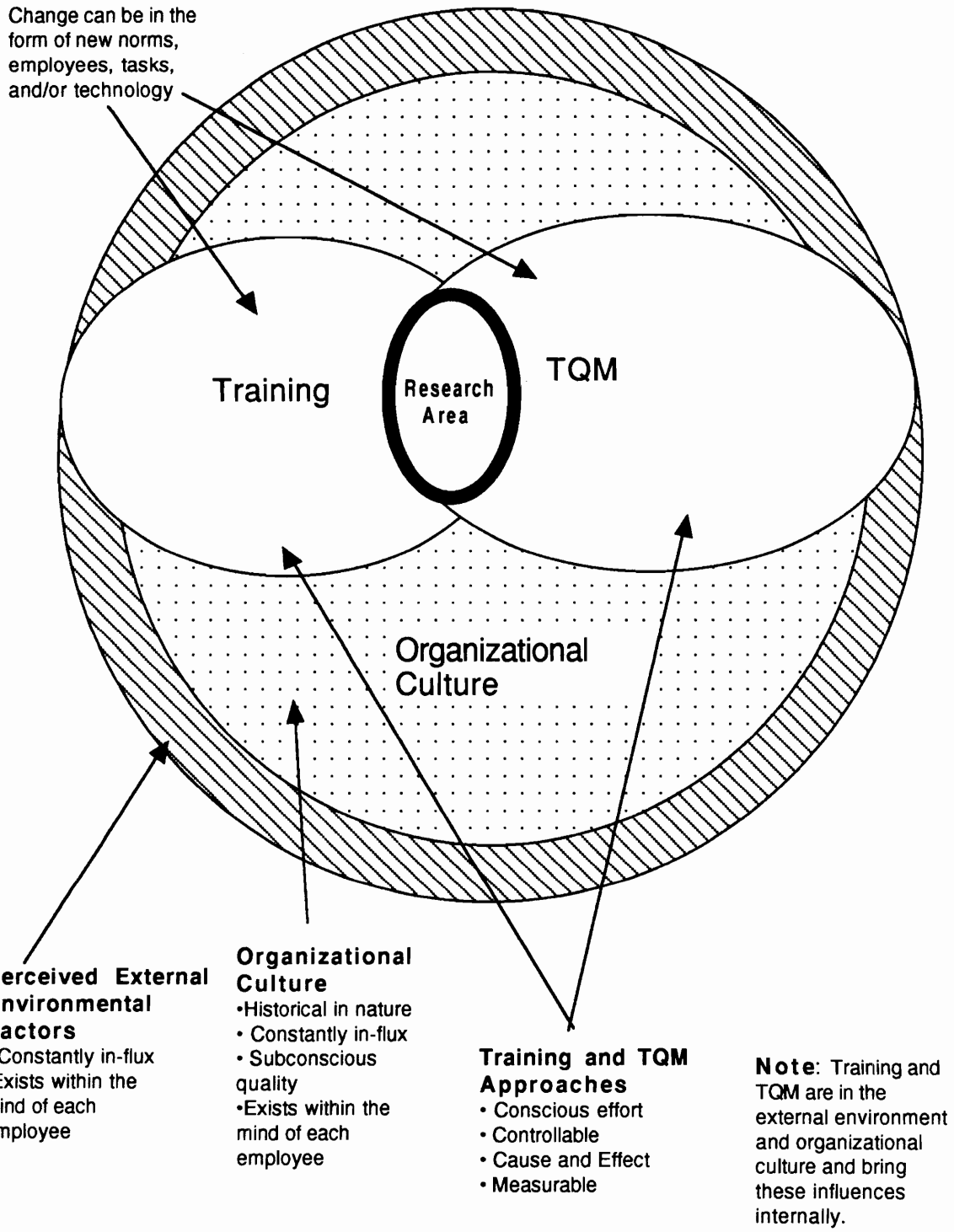

Figure 7. Venn diagram of research area. Intersection of training and TQM within the organizational behavior of several apparel/textile product manufacturers.

Conceptual Definitions

Acceptable Quality Level (AQL): The maximum percentage defective that is acceptable as a long-term process average (Pyzdek, 1991).

Benchmarking: A technique pioneered by Xerox that compares a company's performance and practices to those of leading competitors and to non-competing firms viewed as outstanding in their industry (Chandra, 1993; Spendolini, 1992; Troy, 1991).

Change: A transformation concomitant with intense learning (Mink et al., 1993). In this dissertation change and transformation are used interchangeably.

Competencies: The foundation for the building of skills. Competencies prepare an individual for many tasks and jobs and are generic and have broad applicability. Competencies have high transfer of training from classroom to workplace due to their universality (Parry, 1993).

Corporate Transformation: A process by which organizations examine what they were, what they are, what they will need to be, and how to make the necessary changes (Mink et al., 1993).

Cost of Quality: The total cost of not meeting customer requirements, including cost of appraisal, prevention, failure and lost opportunities (Troy, 1991).

Culture: A company's response to its environment (Cound, 1992).

Design of Experiments: The use of statistical tools and practical research designs to test the effectiveness of alternate approaches to a problem or project and make decisions based upon the findings (Troy, 1991).

Process Management: The techniques used to define, document, measure, and continuously improve as a series of cross-functional actions or operations. Effective management requires the establishment of ownership and accountability for each process (Troy, 1991).

Quality: The degree to which products and services satisfy the needs and expectations of the customer and the ultimate consumer (Cound, 1992).

Remedial Inspection: An inspection conducted for the express purpose of improving the quality of the product stream exiting the process (weeding out defective products) (Cound, 1992).

Skills: The educational preparation of an individual for a given task or procedure or job and are specific to certain situations. Skills are often taught without background theory or understanding, producing lower transfer to situation different from those dealt with during training (Parry, 1993).

Statistical Process Control: The use of statistical tools and techniques to examine a problem or ongoing process in order to identify its components and quantify the amount of change or stability (Troy, 1991).

Submitted Quality Level: The percent defective or defects per 100 units present in the production submitted to an inspection process (Cound, 1992).

Total Quality: A commitment to meet customer expectations by doing the right things the right way the first time and 100 percent of the time at a cost that represents value to the customer (Troy, 1991).

Total Quality Management: The integration of quality with management systems and performance indicators to cover all functions and results--cost, delivery, scheduling and benefits (Troy, 1991).

Training: The systematic acquisition of skills, rules, concepts or attitudes that result in improved performance in another environment (Parry, 1993).

Verifying Inspection: An inspection conducted to confirm the continued satisfactory operation of a process (Cound, 1992).

Assumptions

A major assumption is that all informants provided accurate and honest information during the interviewing and surveying process. The second major assumption is that employee perceptions and opinions are the most relevant data when researching organizational change and Total Quality Management involvement.

Limitations

The case study method does limit the feasible sample size. The rationale for utilizing the case study method is because data provide an explanation of complex situations. Another limitation was that the case-study sample was drawn from companies willing to participate in a detailed analysis.

CHAPTER IV

Procedure

This chapter describes the research goals, characteristics of the population studied, method of data collection, research design, measures used in the study, and analytical techniques used to test the research questions. The purpose of the research was to develop a matrix-model for TQM implementation within apparel/textile product manufacturing.

Research Goals

Most change processes, such as Total Quality Management (TQM), are focused on enhancing products and services for both customers and suppliers (Lowenthal, 1994). Lowenthal (1994) states that TQM requires incremental changes over several years, and those changes are usually small and take place within the current company culture. Two primary goals encompassed the research. The first goal was to assess the current perceptions and practices regarding TQM and training within each company's organization. The second goal was to develop an TQM implementation matrix-model for apparel/textile product manufacturers.

Exploratory interviews and surveys were conducted to learn more about the implementation of TQM and current TQM training practices in the North Carolina apparel/textile product industry. Perceived external environmental factors, organizational culture, level of TQM involvement, and TQM training strategies were measured through in-depth interviews and survey instruments.

Sample

Research Location and Population

Apparel/textile product manufacturing firms that have plants in North Carolina were visited for interviews and distribution of surveys. The North Carolina Manufacturers Register, a publication that lists manufacturing companies by their Standard Industrial Code (SIC) four digit classification, was used in this dissertation (Manufacturers' News, Inc., 1995). The first three digits are an industry group number and the fourth digit identifies a particular division (Glock & Kunz, 1990). For the purposes of this study, the following industry group numbers in the SIC 23 division of Apparel and Other Finished Products were considered (Glock & Kunz, 1990):

Industry Group Number	Description
231	Men's and Boy's Suits, Coats, and Overcoats
232	Men's and Boy's Furnishings, Work Clothing, and Allied Garments
233	Women's, Misses', and Juniors Outerwear
234	Women's, Misses', Childrens, and Infants' Undergarments
235	Hats, Caps, and Millinery
236	Girls', Children's, and Infants' Outerwear
237	Fur Goods
238	Miscellaneous Apparel and Accessories
239	Miscellaneous Fabricated Textile Products

The researcher collected data at the case study sites. The apparel/textile product manufacturer population represents multiple merchandise classifications and several organizational structures. Distinctly different segments of the apparel/textile product industry are desired for the following reasons: (a) different product markets create a wider representation of NC

apparel/textile product manufacturing, thus the ability to generalize when creating a TQM implementation matrix-model, and (b) the companies are more willing to participate in the research study, with other companies who are not their direct competition.

Criteria for Sample Selection

A purposive sample is useful when the research goals are to understand phenomena about select cases. The goal of using a purposive sample, in qualitative research, is to penetrate into the research setting as much as possible (Malhotra, 1993). In this instance, the researcher's goal was to experience the company's cultural environment and TQM activities from as many organization members' perspectives is as possible. Purposive sampling, a form of nonprobability sampling, is characterized by the use of judgment and a deliberate effort to obtain representative samples by including presumably typical areas or groups in the sample (Kerlinger, 1973).

The companies were selected based on the following characteristics: (a) size of firm based on number of employees at plant site (i.e., large [>301 employees], medium [200-300 employees], small companies [<199 employees]); (b) companies that represent three distinctly separate segments of the apparel/textile products industry (i.e., knit sportswear, dress shirts, textile products); and (c) within four different stages/phases of TQM adoption (i.e., playing, demonstrating, committed, actualized) (see Chapter 2, Measurement of TQM). Company size (i.e., number of employees) and product differences were selected to obtain differing organizational cultures, because these two characteristics affect the internal structure of a manufacturing firm (Organ &

Bateman, 1986). Final selection was based on the following characteristics: (a) companies located within reasonable driving distance, to the researcher, to allow for numerous on-site visitations; (b) companies representing non-competing apparel manufacturing segments; and (c) companies' willingness to participate in the study.

Subjects

Individuals who were interviewed and/or observed were top management, middle management, and production workers. A wide variety of employees were needed to characterize organizational culture and the level of TQM involvement. All training and quality personnel participated in at least one point in the process. At least two members from management participated in each case study. Top management is operationalized in this dissertation to encompass both plant managers and company vice presidents. This operational definition was dictated by management organization, company size, and ownership differences. Middle management encompasses production managers, training and quality managers and/or supervisors. Ten production workers participated in each case study.

A proposal was submitted and approved by the Institutional Review Board (IRB) at Virginia Polytechnic Institute and State University, because this research involved collecting data from responses by people. The IRB approved this research's procedure, survey instruments, and interview protocol. Each subject signed a Human Subjects consent form before completing a survey or participating in an interview.

Sample Selection

The researcher contacted key executive for their willingness to participate in the research project. On-site meetings were arranged that described the research goals and company involvement for the research partnership. Top management identified employees, who were involved in the TQM training process, to be a part of the research project. Sewing operators were selected by management, as long as employees had been employed for six months. The researcher suggested the following criteria to management for subject selection: (a) sewing operators who had been recognized in attendance or performance within the past year and/or (b) sewing operators within a team or work cell.

Research Design

Qualitative Research Method

Linking the three, large content areas of TQM, training, and organizational change requires the mixing of qualitative research methods. Qualitative research methods are used to understand phenomena and situations in a holistic view. An underlying assumption, of qualitative research, is that in-depth understanding of the research setting is necessary for successful research (Brannen, 1992). To control bias, the researcher attempts to understand a situation without imposing preexisting expectations nor manipulating the research setting. Qualitative research starts with an inductive approach of observing normally occurring events. The goal, of the inductive

approach, is for the researcher to synthesize general patterns in an attempt to understand normally occurring phenomena. The researcher studies the setting through direct contact and experience with the setting. Qualitative strategies are implemented to understand multiple relationships, without presuming in advance important dimensions of the study. The inductive research approach contrasts with the deductive research approach in which main variables and hypotheses are set before data collections (Patton, 1980).

Specific Qualitative Model

Qualitative research studies generally fall into two main categories: structural analysis and interpretational analysis (Tesch, 1990). This study used interpretational qualitative analysis. This focus is used when the researcher wants to discover regularities in phenomena or is striving towards the meaning of phenomena. Interpretive qualitative research emphasizes problem solving (Tesch, 1990).

Data collection for interpretative qualitative research is an on-going process of data collection and data analysis. The procedure, outlined by Tesch (1990), is as follows: (a) interviewing or observing the subjects, (b) transcribing field notes, (c) segmenting data, (d) decontextualizing data, (d) coding data, and (f) recontextualizing data. Depending on research goals, interviewing may be non structured or structured. Transcription involves rewriting the field notes, visual documents, or taped sessions into interview scripts. Segmenting the data involves thoroughly reading and highlighting areas of the transcribed text. Segmentation goals are to create units of text that makes sense by themselves, even when they are out-of-context. Each segment contains one idea. To

decontextualize is to separate relevant portions of data from its context. Patterns are identified. Data are organized according to a theoretical or conceptual framework or built from within the data. Topics are then created from the document, for example "attitude toward management". Coding the data is to create abbreviations of the topic labels the categories researched. For example, "attitude toward management" becomes "at-mang". Recontextualizing the data organizes and interprets the coded data. Everything for one code is pulled together for data analysis. Several rounds of decontextualizing may be necessary (Tesch, 1990). This study used Tesch's (1990) procedure for data collection and analysis.

Data Collection Phases: Mapping of Perceived External Environmental Factors, Current Company Culture, Training, and TQM Practices

The research study consisted of seven major phases. Phases One through Six were the *mapping of perceived external environmental factors, current company culture, training, and TQM practices*. This procedure established a baseline for the development of a matrix-model in Phase Seven. Phase Seven was *the development of a matrix-model for TQM implementation for apparel /textile product manufacture.* This procedure followed the TTMP of evaluating the need for change, defining the future state and present state of the company, planning for change, intervening at individual, group, and organizational levels, managing the transition to the change, and stabilizing the change (See Figure 6). The TQM implementation matrix-model was developed using a between-company perspective. Information contributed from all three companies was

combined to form the perspective for the TQM implementation strategies matrix-model. The combining of organizational culture and level of TQM involvement between companies was used to form a generic matrix-model of TQM implementation strategies.

Phase One--Need for Change. Phase One mapped the need for TQM change. If the company was embarking on a TQM change, Phase One data was collected from a current perspective. If the TQM change was underway or being sustained, then the need for change was obtained from a historical perspective. External environmental factors affect a company's decision to adopt a change strategy, such as TQM. Top management was surveyed for their interpretation of external forces. Perceived external environmental factors that served as a catalyst for the TQM change were measured with a instrument modified from of a trade magazine survey. Bobbin is a trade magazine that surveys readers opinions about important topics in the sewn products industry through a Quick Fax column. The Quick Fax column has seven to ten topic-centered questions and readers fax or mail their responses to Bobbin magazine, then in a future issue, supported by other topic-related articles, readers' responses are published. Appendix A, "Is Total Quality Management a Fad?", was adapted from a Quick Fax about empowerment ("Is Empowerment," 1993).

Phase One consisted of questions to provide a profile of the case study firms in terms of Standard Industrial Code (SIC), type of ownership, production methods, size (characterized by number of employees), competitive strategy,

form of worker compensation, and production worker training procedures (see Appendix B). This demographic information served as a basis to compare the case study firms.

Phase Two--Future State. Phase Two was the description of the future state of the organization. The future state of an organization can be gleamed from its vision, its mission, and external environmental factors, as perceived by top management. These future organizational plans were measured through interviews and review of written corporate documents.

The stated mission or purpose of the organization defines the products that are offered to consumers (Kilmann, 1984). The organizational mission outlines what is worthwhile to accomplish and the desire to do it well (i.e., to survive, to be profitable, or to have a large market) (Kilmann, 1984). The mission statement communicates the essential reason behind the organization's existence in the most general way (Kilmann, 1984).

Documented mission statements were stated to company executives and their personal interpretation were analyzed. If a company did not have a documented mission statement, executives were asked to personally interpret the general purpose and reason for the company's existence.

Vision statements animate, inspirit, transform mission or purpose statements into action (Bennis & Nanus, 1985). Vision statements may be as vague as a dream or as precise as a goal or mission statement (Bennis & Nanus, 1985). However, Bennis and Nanus (1985) state the an organizational vision articulates a view of a realistic, credible, attractive future for the

organization, a condition that is better in some important ways than what now exists. Organizational vision is a target that beckons (Bennis & Nanus, 1985).

Each case study's top management stated their own company's vision and their perceptions of future external environmental factors during an interview. These top management interviews gave an indication of the level of understanding of their company's vision and their ability to forecast environmental factors that might impact their company. Future external environmental factors (i.e., U.S. competition, impact of off-shore and foreign manufacturing, and labor market issues) were documented in the interviews.

Phase Three--Present State. Phase Three was the description of the present state of the organization, and a survey was used to characterize the organizational culture. The Open Organization Profile (OOP), a ninety-item survey measures the relative openness of the organization, helps to identify the significant barriers to organizational change, and determines what can be done to initiate improvements in organizational functioning (Mink et. al., 1994). The OOP measure is available from Dr. Oscar Mink, Somerset Consulting Group, Austin TX.

Mink et. al. (1994) state that and open system exhibits three qualities: (a) unit or wholeness, (b) internal responsiveness, and (c) external responsiveness. Mink et. al. (1994) define system unity as working under an integrated set of purposes, data, and competencies. A system is internally responsive if it is aware of its internal needs and is able to respond to these needs in an effective, efficient, and flexible manner (Mink et. al., 1994). A

system has external responsiveness if it is aware of the environment in which it is functioning and is able to respond to this environment in an effective, efficient, and flexible manner. These three qualities may be viewed form the individual, team/group, and the organizational levels, thus leading to the nine-window model of organizational effectiveness as shown in Figure 8 (Mink et. al., 1994).

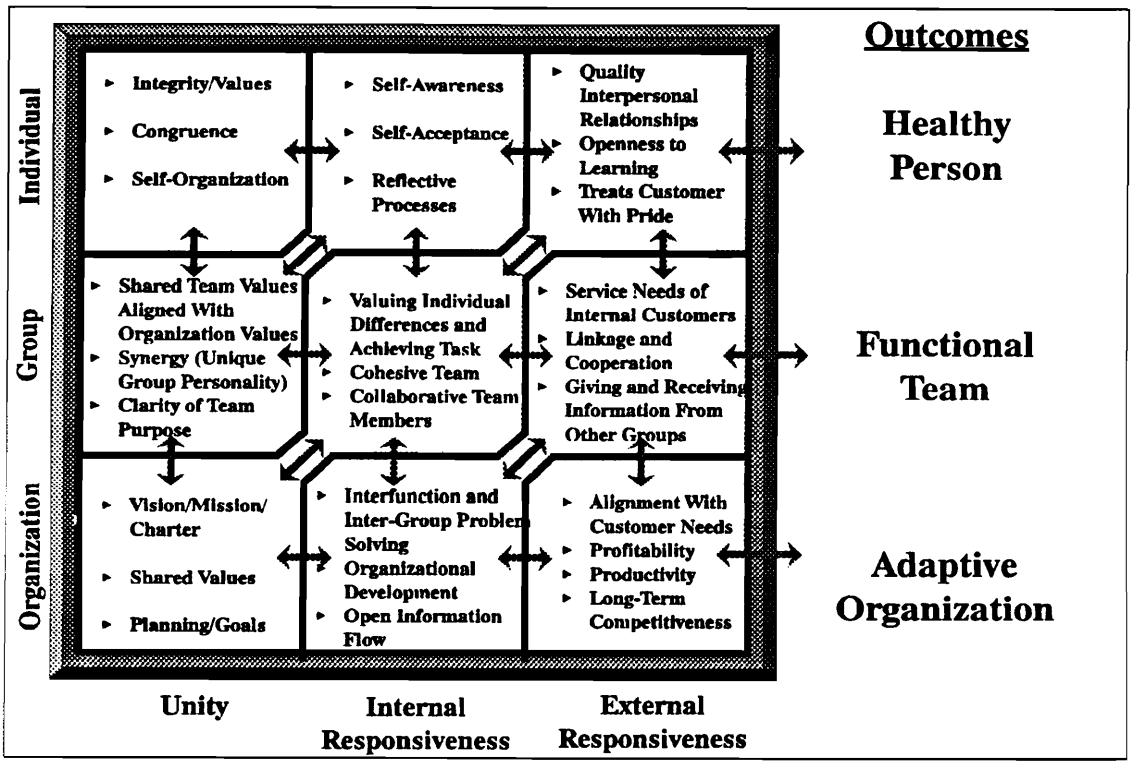

Figure 8. Nine-window model of organizational effectiveness (Mink et al., 1994).

Respondents to the OOP rate the amount of agreement or disagreement to each test item on a numerical Likert-type scale from one to nine. The OOP numerical responses range from 1= Strongly disagree to 9= Strongly agree and 0=Do not know (Mink et. al., 1994). A score of 5 indicates a neutral choice (e.g., neither agree or disagree). A score of 3 indicates disagreement and a score of 7 indicates agreement.

The OOP is a diagnostic tool for individual companies (Barbara Mink, Somerset Consulting, phone conversation, July, 1995). When examining the results, high and low scores are relative within each company. A low score indicates a place for improvement (Mink et. al., 1994). Construct validity of the OOP has been established and the instrument has been used effectively in a number of industries (Barbara Mink, Somerset Consulting, phone conversation, July, 1995). The OOP was used extensively in an Australian telephone company, Telstra. The instrument was used with over 80,000 Telstra technical and non-technical employees (Barbara Mink, Somerset Consulting, phone conversation, July, 1995). The OOP was also used by the Travelers Insurance Company (Mink et. al., 1994). Manufacturing companies that have used the OOP including Chevron and Fairchild Industries, a manufacturer of airplane component parts.

The OOP provides a snapshot view of the total system. The nine factors which are assessed by this instrument are briefly described below:

Window 1. Individual unity (basic beliefs and values) assesses the extent to which the organization has created a culture based on goals and values with which individuals identify.

Window 2. Individual internal responsiveness (self-awareness) examines the individual's awareness of its own internal processes and the quality of the human relations that serve to link the various parts of the organization.

Window 3. Individual external responsiveness (responding to others) looks at the extent to which people in the system are able to relate to one another in an effective manner.

Window 4. Team unity (team building and goal identification) evaluates the degree to which teams are working together to accomplish clearly defined goals.

Window 5. Team internal responsiveness (interpersonal relationships) assesses the extent to which interpersonal relationships are perceived to be effective.

Window 6. Team external responsiveness (cooperation) assesses the degree to which different groups work together to accomplish the shared purposes of the organization.

Window 7. Organizational unity (participation) examines the extent to which people identify with the purpose of the organization and work together to achieve this shared purpose.

Window 8. Internal organizational responsiveness assesses the degree and quality of information sharing and communication in the organization.
Window 9. External organizational responsiveness evaluates the degree to which employees perceive the organization as aware of and responsive to customer requirements and environmental threats and opportunities.
The Open Organization Profile instrument was administered to a sample of ten production workers in each case study company.

Phase Four--Planning for the Change. Phase Four was analyzing the planning of the change strategy. This phase was divided into two sections: (a) current TQM training approaches, and (b) current TQM practices and quality measurement. Top management was interviewed in structured interviews as well as management responsible for training and quality programs.

The first section of Phase Four was interviews of current company TQM training practices (see Appendix C, questions 1-4). If the case study company had made the TQM change, questions determined what are the structured TQM training programs for new employees, what retraining programs are in place for reinforcing the concepts of TQM, and how new TQM training programs are designed and assimilated into the organization. If the case study company had not yet made the change, these questions were not asked during interviews with top management and training and quality management.

Ascertaining the overall effectiveness of quality training remains a challenge, but some outcome criteria include the ability of employees to apply new skills on the job, performance measurement statistics, customer and employee survey results, and employee turnover statistics (Dodge, 1993a;

Goldstein, 1993; Nilson, 1990; Troy, 1991). Goldstein (1993) states that evaluation is the systematic collection of descriptive and judgmental information necessary to effectively decide selection, adoption, value, and modifications of various training programs. Goldstein (1993) distinguishes between formative evaluation, which is used to determine if the program is operating as originally planned or if improvements are necessary before the program is implemented, and summative evaluation, which is the evaluation of the final product with the major emphasis being program appraisal. For the matrix-model building of training effectiveness of this dissertation, summative evaluation was the focus of questions #5 through #9 (see Appendix C), using Goldstein's summative evaluation guidelines of: (a) has a change occurred; (b) can changes be attributed to the training program; (c) will the same change occur for new training participants; (d) is it likely that similar changes would occur in a different organization, and (e) what is the company employee turnover rate. Both top management and training/human resource management participated in these structured interviews.

The second section of Phase Four is TQM involvement questions that was directed to both top management and quality management personnel. Questions determined how the responding companies defined both quality and TQM, how they measured quality, who was responsible for quality within their organization, and what role quality played in their business policies and philosophies.

According to Cupello (1994) there are four levels of TQM maturity: playing (P), demonstrating (D), committed (C), and actualized (A). The PDCA

model is similar to Bhote's (1991) four stages of innocence, awakening, commitment/implementation, and world class. The playing (P) level of maturity refers to those organizations that are playing with or just beginning the TQM process to see whether they really want to get involved (Cupello, 1994). The demonstrating (D) level refers to those organizations that have demonstrated meaningful improvement using the TQM process (Cupello, 1994). Cupello (1994) states that the types of improvements consist of initial process improvements derived from the efforts of cross-functional teams or quality circles. The committed (C) level refers to those organizations that are committed to the degree that employees to the TQM process. Employees at the committed (C) level acknowledge and identify a change in organizational culture that is attributable to the TQM process (Cupello, 1994). The actualized (A) level consists of those organizations that have actualized total quality and are world-class quality organizations (Cupello, 1994). They tend to be Baldrige Award winners or are acknowledged as quality organizations in the business world (Cupello, 1994). Cupello (1994) states that these maturity levels can be used to determine what a company measures and when these measurements are implemented. The maturity levels (PDCA) can be combined with the four types of measures (control, screening, planning, and diagnostic) to form a measurement-maturity matrix (Cupello, 1994). Figure 9 contains the measurement-maturity matrix. The column headings refer to an organization's TQM maturity level (Cupello, 1994). The row headings are the four categories of measurement (Cupello, 1994).

Type of Measurement	Level of TQM maturity			
	P	D	C	A
Diagnostic	TQM assessment	Customer and employee surveys	Supplier assessment	All four from P, D, & C
Planning (senior managers)		Strategic targets *internal *existing data	Strategic targets *external *new data	Paradigm shifts *new business * new customers
Screening (middle mangers)				Quality function deployment
Control (workers)				Process capability targets for key products and processes

Figure 9. Measurement-Maturity Matrix (Cupello, 1994)

The P column shows that the only appropriate new form of company performance measurement that should be undertaken during this stage is a diagnostic TQM self-assessment, so that the TQM process is not sabotaged by demanding immediate and visible proof of improved organizational performance (Cupello, 1994). In the D column, two diagnostic tools are introduced: customer surveys and employee surveys. Customer surveys are essential to establish cross-functional teams that are truly responsive to customers' needs (Cupello, 1994). Employee surveys provide senior

management with the insights necessary to empower employees and improve the culture (Cupello, 1994). Comparison to internal, self-generated strategic visions are appropriate at this stage (Cupello, 1994). Supplier assessments emerge in column C, because the company is ready to identify defects in products and services coming from outside the corporation (Cupello, 1994). Senior managers focus on external sources for strategic insight and aide with long-term planning (Cupello, 1994). In column A, companies are heavily engaged in all kinds of diagnostic measurement. Executives are constantly envisioning new businesses and new customers; middle managers are using quality function deployment, design of experiments; and workers have process capability targets for all key products and processes (Cupello, 1994). The measurement-maturity matrix was used to collect level of TQM involvement in the three case study organizations. The researcher placed each case study in the Cupello's (1994) Measurement- Maturity Matrix by observing and interviewing top management, quality management personnel, and production workers.

Phase Five--Organizational Reaction to Change

Phase Five examined each case study company's reaction to change. The companies that thrive are those that thoughtfully embrace change so that they can manage it to their competitive advantage (Mink et al., 1993; DeMeuse & McDaris 1994). Involving individual employees in the change is critical to the TTMP process as well as the successful transition to TQM adoption (Mink et al., 1993). Phase Five needed to measure individual employees' reactions to change and combined this data into an additive characterization of how the

organization reacts to change. Phase Five measured some of the underlying behavioral and attitudinal changes that are occurring within the organization. Along with teaching employees how to use various tools for change, such as problem-solving strategies, trainers must help employees make sense of and master their emotional responses to change. By doing so, trainers help engage all parties as supportive stake holders in the process of change. DeMeuse and McDaris (1994) developed a Reaction-to-Change (R-T-C) Inventory (see Appendix D) that can be used as a stand-alone exercise or as part of an organizational change seminar. The authors state that the R-T-C Inventory can help employees at all levels discover how they perceive and react to change. The inventory also serves as a diagnostic instrument. By exploring how individual employees react to changes in the workplace, the R-T-C Inventory casts light on how the organization as a whole responds to change (DeMeuse & McDaris 1994) .

In general, a person reacts to change in one of three ways: accepting and supporting change; complying with change in action but not in spirit; or resisting change, either passively or actively (DeMeuse & McDaris, 1994) . The words are listed randomly, but each falls into one of three categories: words that conjure positive images of change (such as "fun" and opportunity'), words that depict change negatively (such as "anxiety" and "upheaval"), and words that cast change in a neutral light (such as "different" and "transfer"). All positive words have a value of +10. All negative words have a value of -10. All neutral

words have a value of zero. Individual scores can range from a low of -100 (if a person circled only all 10 negative words) to +100 (if a person circled only all 10 positive words).

The R-T-C Inventory has been tested with 224 employees in three organizations--a regional hospital, a state bank, and a county government (DeMeuse & McDaris, 1994). In these tests, more participants seemed inclined to support or accept change than to resist it. The strong showing might reflect the fact that more managers than non managers participated in these tests. Mangers more often introduce and champion change. In all three cases, the R-T-C Inventory prompted participants to suggest ways that their organizations could do a better job of fostering change (DeMeuse & McDaris, 1994) . DeMeuse and McDaris (1994) also give guidelines for scoring the R-T-C Inventory and questions to prompt a follow-up discussion. The R-T-C Inventory was administered to top management, middle management, and ten production workers of each case study company.

The Employee Opinion Survey (EOS) was also used in Phase Five because it determines and rates employees' attitudes and perceptions about an organizational change (Mink et. al., 1994). The EOS measure is available from Dr. Oscar Mink, Somerset Consulting Group, Austin TX.

The EOS was first developed as a tool to assist several organizational clients diagnose what needed to be done to successfully implement a total quality program. In almost every discussion of total quality, the importance of the human resources dimension to the success of the quality is specifically acknowledged. For example, the Malcolm Baldrige National Quality Act defines

four aspects of human resources that must be nurtured if a company is to qualify for the Malcolm Baldrige Award, which are: (a) recruitment and selection, (b) training and development, (c) rewards and compensation, (d) employee morale and quality of work life.

The EOS allows for an understanding of employee perceptions of important organizational attributes. Internal and external change agents are better equipped to make the kinds of changes that will yield a payoff to the organization.

Organizational context, job, and work characteristics affect both the quantity and quality of the output employees produce and the degree to which they are committed to the organization. Understanding how employees feel about their performance and the job and work characteristics which affect performance can be an important tool for managers as they strive to create work environments that maximize the potential of individuals, teams, and organizations to accomplish important organizational , team, and individual goals and objects.

Respondents to the EOS rate the amount of agreement or disagreement to each test item on a numerical Likert-type scale from one to nine. The EOS numerical responses range from 1= Strongly disagree to 9= Strongly agree and 0=Do not know (Mink et. al., 1994). A score of 5 indicates a neutral choice (e.g., neither agree or disagree). A score of 3 indicates disagreement and a score of 7 indicates agreement.

The EOS is a diagnostic tool for individual companies (Barbara Mink, Somerset Consulting, phone conversation, July, 1995). When examining the

results, high and low scores are relative within each company. A low score indicates a place for improvement (Mink et. al., 1994). Construct validity of the EOS has been established and the instrument has been used effectively in a number of industries (Barbara Mink, Somerset Consulting, phone conversation, July, 1995). The EOS was used extensively in an Australian telephone company, Telstra. The instrument was used with over 80,000 Telstra technical and non-technical employees (Barbara Mink, Somerset Consulting, phone conversation, July, 1995). Manufacturing companies that have used the EOS including Chevron and Fairchild Industries, a manufacturer of airplane component parts.

The Employee Opinion Survey (EOS) contains eighteen factors that can be divided into two main categories: Job performance dimensions and job characteristics dimensions (Mink et. al., 1994). The factors are as follows (Mink et. al., 1994):

Job Performance Dimensions

1. The extent to which employees are committed to the organization
2. The extent to which employees identify with the organization
3. Employees' morale or overall feelings about the organization
4. The norms governing interactions between people in the organization
5. Employees' satisfaction with their job output

Job Characteristics Dimensions

6. Employees' satisfaction with their jobs
7. Employees' satisfaction with their compensation and benefits
8. Employees' satisfaction with the design of their jobs

9. Employees' attitudes about the work environment
10. The clarity of organizational goals and expectations
11. Employees' attitudes about the quality and quantity of supervision and organizational leadership
12. Employees' attitudes about the organization's performance review and evaluation processes
13. Employees' attitudes about career and professional growth
14. Employees' attitudes about the quality of communications
15. Employees' attitudes about serving the customer
16. Employees' feelings about the availability of needed tools and resources
17. Employees' feelings about the quality of team work in the organization
18. Honesty of employee responses to the survey

According to Mink et. al. (1994), the EOS can be used to promote, encourage, and support organizational development; employee involvement in the change process; and continuous improvement efforts in which data are used to diagnose needs and to serve as benchmarks for monitoring change efforts. The EOS was administered to ten production workers in each case study.

Phase Six--Overall Change Effectiveness

Phase Six measured the overall effectiveness of the TQM change, which was assessed in an indirect manner. According to Steers (1979) many problems arise in determining organizational change effectiveness. Many functional areas within an organization have different impressions of what TQM

effectiveness is such as: high profits, high return on investment (ROI), quality of apparel produced, number of new products produced, job security, wage levels, and job satisfaction. A survey from Kincade (1989) was adapted and used to assess TQM effectiveness through the various functional definitions and measures of change: increased profits, increased ROI, increased quality, increased product number, increased job security, increased wages, and increased job satisfaction (see Appendix E). The TQM effectiveness survey has a score range of -2= decreased greatly, -1= decreased slightly, 0=stayed the same, 1=increased slightly, and 2=increased greatly. For example, these scores were chosen by completing the following phase , "Since the adoption of our quality focus, profits have _____". The TQM effectiveness survey was administered to top management of the case study companies.

Force field analysis was also used in Phase Six. Force field analysis, developed by Kurt Lewin (1951), is the basic outline of the change process and can be applied when defining the change, when analyzing the change, and when planning interventions. Lewin's (1951) theory of force field analysis views the status quo within an organization not as a static structure but as a dynamic equilibrium created by opposing forces that he calls driving and restraining forces. Driving forces initiate change and keep it moving. Restraining forces restrain the driving forces or work against any change in equilibrium. Force Field Analysis assists in analyzing a change effort through the identification of driving and restraining forces of a company. This instrument helps to identify forces that contribute to the success or failure of organizational change (Mink, et. al, 1993).

Force Field Analysis was used with case study top management. There are three values of force field analysis. First, it is open ended about the kinds of individual and organizational factors that can be included as driving and restraining forces. Second, it avoids univariable analysis by using a brainstorming technique that encourages people to view their situation as a field of mutual, interacting causal factors. Third, although open ended, it encourages movement from the theoretical to the practical, from diagnosing to selecting specific strategies and intervention tactics. It encourages clarity, specificity, and thoroughness, and it aids communication. This instrument is equally useful in diagnosing small units and their everyday problems, as well as large change efforts for entire organizations (Mink, et. al, 1993). The force field analysis measure is available from Dr. Oscar Mink, Somerset Consulting Group, Austin TX.

TQM effectiveness was also measured with another adapted survey, Needs of the Organization Survey (Mink, et. al., 1979) which was administered to both top management and middle management representatives of case study companies in a written format and was a verbal activity with groups of the ten production workers from each case study company. "What happens next with quality and quality training?" is the title of this open-ended (i.e., complete-the-sentence) instrument (see Appendix F). This instrument measures present level of TQM effectiveness, through projection techniques, by having employees improve on present TQM status and predict the next growth phase of TQM.

Phase Seven--Matrix-Model Building

In the last phase, training and TQM intervention data was combined with organizational culture classifications, and a matrix-model was formed. Currently, there is no model for TQM implementation for the apparel industry. The goals of Phase Seven were to identify possible TQM implementation strategies in apparel/textile product manufacturing and aide in deciding the following TQM training approach questions. The matrix-model was formed from compiling the information from Phases One through Six.

The Phase Seven procedure, outlined by Tesch (1990), was as follows: (a) interviewing or observing the subjects, (b) transcribing field notes, (c) segmenting data, (d) decontextualizing data, (d) coding data, and (f) recontextualizing data. Interviewing in all the Phases was structured. Transcription involves rewriting the field notes, visual documents, or taped sessions into interview scripts. Segmenting the data involves thoroughly reading and highlighting areas of the transcribed text. Segmentation goals are to create units of text that makes sense by themselves, even when they are out-of-context. Each segment contains one idea. To decontextualize is to separate relevant portions of data from its context. Patterns are identified. Data are organized according to a theoretical or conceptual framework or built from within the data. Topics are then created from the document, for example "attitude toward management". Coding the data is to create abbreviations of the topic labels the categories researched. For example, "Attitude toward management" becomes "at-mang". Recontextualizing the data organizes and interprets the coded data. Everything for one code is pulled together for data

analysis. Several rounds of decontextualizing may be necessary (Tesch, 1990). matrix-model building, Phase Seven, used Tesch's (1990) procedure for data collection and analysis.

Table 2. Apparel/Textile Product Manufacturing TQM Training Model

	Company A	Company B	Company C
Need for Change (Management Perspective)			
Future State (Management Perspective)			
Internal Environment			
External Environment			
Present State (Employee Perspective)			
Planning for Change			
TQM Training			
TQM Involvement			
Reaction To Change (Management Perspective)			
(Employee Perspective)			
Effectiveness of Change (Management Perspective)			
(Employee Perspective)			

CHAPTER V

Results and Discussion

Introduction

Purpose Statement

The purpose of this research was to examine the intersection of firm-based training and Total Quality Management (TQM) and to determine how these two business strategies are being combined and applied in North Carolina apparel/textile product manufacturing. The research question identified companies' organizational culture and level of TQM involvement and developed a model of possible training approaches given a particular organizational culture and TQM stage. The research approach was a mix of qualitative methods to achieve an accurate model of how organizational culture, TQM involvement, and training interact. Two primary goals encompassed the research. The first goal was to assess the current perceptions and practices regarding TQM and training within each company's organization. The second goal was to develop a TQM implementation model for apparel/textile product manufacturers.

Methodology

Exploratory interviews and surveys were conducted to learn more about the implementation of TQM and current TQM training practices in the North Carolina apparel/textile product industry. Perceived external environmental factors, organizational culture, level of TQM involvement, and TQM training strategies were measured through in-depth interviews and survey instruments.

Interpretive qualitative research was used in this dissertation. The qualitative research procedure was the following: (a) interviewing and/or observing the subjects. (b) transcribing field notes, (c) documenting data, (d) decontextualizing data, (e) coding data, and (f) recontextualizing data.

Demographics

Companies. The companies were selected based on the following characteristics: (a) size of firm based on number of employees at plant site (i.e., large [>301 employees], medium [200-300 employees], small companies [<199 employees]); (b) companies that represented three distinctly separate segments of the apparel/textile products industry (i.e., knit sportswear, dress shirts, and fabric bags); and (c) companies within the four different stages/phases of TQM adoption (i.e., playing, demonstrating, committed, actualized) (see Chapter 2, Measurement of TQM). Company size (i.e., number of employees) and product differences were selected to obtain differing organizational cultures, because these two characteristics affect the internal structure of a manufacturing firm (Organ & Bateman, 1986). Final selection was based on the following characteristics: (a) companies located within reasonable driving distance, to the researcher, to allow for numerous on-site visitations; (b) companies representing non-competing apparel manufacturing segments; and (c) companies' willingness to participate in the study.

Company A is a Strategic Business Unit (SBU) of a large volume apparel manufacturer. The company is owned by a domestic public corporation. The SBU produces a basic product, with vertical manufacturing being owned and operated by the parent company. The products sold are a durable, high price

product, with high brand recognition. The company is completely organized by team sewing, modeled after Toyota Sewing Management System (TSS). TSS is characterized by team sewing and the team is manufacturing one complete garment style or product at a time (JSN, 1989, May). An U-shaped layout is used for the sewing machines and each sewing production worker is cross-trained and operates two to three sewing machines (JSN, 1989, May). Production workers usually work standing up and rotate jobs and tasks to maximize efficiency and productivity (JSN, 1989, May). This company also has an organized quality program and a corporate-directed vestibule training program on the premises.

Company B is a high volume textile product manufacturer. The company is family owned and operated with manufacturing and warehousing within a three block radius. The company has no formalized quality program, but has high brand recognition and a quality reputation among its customers. Training is performed on-the-job by fellow sewing production workers, head sewers, and supervisors.

Company C is a Strategic Business Unit (SBU) of a mid-volume apparel manufacturer. The company is owned by a domestic public corporation. Corporate headquarters, from executives to administrative staff, have been TQM trained. The SBU currently manufactures two basic products and one seasonal product. The plant manager and the plant's industrial engineer have been trained corporately in TQM philosophies in Fall of 1994, but neither person has applied their training, because it has not been introduced at the plant level. TQM training of other plant employees will be done by corporate trainers.

Training of new employees and new tasks is currently performed on-the-job, by fellow sewing production workers, and supervisors.

Subjects within each case study. The researcher contacted key plant managers for their willingness to participate in the research project. On-site meetings were arranged that described the research goals and company involvement for the research partnership. Plant managers also gave a plant tour and described manufacturing, training, and quality procedures to the researcher. Top management, training and quality management, and company-selected production workers participated in the study. Differing classification levels of employees were needed to characterize organizational culture and the level of TQM involvement. Tables 3, 4, and 5 show the subjects interviewed and surveyed in case study companies A, B, & C, respectively.

Personnel among the three case studies had different job titles because of varying company size, management structure, and job responsibilities. All training and quality personnel participated in at least one point in the data collection process. At least two members of management participated within each case study site. Ten sewing production workers participated in each case study. Sewing production workers were selected by management, with the researcher stipulation that each of the ten sewing production workers had been employed for at least six months. The researcher suggested the following criteria to management for subject selection: (a) sewing production workers who had been recognized in attendance or performance for the past year and/or (b) sewing production workers within a team or work cell.

Company A has a very streamlined management staff. One manager oversees the entire training program and quality assurance program. Within the last three years, office staff has been reduced drastically. Company A analyzed their business and decided they only needed a few office jobs performed (i.e., phones answered) and reduced office employees by 80 percent. Many offices and reception areas are empty of both staff and office furniture. Company A works in self managed teams that schedule their own work hours. Production workers within teams have authority to decide who remains on the team. Production workers have the authority to pull, send back, or reject garments for quality or other reasons. Additionally, an incentive based pay system relies on quality output, zero safety incidence, on-time product line customer service, and 100% production goals within the team.

Table 3. Company A Subjects Interviewed and Surveyed

Title	Number interviewed and surveyed
Plant Manager	1
Training/ Quality Assurance Manager	1
Production Workers	10

Company B has a very small management staff with each manager having many responsibilities. The administrative vice president coordinates the company's functions and future directions. Because of its small work force, the

manufacturing vice president serves as a training and personnel manager for sewing production workers as well as organizing manufacturing work flow. Production workers work in self-managed teams and have the authority to pull, send back, or reject product for quality or other reasons.

Table 4. Company B Subjects Interviewed and Surveyed

Title	Number interviewed and surveyed
Administrative Vice President	1
Manufacturing Vice President	1
Production Workers	10

The Company C is traditional division-of-labor organization. Quality principles are being adopted by corporate headquarters, and the plant manager and industrial engineer have been quality trained from corporate headquarters. The remaining management and supervisory staff and sewing production workers will be quality trained at the plant location at some point in the future.

Table 5. Company C Subjects Interviewed and Surveyed

Title	Number interviewed and surveyed
Plant Manager	1
Production Manager	1
Industrial Engineer	1
Quality Assurance Supervisor	1
Production Workers	10

Additional demographic information consisted of questions to provide a profile of the case study firms in terms of type of manufactured product (SIC classification), type of production method used, size (characterized by number of employees), competitive strategy, form of worker compensation, and production worker training procedures (see Appendix 2). This demographic information served as a basis to compare the case study firms and is presented in a cross-case comparison format (see Table 6).

Table 6. Demographic Information Comparison of Case Study Companies A, B, and C.

Demographic Information	Company A	Company B	Company C
SIC code	2329*	2394*	2321*
Production	stand-up & sit-down team sewing	sit-down & stand-up progressive bundle and traditional bundle	sit-down method used progressive bundle (75%) and UPS** (25%-Eton)
Size (# of employees)	330	120	210
Competitive strategy	Providing product closer to the season; responsive to reorders; cost pressures; lower cost product manufactured off-shore; team manufacturing allows more flexibility	Price, honest reputation, family operation reputation, maintaining good customer relations	Automating to reduce cost/dozen to compete with off-shore manufacturing
Form of worker compensation	Group incentive pay based on quality, safety & production or 4-week average earnings, whichever is greater	hourly pay with attendance bonus	UPS** base plus piece work; Progressive bundle incentive (variable base rate)
Training of new employees	Vestibule training; cross trained as a team and report to production floor as a team. Inter personal training.	Co-worker training	Co-worker training
New task employee retraining	Eight week training curve; Supervisor and/or trainer works with team. Workers established retraining method	Co-worker and supervisor retraining	Co-worker retraining
New philosophy employee retraining	Management training, Supervisory training, and training of small groups of production workers	Company meeting, supervisor reinforcement	Corporate training staff, Monthly employee relation meeting
Poor performance retraining	Team identify performance problem to supervisor, supervisor helps employee & team problem solve	Initial retraining, or transfer to a simpler task	3 point warning system, goals set, retraining

Note: * SIC code 2329 - Clothing--men's & boys'; * SIC code 2394 - Canvas & related products; * SIC code 2321- Shirts--men's & boys'; **UPS = Unit Production System, automated overhead parts delivery system

Findings from Phase One

Phase One examined and mapped the need for TQM change within each case study company and was measured through a written survey. External environmental factors affect a company's decision to adopt a change strategy, such as TQM. Top management was surveyed for their interpretation of external forces. Perceived external environmental factors that served as a catalyst for the TQM change were measured with an instrument modified from of a trade magazine survey. Bobbin is a trade magazine that surveys readers opinions about important topics in the sewn products industry through a Quick Fax column. The Quick Fax column has seven to ten topic-centered questions and readers fax or mail their responses to Bobbin magazine, then in a future issue, supported by other topic-related articles, readers' responses are published. Appendix A, "Is Total Quality Management a Fad?", was adapted from a Quick Fax about empowerment ("Is Empowerment," 1993).

Company A Phase One Findings

The plant manager in Company A expressed the belief that TQM is not a management fad, however, he responded that industry leaders do not practice TQM methods and philosophies all the time. The company A plant manager stated that the company is encouraging adoption of quality throughout the organization. The company A plant manager stated the following reasons that his company switched to a quality focus: (a) customers dictated the change, (b) upper management believed in the change, and (c) upper management believed a quality focus leads to more efficient operations and greater productivity and profitability. The single most important factor for making quality

production work, according to plant manager A, was executive management commitment. Company A has offered quality training at the management, supervisory, and production worker levels. Quality training was first obtained at the upper management level through attending seminars and outside reading. Plant personnel at Company A was trained through corporate-directed, in-plant seminars.

Company B Phase One Findings

The administrative vice president in Company B believed that TQM is not a management fad and he believed that industry leaders do practice TQM methods and philosophies all the time. The Company B administrative vice president stated that the company is encouraging adoption of quality throughout the organization. Company B administrative vice president stated the following reasons that his company switched to a quality focus: (a) organizational culture needed it, and (b) upper management believed a quality focus leads to more efficient operations and greater productivity and profitability. According to Company B administrative vice president, the single most important factor for making quality production work was clear vision and purpose. Company B has offered quality training at the management, supervisory, and production worker levels. Quality training was first obtained at the upper management level through reading in topic areas such as safety, quality, and employee issues.

Company C Phase One Findings

The plant manager in Company C believed that TQM is not a management fad, however, he responded that industry leaders do not practice TQM methods and philosophies all the time. The Company C plant manager

stated that the company is encouraging adoption of quality throughout the organization. The Company C plant manager stated the following reasons that his company switched to a quality focus: (a) upper management believed in the change, (b) organization was not running smoothly from a management perspective, and (c) organizational culture needed it. According to plant manager C the single most important factor for making quality production work was executive management commitment. Company C has offered quality training at the upper management, corporate staff, and plant management levels . Quality training was first obtained at the upper management level through outside seminars. Plant management at Company C was trained through corporate-directed seminars at corporate headquarters.

Discussion of Phase One Findings

Mink et. al. (1993) state there is one critical step that many organizations overlook: determining whether the change is actually needed. All three case studies' top management realized that a quality change was required due to their specific company's organizational needs. Companies A and B plant management stated one reason for the change was the business knowledge that a quality focus leads to greater efficiency, productivity, and profitability. This reason may be due to the fact that both Companies A and B have seen the financial rewards that come with a quality focus, either through strategic planning or actual financial gains. Companies A and C upper management believed in a quality change. This reason may be due to the fact that upper management is very involved with plant operations, both in proximity and communications. Company A plant manager stated that customers dictated the

quality change. This reason relates the importance of the customer in an organization's quality program as stated by Chandra (1993), DiPietro (1993), Hodgetts, Luthans, and Lee (1993), and Ronen and Pass (1994). Companies B and C top management stated that their organizational culture needed the quality change and Company C top management also stated that the organization was not running smoothly from a management perspective. These two reasons agree with Hodgetts, Luthans and Lee (1993), and Levy (1986) who report that a quality focus is a radical change and an organizational strategy that requires continuous improvement. In summary, all three case studies had appropriate reasons for why a company change was needed for their particular organization, even though the three case studies differed in product produced, production method used, company size, competitive strategy, worker compensation, and training practices.

Findings from Phase Two

Phase Two was the description of the future state of the organization. The future state of an organization can be gleamed from its vision, its mission, and external environmental factors, as perceived by top management. These future organizational plans were measured through interviews and review of written corporate documents. The mission statement communicates the essential reason behind the organization's existence in the most general way (Kilmann, 1984). Bennis and Nanus (1985) state that an organizational vision articulates a view of a realistic, credible, attractive future for the organization, a condition that is better in some important ways than what now exists.

Mission Statement of Company A

Rule #1: If we don't service our customers someone else will.

Interpretation. Company A has a group or team incentive pay that has four components that are displayed in each team's area in a color-coded plexiglass flag system. A red flag designates safety, and a yellow flag designates high production. A blue flag measures customer service. A green flag designates world class quality. According to plant manager A, the definitions or requirements to fly a flag are as follows: (a) Zero safety incidence which is based on a random, anonymous safety check, such as safety shields down on the machine during operation; (b) 100% production flag which is based on company established production goals for the product the team is manufacturing; (c) World class quality which is based on O% acceptable quality level (AQL) of the week previous, and (d) Customer service which is based on fulfilling a customer's order on time and is measured by, not only manufacturing it on time, but also on the success of the distribution center shipping the product out. Customer service is based on the whole company working together and filling orders for a particular product. If four different types of garments are being manufactured at Company A in one week, then each of the four product lines are separately evaluated at week's end as to whether orders were filled in a timely manner. Customer service incentive pay replaced attendance incentive pay in September 1994. Company A discovered that attendance incentive pay was not a positive motivator in a group setting, as it affected the whole team's

pay for one employee's sick child, or someone's car breaking down on the way to work. Company A found that teams work harder and do more jobs when someone is out to make up for the missing team member.

Attendance based incentive pay was not motivating the teams in a positive manner and management got employee input for what would replace attendance based incentive pay. Company A management team felt that serving the customer is the company's mission and the importance of that mission should be reflected in the incentive pay structure of its employees.

Mission Statement of Company B

Company B plans to increase business in current market, as well as expand product line in order to better serve their customers.

Interpretation. Company B's relationship with customers is very critical. Company B strives to have a good relationship with its customers, both in a business relationship as well as a social relationship. Familiarity with the customer is critical to business within the textile product industry. Expansion of product line is also critical to create excitement for a new product and new products may also influence customers to place orders for basic goods with Company B.

Mission Statement of Company C

To implement a TQM program that is defined as a paradigm change fostering a corporate culture which focuses on exceeding customer expectations through improving employee involvement.

Interpretation. The need to organizationally implement TQM came from the following four forces or factors: (a) A more competitive business

environment requires greater focus on quality to be successful. It is necessary to promote customer-supplier relationships; (b) A quality program improves decision making processes by increasing participation, and developing group problem solving skills. Employee empowerment and training increase participation and competency; (c) A quality program defines and improves processes/procedures to minimize waste and increase productivity and quality improves consistency with standard processes; (d) A quality program improves morale and job satisfaction and mutual respect of all Company B employees. Commitment from management is essential.

Vision Statement of Company A

Our goal: A world-class manufacturer providing defect free product as defined by our most discerning customer.

Interpretation. At the plant level, Company A focuses on world class quality and customer service using the flag system at each team's work area, providing the team has earned the right to fly one or both of the flags, using company performance-based standards. The quality flag is based on zero defects for the week and the customer service flag is based on successful filling of orders for the week. Company A is quality serious and believes that it takes just as much time to do it right as it does to do it wrong. Company A plant manager has internalized company philosophy so completely that in interviews company policies and goals were always stated in terms of how they impact the plant's production workers. Plant manager A believes they will continue to produce apparel using team manufacturing and will strive to become a world class manufacturer.

Vision Statement of Company B

Biggest, best supplier of their textile product in the U.S. as well as to expand to international trading.

Interpretation. To continue to grow and provide a difference between Company B and its competitors. Company B plans to adopt a plan of continuous improvement and the administrative vice president will initiate changes throughout the company. Every textile product manufacturer has the same access to raw materials, which leads to similarity of product among competitors. Company B plans to differentiate itself in the market by competing on price, new product offerings, and the family reputation. Company B is going to consolidate all existing trademarks to reflect family name and capitalize on the customers' recognition of the family name.

Vision Statement of Company C

Our goal is to deliver quality apparel to our customers. We are dedicated to improving the partnership among our associates and with our customers. Our goals will be clear and understandable. We will create value for our customers and stockholders, fulfillment for our associates, and benefit to our communities.

Interpretation. Company C received this vision statement from corporate headquarters in October 1994 during a TQM training system. It has not yet been introduced at the plant level and will be communicated to all production employees through corporate training facilitation. Internalization of this corporate vision has not taken place at this point.

Perceived Future External Environmental Factors of Company A

The plant manager at Company A believes that team manufacturing is the future manufacturing method no matter what the product is. Quality stays more constant and more consistent in team manufacturing. Progressive bundle manufacturing required more motivating and reminding to produce a quality product. With team manufacturing, quality is produced from within the team environment and the quality focus is maintained through peer pressure and quality evolves into an unspoken company expectation. Quantitative quality measurement then backs up the team dynamics and gives the team feedback with regards to their quality. In the opinion of Company A plant manager, trusting employees and empowering employees are two management techniques that evolved out of Company A team transformation and perhaps these techniques could be applied to other production systems. Company A plant manager also stated that there are many manufacturers touring the plant and setting their future plans on the successes that they see at Company A. Applying empowerment to work is becoming the watchword of organizational revitalization and management development (Bennis, 1984, 1985; Dodge, 1993a;) and the beliefs of plant manager of Company A is in line with organizational development and management literature.

Perceived Future External Environmental Factors of Company B

Textile mills' "seconds", or off-quality goods are the raw materials of Company B. As textile mills improve their production techniques second quality goods may become more scarce. Competition for inexpensive, "mistakes" may

be a future concern. Currently, even though mills are continuously improving their processes, there has not been any problems acquiring second quality goods.

Retaining the work force of Company B is perceived as a current and future challenge and that external environmental factor affects the retention of employees. Unemployment is low, and those persons in the unemployment ranks may not have the motivation and the support (i.e., reliable child care, transportation) to work. Additionally, the low skill components of the job make it unappealing for workers currently unemployed to start working. U.S. apparel/textile product manufacturing is typified as being labor-intensive and requiring less technical knowledge than other manufacturing industries (Ghadar, Davidson, & Feigenoff, 1987; Jernigan & Easterling, 1990). Retaining employees by increasing wages and recruiting higher skilled labor by offering higher starting wages are two methods that Company B is using currently, and is planning to use in the future.

Perceived Future External Environmental Factors of Company C

Company C plant manager forecasted that every apparel manufacturer will need flexibility and market responsiveness in the future. Producers of basic goods (i.e., jeans) will not be able to manufacture apparel as they are presently. Company C plant manager's opinions are in line with the literature. Zand (1993) states that technological developments combined with new approaches to marketing have greatly shortened product life cycles and apparel/textile product manufacturers need to keep pace with these changes in order to survive (Berkstresser & Buchanan, 1986).

Company C plant manager feels that production workers will not tolerate being changed from job to job, within one day, without a change in the way they are paid. Compensation will have to be changed from a production or incentive based plan to a salary for all production employees. With a salary set at a high enough level, production workers will have a cooperative attitude to possess the flexibility needed by management. Plant manager C feels that current pay problems associated with getting a sewing operator up to production standards, and training curves of new and transferred employees would all be resolved within a salary structure.

Discussion of Phase Two Findings

In summary, each plant manager had perceptions that were in line with literature forecasts that apparel/textile product manufacturing is going to deal with fundamental business changes, such as: (a) recruitment and retention of employees (Jernigan & Easterling, 1990), (b) empowering workers (Dodge, 1993a), and (c) market responsiveness (Berkstresser & Buchanan, 1986). Each company's top management seemed to have accurate interpretations and future forecasts based on their company's mission and vision.

Findings from Phase Three

Phase Three was the description of the present state of the organization, and a survey was used to characterize the organizational culture. Describing the organization's present status is the most important step in initiating change, because it sets a reference point for comparison (Harding, 1991; Mink et al., 1993). These comparisons set the framework for planning change and taking action (Mink et al., 1993; Parry, 1993). The Open Organization Profile (OOP), a

ninety-item survey measures the relative openness of the organization and helps to identify the significant barriers to organizational change and was administered to ten production workers in each case study company (Mink et. al., 1994). Table 7 shows the nine window mean scores for each case study.

Table 7. OOP Nine Window Mean Score Overview for Companies A, B, and C.

	Company A (Mean)	Company B (Mean)	Company C (Mean)
Window 1. Individual unity (basic beliefs and values)	5.84	5.34	5.95
Window 2. Individual internal responsiveness (self-awareness)	5.18	5.21	5.41
Window 3. Individual external responsiveness (responding to others)	5.00	5.76	5.36
Window 4. Team unity (team building and goal identification)	5.53	5.82	5.45
Window 5. Team internal responsiveness (interpersonal relationships)	5.25	6.40	5.67
Window 6. Team external responsiveness (cooperation)	5.61	5.52	5.54
Window 7. Organizational unity (participation)	5.08	4.63	5.42
Window 8. Internal organizational responsiveness	4.77	3.91	5.14
Window 9. External organizational responsiveness	5.45	5.03	6.00

Note: Likert-type scoring: 0=Don't know; 1 through 9=Strongly disagree to Strongly agree.

The OOP data was processed by Somerset Consulting and numbers are as reported by Somerset Consulting. All three companies' scores clustered near mid-range, however differences among the case studies existed.

The lowest mean score Window for all three case studies, Company A, B, and C, was Window 8, internal organizational responsiveness. Internal organizational responsiveness assesses the degree and quality of information sharing and communication in the organization (Mink et al., 1994). Low scores in this window generally mean: (a) a general lack of warmth in the organizational climate, (b) employees feel alienated from the system, (c) waste of resources in pursuit of unproductive goals, (d) collusion, game playing, hidden agendas, and other ploys, (e) employees' inability to manage conflicts, (f) little ongoing learning, problem solving, or communication. Low scores in this window may be historically characteristic of the apparel/textile product industry (i.e. secretive, competitive) that has spilled into industry's organizational cultures, in conjunction with the traditional relationships between management and employees (Zand, 1993).

Company A had a high mean score in Window 1, individual unity. Individual unity, basic beliefs and values, assesses the extent to which the organization has created a culture based on goals and values with which individuals identify. High scores in this window generally mean: (a) congruence of individual's and organization's values, (b) enthusiasm for goal achievement, (c) clarity of goals and values, (d) clear-cut performance expectations, (e) high levels of productivity. The high mean score in Window 1 can be attributed to Company A team manufacturing approach.

Company B has a high mean score in Window 5, team internal responsiveness. Team internal responsiveness, interpersonal relationships, assesses the extent to which interpersonal relationships are perceived to be effective. High scores in Window 5 generally mean: (a) positive, people orientation, (b) interpersonal skills that foster honesty and sharing, (c) perception by members of high interpersonal skills and team cohesion, and (d) members share, listen, solve problems jointly, display trust. This Window 5 mean score of 6.40 was the highest of all Windows across all three case studies. Company B also had the lowest score, 3.91 in Window 8, of all the Windows across all three case studies. This disparity in score range suggests that information sharing and communication is poor between upper management and production workers, and in order to compensate employees have turned their focus on team for support and encouragement. Another possibility might be the company cultural dynamics of a family-owned business. At certain times employees view family management as "them" and employees feel they need to band together and become "us".

The highest mean score for Company C was in Window 9, external organizational responsiveness. External organizational responsiveness evaluates the degree to which employees perceive the organization as aware of and responsive to customer requirements and environmental threats and opportunities. High scores in Window 9 generally mean: (a) perceived organizational effectiveness in managing and using key outside information, (b) high ongoing awareness of customer needs and market changes and responsiveness to these needs and changes, (c) attentiveness to the system's

impact on its environment, and (d) high level of cooperative relationships between members of the organization and representatives of its public. Company C produces two distinct products as well as a seasonal product. Company C also has two methods of production and a good degree of automation in its manufacturing process. Company C has also been in this location for a long period of time and has supported its community. These three organizational characteristics probably contributed to the high score in Window 9.

The five highest and five lowest mean values for individual OOP items are shown in Tables 8, 9, and 10, for Company A, B, and C, respectively. Company A had high scores in: (a) Window 1, individual unity, with 2 high items; (b) Window 6, team external responsiveness-cooperation, with 2 high scores; and (c) Window 4, team unity, with 1 high item (see Table 8). Company A did not have any high scores within the organizational Windows (Windows 7, 8, and 9) in their top five scores, but did have high scores at the individual (Windows 1, 2, and 3) and group/team (Windows 4, 5, and 6) levels.

Table 8. Mean values of the five highest and five lowest OOP items for Company A.

Window #	Five Highest Scores of Company A	Mean
1	Work contributes to purposes	7.0
1	Purpose in my work	6.5
6	Healthy relationships	6.4
6	Group teamwork encouraged	6.3
4	Team work encouraged	6.2
Window #	**Five Lowest Scores of Company A**	**Mean**
8	Crises handled openly	4.0
7	Input received from affected employees	4.1
3	Feedback is fair and unbiased	4.3
3	Feedback is face to face	4.3
8	Information freely exchanged	4.3

Note: Likert-type scoring: 0=Don't know; 1 through 9=Strongly disagree to Strongly agree. Window 1-Individual unity; Window 3-Individual external responsiveness; Window 4-Team unity; Window 6-Team external responsiveness; Window 7-Organizational unity; Window 8-Internal organizational responsiveness.

Company A had low scores in: (a) Window 8, internal organizational responsiveness, with 2 low items; (b) Window 3, individual internal responsiveness, with 2 low items; and (c) Window 7, organizational unity-participation, with 1 low item. With additional data, conflict management training might be found helpful for Company A with its low scores in Windows 7 and 8, because low scores in these two Windows generally indicate power struggles, diminished communication, and hidden agendas. With further study, interventions that might improve scores in Window 3 would be listening training and sensitivity training.

Company B had high scores in: (a) Window 3, individual internal responsiveness, with 2 high items; (b) Window 5, team internal responsiveness-cooperation, with 2 high scores; and (c) Window 2, individual internal responsiveness, with 1 high item (see Table 9). Company B did not have any high scores within the organizational Windows in their top five scores, but did have high scores at the individual and group levels.

Table 9. Mean values of the five highest and five lowest OOP items for Company B.

Window #	Five Highest Scores of Company B	Mean
2	Act consistently with feelings	7.3
3	Talk about their work	7.2
3	People are willing to help	7.1
5	Communicate well	7.0
5	O.K. to talk about feelings	7.0
Window #	**Five Lowest Scores of Company B**	**Mean**
8	Crises handled openly	2.9
8	Information freely exchanged	3.1
8	Changes communicated	3.3
3	Feedback is fair and unbiased	3.4
8	New ideas sought	3.6

Note: Likert-type scoring: 0=Don't know; 1 through 9=Strongly disagree to Strongly agree. Window 2-Individual internal responsiveness; Window 3-Individual external responsiveness; Window 5-Team internal responsiveness; Window 8-Internal organizational responsiveness.

Company B had low scores in: (a) Window 8, internal organizational responsiveness, with 4 low items; and (b) Window 3, individual internal responsiveness, with 1 low item. With additional data, conflict management training might be found helpful for Company B with its low scores in Window 8,

because low scores in this Window generally indicate diminished communication, little problem solving skills, and hidden agendas. With further study, interventions that might improve scores in Window 3 would be listening training and sensitivity training. Company B was the only case study company that both high and low scores in the same Window. This unusual result may be explained by closer examination of the individual test items. The two high scoring items were: (a) "Coworkers are willing to talk with each other about their work"; and (b) "People here are willing to help one another whenever possible". The low scoring item was "Feedback from the organizations management is fair and unbiased". This discrepancy could be explained by a sense of trust among team members and a sense of distrust of Company B management, and perhaps an example of workers joining together as employees perceive that family members have joined together as a force.

Company C had high scores in: (a) Window 1, individual unity, with 3 high scores; (b) Window 5, team internal responsiveness, with 1 high score; and (c) Window 9, external organizational responsiveness, with 1 high item (see Table 10). Company C was the only case study company that had high scores at the individual, group, and organizational levels.

Table 10. Mean values of the five highest and five lowest OOP items for Company C.

Window #	Five Highest Scores of Company C	Mean
1	Purpose in my work	6.8
5	O.K. to talk about feelings	6.6
1	Work contributes to purposes	6.6
9	Interest in customers needs	6.6
1	Act consistently with values	6.4
Window #	**Five Lowest Scores of Company C**	**Mean**
8	New ideas sought	4.6
8	Changes communicated	4.7
2	Responds to employee needs	4.7
3	Feedback is face to face	4.7
8	Cares for its employees	4.7

Note: Likert-type scoring: 0=Don't know; 1 through 9=Strongly disagree to Strongly agree. Window 1-Individual unity; Window 2-Individual internal responsiveness; Window 3-Individual external responsiveness; Window 5-Team internal responsiveness; Window 8-Internal organizational responsiveness; Window 9-External organizational responsiveness.

Company C had low scores in: (a) Window 8, internal organizational responsiveness, with 3 low items; (b) Window 3, individual internal responsiveness, with 1 low item; and (c) Window 2, individual internal responsiveness, with 1 low item. With additional data to back up this study, conflict management training might be helpful for Company C with its low scores in Windows 2 and 8, because low scores in these Windows generally indicate diminished communication, power struggles, and unresolved conflicts. Interventions that might improve scores in Window 3 would be listening training and sensitivity training.

Discussion of Phase Three Findings

Every case study company had low OOP items in Windows 3 and 8. Window 3, individual internal responsiveness, measured the extent to which people in the organization are able to relate to one another in an effective manner. Window 8, internal organizational responsiveness, measured the degree and quality of information sharing and communication in the organization. Low scores in these two windows, indicated that all three case studies had: (a) perceived insufficient information flow, and (b) perceived low levels of cooperation and communication. With further study, it may be proven that low scores in Windows 3 and 8 are endemic to apparel/textile product manufacturing. With the competitive business nature, dependence on secrecy, and fear of information sharing within the industry (Berkstresser & Buchanan, 1986; U.S. Congress, Office of Technology Assessment, 1987), low levels of communication and information sharing may have spilled over from the industrial level to the organizational culture of apparel/textile product manufacturing. Company B and Company C had an identical low scoring item of "Changes in organization policy or procedures are effectively communicated to the people affected". With team manufacturing, Company A may have a better method of communicating change to its employees.

Company A was the only case study company that high scores in Windows 4 and 6. Window 4, team unity, measured the degree to which teams are working together to accomplish clearly defined goals. Window 6, team external responsiveness, measured the degree to which different groups work together to accomplish the shared purposes of the organization. The high

scores in Windows 4 and 6, team level Windows, are congruent with the team manufacturing focus at Company A. Company B was the only case study company that high scores in Windows 2 and 3. Window 2, individual internal responsiveness, and Window #, individual external responsiveness are two windows at the individual level relating to self-awareness and responding to others, respectively. Company C was the only case study company that a high score in Window 9. Window 9, external organization responsiveness, measured the degree to which employees perceive the organization as aware of and responsive to customer requirements and environmental threats and opportunities. These high scoring differences illustrate unique strengths within each case study company. Company A and Company C share two identical high scoring items: (a) "I feel there is purpose and meaning in my work"; and (b) "I believe my work contributes to the organization's ultimate purposes". Since Company B is a small company, top management might not communicate the contribution of employees' work to the company and assumes employees know they are valued, strictly from a numbers standpoint.

Findings from Phase Four

Phase Four was analyzing the planning of the change strategy. Planning for change and managing the change strategy is accomplished through training. Planning and training are not one-time efforts but ongoing, never-ending processes (Deane, 1993; Hochgraf, 1990; Mink et al., 1993; Seiler, 1990). The discrepancy between the vision and the current state generates the energy for change (Mink et al., 1993). In Mink et al.'s (1993) terms training is really intervening at the individual, group, and organizational

levels. This phase was divided into two sections: (a) current TQM training approaches, and (b) current TQM practices and quality measurement. Top management, as well as management responsible for training and quality programs were interviewed in structured interviews.

The first section of Phase Four was comprised of interviews of current company TQM training practices (See Appendix C, questions 1-4). If the case study had made the TQM change, questions determined what are the structured TQM training programs for new employees, what retraining programs are in place for reinforcing the concepts of TQM, and how new TQM training programs are designed and assimilated into the organization. If the case study company had not yet made the TQM change, these questions were not asked during interviews with top management and training and quality management. For the model building of training effectiveness of this dissertation, summative evaluation was the focus of questions #5 through #9, using Goldstein's (1993) summative evaluation guidelines of: (a) has a change occurred; (b) can changes be attributed to the training program; (c) will the same change occur for new training participants; (d) is it likely that similar changes would occur in a different organization, and (e) what is the company employee turnover rate. (See Appendix C). Both top management and training/human resource management participated in these structured interviews.

Current Company TQM Training Approaches--Section One

Interviews with plant manager and training manager of Company A outlined a corporate quality training program that involved topics such as: (a) quality assurance strategy, (b) military standard sampling procedure for quality

inspection, (c) defects classification guide and zone mapping, (d) garment measurement instructions, (e) garment pre-production test procedure, (f) first piece inspection procedure, (g) rejection notice/quality alert notice, (h) authorization for temporary deviation from specification or standard, (g) vendor certification program, (h) quality certification of contracted textiles, and (i) corporate auditing of garment seconds.

All production workers have a quality training program that starts in vestibule training during the first day of work, as Company A stresses that they are a quality and safety minded company. New employees learn what is acceptable quality versus unacceptable quality as well as how to read specifications. They learn that everyone is an inspector, just not the last operator in the team and training strives to make new employees feel responsible for their work. This result is in line with the findings of Carrere and Little (1989) that team manufacturing leads to quality improvement.

In the quality department, employees know that the company expects the very best and will support their quality judgment. The plant has held back orders from corporate because of poor quality. Housekeeping staff, material handlers, and distribution workers are also quality trained and quality minded.

New employees are hired in a subgroup of six to eight persons, go through a four week vestibule training together, and then proceed to the production floor as a new team. New teams spend 24 weeks on a training curve, and the trainer from the team's vestibule training monitors their progress throughout this time period (i.e. trainer monitors production, attitude, progress, and cycle time two to three times a week). The trainer also stays with them on

the production floor for two days to reduce the stress level of the team (i.e., production floor noise, other teams watching them) and to introduce and "hand-off" the team to the supervisor.

Training encompasses operation, threading, and maintenance of all sewing machines as well as quality and production requirements. Dismissal, attendance, and sexual harassment policies are also covered by personnel staff. There is a "roll-out" coordinator that helps the team make the transition from vestibule training to the production floor. Keep-in-touch (KIT) meetings with the "roll-out" coordinator discuss concerns and problems of the team and as the team members become permanent employees then meetings become Toyota Production System (TPS) focused.

Employee retraining is done if there is a change in the quality specifications. Two or three times a year the quality/training manager gets together with all employees and reviews defect classifications (i.e., what is allowable, what is not allowable) and serves as a general reinforcement of quality standards. When a team changes styles the training staff will inspect the garments, and help the team read specifications, and define what is allowable, and what is not allowable. Retraining is not a formal program at Company A, rather it is a "need-and-react" program.

Company A has approximately 15% male sewing production workers. The quality/training manager stated that the company reputation within the local job market is that a sewing production job at Company A is not a gender-based job. The perception of potential Company A applicants is that team sewing is very different from progressive bundle system (PBS) sewing. The same training

approach is used for all teams regardless of their gender composition.

Team meetings that focus on quality problems are conducted with the supervisor and the training/quality manager present. The team facilitator first asks if there are any outside problems that are contributing to the team's poor quality (i.e., Are the cut parts correct?). Next, the individual(s) sewing the operations are observed by the team (i.e., recreate the situation). Brainstorming is then done with the whole team participating (i.e., method is correct? machinery is working properly? operator is doing something incorrectly during production?). Production and quality statistics are also examined by the team members. If nothing can be pinpointed during the brainstorming session, then the team is observed during production by supervisors and management, look at operator's method, and do some spot checks for quality.

Company A training and quality manager stated that quality improvement can be attributed back to the period when the company started training in teams, using TSS. Every new team is successful after its production floor 24 week training period, because there is both support from management and supervisors, as well as quality checks and balances. Many other apparel manufacturers have toured Company A plant in order to switch to a team manufacturing organization. Company A has sponsored a contractor sewing plant to make the transition from PBS to teams. The contractor went from having 150 dozen poor quality garments to four poor quality garments within one order.

Company A employee turnover rate is currently 30%. Prior to team manufacturing, two to three years ago, Company A employee turnover rate was

50%. Within the training class, attrition is also about 30%. Company A hires more people for a team, knowing that some new hires will not complete the training program.

Company B has quality standards in order to distinguish between its premium and remnant line of textile products. These textile products are checked for appearance (i.e., color consistency, weave, and dirt marks) and weighed (i.e., heavier weights are premium line, lighter weights are remnant line). Defects are checked during folding inspecting (i.e., busted seam, rip in material). Defects are also checked during the prior phases of manufacture: (a) in material sorting, (b) cutting, (c) stitching, and (d) folding. Material cutters, sewing production workers, packagers are all responsible for defect checks at every phase.

New employees at Company B are trained on the job by experienced sewing production workers. Supervisors and experienced sewing production workers train a new employee for one to two days, similar to King's (1964) description of step-wise progression of skill acquisition. Step-wise progression of skill acquisition is the more traditional method of training employees in apparel/textile product manufacturing. Even though step-wise progression of skill acquisition is in wide use within the industry, it is not as advanced as vestibule training. Employees who are producing poor quality goods are asked to correct their mistakes by employees who are folding the textile products. Folders are responsible to take the textile product back to the sewing machine operator for repair.

A company meeting focusing on quality concepts will be held at Company B before the year's end. Company B was founded on quality principles and has a quality reputation with its customers, but Company B upper management wants: (a) to increase the pay and skill level of employees in order to increase retention, and (b) to reinforce quality production methods.

The employee turnover rate for Company B is nearly 100 percent. Company B has started a new program of recruitment in order to find employees who stay a longer period of time. If an existing Company B recruits an applicant and that applicant is hired, and works 60 days, then the recruiting employee is paid 50 dollars.

Company C production manager stated that when TQM principles are presented to sewing production workers, it is important to stress that quality starts with the manufacturing process. Currently, sewing production workers are responsible for checking every tenth garment for defects (e.g., skipped stitches). Quality inspectors are also responsible for checking three bundles per operator per day.

New employees at Company C are trained on the job by experienced sewing production workers. Supervisors and experienced sewing production workers train a new employee for one to two days, similar to King's (1964) description of step-wise progression of skill acquisition. Step-wise progression of skill acquisition is the more traditional method of training employees in apparel/textile product manufacturing. Even though step-wise progression of skill acquisition is in wide use within the industry, it is not as advanced as vestibule training. Current Company C challenges include: (a) competing with

other apparel manufacturers in the area that start at up to three dollars more per hour; (b) having too little work for its production sewing operators, so that some work weeks have reduced hours; (c) changing sewing production operators' jobs so rapidly that average earnings of experienced operators have fallen below training rate of new workers.

The employee turnover rate for Company C is over 100 percent. For the first quarter of 1995, 90 new employees were hired and 92 employees left Company C. When corporate training staff comes to TQM training Company C, they will also have to address employment and organizational morale issues in conjunction with TQM training.

Discussion of Phase Four--Section One

Company A management stresses quality training from the first day of employment. The quality and training manager at Company A feels that quality principles can be overlooked in an on-the-job training situation and that overlooking at start of an employee's tenure can have devastating results for a company in the long run. Company A does not train more that eight people together. Company A addresses Gordon's (1993) identified problems of training adult learners: (a) trainers have too large of class size; (b) trainers do not adapt commercially produced materials; and (c) trainers do not address specific worker learning problems. There are three trainers at Company A so no more than 24 new employees are being trained at one time. Corporate training materials have been adapted from TSS training manuals and are

revised on an on going basis. Individual learning problems are identified in training, and team members and trainers adapt the learning process for each new employee.

Company B management also stresses quality concepts from the first day of employment in an on-the-job training program. However, a quality problem that can arise with non-structured co-worker training is that one employee's interpretation of the company's quality program is transferred haphazardly or incorrectly. If many different employees are training, it is difficult to know if new employees are being trained consistently in quality concerns. A professional trainer may be more likely to instill good quality practices in new employees with concentration on prepared materials in an environment where new employees can listen to concepts presented in a logical manner. Recruiting new employees is the major focus of Company B currently and issue-centered (i.e., quality, safety) meetings and training sessions will take place before the year's end.

Company C management also stresses quality concepts form the first day of employment in an on-the job training program. Solving employment issues is the current focus of Company C and with the corporate support of TQM training, plant management is hoping to improve both its quality and plant morale. Company C production manager feels that a change from on-the-job training to a vestibule training system with a professional corporate trainer is needed at the plant level.

Current TQM Practices and Quality Measurement--Section Two

The second section of Phase Four is TQM involvement questions that were directed to both top management and quality management personnel. Questions determined how the responding companies defined both quality and TQM, how they measured quality, who was responsible for quality within their organization, and what role quality played in their business policies and philosophies. The measurement-maturity matrix was used to collect level of TQM involvement in the three case study organizations. The researcher placed each case study in the Cupello's (1994) Measurement- Maturity Matrix by observing and interviewing top management, quality management personnel, and production workers.

According to Cupello (1994) there are four levels of TQM maturity: playing (P), demonstrating (D), committed (C), and actualized (A). Cupello (1994) states that these maturity levels can be used to determine what a company measures and when these measurements are implemented. The maturity levels (PDCA) can be combined with the four types of measures (control, screening, planning, and diagnostic) to form a measurement-maturity matrix (Cupello, 1994). The PDCA model is similar to Bhote's (1991) four stages of innocence, awakening, commitment/implementation, and world class.

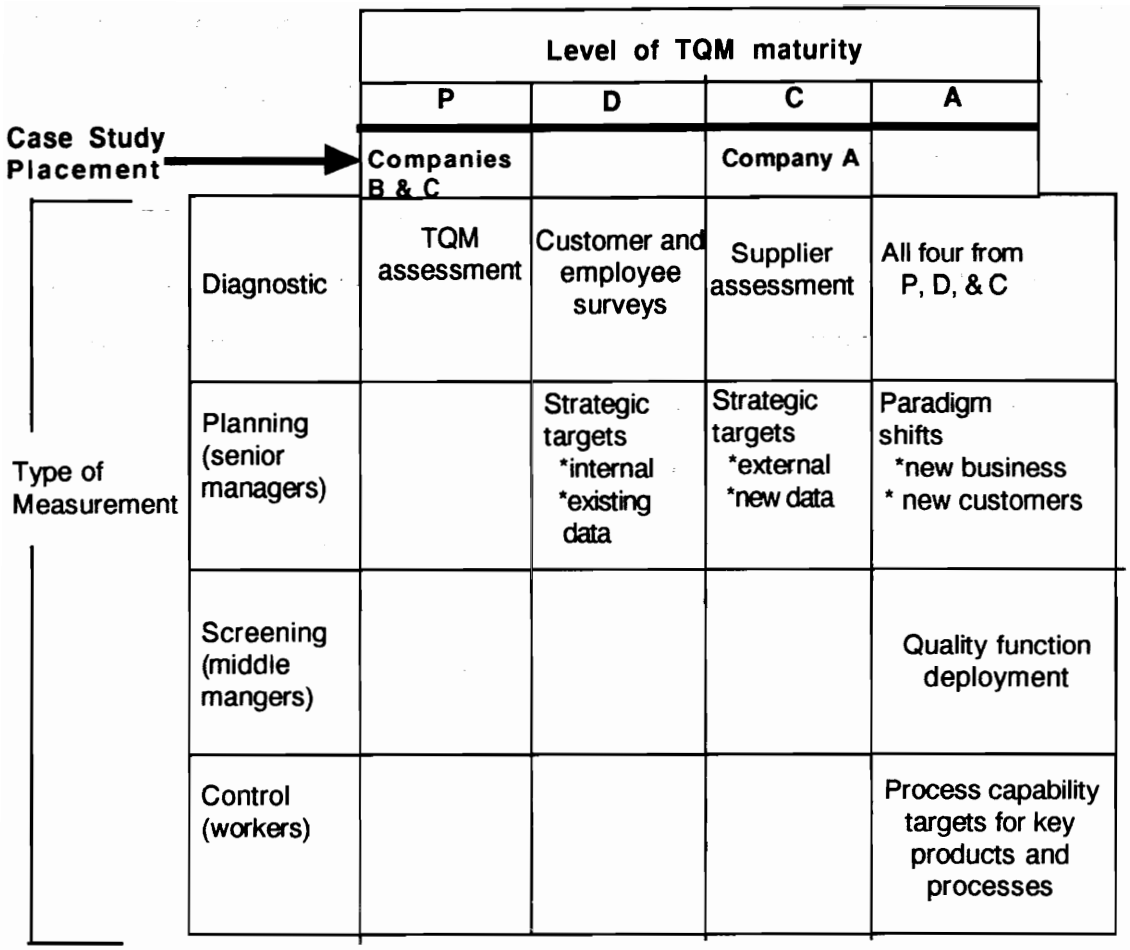

Figure 10 . Measurement-Maturity Matrix (Cupello, 1994), with case study placement.

Both Company B and C are at the playing (P) level of maturity, because Cupello's (1994) categorizes these organizations as playing with or just beginning the TQM process to see whether they really want to get involved (Cupello, 1994) (see Figure 10). Measurement in this stage is a diagnostic TQM self assessment (Cupello, 1994). Exploratory flirtation with the TQM process should not be sabotaged by demanding immediate and visible proof of

improved organization performance. Both Company B and C have acknowledged the importance of TQM and are exploring and planning training methods to make the cultural shift to a TQM organization.

Company A is at the committed (C) level, and this level refers to those organizations that are committed to the degree that employees know and feel a difference in the culture that is attributable to the TQM process (Cupello, 1994) (see Figure 10). Company A has moved through the demonstrating (D) level, as it has derived process improvements from the efforts of cross-functional team manufacturing (Cupello, 1994). The demonstrating (D) level contains two diagnostic measurements: (a) customer surveys and (b) employee surveys. Customer surveys are essential to establish cross functional teams that are responsive to customers' needs (Cupello, 1994). Customers' needs were surveyed at Company A and they requested product color and attribution (e.g., embroidered) closer to the season and more responsiveness. As a result Company A garment dyes some product and attributes product at the distribution center. Employee surveys provide senior management with the insights necessary to empower employees and improve the culture (Cupello, 1994). When Company A wanted to change its incentive based pay structure, employees were surveyed for input.

To be committed to TQM, in the C column, another diagnostic measurement is introduced: supplier assessments (Cupello, 1994). Cupello (1994) states at the committed level, a company looks for defects that are coming from outside the system. Company A has assisted its suppliers in making the TQM transition by sharing their team manufacturing knowledge and

expertise. At the committed level, top management is looking to external sources for strategic insights and new kinds of information to help them with long-term planning (Cupello, 1994). Company A is accomplishing this by reducing the number of garments that are attributed. Forecasts are diminished every season, to reduce the amount of error and become more and more responsive to the customer. Finally, at the committed level plant management uses the TQM process to influence the outcome of internal functional goals using existing data to monitor success. Company A has moved into the actualized level of measurement maturity, as it uses design of experiments in the TQM process, instead of using existing data to monitor success. Company A is a committed TQM company and is working on some of the measurements of an actualized TQM company.

Findings from Phase Five

Phase Five examined each case study company's reaction to change. The companies that thrive are those that thoughtfully embrace change so that they can manage it to their competitive advantage (Black, 1994; U.S. Congress, Office of Technology Assessment, 1987). Involving individual employees in the change is critical to the TTMP process as well as the successful transition to TQM adoption (Mink et al., 1993). Phase Five measured individual employees' reactions to change and combined this data into an additive characterization of how the organization reacts to change. Phase Five measures some of the underlying behavioral and attitudinal changes that are occurring within the organization. Along with teaching employees how to use various tools for

change, such as problem-solving strategies, trainers must help employees make sense of and master their emotional responses to change (DeMeuse & McDaris 1994). By doing so, trainers help engage all parties as supportive stake holders in the process of change (Parry, 1993). DeMeuse and McDaris (1994) developed a Reaction-to-Change (R-T-C) Inventory (Appendix D) that can be used as a stand-alone exercise or as part of an organizational change seminar. The authors state that the R-T-C Inventory can help employees at all levels discover how they perceive and react to change. The inventory also serves as a diagnostic instrument. Results from the R-T-C are shown in Tables 11, 12, and 13 for Companies A, B, and C, respectively.

Many researchers realize that today's organizations need to change and this means that employees within the organization need to change (Beckhard & Pritchard, 1992; Belasco, 1991; Brooks, 1980; Mink et al., 1993; Naisbitt & Aburdene, 1985; Tomasko, 1993). In general, a person reacts to change in one of three ways: accepting and supporting change; complying with change in action but not in spirit; or resisting change, either passively or actively (DeMeuse & McDaris, 1994). RTC results were in line with DeMeuse & McDaris (1994) findings that management was more open to change than employees. Fifty percent of Company A production workers were supportive of change and 50% complied with change (see Table 11). The two managers of Company A were supportive of change. Seventy percent of Company B production workers were supportive of change and 30% complied with change (see Table 12). The two managers of Company B were supportive of change. In Company C both production workers and management staff was more dispersed in their reaction

to change. Fifty percent of Company C production workers were supportive of change, 30% complied with change, and 20% resisted change (see Table 13). Three managers of Company C were supportive of change, and one manager was resistant to change.

Table 11. Case Study A Employee Responses to the Reaction-to-Change Inventory

Range of Scale Values	Production Workers		Management	
	Number N=10	Percentage	Number N=2	Percentage
Supportive of Change				
+40 to +100	3	30	2	100
+20 to +30	2	20	0	
Compliance with Change				
-10 to +10	5	50	0	
Resistance to Change				
-20 to -30	0		0	
-40 to -100	0		0	

Note: All positive words have a value of +10. All negative words have a value of -10. All neutral words have a value of zero. Individual scores can range from a low of -100 (if a person circled only all 10 negative words) to +100 (if a person circled only all 10 positive words).

Table 12. Case Study B Employee Responses to the Reaction-to-Change Inventory

Range of Scale Values	Production Workers		Management	
	Number	Percentage	Number	Percentage
	N=10		N=2	
Supportive of Change				
+40 to +100	5	50	2	100
+20 to +30	2	20	0	
Compliance with Change				
-10 to +10	3	30	0	
Resistance to Change				
-20 to -30	0		0	
-40 to -100	0		0	

Note: All positive words have a value of +10. All negative words have a value of -10. All neutral words have a value of zero. Individual scores can range from a low of -100 (if a person circled only all 10 negative words) to +100 (if a person circled only all 10 positive words).

Table 13. Case Study C Employee Responses to the Reaction-to-Change Inventory

Range of Scale Values	Production Workers		Management	
	Number	Percentage	Number	Percentage
	N=10		N=4	
Supportive of Change				
+40 to +100	1	10	1	25
+20 to +30	4	40	2	50
Compliance with Change				
-10 to +10	3	30	0	
Resistance to Change				
-20 to -30	1	10	1	25
-40 to -100	1	10	0	

Note: All positive words have a value of +10. All negative words have a value of -10. All neutral words have a value of zero. Individual scores can range from a low of -100 (if a person circled only all 10 negative words) to +100 (if a person circled only all 10 positive words).

The R-T-C inventory was designed to illustrate a continuum of reactions to change (DeMeuse & McDaris, 1994) and results indicated case study employees supporting, complying, and resisting change. By exploring how individual employees react to changes in the workplace, the R-T-C Inventory casts light on how the organization as a whole responds to change (DeMeuse & McDaris 1994). Based on DeMeuse and McDaris (1994) Companies A and B are poised for change and Company C may find difficulty affecting change in its organization. Based on researcher observations, Company C seemed to be in a state of turmoil due to many sewing production workers changing jobs many times per day, and the wage differential among employees.

The Employee Opinion Survey (EOS) was also used in Phase Five because it determines and rates employees' attitudes and perceptions about an organizational change, and was first developed to help organizations make a total quality change (Mink et. al., 1994). The Employee Opinion Survey (EOS) contains eighteen factors that can be divided into two main categories: Job performance dimensions and job characteristics dimensions (Mink et. al., 1994)

Numerical scores of the EOS can be seen in Table 14. A high score has been defined somewhat arbitrarily as a mean rating falling in the interval between seven and nine; a moderate score is one which falls in the interval between four and six; and a low score is one which is less than four.

Table 14. EOS Dimension Overview of Companies A, B, and C.

	Company A	Company B	Company C
Job Performance Dimensions			
1. Commitment to the organization	5.83	5.67	6.12
2. Identification with the organization	5.81	5.71	5.69
3. Morale	4.89	5.61	4.90
4. Organizational climate	5.03	5.53	5.47
5. Job output	6.30	6.45	7.21
Job Characteristics Dimensions			
6. Job satisfaction	5.75	5.99	5.80
7. Compensation and benefits	5.56	3.74	4.39
8. Work role characteristics	6.76	6.48	6.82
9. Work conditions	4.85	5.78	5.43
10. Goal clarity	6.32	5.77	5.94
11. Leadership and supervision	6.29	6.57	6.07
12. Performance review	4.80	5.65	5.25
13. Career growth	4.36	5.90	4.69
14. Communications	4.86	5.78	4.73
15. Commitment to quality	4.67	6.16	5.14
16. Resources	4.41	5.58	4.60
17. Work relationships	4.63	5.40	4.60
18. Attitude toward survey	4.32	6.17	4.73

Note: Range was 0=Do not know, 1=Strongly disagree to 9=Strongly agree. Scores are as reported by Somerset Consulting. N=10.

The work role characteristics dimension was the highest score for Company A (see Table 14). Work role characteristics measures the significance of the job itself, the amount of challenge which is characteristic of the job, the degree of autonomy and personal control over the outcomes of the job, and the clarity of job expectations. Because Company A is involved in team manufacturing, work role characteristics are challenging and clearly defined and employees control the outcome of their production. Two of the most modest scores for Company A on the EOS were career growth and attitude toward the

survey dimensions. Moderate scores in career growth mean employees are somewhat dissatisfied with the perceived opportunities for career growth and advancement in the organization and this can have a detrimental effect on employee commitment to the organization in the long run. Company A has been so successful with employee development within the team manufacturing environment, that employees are now questioning their next career step. A moderate score in the attitude toward the survey indicates that employees were only moderately forthright in their answers to the survey. Ninety percent of the respondents agreed with three items: "I responded the best I could"; (b) " The survey results will help the organization"; and (c) " The survey results will help the department". Eighty percent of Company A production workers agreed with the fourth item, "My supervisor supports this survey". When examining the four individual test items in this dimension, it seemed that moderate scores might indicate a slight degree of skepticism among employees concerning the intended use of this survey.

The highest scoring dimension for Company B was leadership and supervision (see Table 14). Supervisors play a very important role at Company B and employees have positive perceptions of their supervision. Employees at Company B believe supervision to be very effective in communicating goals and purposes, in building an effective work teams, in motivating, and in solving problems. This finding is in contrast to a low OOP score in poor organizational communication, internal organizational responsiveness, between upper management and production workers. This finding demonstrates the production workers rely on supervisors for organizational communication. The

lowest score of Company B was the compensation and benefits dimension. This dimension's score was also the lowest score on the cross-case study table (see Table 14). Low scores in this dimension indicates that employees are dissatisfied with the compensation and benefits programs of the organization. This attitude probably distracts employees from working as effectively as they can, and may lead to reduced commitment and loyalty to the organization, thus it is an area in which some change might be required.

The highest score for Company C was the job output dimension (see Table 14). This dimension measures the degree to which employees feel a sense of satisfaction with the output of their job. This variable is in part determined by the degree to which the employees feel a sense of control over their jobs and the degree to which the employee has the authority to succeed. When employees believe that they have control over their output, they will work longer and harder, and they will produce more. The lowest score of Company C was the compensation and benefits dimension. Low scores in this dimension indicate that employees are dissatisfied with the compensation and benefits programs of the organization. This attitude probably distracts employees from working as effectively as they can, and may lead to reduced commitment and loyalty to the organization, thus it is an area in which some change might be required. In summary, Company C employees feel they are working as hard as they can in their job, but are not being compensated for their perceived high output.

Findings from the EOS survey, the ten highest and the ten lowest individual test items for each of the case studies, are presented in the Tables

15, 16, 17. Results are presented in order of Company A, B, and C, respectively. Somerset Consulting has defined a high mean score falling in the interval between seven and nine; a moderate score is one which falls in the interval between four and six; and a low score is one which is less than four.

Table 15. Item overview of ten highest and ten lowest EOS scores of Company A

Dimension	Ten Highest Scores Company A	Mean
8	I know what is expected of me	7.7
8	Job important to organization	7.6
7	I am satisfied with allowances	7.6
8	Produce from start to finish	7.5
8	I know I am performing well	7.4
5	I work effectively at my job	7.3
8	I do different things on job	7.3
11	Insists people work hard	7.3
8	People affected by my job	7.2
5	I perform at highest levels	7.1
Dimension	**Ten Lowest Scores Company A**	**Mean**
9	Keeps job stress minimum	3.3
8	I control the pace of my work	3.9
9	I have a satisfactory work load	3.9
3	My future looks secure here	4.1
12	I get a lot of feedback	4.1
12	I get timely feedback	4.2
13	Opportunity to advance here	4.2
13	Clear growth pathway	4.2
13	Satisfied with opportunities	4.2
13	Provides resources I need	4.2

Note: Likert-type scoring: 0=Don't know; 1 through 9=Strongly disagree to Strongly agree. Window 3-Morale; Window 5-Job output; Window 7-Compensation and benefits; Window 8-Work role characteristics; Window 9-Work conditions; Window 11-Leadership and supervision; Window 12-Performance review; Window 13-Career growth.

Company A EOS Discussion

Company A had results in line with their demographics and organizational culture. Out of the ten highest scores the influence of training and communications could be seen by high mean score items such as: (a) "I know what is expected of me", and (b) "My job is important to the organization" (see Table 15). There is feeling among employees that they are doing a good job with high scores with EOS items of: (a) "I know I am performing well" and (b) "I work effectively at my job". However, company A production workers still need more feedback with low scores in Dimension 12 of: (a) "I get a lot of feedback and (b) I get timely feedback". Company A pay and computer system provides a feedback system, but employees responded that they need other forms of feedback to feel positive about their work. Positive feedback is really praise to continue with the job, while negative feedback is behavior modification to change the job that is being performed (Dodge, 1993a). There are many seminars in feedback method and management and supervisors in Company A might benefit from attending one seminar. Feedback concerns are also a concern inherent in other low scores of company A, such as: (a) opportunity to advance here, (b) clear growth pathway, (c) satisfied with opportunities, and (d) provides resources I need to grow and succeed. Employees need to know if there are any possibilities for the future with company A. The low score of "My future looks secure here" is another indication that employees do not see a clear career path with Company A. Four low scores within Dimension 13, career growth and development indicates that employees are generally dissatisfied with the perceived opportunities for career growth and

advancement in Company A (Mink et. al., 1994). This can be expected to have a detrimental effect on employee commitment to the organization in the long run and retention of valued employees.

Table 16. Item overview of ten highest and ten lowest EOS scores of Company B

Dimension	Ten Highest Scores Company B	Mean
11	Concerned about me	8.0
11	Has the skills needed	7.8
11	Acts consistently with values	7.8
11	Treats everyone fairly	7.8
11	Respect my supervisor	7.7
11	Lets me know how I am doing	7.7
5	I perform at highest levels	7.6
11	Satisfied with supervision	7.6
11	Helps me know expectations	7.6
5	I work effectively at my job	7.3

Dimension	Ten Lowest Scores Company B	Mean
7	The wage I get is fair	2.4
7	My pay is fair relative to others	2.4
7	I am satisfied with allowances	2.7
7	Wages fair relative to community	3.2
11	Management listens to employees	3.3
7	My wages are competitive	3.3
1	Take any job to keep working here	4.4
11	Management is knowledgeable	4.4
4	There is a lot of trust here	4.6
3	My future looks secure here	4.6

Note: Likert-type scoring: 0=Don't know; 1 through 9=Strongly disagree to Strongly agree. Window 1-Commitment to the organization; Window 3-Morale; Window 4-Organizational climate; Window 5-Job output; Window 7-Compensation and benefits; Window 11-Leadership and supervision.

Company B EOS Discussion

Company B had results in line with their demographics and organizational culture. Dimension 11, Supervision and Leadership, with eight high scores was overwhelmingly represented in the ten highest EOS scores of Company B (see Table 16). These high scores represents a lot of trust and respect for the supervisory staff and represents a strategic opportunity for Company B. If supervisors are developed and trained in change strategies and believe in Company B changes, then the supervisors could be a positive force in the introduction of the change and the reinforcement of the change to the employees. Even though employees were located at two separate Company B manufacturing locations, supervisory respect was evident at both manufacturing locations. Five out of the ten lowest scores for Company B were in the compensation and benefits dimension and these five scores were in the top six lowest scores. Whereas Company B production workers are respectful of the supervisory staff, management is not trusted or respected with low scores on individual test items such as: (a) "Management listens to employees"; (b) "Management is knowledgeable", and (c) "There is a lot of trust in this organization". Company B also has some employee retention issues with low scores in EOS items of: (a) "I would accept almost any type of job in order to keep working for this organization"; and (b) "I feel my future in this organization looks secure."

Table 17. Item overview of ten highest and ten lowest EOS scores of Company C

Dimension	Ten Highest Scores Company C	Mean
5	I work effectively at my job	8.4
5	I perform at highest levels	7.8
8	I know what is expected of me	7.8
8	I know I am performing well	7.7
5	I normally achieve expectations	7.5
8	People affected by my job	7.5
11	Respect my supervisor	7.3
11	Insists people work hard	7.2
1	Willing to give to help succeed	7.1
1	I care for fate of organization	7.0

Dimension	Ten Lowest Scores Company C	Mean
7	I am satisfied with allowances	3.1
7	The wage I get is fair	3.3
6	Job provides lot of rewards	4.1
7	My pay is fair relative to others	4.2
2	Easy to agree on matters	4.2
7	Wages fair relative to community	4.2
9	My wages are competitive	4.5
2	Keeps job stress minimum	4.6
4	Great organization to work for	4.6
12	There is a lot of trust here	4.6
3	I get help in doing better	4.6

Note: Likert-type scoring: 0=Don't know; 1 through 9=Strongly disagree to Strongly agree. Window 1-Commitment to the organization; Window 2-Identification with the organization; Window 3-Morale; Window 4-Organizational climate; Window 5-Job output; Window 6-Job satisfaction; Window 7-Compensation and benefits; Window 8-Work role characteristics; Window 9-Work conditions; Window 11-Leadership and supervision; Window 12-Performance review.

Company C EOS Discussion

Company C had results in line with their demographics and organizational culture. There is feeling among employees that they are doing a good job with high scores with EOS items of: (a) "I know I am performing well" and (b) "I work effectively at my job" (see Table 17). Company C employees also want the organization to succeed with two high scores in Dimension 1, commitment to the organization, which were : (a) "I am willing to put in a great deal of effort beyond what is normally expected to help this organization be successful"; and (b) "I really care about the fate of this organization". The top six highest EOS scores for Company C were in Dimension 5, job output, and Dimension 8, work role characteristics. Dimension 5, job output, demonstrates that employees believe that they have control over their output, they will work longer and harder, and they will produce more. Dimension 8, work role characteristics, measures the significance of the job itself, the amount of challenge which is characteristic of the job, the degree of autonomy and personal control over the outcomes of the job, and the clarity of job expectations. In contrast, Company C production workers are very dissatisfied with wages and benefits of Company C. Five out of the ten lowest scores were in Dimension 7, wages and benefits, and Dimension 9, work conditions. Company C also had a low score in Dimension 6, job satisfaction, which was "My job provides a lot of rewards." This low score could be also be interpreted as an indication of dissatisfaction with wages and benefits. Dimension 2, identification with the organization, had two low scores, and an item in Dimension 4, organizational climate (i.e., "great organization to work for"), and

an item in Dimension 12, performance review and evaluation (i.e., "there is a lot of trust here") can all be combined to demonstrate the need of Company C employees to feel positive about the organization. Company C management needs to remind its employees, who are willing to help the organization to succeed, that Company C needs them. Demonstrating employee importance could begin at Company C will an increase in wage and benefits.

EOS Discussion

Employee attitudes can have a measurable effect on the ability of an organization to meet the goal of total quality. When employees are committed to the accomplishment of a shared purpose and have the resources, support, and personal empowerment to perform at the highest possible levels, it is more likely that the organization will succeed at accomplishing its mission and adapting to a changing world over time. All three case studies shared two high scoring EOS test items which were: (a)"I work effectively at my job"; and (b) "I perform at the highest levels". These two EOS items might be characteristic of manufacturing production workers who are traditionally measured and paid in terms of production standards. Companies A and C shared some high scores in the work role characteristics dimension and in the leadership and supervision dimension. Sharing of these high scores is a reflection on how management has defined work roles and how supervisors assist employees in carrying out those work roles. Companies B and C shared one high EOS score, respecting their supervisors, and shared five low scores in dimension 7, wages and benefits. Both Companies B and C need to examine the wages and benefits structures.

Findings from Phase Six

Phase Six measured the overall effectiveness of the TQM change, which was assessed in an indirect manner. Management perceptions of effectiveness was difficult to obtain, because financial information was considered proprietary and was not available. A survey from Kincade (1989) was adapted and used to assess TQM effectiveness through the various functional definitions and measures of change: increased profits, increased ROI, increased quality, increased product number, increased job security, increased wages, and increased job satisfaction (see Appendix E). The TQM effectiveness survey was administered to top management of the case study companies.

Force field analysis was also used in Phase Six. Force field analysis, developed by Kurt Lewin (1951), is the basic outline of the change process and can be applied when defining the change, when analyzing the change, and when planning interventions. Lewin's (1951) theory of force field analysis views the status quo within an organization not as a static structure but as a dynamic equilibrium created by opposing forces that he calls driving and restraining forces. Driving forces initiate change and keep it moving. Restraining forces restrain the driving forces or work against any change in equilibrium. Force Field Analysis assists in analyzing a change effort through the identification of driving and restraining forces of a company.

TQM effectiveness was also measured with another adapted survey, Needs of the Organization Survey (Mink, et. al., 1979) and was administered to both top management and middle management representatives of case study companies in a written format and was a verbal activity with groups of the ten

production workers from each case study company. "What happens next with Quality and Quality Training?" is the title of this open-ended (i.e., complete-the-sentence) instrument (see Appendix F). This instrument measures present level of TQM effectiveness, through projection techniques, by having employees improve on present TQM status and predict the next growth phase of TQM.

TQM Effectiveness Survey Results

Table 18 shows the results for the TQM effectiveness survey results. Top management responses from each company is designated by either A, B, or C next to the coded numbers for Companies A, B, and C respectively.

Table 18. TQM effectiveness survey results for case studies.

	Company A	Company B	Company C
Profits	1	2	0
ROI	1	1	0
Quality of product	1	1	1
Product line/Items	2	1	1
Job security for upper and middle management	1	1	0
Job security for production workers	1	1	0
Increased wages	1	1	-1
Job satisfaction for upper and middle management	1	2	1
Job satisfaction for production workers	1	1	1
Training requirements for upper and middle management	2	1	2
Training requirements for production workers	2	1	0

Note: Decreased greatly= -2; Decreased slightly= -1; Stayed the same=0; Increased slightly=1; Increased greatly= 2.

TQM effectiveness results in Table 18 shows a score of 14 for company A, a score of 13 for Company B, and a score for of 5 Company C. Company A is committed to quality according to Cupello's (1994) Phase Four measure, employees perceived a change has been made and management perceived they have changed effectively. Company B, according to Cupello (1994) is at the playing level, and employees perceive that a change has not occurred,

however, management perceives they have been effective. Company C is also at Cupello's (1994) playing level, and the entire plant has not been quality trained, employees perceived that a change has not occurred, and management agreed that quality effectiveness is currently at a low level. Company size may account for differences in TQM effectiveness. With Company B being a family owned business and smaller number of employees, company quality directives can be put in place quicker than a larger corporation, like Company C.

Force Field Analysis Results

Force field analysis was handed out to top management and the directions were discussed. The researcher and each top manager agreed that it would be completed in a time frame of 45 minutes to one hour and that the completed test booklet would be turned over to the researcher at another data collection session. One plant manager could not complete any part of the booklet and the other two remaining managers completed only a few pages. One plant manager worked on it with other staff members and they spent 45 minutes completing only a portion. Frustration was the mood of all three top managers, and data was both incomplete and contaminated by input from other staff members. The researcher decided not to include the Force Field Analysis in this research project because of a concern that insisting on its completion or aiding in filling out would distort results and pose other threats to the data collection process.

"What Happens Next with Quality and Quality Training" Results

Company A management stated that for the organization to be a quality company, Company A must: (a) continue to involve all employees, (b) continue to train employees in quality practices, and (c) continue to strive for zero percent defective garments. More quality could be gained in Company A if: (a) everyone was involved, and (b) everyone had an open mind about quality. More quality performance could be gained in Company A if there was more hands-on training of tenured employees. The quality job that needs to be done that is not getting done at Company A is continuing training for tenured employees. Company A employees, in the opinion of its management, need more training and skills in standards and judgment calls (i.e., what is acceptable, what is not acceptable). Quality training needs to start when a new employee begins training in a vestibule or classroom setting; Company A management already has this type of program in place and feels that it is effective.

Company A production workers stated that for the organization to be a quality company, Company A must: (a) lower production numbers, (b) give more time to complete an order, and (c) ensure that cut parts are defect free. More quality could be gained in Company A if: (a) better housekeeping in machine and team area, and (b) timely delivery of cut parts and other supplies. The quality job that needs to be done that is not getting done at Company A is more cooperation and communication between quality control department and teams and that cooperation and communication facilitated by management. Company A employees feel they need more training and skills in standards and

judgment calls (i.e., what is acceptable, what is not acceptable) and new employees need to produce in training what they are going to produce when moving to the production floor. Company A production employees feel that new employees need to have a production floor trainer that supplements the supervisor to help new team make the production floor transition.

Company B management stated that for the organization to be a quality company, the company must continue to look for quality employee and train them to be conscious of the fact that Company B market reputation was built on service and quality. More quality could be gained in Company B if employees from top management to production workers stayed focused on the task of making Company B products with better quality. More quality performance could be gained in Company B if there was a better incentive program to give Company B production workers production and quality goals. The quality job that needs to be done that is not getting done at Company B is training new and tenured employees about quality. Company B employees, in the opinion of its management, need more training and skills in quality control (i.e., what to look for in regards to quality). Company B management feels that quality training never ends, it is a continuous process. Company C management also feels training would be more effective if was in the form of a simple message that was continuously reinforced during production.

Company B production workers stated that for the organization to be a quality company, Company B must increase wages and pay production workers for holidays. Merit raises should be in range of 50 cents to 1.00 per hour. More quality could be gained in Company B if top management would acknowledge

a job well done, similar to the Valentine's Day celebration. Suggestions from employees for special acknowledgements included: (a) employees get their birthdays off with pay, (b) coffee and doughnuts after a big order had been successfully shipped off, and (c) employees paid for production. Company B employees feel that they do not need any more training and skills because everyone works together and helps one another.

Company C management stated that for the organization to be a quality company, the corporate function of Company C must provide more support at the plant level. Currently, corporate staff of Company C is spread too thin. Rather than rejecting finished garments, more quality could be gained in Company C if quality inspection occurred during the sewing processes . More quality performance could be gained in Company C if there was more money in the budget to add additional production workers. The quality job that needs to be done that is not getting done at Company C is preventing defects at the needle. Company C employees, in the opinion of its management, need more training and skills in periodically checking their own work. Quality training needs to start when new employees begin training and/or changed to a new position. Company C management feels that a corporate training instructor needs to work with new employees, inspect every garment that is sewn, and teach effective methods. Company C management also feels training would be more effective if it was geared less for high production and more for acceptable quality.

Company C production workers stated that for the organization to be a quality company, Company C must: (a) increase wages, (b) corporate train new

employees, (c) produce defect free cut parts, and (d) train supervisors in more production techniques and methods. More quality could be gained in Company C if: (a) tools such as snips, tweezers, and scissors are supplied to employees, and (b) wages were higher. The quality job that needs to be done that is not getting done at Company C is more communication between quality control department and employees and that communication needs to be facilitated by management. Company C employees perceived that there is not consistency in defining of minimum, average, and production rates within the organization. Company C employees perceive that the hourly rate for one operation can vary according to time, supervisor, and operator. Company C employees stated that there are new employees (i.e., training status employees) making a higher hourly rate than tenured employees. Training of new employees was viewed as acceptable from the viewpoint of production workers at Company C.

Findings from Phase Seven

In the last phase, training and TQM intervention data was combined with organizational culture classifications, and a model was formed. The information in Phases One through Six was compiled into a matrix format. Currently, there is no model for TQM training for the apparel industry. The goals of Phase Seven were to identify possible TQM implementation strategies in apparel/textile product manufacturing. The matrix-model was formed from compiling the information from Phases One through Six.

Table 19. Apparel/Textile Product Manufacturing Training Matrix-Model

	Company A	Company B	Company C
Need for Change (Management Perspective)	Customer request Upper mang. believed Leads to greater rewards	Culture needed change Leads to greater rewards	Upper mang. believed Culture needed change Org. was not running smooth
Future State (Management Perspective)			
Internal Environment	Continue with teams Strive for world class	Continuous improvement to grow and compete	Automation to deal with flexible manf. needs
External Environment	More team manf.	Retaining employees	Salary compensation for production workers
Present State (Employee Perspective)	High congruence of of individuals' beliefs & organizational values. Organization needs more quantity and higher quality communication.	Team members share, listen, solve problems jointly and display trust. Organization needs more quantity and higher quality communication.	Organization is aware of and responsive to customer needs. Organization needs more quantity and higher quality communication.
Planning for Change			
TQM Training	Vestibule training;Team works together to ensure quality , lower turnover rate	On-the job training; High turnover rate	On-the job training; High turnover rate
TQM Involvement	Committed	Playing	Playing
Reaction To Change (Management Perspective)	Supportive	Supportive	Supportive, complying, & resisting
(Employee Perspective)	Supportive & complying; Satisfied with work roles; Dissatisfied with career path.	Supportive & complying; Satisfied with supervision; Dissatisfied with wages.	Supportive, complying, & resisting; Satisfied with supervision; Dissatisfied with wages.
Effectiveness of Change (Management Perspective)	Effective	Somewhat effective	Not very effective
(Employee Perspective)	Effective	Not very effective	Not very effective

Discussion of Phase Seven

The premise of change theory and the TTMP is that companies have to work through an organizational change process by considering the human side of the enterprise (Beckhard & Harris, 1987; Belasco, 1991; Bennis, 1984; Brooks, 1980; Deane, 1993; DeMeuse & McDaris, 1994; Dodge, 1993; Godfrey, 1993; Jones & Reid, 1993; Mink et. al., 1993; Mink et. al., 1994; Toffler, 1990). Companies must consider change intervention at the individual, group, and organizational levels to best manage the change process (Mink et. al., 1993; Mink et. al., 1994). The Apparel/Textile Product Manufacturing Training Matrix-Model demonstrated that the organization that best managed the TQM change, from both a management and employee perspective, worked through all stages of the change process. Companies that encounter change have to deal with company culture, internal and external forces, future and present state, as in the research Venn diagram (see Figure 7).

CHAPTER VI

Summary, Conclusions, and Recommendations

Summary

To prosper, in the face of economic restructuring, many apparel/textile product manufacturers are learning about, planning for, and implementing major organizational changes (Mink et al., 1993). Organizational change is by its very nature complex. An organization working on change strategies needs to focus on its people, one individual at a time, while also keeping the overall picture clearly in mind. As the quality movement is adopted in the U.S. apparel/textile product manufacturing environment, there is a growing focus on the human side of the enterprise. Total Quality Management (TQM) is an organizational strategy that drives an ongoing, continuous process, one that requires radical changes in organizational design and day-to-day operations (Hodgetts, Luthans, & Lee, 1993).

Two management functions become very important in a changing organization: planning and training. Management planning is vital for initial and long-term success of the change (Mink et al., 1993). Training helps to disseminate the change to individual employees, as well as communicate the change to groups, and the whole organization (Nilson, 1990).

Today's market is characterized by an accelerating differentiation of demand for consumer products that is coupled with heightened consumer awareness and expectation of quality. Apparel producers, facilitated by a rapid introduction of new technology, are responding to this market shift by

diversification of apparel offerings (Kurt Salmon Associates, 1994). Greater competition in variable and fragmented markets forces American apparel manufacturers to change business management techniques.

As customers' needs and perspectives change apparel manufacturers must change. Companies need to be attuned to emerging challenges as environmental jolts occur and to get their customers' changing perspectives (Mink et al., 1993). This situation means that companies must be open to new information and listen to customers. Companies must respond to what they hear. They need to act forcefully and solidly, and to develop world-class competitive products and services (Godfrey, 1993; Mink et al., 1993; Wilesmith, 1993;). To do so, leaders must foster through training a climate of adaptability. Everyone, at all levels of the organization, must be ready to make the necessary changes.

The purpose of this research was to examine the intersection of firm-based training and TQM and to determine how effectively these two business strategies are being combined and applied in North Carolina apparel manufacturing. The research purpose was achieved by examining the quality training of three case studies of N.C. apparel/textile product manufacturers and building a model for TQM training. The research approach was a mix of qualitative methods (i.e., personal interviews, surveys, group activities) in a case study format, to investigate the quality practices, training practices, and the organizational culture of the three case studies, in order to achieve an accurate model of how TQM involvement, training, and organizational culture interact.

Method triangulation was used to distill TQM, firm-based training, and organizational culture findings to identify a parsimonious model of TQM implementation strategies.

An underlying assumption, of qualitative research, is that in-depth understanding of the research setting is necessary for successful research (Brannen, 1992). To control bias, the researcher attempts to understand a situation without imposing preexisting expectations nor manipulating the research setting. Qualitative research starts with an inductive approach of observing normally occurring events. The goal, of the inductive approach, is for the researcher to synthesize general patterns in an attempt to understand normally occurring phenomena. The researcher studies the setting through direct contact and experience with the setting. Qualitative strategies are implemented to understand multiple relationships, without presuming in advance important dimensions of the study. The inductive research approach contrasts with the deductive research approach in which main variables and hypotheses are set before data collections (Patton, 1980).

Linking the three, large content areas of TQM, training, and organizational change required the mixing of qualitative research methods. Qualitative research methods are used to understand phenomena and situations in a holistic view. This study used the case study approach. The participating companies were drawn from a published directory of N.C. manufacturers. Several companies were contacted and three were chosen using research criteria. The three companies had varied demographic characteristics: (a) type of product manufactured, researched companies

represented SIC codes 2329 (i.e., men's and boys clothing), 2394 (i.e., canvas products), and 2321(i.e., men's and boys shirts); (b) number of employees, researched companies ranged in size from 330 to 210 to 120 employees; and (c) type of production method used, researched companies production methods used ranged from stand-up team sewing to sit down progressive bundle to traditional bundle.

Data collection for interpretative qualitative research is an on-going process of data collection and data analysis. The procedure, outlined by Tesch (1990), is as follows: (a) interviewing or observing the subjects, (b) transcribing field notes, (c) segmenting data, (d) decontextualizing data, (d) coding data, and (f) recontextualizing data. Structured interviews were used. This study used Tesch's (1990) procedure for data collection and analysis.

Data collection was done in six phases using Mink et. al. (1993) Total Transformation Management Process (TTMP) as the conceptual framework. The TTMP was devised as a conceptual model for managing change within the organization. The model is grounded in the belief that anyone who would successfully institute changes in an organization must address the entire system, with a special focus on the organizational members. The six phases were (a) examining the need for change, (b) determining the future state of the organization, (c) identifying the present state of the organization, (d) analyzing the planning of the change strategy, (e) examining the organization's reaction to change, and (f) measuring the overall effectiveness of the change. This research used the TTMP, which examines how a company flows through the

change process, to evaluate how three case studies from the N.C. apparel/textile product manufacturing population flowed through the quality change process.

Conclusions

Phase One examined and mapped the need for TQM change within each case study company and was measured through interviews and written surveys. Each case study's top management recognized that there is a need for a quality change due to external environmental factors as well as internal organizational needs. Results from Phase One showed differing motivations in each of the three case studies of why a TQM focus was initiated. All three case studies had appropriate reasons for why a quality change was needed for their particular organization, even though the three case studies differed in product produced, production method used, company size, competitive strategy, worker compensation, and training practices.

Phase Two described the future state of the organization and was measured through interviews and review of written corporate documents. Mission and vision statements of all three companies were very nonparallel, but when interviewing the top management representatives, the researcher felt that each person had a realistic, in-depth understanding of his business, as well as a sense of the future state of the apparel/textile product industry. Trade literature had stated many future challenges of the industry (Black, 1994; "Firms Benchmark,", 1984; Kurt Salmon Associates, 1994; "Quality Management," 1993; Troy, 1991; U.S. Congress, Office of Technology Assessment, 1987).

Even though each case study's top manager did not state every possible future industry challenge, each top manager had a clear, future company direction and realistic future challenges of his organization.

Phase Three described the present state of the organization and the Open Organization Profile (OOP) survey was used to characterize the organizational culture. Every case study company had low OOP items in Windows 3 and 8. Window 3, individual internal responsiveness, measured the extent to which people in the organization are able to relate to one another in an effective manner. Window 8, internal organizational responsiveness, measured the degree and quality of information sharing and communication in the organization. Low scores in these two windows, indicated that all three case studies had: (a) perceived insufficient information flow, and (b) perceived low levels of cooperation and communication. With further study, it may be proven that low scores in Windows 3 and 8 are endemic to apparel/textile product manufacturing. With the competitive business nature, dependence on secrecy, and fear of information sharing within the industry (Berkstresser & Buchanan, 1986; U.S. Congress, Office of Technology Assessment, 1987), low levels of communication and information sharing may have spilled over from the industrial level to the organizational culture of apparel/textile product manufacturing.

Company A was the only company that had high scores in Windows 4 and 6; both windows measure the organization at the team level. Window 4, team unity, measured the degree to which teams are working together to accomplish clearly defined goals. Window 6, team external responsiveness,

measured the degree to which different groups work together to accomplish the shared purposes of the organization. High scores in both these window is not surprising because of Company A team manufacturing methods and compensation rewards for team production and organizational cooperation in filling a customer's order. Company B had high scores in the individual level windows of self-awareness and basic beliefs and values, which may be an indication that employees can only rely on themselves within Company B organizational structure. In contrast, Company C had a high score in Window 9, external organization responsiveness, which measured the degree to which employees perceive the organization as aware of and responsive to customer requirements and environmental threats and opportunities. These high scoring differences illustrate unique strengths within each case study company with Company A being team-focused, Company B being strong at the individual level, and Company C having strength at the organizational level.

Phase Four analyzed the planning of the change strategy and training and TQM approaches were examined in this phase through interviews. Even though quality training is stressed from the first day of employment from each of the case study companies, the similarities among the case studies ends there. Company A has addressed training problems of adult learners (Gordon, 1993) in a vestibule training program, and Companies B and C rely on co-worker, on-the-job training. Employee turnover rate is also in sharp contrast among the three case studies, with Company A having about a 30% turnover rate, and

Companies B and C having approximately 100% turnover rate. Company A has achieved the committed level of Cupello's (1994) Measurement-Maturity Matrix, whereas Companies B and C are at the playing level.

Phase Five examined each case study company's reaction to change through two surveys, a Reaction to Change (R-T-C) Survey (DeMeuse & McDaris, 1994) and Employee Opinion Survey (EOS). Based on DeMeuse and McDaris (1994) criteria of R-T-C results, Companies A and B are poised for change at both the employee and managerial levels and Company C may find difficulties affecting change at both at the employee and managerial levels. From the EOS results, Company A had employee attitudes that would support change. Although Companies B and C had both made change efforts, the EOS results indicated that in the opinion of Companies B and C employees, unresolved company issues will impede further progress toward change. There were also many similarities between Phase Three OOP results and Phase Five EOS results. Company A in each measure showed organizational openness at the team level. Company B showed OOP openness at individual level, and respect for supervisors in EOS results, but overwhelmingly was concerned with wage and benefits issues in the EOS. Company C showed OOP openness at the organizational level, and caring about the organization in the EOS, but overwhelmingly was concerned with wage and benefits issues in the EOS.

Phase Six measured the overall effectiveness of the TQM change and was assessed using two surveys and one group activity. Company A is committed to quality according to Cupello's (1994) Phase Four measure. Employees perceived a change has been made and management perceived

they have changed effectively. Company B, according to Cupello (1994) is at the playing level. Employees perceive that a change has not occurred, however, management perceives they have been effective. Company C is also at Cupello's (1994) playing level, and the entire plant has not been quality trained. Employees perceived that a change has not occurred, and management agreed that quality effectiveness is currently at a low level.

Phase 7 identified a model for TQM training program given case study data. Results from the case studies were used to build a model outlining the implementation phases of various TQM training programs. The dissertation model follows the phases of Mink's (1993) TTMP process. The company that has worked through all of the TTMP phases, including training and employee empowerment, is the company that is achieving the best results. This research showed that an organized training program in quality corresponded with effective results, which is also in agreement with the current training and organization development literature (Dodge, 1993a; Hodgetts et al., 1993; Jones & Reid, 1993; Nilson, 1990; Parry, 1993). An apparel/textile product manufacturer could use the matrix-model by identifying similar organizational characteristics and activities within the matrix-model and relating effective and ineffective TQM implementation strategies.

The case studies also revealed that employees' basic needs (i.e., wages) need to be addressed before employees' training needs (i.e., quality training) can be successful and effective. This finding is consistent with training, quality, and organizational development literature (Dick & Carey, 1993; Goldstein, 1993; Hodgetts et al., 1993; Jones & Reid, 1993; Nilson, 1990; Parry, 1993;

Troy, 1991). This research found that the two case study companies that had not moved through the TTMP had not been wholly effective in their quality focus change. These findings also provide empirical support for theories in training and quality. This research also showed that the TTMP conceptual framework was effective in the measurement of organizational practices in the apparel/textile product industry.

Suggestions for Further Research

Based on the results of this study, further investigations could be conducted in the following areas:

1. A broad mail survey should be conducted throughout the state of North Carolina using the matrix-model to generate hypothesis and to include a more diverse sample.
2. A researcher could be immersed into a company's culture for a period of time, such as participating in the manufacturing process to enhance the depth of the data.
3. Another research project would be to spend more time on the production floor observing the organizational culture rather than interviewing and surveying organizational members.
4. Another study would be to shadow a production supervisor or a team for one week, and observe day-to-day operations and observe first hand how conflicts are resolved. The researcher should video record and use field notes for this research. Audio taping would not be advisable, due to production floor noise.

5. Researcher could witness a TQM change. Performing a formative evaluation of training program after TQM training has been done within a company, for example, Company B, within this dissertation. Goldstein (1993) states that evaluation is the systematic collection of descriptive and judgmental information necessary to effectively decide selection, adoption, value, and modifications of various training programs. Goldstein (1993) distinguishes between formative evaluation, which is used to determine if the program is operating as originally planned or if improvements are necessary before the program is implemented, and summative evaluation, which is the evaluation of the final product with the major emphasis being program appraisal. This dissertation focused on summative evaluation, but a formative evaluation would be helpful both to the industry and to the dissertation's model.

6. American Society for Quality Control (ASQC), community colleges, and universities offer seminars at a particular plant location. These seminars focus on topics such as TQM, group interaction, effective communication, and may be good solutions for smaller companies that do not have resources (i.e., training personnel, subject matter expertise, funding) to design these workshops in house. The researcher could track progress of employees and assess effectiveness of seminars for future company use.

Suggestions for Future Outreach Projects

During case study observation, the researcher noted several outreach projects could be conducted by academic researchers, industrial extension specialists, and business information specialists in the following areas:

1. A researcher could participate in the manufacturing process in a team, progressive bundle system, and unit production system (UPS) and compare the similarities and differences between the various manufacturing methods.

2. A researcher could interview experienced sewing operators, who have produced apparel/textile product using various manufacturing methods and collect data using an oral history format.

3. Multi-cultural training, academics could link up between several land grant institutions and offer a multi-cultural training staff, sensitive to cultural differences as well as knowledgeable about the apparel/textile product industry.

4. A researcher could serve as a bridge between employees and community services and could be a part of an academic's outreach efforts in the following ways:

a. If company has sponsored employees in continuing education programs (i.e., GED, computer training, and machine repair) at a local community college, then a researcher could help management publicize this program in a democratic and positive manner and develop career paths for program graduates. Serve as a company liaison to community college to help with registration, academic performance issues, work release, financial aid, and scholarship programs, especially for a small company that does not have the personnel to perform these coordinating activities. A researcher could also coordinate retention programs so that employees are empowered to stay both on the job and in school.

b. A researcher could help management coordinate and promote English as a Second Language (ESL) for all eligible employees through local community colleges.

c. A researcher could coordinate in plant Spanish classes for top management, first-line management, production supervisors, and production workers in order to promote communication with the Latino employees and prospective employees in the labor market. This education is also a career enhancement for supervisory and management personnel, as more companies produce products in Spanish speaking countries, and manufacturing information will be shared in the future in both Spanish and English.

d. A researcher could coordinate community services, such as bus transportation, (i.e., know bus routes, schedules and practice using public transportation) to help companies that do not have personnel staff to link employees with outside service agencies that could improve the company's retention rate.

Suggestions for Case Study Methodology

During the researcher's review of literature search no practical guidelines for doing case study research in the apparel/textile product industry could be found. The following guidelines were culled from this researcher's field notes during the data collection procedure at all three case studies.

1. During plant tour make mental notes of visual, nonverbal, and spoken communication (i.e., how the plant manager interacts with employees, housekeeping around the machinery, overall feel of the production floor). Write down these mental notes as soon as possible and use them as the first field

notes. Use this information to fill in needed demographic information and to brainstorm questions that might be company specific or helpful to fill in the researcher's knowledge base. Use this brainstorming list during the first interview with top management for the following reasons: (a) the list communicates the researcher's observational skills to top management; (b) the list verifies observations during the interview; (c) the list is good starting exercise for a structured interview because verifying is easier than explaining concepts; and (d) the list saves management and researcher time.

2. When the researcher is using written surveys in a group settings, it might be appropriate to have pens, maybe imprinted with university logo or school mascot that would be a "thank you" participation gift.

3. If one data collection session is going to be more than two hours, offer a short break at an appropriate time in the data collection process or employees might ask for a break at an inappropriate or critical time.

4. When the researcher is asking for permission to data collect at a plant location, have a table or list of personnel requirements for interviewing, observing, and surveying. Have someone outside the sample complete written surveys and time them. Also approximate interview time, allowing one to two minutes for short answer questions and five minutes for opinion or explanation questions. Have approximate data collection times next to each subject in the data collection table/list, so that plant manager or executive can make judgments and plans. Also have a plan of how many trips the researcher is going to make to the plant site, and what data collection order the researcher requires.

5. Visit the plant ahead of time if the plant's location is unfamiliar. When visiting for the first appointment, allow extra travel time for inclement weather and rush hour or traffic problems. Manufacturing plants start early in the morning so make phone calls and appointments early in the day before 9:30 am. Find out the plant's work week schedule, as some plants close at noon on Fridays. Mondays and Fridays can be difficult days to data collect because of higher probability of crises on these days.

6. The researcher should call the day before an appointment to confirm appointment time and to remind contact person who needs to be in attendance, and the time and facilities that are required. The researcher should not assume plant personnel is waiting for him/her to arrive. The researcher should be prompt, impress company employees as if everyone is a prospective employer.

7. The researcher should dress professionally, but not too formally. Casual clothing is the norm in plants and too formal dress can alienate the researcher.

8. The use of a tape recorder is essential when doing field study research; however, proprietary information of the companies needs to be protected. A rapport should be established with the subject and permission to use the tape recorder should be gained before using the tape recorder.

9. The researcher should be very familiar with the tape recorder's operation. The researcher should have twice as many tapes on hand as was predicted. The tapes should be labeled and the tape recorder's volume tested ahead of time. Both back-up batteries, an electrical adaptor, or a back-up tape recorder is needed to ensure continuous taping. The researcher should announce to the

group very clearly that tape recording is starting so that interviewees/subjects are aware that they are being tape recorded.

10. For a group activity the researcher should have all the questions and/or topics of discussion on a handout. The handout allows the researcher to stay on track and schedule and redirect the conversation with phases like "Thank you for sharing that information; however, we only have 20 more minutes and we have 3 remaining topics" or "That is very important information, but we will be discussing that topic in item #4, let's make sure we cover that issue in #4".

11. In a group activity setting the researcher should introduce him/herself and disclose something personal to help subjects feel more comfortable. Most people do not have daily contact with researchers and have personal prejudices and fears of the researcher's role and are skeptical of the researcher's intentions. Explain the research purpose and stress the preparation to be able to collect data and that while this is the first time they have heard about this research, this is the climax of the research project and that they are critical, and urge them to be honest and complete in their responses.

12. Assure employees that their company's management has a sincere interest in the research. The researcher should stress that management feels the work is important, and since it is evident that the company is open to change because it is sponsoring this research.

13. When doing research with several case studies, collect data in the same order within each company. When do several written surveys, interviews, or group activities, perform the data collection activities in the same order, giving

the same directions, and allotting the same amount of time to complete an activity among all the case studies. The researcher should also follow this protocol if two or more data collection sessions are performed within the same company.

14. Try to collect all data in similar time frame for each company and among all companies. Company announcements between data collection sessions could confound results.

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APPENDIX A

APPENDIX A

INSTRUMENT FOR PHASE ONE

Is Total Quality Management (TQM) A Fad?

1. Many companies claim they are using TQM in their organizations. Do you think TQM is just another management fad? ❑ Yes ❑ No

2. Do most leaders in (your organization) the apparel/textile product industry practice what they preach regarding TQM? ❑ Yes ❑ No

3. Is your company encouraging adoption of quality throughout the organization?

❑ Yes ❑ No If yes, how?_____

_____

_____

4. Does your company use quality principles all the way down to the operator level?

❑ Yes ❑ No

If yes, which of the following situations apply to your company's operators? Check all that apply.

❑ Operators work in self-managed teams.
❑ Operators within teams schedule their own work hours.
❑ Operators within teams have authority to decide who remains on the team.
❑ Operators have authority to pull, send back or reject garments for quality or other reasons.
❑ Other _____

_____

5. Which statements about a quality focus best match the beliefs of the management within your company?
Check all that apply.

- ❑ We had to switch to a quality focus because our suppliers dictated the change.
- ❑ We had to switch to a quality focus because our customers dictated the change.
- ❑ We switched to a quality focus because upper management believed in the change.
- ❑ We switched to a quality focus because our organization was not running smoothly from a management perspective.
- ❑ We switched to a quality focus because our organizational culture needed it.
- ❑ We switched to a quality focus because it leads to more efficient operations and greater productivity and profitability.

6. What is the single most important factor in making quality production work?

- ❑ Executive management commitment
- ❑ Company-wide training
- ❑ Clear vision and purpose
- ❑ Other_____

_____

7. Has your company offered any quality training? ❑ Yes ❑ No

8. To whom has quality training been offered? Check all that apply.

- ❑ No one, as yet
- ❑ Upper management
- ❑ Corporate staff
- ❑ Plant management
- ❑ Plant supervisors
- ❑ Operators/Production workers

9. How was quality training first obtained? (i.e., reading a quality manual, outside consultant, outside seminar) _____

_____

_____

APPENDIX B

APPENDIX B

INSTRUMENT FOR PHASE ONE

Demographic Information

Case Study Company _____

1. Type of manufactured product SIC _____

2. Type of ownership

3. Type of production methods used

4. Company size (characterized by number of employees)

5. Competitive strategy

6. Form of worker compensation
Hourly (training status, housekeeping) # of employees _____
Base plus piece work # of employees _____
Incentive pay # of employees _____
Salary # of employees _____

7. How are new production employees trained? _____

_____

8. If a production employee is switched to a new operation, how is that employee trained ? _____

_____

9. If a company-wide philosophy/technique/procedure is introduced, how are employees trained? _____

_____

10. If an employee is not performing up to company standards, is retraining used?

_____

APPENDIX C

APPENDIX C

QUALITY TRAINING PROGRAM AND QUALITY TRAINING EFFECTIVENESS INTERVIEW

INSTRUMENT FOR PHASE FOUR

What functional areas have organized quality training programs?

What are the structured quality training programs for new employees?

What retraining programs are in place for reinforcing the concepts of quality?

Are there company or team meetings focusing on quality?

How are new quality training programs designed and assimilated into the organization?

Has a quality change occurred in the company since quality concepts been introduced?

Can the quality changes be attributed to the training program (s)?

Is it likely that similar changes will occur for new participants in the same program?

Is it likely that similar changes will occur for new participants in the same program in a different organization?

What is the company employee turnover rate?

APPENDIX D

APPENDIX D

INSTRUMENT FOR PHASE FIVE

THE REACTION-TO-CHANGE INVENTORY

(DeMeuse & McDaris, 1994)

Directions: Circle the words below that you most frequently associate with change. (This table shows the value of each word in parentheses for scoring purposes. When administering the R-T-C Inventory, do not reveal the values until participants have finished the inventory.)

Adjust (0)	Different (0)	Opportunity (+10)
Alter (0)	Disruption (-10)	Rebirth (+10)
Ambiguity (-10)	Exciting (+10)	Replace (0)
Anxiety (-10)	Fear (-10)	Revise (0)
Better (+10)	Fun (+10)	Stress (-10)
Challenging (+10)	Grow (+10)	Transfer (0)
Chance (0)	Improve (+10)	Transition (0)
Concern (-10)	Learn (+10)	Uncertainty (-10)
Death (-10)	Modify (0)	Upheaval (-10)
Deteriorate (-10)	New (+10)	Vary (0)

APPENDIX E

APPENDIX E

INSTRUMENT FOR PHASE SIX--EFFECTIVENESS OF TQM ADOPTION

* Consider the following questions in relation to how each factor has changed for your company since the adoption of your quality focus.

* CIRCLE the letter which best describes the CHANGE for each item for your company.

* For example, complete the "Profits" category by filling in the blank to the following statement: Since the adoption of our quality focus, profits have _____.

	decreased greatly	decreased slightly	stayed the same	increased slightly	increased greatly
Profits	-2	-1	0	1	2
ROI	-2	-1	0	1	2
Quality of product	-2	-1	0	1	2
Product line/Items	-2	-1	0	1	2
Job security for upper and middle management	-2	-1	0	1	2
Job security for production workers	-2	-1	0	1	2
Increased wages	-2	-1	0	1	2
Job satisfaction for upper and middle management	-2	-1	0	1	2
Job satisfaction for production workers	-2	-1	0	1	2

	decreased greatly	decreased slightly	stayed the same	increased slightly	increased greatly
Training requirements for upper and middle management	-2	-1	0	1	2
Training requirements for production workers	-2	-1	0	1	2

APPENDIX F

APPENDIX F

INSTRUMENT FOR PHASE SIX

What Happens Next With Quality?

1. For this organization to be an outstanding quality company_____

2. We could get a lot more quality around here if _____

3. What this organization needs for more quality performance is _____

4. The quality job that needs to be done that isn't getting done is _____

5. For quality to improve, people around here need training and skills in _____

_____

_____

_____

_____

6. Training would be more effective if it was done when_____

_____

_____

_____

_____

7. Training would be more effective if it was done where_____

_____

_____

_____

_____

8. Training would be more effective if it was done in a manner that _____

_____

_____

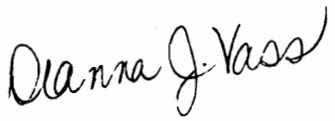
_____

_____

VITA

Dianna J. Vass graduated from the University of Delaware with a B.S. degree in Fashion Merchandising in 1984. She worked in personnel management for Woodward and Lothrup, in Washington D.C. until 1987.

She received a M.S. in design in 1989 from Virginia Polytechnic Institute and State University and received a M.S. in textile and apparel management in 1992 from North Carolina State University. She received a textile and clothing PhD. from Virginia Polytechnic Institute and State University in August 1995. During her graduate studies, she worked as both teaching and research graduate assistants. She has also worked as a counselor and instructor at Durham Technical Community College, Durham, North Carolina.



Dissertation Supplement

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Organizational Reaction to a TQM Change Through an Employee Opinion Survey in Three North Carolina Apparel/Textile Product Manufacturers

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Abstract

As the quality movement is adopted in the U.S. apparel/textile product manufacturing environment, there is a growing focus on the human side of the enterprise. The purpose of this research was to examine three case studies of N.C. apparel/textile product manufacturers and their employees' opinions with regards to an organizational TQM change. Data collection was done using a case study format. Demographic information was collected, and an Employee Opinion Survey (EOS) was administered to ten sewing production workers in each of the three case study companies. Results from the case studies revealed that employees' basic needs (i.e., wages) need to be addressed before employees' training needs (i.e., quality training) can be successful and effective. Improved knowledge of how employees react to change has implications for apparel/textile product manufacturers when instituting a TQM change.

The global economy is entering a new paradigm, a fundamental shift with new rules and boundaries. To prosper in the face of economic restructuring, many apparel/textile product manufacturers are learning about, planning for,

and implementing major organizational changes (Mink, Esterhuysen, Mink, & Owen, 1993). Two realizations must be part of this new paradigm (Mink et al., 1993): (a) acknowledgement of organizations as human systems consisting of many interrelated parts and (b) acknowledgement that every individual matters and that what each individual does affects everybody else. Any program that seeks to introduce change into an organization will fail if it is not grounded in this system-wide view of the organization (Mink et al., 1993). Total Quality Management (TQM) is such a program. TQM is an organizational strategy that drives an ongoing, continuous process, one that requires radical changes in organizational design and day-to-day operations (Hodgetts, Luthans, & Lee, 1993).

In an increasingly chaotic business world, most problems and challenges can be attributed to two overriding forces that affect virtually all organizations: increased competition and increased consumer demand for quality (Mink et al., 1993). Either one alone can cause tremendous changes in an organization. When they coexist as they usually do in American apparel/textile product manufacturing, their combined impact on a company increases geometrically (U.S. Congress, Office of Technology Assessment, 1987).

Top management in many U.S. firms searches for ways to sustain the momentum of the transformation in corporate organization and culture begun in the 1980s. Evidence that corporate training programs promise to become a crucial tool in this effort is plentiful in firms that have already embraced total quality as a management process (Godfrey, 1993; Troy, 1991). Training programs build quality awareness in employees, help managers to lead the

quality movement in their units, and instill the skills needed to calculate costs and document improvements resulting from a quality focus. There is evidence in the literature (Troy, 1991) that corporate training programs promise to become a crucial tool in embracing total quality as a management process.

Today's organizations, including apparel manufacturing, operate in a constant flux (Beckhard & Pritchard, 1992; Belasco, 1991; Brooks, 1980; Mink et al, 1993; Naisbitt & Aburdene, 1985; Tomasko, 1993). Corporate transformation is defined by Mink et al. (1993) as the process by which organizations examine what they were, what they are, what they will need to be, and how to make the necessary changes. Any one of hundreds of situations could call for transformative change. The following corporate objectives are some typical examples proposed by Mink et al. (1993): (a) to implement TQM, (b) to integrate changes in operational systems and procedures, (c) to implement continuous improvement processes, (d) to implement strategic planning, and (e) to introduce new marketing plans with benchmarking.

Two management functions become very important in a changing organization: planning and training. A plan or a model that the organization change will follow is vital for initial and long-term success of the change (Mink et al., 1993). A model for organizational change, such as the Total Transformation Management Process (TTMP), can be a catalyst for sparking change and an aide for maintaining change momentum (Mink et al., 1993). Mink et al. (1993) state that TTMP helps managers deal with organizational change by addressing the learning needs of both individuals and groups. Training helps to disseminate the change to individual employees, as well as communicate the

change to groups, and the whole organization (Nilson, 1990). Training helps individual employees control or manage change by enabling each trainee to master new knowledge, attitudes, and competencies (Nilson, 1990). Training is also an organized, step-by-step, coordinated system whose goal is behavior change, and this function of training can help groups and the whole organization adapt to the new behavior (Nilson, 1990).

To plan successfully for a change, it is helpful to understand the process or life cycle that an organization goes through when implementing a transformative change. That process follows a predictable pattern that Levy (1986) breaks into four sequential stages: (a) decline or crisis occurs when needs,either internal or external, are not appropriately met; (b) transformation occurs when the need for change is accepted and commitment to the change is made; (c) transition occurs when plans, ideas, and visions related to the change are translated into actions; (d) stabilization and development occur when a second-order change has been institutionalized, tuned up, maintained, and developed by first-order changes. Most U.S. apparel manufacturers are in the transformation and transition phases of the change cycle ("Quality Management," 1993).

To promote quality awareness and recognize quality achievements of U.S. companies, the Malcolm Baldrige National Quality Award was established by the U.S. congress in 1987. During the 1980s, hundreds of companies jumped on the quality bandwagon. In 1991, more than 210,000 companies requested application guidelines for the Malcolm Baldrige National Quality

Award (Bahis, 1992). The Malcolm Baldrige Award Criteria has several guidelines that use training as a method to achieve quality in an organization.

On the surface, a total quality program seems to be the logical solution for companies facing the twin problems of consumer demand for higher quality and competition from other organizations whose products appear to satisfy that demand. Yet, the evidence shows that total quality management is not always the instant savior one would expect (Deane, 1993; Luther, 1991; Mink et al., 1993; Mohr-Jackson, 1993; Troy, 1991). American manufacturing companies can find many difficulties adopting a TQM approach. With a new quality focus, a company may find that it needs to change its vision statement, and management can fail to communicate the new TQM vision to all employees (Luther, 1991; Mink et al., 1993; Mohr-Jackson, 1993; Schein, 1991). Management can also overlook the importance of dealing with individual and group issues (Mink et al., 1993; Mohr-Jackson, 1993; Schein, 1991).

Mink et al. (1993) and Wiggenhorn (1991) found that TQM training was initially rejected by the work force, because it was viewed as the program-of-the-month from corporate headquarters. Other difficulties arise when an organizational culture is not adaptive to respond rapidly to the new requirements of TQM and management has not developed a climate of openness in which employees can excel (Deane, 1993; Evans, 1991; Mink et al., 1993; Mohr-Jackson, 1993). Mink et al. (1993) observed TQM problems when implementation schedules were not initially well planned. Deane (1993) and Mink et al. (1993) found when management had not provided for individual and group concerns, the implementation process faltered. Management

expectations were that if a new program was put in place, it would be so thoroughly embraced by all employees that it would run on its own (Mink et al., 1993). It is not sufficient simply to introduce changes into an organization. They must also be managed (Deane, 1993; Mink et al., 1993; Mohr-Jackson, 1993). Training is expected to be a part of this management process.

American companies, including apparel/textile product manufacturers, are attempting to respond to the twin forces of worldwide competition and increased demand for quality. In recent years, nearly every business organization has introduced a new philosophy, a new approach, or a new system to keep up with these challenges. These efforts are often substantial, requiring several years to implement. These new programs take many forms, but they all have one thing in common: they represent some degree of change, sometimes very fundamental change, in the way the organization does business. They have something else in common as well: a very high rate of failure (Mink et al., 1993; Whalen & Rahim, 1994).

Why do so many of these programs fail? Why, when so much effort, money, and good intentions are invested, do they fall short of the mark? Indications in change theory (Beckhard & Harris, 1987; Beckhard & Pritchard, 1992; Belasco, 1991; Mink et al., 1993;), organizational management literature (Berzinn, 1993; Brooks, 1980; Evans, 1991; Hodgetts, Luthans, & Lee, 1993; Logothetis, 1992; Mahoney & Thor, 1994), training guides (Bureau of Training, U.S. Civil Service Commission, 1969; Gordon, 1993; Troy, 1991), and trade study anecdotes (Black, 1994; "Firms Urged," 1994; Im, 1994; Karnes & Kanet,1994) are that training is critical for the implementation and successful

sustainment of any new strategy, including TQM. TQM requires a well-educated work force and although companies invest heavily in quality awareness and statistical process control, often the training is too narrowly focused (Whalen & Rahim, 1994). Although much information is reported in trade literature about successes and failures of TQM (Whalen & Rahim, 1994), limited empirical research exists to substantiate these reports (Newall & Dale, 1990), and no previous empirical research investigates these issues in the apparel/textile product industry.

Research Objective

The research objective was to assess the current employee perceptions regarding TQM and training changes within each company's organization.

Conceptual Approach

The conceptual framework for the study was based on the concepts of organizational change, training, and Total Quality Management (TQM), all of which are widely implemented business strategies. Change theory helped the research to examine the importance of TQM and of training, and change theory blended the concepts of TQM and firm-based training. The conceptual framework identified and explained the perspectives on the nature of planned organizational change.

Change Theory. When a company strategically decides to implement TQM, Mink et al. (1993) state that (a) the TQM change must be defined; (b) the levels and degrees of change required must be evaluated; (c) the sources of demand for change must be examined, and their power must be determined; (d) the company culture must be examined; and (e) the amount of choice involved

must be evaluated. These five steps can be defined as a needs analysis. Performing a needs analysis for a human system involves comparing the current situation or present state (i.e., what is) with the desired outcome or desired future state (i.e., what will be) (Mink et al. ,1993) .

Total Transformation Management Process. Mink et al. (1993) devised the Total Transformation Management Process (TTMP) as a conceptual model for managing change within an organization (see Figure 1). The model is grounded in the belief that anyone who would successfully institute changes in an organization must address the entire system, with a special focus on the human side of the enterprise (Mink et al., 1993). The center portion of the model illustrates the major components of the TTMP. The outer ring and its inward-pointing arrows represent the ongoing probing and reflection that take place through action research. Action research is a way of improving a process, based on findings obtained from data gathered which that process is still going on (Mink et al., 1993).

Insert Figure 1

Mink et. al. (1993) Total Transformation Management Process (TTMP), a model for managing change within an organization, was translated into six phases which were (a) examining the need for change, (b) future state of the organization, (c) present state of the organization, (d) analyzing the planning of

the change strategy, (e) examining the organization's reaction to change, and (f) measuring the overall effectiveness of the change. This article discusses the organization's reaction to change.

Firm-Based Training. Changing company systems alone will not assure continuing improvement (Mitchell, 1993; Scherkenbach, 1988). Deming's sixth point in quality is to institute training on the job (Deming, 1982). Many major American companies are recognizing the success of a quality program hinges on a continuing training and education commitment to all employees (Berzinn, 1993; "Firms Urged," 1994; Godfrey, 1993; Mitchell, 1993).

Total Quality Management. Total Quality Management (TQM) is an organizational strategy that drives an ongoing, continuous process, one that requires radical and second-order changes in organizational design and day-to-day operations (Hodgetts, Luthans, & Lee, 1993; Levy, 1986). A company must handle major shifts in culture to become a total quality organization (Hodgetts, Luthans, & Lee, 1993; Ronen & Pass, 1994).

The findings of this research will help apparel companies institute TQM. Many apparel manufacturers are implementing TQM to stay competitive in a quality-conscious market; however, many companies are finding transition and maintenance are difficult. Apparel manufacturers need to communicate the TQM culture change through training to all of their employees. Change theory literature emphasizes that employees who are empowered and trained in TQM practices are facilitators and sustainers of the TQM philosophy (Bahis, 1992; Berzinn, 1993; Deane, 1993; Fooks, 1993; Hodgetts, Luthens, & Lee, 1993;

Mink et. al., 1993; Tomasko, 1993; Zand, 1993). TQM training has not been researched, in general, nor has TQM training been researched specifically within apparel manufacturing.

Methodology

Linking the three, large content areas of TQM, training, and organizational change requires the mixing of qualitative research methods. Qualitative research methods are used to understand phenomena and situations in a holistic view. An underlying assumption, of qualitative research, is that in-depth understanding of the research setting is necessary for successful research (Brannen, 1992). To control bias, the researcher attempts to understand a situation without imposing preexisting expectations nor manipulating the research setting. Qualitative research starts with an inductive approach of observing normally occurring events. The goal, of the inductive approach, is for the researcher to synthesize general patterns in an attempt to understand normally occurring phenomena. The researcher studies the setting through direct contact and experience with the setting. Qualitative strategies are implemented to understand multiple relationships, without presuming in advance important dimensions of the study. The inductive research approach contrasts with the deductive research approach in which main variables and hypotheses are set before data collections (Patton, 1980).

Specific Qualitative Model

Qualitative research studies generally fall into two main categories: structural analysis and interpretational analysis (Tesch, 1990). This study used

interpretational qualitative analysis. This focus is used when the researcher wants to discover regularities in phenomena or is striving towards the meaning of phenomena. Interpretive qualitative research emphasizes problem solving (Tesch, 1990).

Sample

Apparel/textile product manufacturing firms that have plants in North Carolina were visited for interviews and distribution of surveys. The North Carolina Manufacturers Register, a publication that lists manufacturing companies by their Standard Industrial Code (SIC) four digit classification, was used in this dissertation (Manufacturers' News, Inc., 1995).

The researcher collected data at the case study sites. The apparel/textile product manufacturer population represents multiple merchandise classifications and several organizational structures. Distinctly different segments of the apparel/textile product industry are desired for the following reasons: (a) different product markets create a wider representation of NC apparel/textile product manufacturing, thus the ability to generalize when creating a TQM training model, and (b) the companies are more willing to participate in the research study, with other companies who are not their direct competition.

Criteria for Sample Selection

A purposive sample is useful when the research goals are to understand phenomena about select cases. The goal of using a purposive sample, in qualitative research, is to penetrate into the research setting as much as

possible (Malhotra, 1993). In this instance, the researcher's goal was to experience the company's cultural environment and TQM activities from as many organization members' perspectives is as possible. Purposive sampling, a form of nonprobability sampling, is characterized by the use of judgment and a deliberate effort to obtain representative samples by including presumably typical areas or groups in the sample (Kerlinger, 1973).

The companies were selected based on the following characteristics: (a) size of firm based on number of employees at plant site (i.e., large [>301 employees], medium [200-300 employees], small companies [<199 employees]); (b) companies that represent three distinctly separate segments of the apparel/textile products industry (i.e., knit sportswear, dress shirts, textile products); and (c) within four different stages/phases of TQM adoption (i.e., playing, demonstrating, committed, actualized) (see Chapter 2, Measurement of TQM). Company size (i.e., number of employees) and product differences were selected to obtain differing organizational cultures, because these two characteristics affect the internal structure of a manufacturing firm (Organ & Bateman, 1986). Final selection was based on the following characteristics: (a) companies located within reasonable driving distance, to the researcher, to allow for numerous on-site visitations; (b) companies representing non-competing apparel manufacturing segments; and (c) companies' willingness to participate in the study.

Subjects

Individuals who were interviewed and/or observed were top management, middle management, and production workers. A wide variety of

employees were needed to characterize organizational culture and the level of TQM involvement. All training and quality personnel participated in at least one point in the process. At least two members from management participated in each case study. Top management is operationalized in this dissertation to encompass both plant managers and company vice presidents. This operational definition was dictated by management organization, company size, and ownership differences. Middle management encompasses production managers, training and quality managers and/or supervisors. Ten production workers participated in each case study.

Instrument

This research examined each case study company's reaction to change. The companies that thrive are those that thoughtfully embrace change so that they can manage it to their competitive advantage (Mink et al., 1993; DeMeuse & McDaris 1994). Involving individual employees in the change is critical to the TTMP process as well as the successful transition to TQM adoption (Mink et al., 1993). This study measured individual employees' reactions to change and combined this data into an additive characterization of how the organization reacts to change. This research measured some of the underlying behavioral and attitudinal changes that are occurring within the organization.

The Employee Opinion Survey (EOS) was used because it determines and rates employees' attitudes and perceptions about an organizational change (Mink et. al., 1994). The EOS measure is available from Dr. Oscar Mink, Somerset Consulting Group, Austin TX. The EOS was first developed as a tool to assist several organizational clients diagnose what needed to be done to

successfully implement a total quality program. In almost every discussion of total quality, the importance of the human resources dimension to the success of the quality is specifically acknowledged. For example, the Malcolm Baldrige National Quality Act defines four aspects of human resources that must be nurtured if a company is to qualify for the Malcolm Baldrige Award, which are: (a) recruitment and selection, (b) training and development, (c) rewards and compensation, (d) employee morale and quality of work life.

The EOS allows for an understanding of employee perceptions of important organizational attributes. Internal and external change agents are better equipped to make the kinds of changes that will yield a payoff to the organization.

Organizational context, job, and work characteristics affect both the quantity and quality of the output employees produce and the degree to which they are committed to the organization. Understanding how employees feel about their performance and the job and work characteristics which affect performance can be an important tool for managers as they strive to create work environments that maximize the potential of individuals, teams, and organizations to accomplish important organizational , team, and individual goals and objects. The Employee Opinion Survey (EOS) contains eighteen factors that can be divided into two main categories: Job performance dimensions and job characteristics dimensions (Mink et. al., 1994). The factors are as follows (Mink et. al., 1994):

Job Performance Dimensions

1. The extent to which employees are committed to the organization
2. The extent to which employees identify with the organization
3. Employees' morale or overall feelings about the organization
4. The norms governing interactions between people in the organization
5. Employees' satisfaction with their job output

Job Characteristics Dimensions

6. Employees' satisfaction with their jobs
7. Employees' satisfaction with their compensation and benefits
8. Employees' satisfaction with the design of their jobs
9. Employees' attitudes about the work environment
10. The clarity of organizational goals and expectations
11. Employees' attitudes about the quality and quantity of supervision and organizational leadership
12. Employees' attitudes about the organization's performance review and evaluation processes
13. Employees' attitudes about career and professional growth
14. Employees' attitudes about the quality of communications
15. Employees' attitudes about serving the customer
16. Employees' feelings about the availability of needed tools and resources
17. Employees' feelings about the quality of team work in the organization
18. Honesty of employee responses to the survey

According to Mink et. al. (1994), the EOS can be used to promote, encourage, and support organizational development; employee involvement in

the change process; and continuous improvement efforts in which data are used to diagnose needs and to serve as benchmarks for monitoring change efforts. The EOS was administered to ten production workers in each case study.

Results and Discussion

Company Demographics

Company A is a Strategic Business Unit (SBU) of a large volume apparel manufacturer. The company is owned by a domestic public corporation. The SBU produces a basic product, with vertical manufacturing being owned and operated by the parent company. The products sold are a durable, high price product, with high brand recognition. The company is completely organized by team sewing, modeled after Toyota Sewing Management System (TSS). TSS is characterized by team sewing and the team is manufacturing one complete garment style or product at a time (JSN, 1989, May). An U-shaped layout is used for the sewing machines and each sewing production worker is cross-trained and operates two to three sewing machines (JSN, 1989, May). Production workers usually work standing up and rotate jobs and tasks to maximize efficiency and productivity (JSN, 1989, May). This company also has an organized quality program and a corporate-directed vestibule training program on the premises.

Company B is high volume textile product manufacturer. The company is family owned and operated with manufacturing and warehousing within a three block radius. The company has no formalized quality program, but has high brand recognition and a quality reputation among its customers. Training is

performed on-the-job by fellow sewing production workers, head sewers, and supervisors.

Company C is a Strategic Business Unit (SBU) of a mid-volume apparel manufacturer. The company is owned by a domestic public corporation. Corporate headquarters, from executives to administrative staff, have been TQM trained. The SBU currently manufactures two basic products and one seasonal product. The plant manager and the plant's industrial engineer have been trained corporately in TQM philosophies in Fall of 1994, but neither person has applied their training, because it has not been introduced at the plant level. TQM training of other plant employees will be done by corporate trainers. Training of new employees and new tasks is currently performed on-the-job, by fellow sewing production workers, and supervisors.

Subjects within each case study. The researcher contacted key plant managers for their willingness to participate in the research project. On-site meetings were arranged that described the research goals and company involvement for the research partnership. Plant managers also gave a plant tour and described manufacturing, training, and quality procedures to the researcher. Top management, training and quality management, and company-selected production workers participated in the study. Differing classification levels of employees were needed to characterize organizational culture and the level of TQM involvement. Tables 1, 2, and 3 show the subjects interviewed and surveyed in case study companies A, B, & C, respectfully.

Personnel among the three case studies had different job titles because of varying company size, management structure, and job responsibilities. All

training and quality personnel participated in at least one point in the data collection process. At least two members of management participated within each case study site. Ten sewing production workers participated in each case study. Sewing production workers were selected by management, with the researcher stipulation that each of the ten sewing production workers had been employed for at least six months. The researcher suggested the following criteria to management for subject selection: (a) sewing production workers who had been recognized in attendance or performance for the past year and/or (b) sewing production workers within a team or work cell.

Company A has a very streamlined management staff. One manager oversees the entire training program and quality assurance program. Within the last three years, office staff has been reduced drastically. Company A analyzed their business and decided they only needed a few office jobs performed (i.e., phones answered) and reduced office employees by 80 percent. Many offices and reception areas are empty of both staff and office furniture. Company A works in self managed teams that schedule their own work hours. Production workers within teams have authority to decide who remains on the team. Production workers have the authority to pull, send back, or reject garments for quality or other reasons. Additionally, an incentive based pay system relies on quality output, zero safety incidence, on-time product line customer service, and 100% production goals within the team.

Insert Table 1

Company B has a very small management staff with each manager having many responsibilities. The administrative vice president coordinates the company's functions and future directions. Because of its small work force, the manufacturing vice president serves as a training and personnel manager for sewing production workers as well as organizing manufacturing work flow. Production workers work in self-managed teams and have the authority to pull, send back, or reject product for quality or other reasons.

Insert Table 2

The Company C is traditional division-of-labor organization. Quality principles are being adopted by corporate headquarters, and the plant manager and industrial engineer have been quality trained from corporate headquarters. The remaining management and supervisory staff and sewing production workers will be quality trained at the plant location at some point in the future.

Insert Table 3

Additional demographic information consisted of questions to provide a profile of the case study firms in terms of type of manufactured product (SIC classification), type of production method used, size (characterized by number of employees), competitive strategy, form of worker compensation, and production worker training procedures. This demographic information served as a basis to compare the case study firms and is presented in a cross-case comparison format (see Table 4).

Insert Table 4

Employee Opinion Survey (EOS) Results

Numerical scores of the EOS can be seen in Table 5. A high score has been defined somewhat arbitrarily as a mean rating falling in the interval between seven and nine; a moderate score is one which falls in the interval between four and six; and a low score is one which is less than four.

Insert Table 5

The work role characteristics dimension was the highest score for Company A (see Table 5). Work role characteristics measures the significance of the job itself, the amount of challenge which is characteristic of the job, the degree of autonomy and personal control over the outcomes of the job, and the clarity of job expectations. Because Company A is involved in team manufacturing, work role characteristics are challenging and clearly defined and employees control the outcome of their production. Two of the most modest scores for Company A on the EOS were career growth and attitude toward the survey dimensions. Moderate scores in career growth mean employees are somewhat dissatisfied with the perceived opportunities for career growth and advancement in the organization and this can have a detrimental effect on employee commitment to the organization in the long run. Company A has been so successful with employee development within the team manufacturing environment, that employees are now questioning their next career step. A

moderate score in the attitude toward the survey indicates that employees were only moderately forthright in their answers to the survey. Ninety percent of the respondents agreed with three items: "I responded the best I could"; (b) " The survey results will help the organization"; and (c) " The survey results will help the department". Eighty percent of Company A production workers agreed with the fourth item, "My supervisor supports this survey". When examining the four individual test items in this dimension, it seemed that moderate scores might indicate a slight degree of skepticism among employees concerning the intended use of this survey.

The highest scoring dimension for Company B was leadership and supervision (see Table 5). Supervisors play a very important role at Company B and employees have positive perceptions of their supervision. Employees at Company B believe supervision to be very effective in communicating goals and purposes, in building an effective work teams, in motivating, and in solving problems. The lowest score of Company B was the compensation and benefits dimension. This dimension's score was also the lowest score on the cross-case study table. Low scores in this dimension indicates that employees are dissatisfied with the compensation and benefits programs of the organization. This attitude probably distracts employees from working as effectively as they can, and may lead to reduced commitment and loyalty to the organization, thus it is an area in which some change might be required.

The highest score for Company C was the job output dimension (see Table 5). This dimension measures the degree to which employees feel a sense of satisfaction with the output of their job. This variable is in part

determined by the degree to which the employees feel a sense of control over their jobs and the degree to which the employee has the authority to succeed. When employees believe that they have control over their output, they will work longer and harder, and they will produce more. The lowest score of Company C was the compensation and benefits dimension. Low scores in this dimension indicate that employees are dissatisfied with the compensation and benefits programs of the organization. This attitude probably distracts employees from working as effectively as they can, and may lead to reduced commitment and loyalty to the organization, thus it is an area in which some change might be required. In summary, Company C employees feel they are working as hard as they can in their job, but are not being compensated for their perceived high output.

Findings from the EOS survey for each of the case studies are presented in the Tables 6, 7, and 8. Results are presented in order of Company A, B, and C, respectively.

Insert Table 6

Company A EOS Discussion

Company A had results in line with their demographics and organizational culture. Out of the ten highest scores the influence of training and communications could be seen by high mean score items such as: (a) "I know what is expected of me", and (b) "My job is important to the organization" (see Table 6). There is feeling among employees that they are doing a good job with high scores with EOS items of: (a) "I know I am performing well" and (b) "I work effectively at my job". However, company A production workers still need more feedback with low scores in Dimension 12 of: (a) "I get a lot of feedback and (b) I get timely feedback". Company A pay and computer system provides a feedback system, but employees responded that they need other forms of feedback to feel positive about their work. Positive feedback is really praise to continue with the job, while negative feedback is behavior modification to change the job that is being performed (Dodge, 1993a). There are many seminars in feedback method and management and supervisors in Company A might benefit from attending one seminar. Feedback concerns are also a concern inherent in other low scores of company A, such as: (a) opportunity to advance here, (b) clear growth pathway, (c) satisfied with opportunities, and (d) provides resources I need to grow and succeed. Employees need to know if there are any possibilities for the future with company A. The low score of "My future looks secure here" is another indication that employees do not see a clear career path with Company A. Four low scores within Dimension 13, career growth and development indicates that employees are generally dissatisfied with the perceived opportunities for career growth and

advancement in Company A (Mink et. al., 1994). This can be expected to have a detrimental effect on employee commitment to the organization in the long run and retention of valued employees.

Insert Table 7

Company B EOS Discussion

Company B had results in line with their demographics and organizational culture. Dimension 11, Supervision and Leadership, with eight high scores was overwhelmingly represented in the ten highest EOS scores of Company B (see Table 7). These high scores represents a lot of trust and respect for the supervisory staff and represents a strategic opportunity for Company B. If supervisors are developed and trained in change strategies and believe in Company B changes, then the supervisors could be a positive force in the introduction of the change and the reinforcement of the change to the employees. Even though employees were located at two separate Company B manufacturing locations, supervisory respect was evident at both manufacturing locations. Five out of the ten lowest scores for Company B were in the compensation and benefits dimension and these five scores were in the top six lowest scores. Whereas Company B production workers are respectful of the supervisory staff, management is not trusted or respected with low scores on individual test items such as: (a) "Management listens to employees"; (b)

"Management is knowledgeable", and (c) "There is a lot of trust in this organization". Company B also has some employee retention issues with low scores in EOS items of: (a) "I would accept almost any type of job in order to keep working for this organization"; and (b) "I feel my future in this organization looks secure."

Insert Table 8

Company C EOS Discussion

Company C had results in line with their demographics and organizational culture. There is feeling among employees that they are doing a good job with high scores with EOS items of: (a) "I know I am performing well" and (b) "I work effectively at my job" (see Table 8). Company C employees also want the organization to succeed with two high scores in Dimension 1, commitment to the organization, which were : (a) "I am willing to put in a great deal of effort beyond what is normally expected to help this organization be successful"; and (b) "I really care about the fate of this organization". The top six highest EOS scores for Company C were in Dimension 5, job output, and Dimension 8, work role characteristics. Dimension 5, job output, demonstrates that employees believe that they have control over their output, they will work

longer and harder, and they will produce more. Dimension 8, work role characteristics, measures the significance of the job itself, the amount of challenge which is characteristic of the job, the degree of autonomy and personal control over the outcomes of the job, and the clarity of job expectations. In contrast, Company C production workers are very dissatisfied with wages and benefits of Company C. Five out of the ten lowest scores were in Dimension 7, wages and benefits, and Dimension 9, work conditions. Company C also had a low score in Dimension 6, job satisfaction, which was "My job provides a lot of rewards." This low score could be also be interpreted as an indication of dissatisfaction with wages and benefits. Dimension 2, identification with the organization, had two low scores, and an item in Dimension 4, organizational climate (i.e., "great organization to work for"), and an item in Dimension 12, performance review and evaluation (i.e., "there is a lot of trust here") can all be combined to demonstrate the need of Company C employees to feel positive about the organization. Company C management needs to remind its employees, who are willing to help the organization to succeed, that Company C needs them. Demonstrating employee importance could begin at Company C will an increase in wage and benefits.

EOS Discussion

Employee attitudes can have a measurable effect on the ability of an organization to meet the goal of total quality. When employees are committed to the accomplishment of a shared purpose and have the resources, support, and personal empowerment to perform at the highest possible levels, it is more

likely that the organization will succeed at accomplishing its mission and adapting to a changing world over time. All three case studies shared two high scoring EOS test items which were: (a)"I work effectively at my job"; and (b) "I perform at the highest levels". These two EOS items might be characteristic of manufacturing production workers who are traditionally measured and paid in terms of production standards. Companies A and C shared some high scores in the work role characteristics dimension and in the leadership and supervision dimension. Sharing of these high scores is a reflection on how management has defined work roles and how supervisors assist employees in carrying out those work roles. Companies B and C shared one high EOS score, respecting their supervisors, and shared five low scores in dimension 7, wages and benefits. Both Companies B and C need to examine the wages and benefits structures.

Summary and Conclusions

From the EOS results, Company A had employee attitudes that would support change. Although Companies B and C had both made change efforts, the EOS results indicated that in the opinion of Companies B and C employees, unresolved company issues will impede further progress toward change.

The case studies also revealed that employees' basic needs (i.e., wages) need to be addressed before employees' training needs (i.e., quality training) can be successful and effective. This finding is consistent with training, quality, and organizational development literature (Dick & Carey, 1993; Goldstein,

1993; Hodgetts et al., 1993; Jones & Reid, 1993; Nilson, 1990; Parry, 1993; Troy, 1991). These findings also provide empirical support for theories in training and quality.

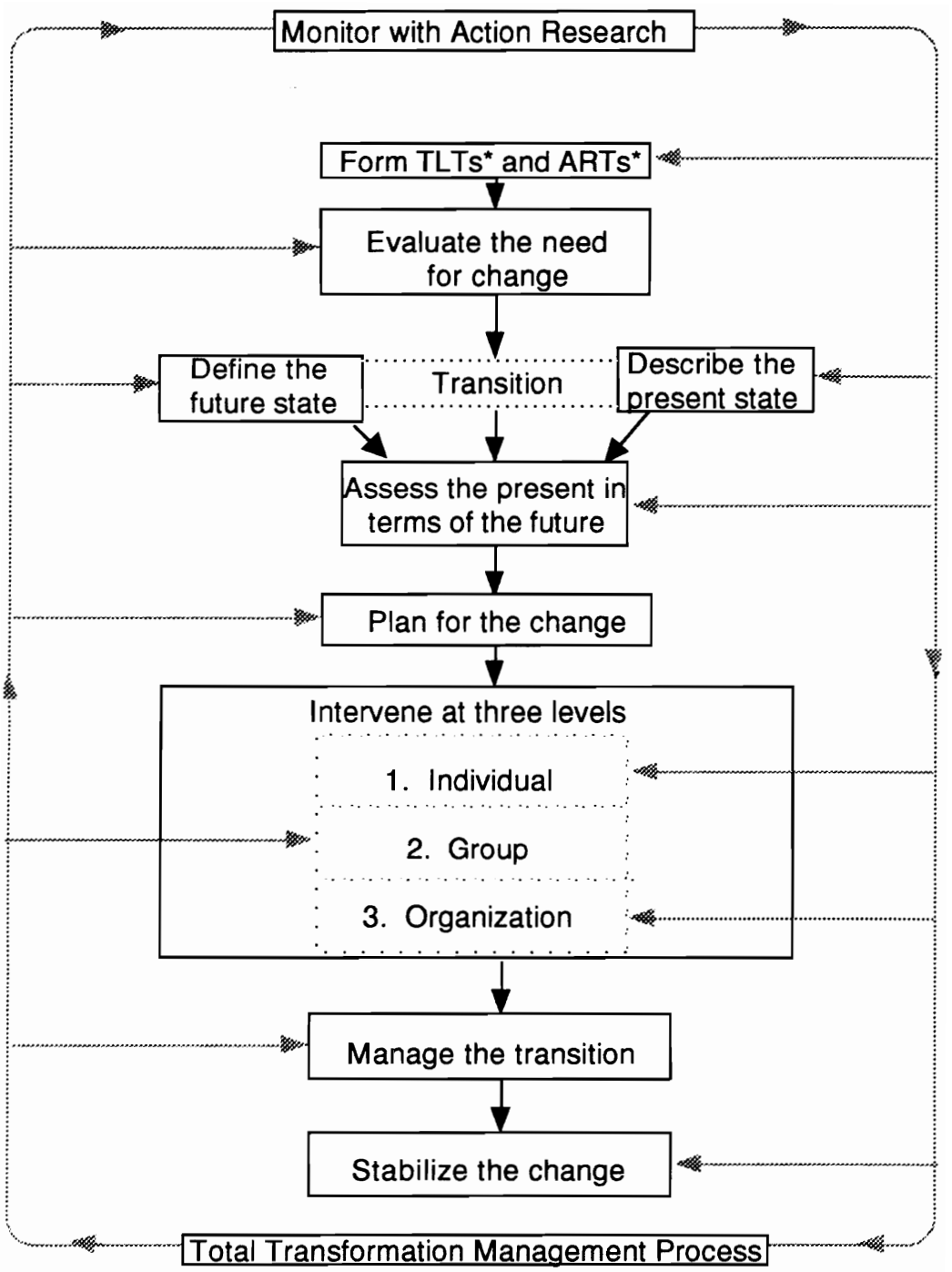

Figure 1. Total Transformation Management Process (TTMP) (adapted from Mink et al., 1993).
Note: TLT = Transformation Leadership Team; ART = Action Research Team

Table 1. Company A Subjects Interviewed and Surveyed

Title	Number interviewed and surveyed
Plant Manager	1
Training/ Quality Assurance Manager	1
Production Workers	10

Table 2. Company B Subjects Interviewed and Surveyed

Title	Number interviewed and surveyed
Administrative Vice President	1
Manufacturing Vice President	1
Production Workers	10

Table 3. Company C Subjects Interviewed and Surveyed

Title	Number interviewed and surveyed
Plant Manager	1
Production Manager	1
Industrial Engineer	1
Quality Assurance Supervisor	1
Production Workers	10

Table 4. Demographic Information Comparison of Case Study Companies A, B, and C.

Demographic Information	Company A	Company B	Company C
SIC code	2329*	2394*	2321*
Production	stand-up & sit-down team sewing	sit-down & stand-up progressive bundle and traditional bundle	sit-down method used progressive bundle (75%) and UPS** (25%-Eton)
Size (# of employees)	330	120	210
Competitive strategy	Providing product closer to the season; responsive to reorders; cost pressures; lower cost product manufactured off-shore; team manufacturing allows more flexibility	Price, honest reputation, family operation reputation, maintaining good customer relations	Automating to reduce cost/dozen to compete with off-shore manufacturing
Form of worker compensation	Group incentive pay based on quality, safety & production or 4-week average earnings, whichever is greater	hourly pay with attendance bonus	UPS** base plus piece work; Progressive bundle incentive (variable base rate)
Training of new employees	Vestibule training; cross trained as a team and report to production floor as a team. Inter personal training.	Co-worker training	Co-worker training
New task employee retraining	Eight week training curve; Supervisor and/or trainer works with team. Workers established retraining method	Co-worker and supervisor retraining	Co-worker retraining
New philosophy employee retraining	Management training, Supervisory training, and training of small groups of production workers	Company meeting, supervisor reinforcement	Corporate training staff, Monthly employee relation meeting
Poor performance retraining	Team identify performance problem to supervisor, supervisor helps employee & team problem solve	Initial retraining, or transfer to a simpler task	3 point warning system, goals set, retraining

Note: * SIC code 2329 - Clothing--men's & boys'; * SIC code 2394 - Canvas & related products; * SIC code 2321- Shirts--men's & boys'; **UPS = Unit Production System, automated overhead parts delivery system

Table 5. EOS Dimension Overview of Companies A, B, and C.

	Company A	Company B	Company C
Job Performance Dimensions			
1. Commitment to the organization	5.83	5.67	6.12
2. Identification with the organization	5.81	5.71	5.69
3. Morale	4.89	5.61	4.90
4. Organizational climate	5.03	5.53	5.47
5. Job output	6.30	6.45	7.21
Job Characteristics Dimensions			
6. Job satisfaction	5.75	5.99	5.80
7. Compensation and benefits	5.56	3.74	4.39
8. Work role characteristics	6.76	6.48	6.82
9. Work conditions	4.85	5.78	5.43
10. Goal clarity	6.32	5.77	5.94
11. Leadership and supervision	6.29	6.57	6.07
12. Performance review	4.80	5.65	5.25
13. Career growth	4.36	5.90	4.69
14. Communications	4.86	5.78	4.73
15. Commitment to quality	4.67	6.16	5.14
16. Resources	4.41	5.58	4.60
17. Work relationships	4.63	5.40	4.60
18. Attitude toward survey	4.32	6.17	4.73

Table 6. Item overview of ten highest and ten lowest EOS scores of Company A

Dimension	Ten Highest Scores Company A	Mean
8	I know what is expected of me	7.7
8	Job important to organization	7.6
7	I am satisfied with allowances	7.6
8	Produce from start to finish	7.5
8	I know I am performing well	7.4
5	I work effectively at my job	7.3
8	I do different things on job	7.3
11	Insists people work hard	7.3
8	People affected by my job	7.2
5	I perform at highest levels	7.1
Dimension	**Ten Lowest Scores Company A**	**Mean**
9	Keeps job stress minimum	3.3
8	I control the pace of my work	3.9
9	I have a satisfactory work load	3.9
3	My future looks secure here	4.1
12	I get a lot of feedback	4.1
12	I get timely feedback	4.2
13	Opportunity to advance here	4.2
13	Clear growth pathway	4.2
13	Satisfied with opportunities	4.2
13	Provides resources I need	4.2

Table 7. Item overview of ten highest and ten lowest EOS scores of Company B

Dimension	Ten Highest Scores Company B	Mean
11	Concerned about me	8.0
11	Has the skills needed	7.8
11	Acts consistently with values	7.8
11	Treats everyone fairly	7.8
11	Respect my supervisor	7.7
11	Lets me know how I am doing	7.7
5	I perform at highest levels	7.6
11	Satisfied with supervision	7.6
11	Helps me know expectations	7.6
5	I work effectively at my job	7.3

Dimension	Ten Lowest Scores Company B	Mean
7	The wage I get is fair	2.4
7	My pay is fair relative to others	2.4
7	I am satisfied with allowances	2.7
7	Wages fair relative to community	3.2
11	Management listens to employees	3.3
7	My wages are competitive	3.3
1	Take job to keep working here	4.4
11	Management is knowledgeable	4.4
4	There is a lot of trust here	4.6
3	My future looks secure here	4.6

Table 8. Item overview of ten highest and ten lowest EOS scores of Company C

Dimension	Ten Highest Scores Company C	Mean
5	I work effectively at my job	8.4
5	I perform at highest levels	7.8
8	I know what is expected of me	7.8
8	I know I am performing well	7.7
5	I normally achieve expectations	7.5
8	People affected by my job	7.5
11	Respect my supervisor	7.3
11	Insists people work hard	7.2
1	Willing to give to help succeed	7.1
1	I care for fate of organization	7.0

Dimension	Ten Lowest Scores Company C	Mean
7	I am satisfied with allowances	3.1
7	The wage I get is fair	3.3
6	Job provides lot of rewards	4.1
7	My pay is fair relative to others	4.2
2	Easy to agree on matters	4.2
7	Wages fair relative to community	4.2
9	My wages are competitive	4.5
2	Keeps job stress minimum	4.6
4	Great organization to work for	4.6
12	There is a lot of trust here	4.6
3	I get help in doing better	4.6

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