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# A PSYCHOMETRIC ANALYSIS OF AN EMPLOYEE SATISFACTION INDEX

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degree of

Doctor of Philosophy

By

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A PSYCHOMETRIC ANALYSIS
OF AN EMPLOYEE SATISFACTION INDEX

A DISSERTATION APPROVED

FOR THE GRADUATE COLLEGE

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# ABSTRACT

This study examines responses to an employee satisfaction survey to ascertain the ability of the instrument to provide leadership with pertinent information relative to the employee attitudes at the workplace. The study concentrates on different job-types rating their own job satisfaction within the context of an organizational culture driven by centralized management and leaders. Descriptions of the measured employee satisfaction levels include the following employee job-types: (a) management, (b) engineers, (c) salaried, (d) union, and (e) non-salaried.

The investigation performs principle component analysis (PCA) and structural equation modeling (SEM) on two sets of data to establish significant contributing components and relationships relative to the employee's job satisfaction. The investigation continues by examining analysis of variances (ANOVA) results concerning the various employee job-types in the organizational hierarchy for any significant differences between the groups.

The study simultaneously contrasted responses to the questionnaires taken during the two periods of 2001 and identified chronological differences in employee attitudes regarding job satisfaction as well as differences in employee attitudes among job-types. The implications to leadership are that employee attitudes are dynamic in nature and catalysts of employee satisfaction vary among job-types.

# CHAPTER I

## *INTRODUCTION*

### *Introduction to the Topic*

A large aerospace manufacturing firm's employee satisfaction questionnaire creates the foundation for this research. This study explores the 45 questions in two surveys conducted during 2001 at the corporation. The firm conducted the surveys in the second and fourth quarters of the year providing data for a leadership influenced job satisfaction by job-type analysis.

The study concentrates on different job-types rating their own job satisfaction within the context of an organizational culture driven by centralized management and leaders. The investigation performs principle component analysis (PCA) and structural equation modeling (SEM) on the two sets of data to establish significant contributing components and relationships relative to the employee's job satisfaction. The investigation continues by examining analysis of variances (ANOVA) results concerning the various employee job-types in the organizational hierarchy for any significant differences between the groups. Descriptions of the measured employee satisfaction levels include the following employee job-types: (a) management, (b) engineers, (c) salaried, (d) union, and (e) non-salaried. The study simultaneously contrasts responses to the questionnaires taken during the two periods of 2001, to detect any potential chronological differences in employee attitudes regarding job satisfaction.

*Basic Assumptions and Justification of this Study*

It is the contention of this investigation that leadership drives employee satisfaction to the magnitude possible within the workplace as considered previously in a number of studies (Abbott, 2002; Locke, 1976). However, this study further assumes that job satisfaction is not a static concept readily gauged, clearly interpreted, and successfully achieved by the pragmatic formulation of a comprehensive set pattern of collective actions. Many components comprise the perception of employee satisfaction and they continually evolve due to situational influences internal and external to the work environment. Therefore, it is appropriate to continue investigations into the underlying tenets of employee job satisfaction so that leadership's tactics may adjust to the most current relevant information.

*Statement of the Problem*

Although many investigative studies consider employee satisfaction from different viewpoints (Daily & Bishop, 2003; Osborne, 2002), one key area of disagreement is whether job satisfaction has multiple dimensions. Porter and Lawler (1968) claim that job satisfaction is a unidimensional construct; in which, the employee is simply satisfied or dissatisfied with their job. In contrast, other research considers job satisfaction to be multidimensional (Smith, Kendall, and Hulin, 1969) and contend that the employee may be more or less satisfied with their job due to several factors such as their supervisor, their pay, or their working conditions. This study concurs with the opinion of Smith, Kendall, and Hulin and

proceeds under the overarching belief that the perception of job satisfaction is resultant from the employee's mental constructs relating to occurrences common both internal and external to the workplace and that this perception constantly changes with the passage of time.

There is no significant degree of control leadership has over the influences external to the workplace; however, leadership can define and manipulate internal workplace influences to obtain the optimal positive results. As with all economic decisions, however, leadership must address the question of how to allocate scarce resources to their most effective use. Leadership can only implement effective policy reinforcing job satisfaction with timely and relevant information from which to draw conclusions. Therefore, it is appropriate for research to investigate employee perceptions of job satisfaction relative to the passage of time in order to determine if attitudes change and to what degree.

In addition, few studies have considered a large manufacturing firm with a labor base of this volume and distribution. The measurements distinguished differences in job satisfaction and perspectives across five different job-types in the organizational hierarchy: (a) management, (b) engineering, (c) salaried, (d) union, and (e) non-salaried personnel. Typically, research common to employee job satisfaction has not investigated multiple employee functional levels. Furthermore, existing measures of job satisfaction largely neglect satisfaction with management (Crede, Dalal, and Bashshur, 2003). This attaches further relevance to this study's research in terms of adding knowledge to the field.

*Purpose of the Study*

The ultimate goal of the study is to contribute to the existing body of knowledge by performing a high quality analysis of the firm's employee survey data. To accomplish this task, this study will employ a logical progression of reason disclosing any relationships found in the employee satisfaction survey between leadership's actions and employee satisfaction levels thereby indicating a multidimensional construct.

If the research finds such relationships, this information reinforces contention that the drivers of employee satisfaction are dynamic and require continuous interpretation. Therefore, it is logical and defensible to examine multiple employee satisfaction surveys to ascertain if the components are stable or variable in nature.

Leadership has the option to impose various strategies to affect employee satisfaction. One of these options is to introduce policies on a global level that will affect all employees uniformly. Alternatively, leadership could introduce policy that influences the various job types uniquely to their needs. Therefore, it is appropriate and necessary to investigate the feedback from the various participating job types for consistencies and differences so leadership can introduce appropriate policy strategy.

*Research Questions*

Within the framework of research conducted, and as described in the literature review, the several issues examined in this study are extensions of

previous theoretical and practical analyses. Certain relationships identified in earlier research have been in service industries and small manufacturing environments; however, few studies have examined employee interactions in a large manufacturing setting and across various job-types. For this reason, specific research questions stand out:

1. Research Question 1: Does the examined data indicate if the employees perception of job satisfaction is unidimensional or multidimensional in construct?
2. Research Question 2: Does the examined data indicate if the employee's perception of job satisfaction is static (constant over time) or dynamic (evolving over time)?
3. Research Question 3: Is there a difference between job-types (management, engineering, salary, union, and non-salary) and the employee's perception of job satisfaction?

*Methodology*

Principle component analysis (Goresuch, 1983; Guadagnoli & Velicer, 1988) assembled the 45 questions into components significantly simplifying the investigation of their capacity as reinforcement vehicles for the employee satisfaction of subordinates by grouping significant variables into common groups and maintaining only the least number of groups necessary to represent adequately the original model.

Next, subjection of the correlations between the resultant components to structural equation modeling obtains estimates of the path coefficients and construct.

The Pearson product-moment correlation coefficient as a statistical measure for hypothesis 1 and 2 distinguishes correlations among the designated areas of concern. Employment of the analysis of variances (ANOVA) and Tukey post hoc testing method for the hypothesis 3 analysis completes the examination of the data.

*Significance of the Study*

This firm and many similar organizations throughout the world, invest large sums of capital desiring a transition toward the empowerment of subordinates. Observed examples of conduits designed to achieve the goal are in employee and management training, encouragement in the pursuit of continuing education, and supplemental diversity awareness programs. These collaborative efforts by the organization's leadership expect to increase the share value of the organization by stimulating additional productivity among its employees. This is not an accomplishment achieved through spontaneous reactions in response to the latest management trend but is meticulously and precisely planned to optimize the organizations return on investment.

This study systematically examines the Survey One and Survey Two data collected during an employee assessment designed to calculate the level of job satisfaction obtained at various employment job-type rankings. Further, the

outcomes of the analysis permit the creation of a causal model that illustrates contributing factors to the level of job satisfaction for each job-type ranking. The exploration also systematically examines the variables contributing to the Survey One and Survey Two employee levels of job satisfaction to acknowledge, scrutinize, and explain any inconsistencies in the outcomes.

*Assumptions*

The basic assumptions of this study were as follows:

1. Participating employees understood the terminology used in the questions on the firm's employee survey.
2. The participants in the firm's employee survey were truthful in their responses.
3. It was possible to measure the employees' perceptions accurately.
4. Employees at the time of the study were representative of the workforce.

*Limitations of the Study*

Note the following limitations of this study:

1. A limitation of the study is the participant responses on the employee satisfaction survey (no employee comments).
2. A limitation of the study is restriction to the employees at the firm.
3. A limitation of the study is restriction to secondary data analysis. The firm collected original data and withheld complete disclosure of the data's demographics.

The firm administered the surveys to the employees of the large manufacturing concern involved in the aerospace and transportation industries. The raw data generously granted to the researcher contains Likert scale feedbacks to the questionnaire; however, supplied only limited demographic relevant information. The locations of participating employees range across the United States. Occupations of the participating employees encompass union members, salaried and non-salaried professionals, engineers, management, and executives.

*Structure of the Dissertation*

The structure of this dissertation is a five-chapter format. The introduction chapter describes the prime topic, research questions, methodology, and explanation of terms applicable for this study. Chapter 2 is a comprehensive review of the literature and segregated by the explanatory areas reviewed within the data. Moreover, chapter 2 covers explanatory subjects appropriate to the conclusions of the research in addition to the previously mentioned subjects. Chapter 3 provides a rational for the methodology chosen, the statistical tests performed, and a concise description of the methodology incorporated in the analysis. Chapter 4 is a documentation of the quantitative analysis results and provides interpretations from the pertinent information. Finally, chapter five provides a synopsis of the information, the information's agreement and/or disagreement with previous research, and makes suggestions for further research.

# CHAPTER II

## *LITERATURE REVIEW*

### *Introduction*

The overarching purpose of this research study is to document various aspects of job satisfaction. The primary goal of the literature review is to present appropriate findings of previous research and present the construct of job satisfaction. Further, the connections between these concepts merit examination as a means to supply causal effect to behaviors driving either beneficial or negative outcomes in the workplace. Since these issues necessarily include emotional and behavioral conditions, the research is not exact in its definition or conclusion but similar trends do become visible and defendable.

### *Definition of Job Satisfaction*

Individual constructs of job satisfaction vary as often as the individual does. Each individual possesses a unique set of experiences that dictate that individual's concept of job satisfaction as well as other aspects of the individual's overall attitude. Individuals use jobs as a means to accomplish personal goals. If a job exceeds an individual's expectations, the individual experiences positive emotions as a result. The presence of these positive emotions represents a shift in the continuum toward overall job satisfaction. As they relate to the individual, the positive or negative aspects of job satisfaction have a significant impact on an individual's overall life satisfaction (Cranny, Smith, & Stone, 1992).

Job satisfaction is a construct that has been examined by hundreds of studies. The search for a universally accepted definition of job satisfaction simply does not exist. However, existing research commonly refers to the three definitions offered by Hoppock, Locke, and Vroom. Hoppock (1935) referred to job satisfaction as "…any combination of psychological, physiological, and environmental circumstances that causes a person to truthfully say, 'I am satisfied with my job'". Locke (1976) called job satisfaction "…a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences". Finally, Vroom (1982) used "…affective orientations on the part of individuals toward work roles which they are presently occupying". Although the words chosen by these noted researchers vary, the common theme of their intent appears to be that job satisfaction is a job-related emotional response.

The preceding statements attach a cerebral context to the predictors of employee satisfaction. Other studies have sought to define mathematical formulas, which imply that employee satisfaction is obtainable through a predetermined prescription of employee traits, workplace policies, and reward procedures. This study seeks to uncover the overarching influences on an employee's perception of employee satisfaction.

*Theoretical Constructs of Job Satisfaction*

The existing literature tends to migrate toward three constructs of job satisfaction. Construct one is founded in content theories of job satisfaction. Construct two is based upon process theories of job satisfaction. Construct three

is grounded in situational models of job satisfaction (Thompson & McNamara, 1997).

*Job Satisfaction and Content Theories*

According to Locke (1976), content theorists believe that fulfillment needs and attainment of values can lead to job satisfaction. Maslow's (1943) hierarchy of needs theory and Herzberg's (1966) motivator-hygiene theory are examples of content theory.

*Job Satisfaction and Process Theories*

Process theorists contend that job satisfaction are explained by examining the interaction of variables such as expectancies, values, and needs (Gruneberg, 1979). Vroom's expectancy theory (1982), and Adam's equity theory (1963) are representatives of the process theory construct.

*Job Satisfaction and Situational Models*

Situational model theorists believe that the interaction of variables such as task characteristics, organizational characteristics, and individual characteristics influences job satisfaction (Hoy & Miskel, 1996). Examples of constructs are the situational occurrences theory of job satisfaction (Quarstein, McAfee, & Glassman, 1992) and Glisson & Durick's (1988) predictors of job satisfaction.

*Job Satisfaction as a Predictor Variable*

Research has often studied job satisfaction as a predictor of behaviors such as performance, absenteeism, and turnover. Although in recent studies, the area of interest has shifted toward identification of factors that influence or predict job

satisfaction. Personal and work-related characteristics can influence job satisfaction (Locke, 1976; Spector, 1997).

*Job Satisfaction and Interaction with Leadership*

In today's competitive global business environment, it is of utmost importance for organizations and leadership to institute sound programs to obtain business success (Truckenbrodt, 2000). Research shows employees most likely to be adaptable, cooperative, and productive are those who are satisfied with their jobs. Therefore, it is essential that the leaders of institutions understand how to increase job satisfaction within their organizations (Cranny, Smith, & Stone, 1992).

In an effort to expand knowledge in this area, Fleishman, et al at Ohio State University, conducted early research focusing on the dimensions of leadership behavior and productivity (Bass, 1990). The Ohio State Leadership Studies revealed two independent dimensions:

- Consideration for workers, focusing on the human side of the business such as being sensitive to subordinates' needs, respectful of subordinates' feelings and ideas, developing mutual trust, acting in a friendly manner, listening to subordinates' problems, consulting with subordinates, and accepting subordinates' input or suggestions, is the first dimension; and,
- Initiating structure, dealing with task behavior particularly production issues such as directing work to goal achievement, criticizing poor

work, emphasizing deadlines and standards, assigning tasks, and coordinating, is the second dimension.

An important finding of the Ohio State studies was that these two measures are statistically independent which means that consideration for workers and starting structure occur simultaneously and in varying quantities. The Ohio State researchers claim that a leader high in structure but low in consideration is proficient in the workplace; but the followers of this type of leader experienced a higher turnover rate, more grievances, additional accidents, greater absenteeism, and lower morale. The Ohio State researchers also concluded subordinates are more satisfied with a leader of moderate consideration; however, they also noted in some studies workers were more satisfied and performed better with more structure (demonstrating mixed and inconclusive results from the research).

Adding to the knowledge relevant to the diversity of effective leadership styles were Katz; et al at the University of Michigan (Bass, 1990). Katz also directed leadership studies in which researchers examined the dynamics influencing leadership effectiveness. The Michigan studies are noteworthy in that they found there are many types of effective leaders and adherence to a particular style was not required. These researchers coined the phrase production-oriented or task-oriented leader to describe a leader who emphasized production and/or the technical elements of the job. They also originated the designation of a leader stressing relationships and the importance of people as an employee-oriented leader.

In yet another study, Likert expanded on the Ohio State and Michigan leadership studies with extensive research into what differentiates effective managers from ineffective managers. In New Patterns of Management (1961), he wrote, "supervisors with the best records of performance focus their primary attention on the human aspects of their subordinates' problems and on endeavoring to build effective work groups with high performance goals." Likert defined two styles of managers and made the following associations:

1) Job centered managers were found to be the least productive.

2) Employee centered managers were found to be the most effective

Following the recommendations produced from the Ohio State studies and other similar findings, many organizations have attempted to implement participatory leadership, also know as Sociotechnical Systems. This style of leadership focuses on the optimistic idea of collective participation by teams of individuals, especially workers, in developing new patterns of work, career paths, and arrangements for combining family and work lives. According to this notion, individuals, workers, and their supervisors can and must learn to redesign their work, and upper-level managers must learn to establish the contexts within which subordinates can do so (Argyris, 1999).

Observations during the introduction phase of participatory styles of leader-member show that the outcomes are not homogenous. Cartwright and Cooper (cited in Deetz, Tracy, & Simpson, 2000) list four prototypical cultures; power cultures, role cultures, task or achievements cultures, and person/ support

cultures that might behave conducively or produce detrimental results when combined with participatory leadership.

Power culture designates an organization where power is centralized in a few individuals, often founders or others central to developing the organization. Such cultures thrive on personal loyalty to the leaders, with reward and punishment structures often reflecting favoritism and perceived loyalties. Tradition is usually visibly present. Employees may feel personal commitment and loyalty but also disempowered, and they are and experience low morale and lack of ownership of decisions.

Role cultures are typically bureaucratic and emphasize logic, rationality, and the achievement of efficiency. Policy manuals are important and often thick. Such cultures are especially resistant to change and often do not adapt well to new environmental conditions.

Characteristics of task or achievement cultures are versatility and high levels of employee autonomy. They tend to lack of strong formal structures. Clean decision-making is highly appreciated. Task becomes the primary organizing feature. Control and coordination tend to be ad hoc, encouraging innovation but also creating difficulties of a common response, especially in times of crisis.

Person/support cultures primarily tend to be egalitarian. Consideration of the personal growth and maturation of the individual is equally significant as business objectives. These cultures tend to be more long term in focus, expecting

to realize the human investment over a long period. Collective decision-making is typical of this type of culture and based upon multiple needs of people and business.

However, as Bass (1990) points out the leader-employee interaction takes two entities to succeed in the mutual accomplishment of goals. Hollander (1978) concluded that the dynamics of the exchange begins with a negotiation between the leader and employee of what the exchange is and whether it is satisfactory. Employee satisfaction is the result of an employee's contentment with the outcome of the transaction. However, the transactions can be one-sided. One of the great ironies of the 1990's was that business books and business rhetoric focused on "commitment," "loyalty," and "trust," while at the same time business practices stressed downsizing. Employers wanted trust, loyalty, and commitment from employees, but many employees knew that their employers were no longer willing or able to reciprocate (Cuilla, 2000).

Although it is logical to consider the leader-employee engagement as a social exchange or negotiated transaction, its analysis has led to another fully developed relationship explaining the complex interaction. The leader-member-exchange (LMX) theory advances the notion that there is a dyadic relationship (a two-way relationship) between the leader(s) and their followers (Dansereau, Graen, and Haga, 1975). Within this dyadic relationship, there is what is entitled linkages or types of exchange. The type of linkage or exchange an individual follower is participating in depends upon the relationship between the follower

and the leader. The theory describes two types of linkage, in-group members with expanded and negotiated responsibilities and out-group members with roles defined through the employment contract. Membership in either group depends on how well the follower works with the leader, taking over extra work, and providing and receiving additional support. Members of the in-group's interaction with the leader are marked by the mutual trust, respect, liking, and reciprocal influence described by Yukl's (1997) guideline for effective transformational leadership and by Redding's (1972) ideal climate. Formal communications based solely upon job descriptions are typical of members of the out-group's interactions with leadership (nothing further than doing your job is encouraged).

In-group members experience the positive results expected from the transformational leadership style; such as receiving information that is more pertinent, influence, confidence, and concern. This manifests itself in more dependable, more involved, and more communicative followers. Research indicates that these employees have a reduced turnover rate, perform better, and receive more and faster promotions (Burns & Otte, 1999). The followers show more commitment, have better job attitudes, and get more attention, support, and participation from their leader. Out-group members do not display the same positive attitudes, work commitment, or reap the same positive career advancements. The conclusion of the analyses involving the leader-member-exchange theory state leaders should develop high quality exchanges with all followers (Yukl, 1997). This relational situation would transpire when the leader-

member-exchange theory and transformational leadership traits are in accord.

Beyond the dyadic relationship between a leader and an individual employee, Hinton and Barrow (1976) prospected the probability that the application of the leader-member exchange theory to groups is possible. Their scientific research found the normal in-group dyadic relationships but discovered there was also such a connection between groups. This finding supports the investigation by this study of potential differences between the different components and facets of employee job satisfaction and the employee job-types.

In summary, it is correct to paraphrase the leader-employee interaction as a transactional exchange between the two parties. Within the interaction, the leaders and followers reinforce each other's behavior with either reward or correction, and preferably rewards that are contingent on fulfilling the transacted role arrangements (Bass, 1990).

*Job Satisfaction and Productivity*

Humans desire to have a sense of value or self-esteem (Maslow, 1943; Robbins & De Cenzo, 1998). According to Schumacher (1973), "the human being…enjoys nothing more than to be creatively, usefully, productively engaged with both his hands and his brains."

Empirical research has uncovered critical findings, among which are: (1) organizational culture significantly relates to employee performance and (2) the congruence between an individual's values and the organization's values significantly correlates with organizational commitment, job satisfaction,

intention to quit, and turnover (Kreitner & Kinicki, 1997). Obtaining an understanding of what forces motivate and how to manipulate them validates the development of these organizational environments to maximize productivity.

Alderfer's (1972) ERG Theory (existence, relatedness, and growth) reaffirms Maslow (1943) by describing existence needs as the basic immediate needs of the subordinate. If not met, the deficiency of satisfaction will cause distraction and lessen employee productivity. The existence needs are elements such as climate control, proper lighting, clean and safe working environment, employee benefits, and job security.

Locke (1976) found several issues that impact productivity and ultimately employee job satisfaction. For an employee to be productive, the employee needs mentally challenging work within the realm of the employee's abilities. If the current task is beyond the employee's abilities, workplace stress will develop. The work itself should be interesting to the employee to abstain boredom. The labor should be within the physical abilities of the employee and not too tiring. Reward the employee for positive outcomes. The organization should furnish good working conditions. Every reasonable effort should be made to give the employee high self-esteem. In order for an institution to maximize return on its employee's potential, the concern must carefully scrutinize practices and protocols that matured out of tradition to recognize and diminish the affect of any detrimental influences on employee satisfaction.

There have been many research studies spanning several diverse types of employment that have observed strong correlations between productivity (Argyle, Gardner, & Ciofi, 1958; Lyle, 1961; Zweig, 1980). In addition, many investigations recognize strong correlations between productivity and employee job satisfaction (Preston & Heintz, 1949; Bass, Berger, et al, 1979; Zimet & Fine, 1955). However, there have been a larger number of studies resulting in a neutral or inconclusive determination (Bass, 1990). This observation added credibility to the necessity for further investigation of the relationship.

There is a deep human yearning to make a difference. We want to know that we have done something on this earth, that there is a purpose to our existence. Work can provide that purpose, and increasingly work is where men and women seek it (Collins & Portas, 1994).

One premise inherent in Herzberg's motivational hygiene theory (Herzberg, et al., 1959) is that most individuals sincerely want to do a good job. To help them, organizations should place employees in positions that use their talents and are not set up for failure. The organizational hierarchy should set clear, achievable goals and standards for each position, and make sure employees know what those goals and standards are. Individuals should also receive regular, timely feedback on how they are doing and should feel adequately challenged in their jobs (Carr, 1993).

An assumption of this study is the fundamental goal of an organizational hierarchy is to furnish efficient processes and human capital, physical and

intellectual, for leaders to accomplish their vision. Regardless of the leader's vision, the organizational hierarchy, by whatever name given within the organization, must align its functions to support attainment of that vision. This is true among both the profit and nonprofit firms. Only through the passage of time will it become evident if the leader's vision was appropriate in the organizational environment

Alderfer's ERG Theory (Alderfer, 1972) describes growth needs as the desires that people have to excel in their careers. The organizational leadership through assigning the subordinate a challenging job, one that requires creativity, responsibility, autonomy, recognizes achievement, and grants participation in meaningful situations, addresses these needs.

Growth is not only essential for the employee. To sustain profitability in today's business environment, organizations need to comprehend the employee's growth needs. The organizational leadership must recognize how the growth of employees contributes to the ultimate survival and effectiveness of the organization. To accomplish this end, organizations have increasingly turned their management and organizational styles to the transformational taxonomy.

Yukl (1997) cites Burns as saying, "Transforming leadership is a process in which leaders and followers raise one another to higher levels of morality and motivation." This "raising to higher levels" is reminiscent of achieving self-actualization in Maslow's (1943) Hierarchy of Needs theory. However, as the hierarchy suggests there are preliminary levels of needs that must be satisfied

before self-actualization may occur on a sustained basis.

According to Morse and Wagner (1978), effective managers necessarily ensure, through career counseling and careful observation and recording, that their subordinates are growing and developing in the talent for performing their work. They guide subordinates by commending the subordinate's good performance.

*Job Satisfaction and Interaction with Work Group*

In the workplace, team quality or cohesiveness is the degree of mutual affection (respect) among group members and their attraction to the group. These employee groups can be departmental or, as this examination studies, functional in demographic composition. Although, it is a characteristic of the group, cohesiveness is dependent on individual characteristics of the members. A group is much more likely to be cohesive if its members have similar values, attitudes, and cultural backgrounds (Yukl, 1997).

One positive manifestation of teaming by the employee is through organizational citizenship behaviors consisting of behaviors that are beyond the standard of the cohesive group's standard. Examples encompass "such gestures as constructive statements about the department, expression of personal interest in the work of others, suggestions for improvement, training new people, respect for the spirit as well as the letter of housekeeping rules, care for organizational property, and punctuality and attendance well beyond standard or enforceable levels" (Kreitner & Kinicki, 1997).

Managers certainly would like employees to exhibit these behaviors. Because organizational citizenship behaviors moderately relate to job satisfaction (Appelbaum et al., 1992), managers can increase the frequency of such behaviors by increasing employee job satisfaction. This, in turn, may enhance an employee's productivity as research discloses that organizational citizenship behaviors positively correlate with performance ratings (Podsakoff et al., 1983).

However, team quality must provide the employee balance on both the positive and negative aspects of the measure. The equity theory that states employees commonly perceive what they can get from a job situation (outcomes) in relation to what they put into it (inputs), and then compare their input-outcome ratio with the input-outcome ratio of others (Robbins & De Cenzo, 1998). The equity theory applies to an employee's satisfaction with team quality. If an employee feels that it is beneficial to contribute to the teaming effort, the employee will do so; otherwise, the employee will withdraw from the team and act autonomously.

In the broader context of this study, the expression employee teaming could interchange with a variety of common initiatives such as Total Quality Management (Deming, 1986; Juran, 1986); Kaizen (Ohno, 1978/1988); SixSigma™ (iSixSigma, 2005); or Lean Manufacturing (Womack & Jones, 1986). While the designation of terminology may change, the assertion is the same, engage employees, individually or as a team, in the decision-making

processes that once were the sole responsibility of management to enhance productivity through employee satisfaction.

However, old beliefs (in this case, theories) are hard to change. In 1960, Douglas McGregor wrote a book entitled *The Human Side of Enterprise*, which has become an important philosophical base for the modern view of people at work. Drawing upon his experience as a management consultant, McGregor formulated two sharply contrasting sets of assumptions about human nature (Kreitner & Kinicki, 1997). In Theory X, McGregor proposed that the basis of a superior's view of human nature is a certain grouping of assumptions and that he or she tends to mold behavior toward subordinates according to those assumptions (Robbins & De Cenzo, 1998). According to the Theory X, McGregor believed that the individual in the superior position held four basic attitudes toward subordinates:

1) employees inherently dislike work and whenever possible, will attempt to avoid it;
2) since employees do not like work, they must be coerced, controlled, or threatened with punishment to achieve desired goals;
3) employees will shirk responsibilities and seek formal direction whenever possible;
4) most workers place security above all other factors associated with work, and will display little ambition.

These negative and pessimistic attributes listed lead a managing individual to have a controlling and dictatorial attitude toward subordinates.

Unfortunately, the strength of employee teaming is promoting employee autonomy and its vulnerability is that the employees become autonomous. This dichotomy causes a leader entrenched in the Theory X mindset to avoid sincere attempts to implement employee-engaging initiatives.

Lawler (1986) contends that a concern engaging in a participative style of leadership could offset overseas competition and to significantly reduce the high costs of labor in specialized work. This prospect of course draws attention from the shareholders of a firm and those that report to them. Such statements tend to drive organizations into the issuance of policies proclaiming the innovative adoption of the participatory leadership ideology without laying the proper foundations of evaluation and training.

Routinely, organizations have attempted to introduce increased employee teaming and have met with mixed results. Unfortunately, some of these organizations simply considered the experiment a failure and reverted to business as usual. Some organizations achieved positive results and observers judged them as unqualified success stories to emulate widely. Many organizations tried to incorporate the techniques followed by the success stories, General Electric for example, and found bitter disappointment at the end of the rainbow. Researchers were able to ascertain that individuals within the organizations had varying mindsets that either endorsed the participative leadership style, rejected it, or fell

somewhere in between the two extremes (Farrow & Bass, 1977; O'Roark, 1986; Vroom & Yetton, 1973).

Attitude by both the leader and the employee play a dominant role in the success or failure of employee teaming initiatives. Leaders are hesitant to relinquish power fearing perhaps that their level of management may be the next to collapse in the pursuit for an increasingly horizontal organization. Although it may appear contrary to the logic of the discussion, many employees do not want to engage in the participatory management common to teaming activities. Low risk propensity or the degree of an individual's willingness to take chances (Robbins & De Cenzo, 1998) may preclude the success of an organization's attempt to incorporate employee teaming in the workplace.

The forces driving the transition of an organization toward employee engagement through teaming activities must be from the upper levels of the organizational hierarchy and domino downward throughout all employees (Kouzes & Posner, 2002). Incorporation of adequate training and monitoring systems are necessities during the transition to provide safety mechanisms for the migration. Otherwise, it is human nature to revert to what we know best in uncomfortable situations and this would be detrimental to the development of an engaged employee.

A further note regarding teaming, eventually, conflict may develop between the leader and employee regarding ownership of the process involved. Leaders must actively seek out a methodology that they and the employees can

accommodate comfortably. Tannenbaum and Schmidt (1973) suggested that direction and participation are two halves of a continuum, with many graduations possible in between. Several studies have investigated the continuum with one extreme being a totally leader driven decision-making process and the other being employee driven decisions. Drenth and Koopman (1984) investigated the continuum in their influence-power study and Scandura, Graen, and Novak (1986) did likewise.

*Job Satisfaction and the Work Environment*

In the late 1950's, Frederick Herzberg commenced interviewing groups of employees to determine what attributes on the job provide them satisfaction and dissatisfaction. From the information collected through the interviews, Herzberg developed a theory that there are two dimensions to job satisfaction: motivation and "hygiene" (Herzberg et al., 1959). Hygiene characteristics, according to Herzberg, cannot motivate employees but can minimize dissatisfaction, if handled appropriately. More specifically, if not addressed or the substance of these attributes underestimated, employee dissatisfaction can materialize. The hygiene topics are company policies, supervision, salary, interpersonal relations and working conditions. These are job attributes related to the employee's working environment. The motivation characteristics create satisfaction by fulfilling an individuals needs for meaning and personal growth. They are attributes such as achievement, recognition, the work itself, responsibility and advancement. Once addressed the hygiene areas, claimed Herzberg, the motivators will promote job

satisfaction and encourage production.

An organization's policy can be a great source of frustration for employees if the policies are unclear, unnecessary or if not everyone is required to follow them. Although employees will never feel a great sense of intrinsic motivation or satisfaction due to policies, the organization can decrease dissatisfaction in this area by making sure policies are fair and apply equally to all (Kim & Yukl, 1995).

The old adage "you get what you pay for" tends to be true when it comes to staff members. Salary is not a motivator for employees, but they do definitely desire fair pay. If individuals believe their compensation is inadequate, they will be unhappy working for the organization (Yukl, 1997). Organizations should specially consult salary surveys to ensure the salaries and benefits offered are comparable to those in the locale (Vecchio, 1987).

Organizations need to be aware that part of the satisfaction of employment is the social contact it brings, so leaders should allow employees a reasonable amount of time for socialization (e.g., over lunch, during breaks). This will help them develop a sense of camaraderie and teamwork (Leana, 1999). At the same time, leaders should crack down on rudeness, inappropriate behavior and offensive comments. If an individual continues to be disruptive, take charge of the situation, perhaps by dismissing him or her from the practice (Andersson, 1999).

The surrounding in which people work has a tremendous effect on their level of pride for themselves and for their work. Organizations should do

everything possible to keep equipment and facilities up to date. Even a nice chair can make a world of difference to an individual's psyche. Whether it is a desk, a locker, or even just a drawer, an organization should avoid overcrowding employees and allow each employee his or her own personal space (Hooks & Higgs, 2002).

Leaders and organization must not neglect the hygiene factors. To do so, any organization would be asking for trouble in more than one way. First, the organization's employees would be universally unhappy, and this would be apparent to customers and shareholders. Second, the organization's hardworking employees, who can locate careers elsewhere, would leave the organization, while the mediocre employees would stay and compromise the organization's success. So organizations should obviously deal with hygiene issues first, and then move on to the motivators that follow.

Perhaps the most important aspect for an organization to stimulate employee motivation is helping individuals believe that the work they are doing is important and that their tasks are meaningful. Organizations should emphasize employee contributions to the corporate goals result in positive outcomes for customers and satisfied shareholders. Of course employees may not successfully find all their tasks interesting or rewarding, but the organizational hierarchy should show the employee how those tasks are essential to the overall processes that make the organization successful (Van Dyne & Pierce, 2004).

Employees will be more motivated to do their jobs well if they have

ownership of their work. This requires giving employees enough freedom and power to carry out their tasks so that they feel they "own" the result. As individuals mature in their jobs, provide opportunities for added responsibility (Lacey, 1994).

The objective of continuous improvement is to reduce significantly cycle times, virtually eliminate unnecessary practices, understand the needs of customers, and improve processes. However, there are side benefits to the subordinates and firm recognized in increased subordinate accountability through an increased awareness of the link between their job function and the firm's objectives.

Recognition and rewards are an important part in achieving employee satisfaction. Rewards as a process of employee involvement correlate to higher recognition of achievement, increasing employee satisfaction in a social exchange relationship (Mohrman, Lawler, & Ledford, 1996). Individuals at all levels of the organization mutually desire recognition for their achievements on the job. Their successes do not have to be monumental before they deserve recognition, but the organization's praise should be sincere (Nelson, 2002).

According to Maslow (1943), everyone's fundamental human needs are physiological. These needs encompass food, shelter, clothing, etc. The second level is the need for security or safety. The remaining levels are belonging and affection, esteem, and self-actualization. The movement between the levels is not a continuous upward movement, but rather alternates between levels. Rewards

can motivate employees in a positive way. "Organizations that reward their members in accordance with performance typically experience fewer problems than organizations that do not." (Muczyk, J. P., Scwarts, E. B., Smith, E., 1984).

Intuitively, if an organization hierarchy can act as an agent to motivate a subordinate, it would be logical to deduct that the organization hierarchy could also de-motivate a subordinate. Herzberg's (1987) research supports this conclusion. Herzberg found that motivators and de-motivators have a quantifiable and measurable effect on employees. Herzberg claimed that motivators affect employees in a positive way and promote a working environment cultivate employee satisfaction.

Research indicates the process of rewarding employees has a strong relationship to the success of employee involvement initiatives (Lawler, 1986). Further, several analyses demonstrate the relationship between rewards and performance in organizations that have high levels of participation in employee involvement programs. Lawler (1986) indicated accomplishment of the process is by aligning the objectives and interests of the employee with the goals of the organization.

If a manager does not acknowledge the employees, the subordinates, either consciously or subconsciously, compare their benefits and rewards to those around them as well as others outside the organization. Adams (1963) contended that employees evaluate and compare in a ratio form their respective job inputs—such as skills and efforts—to outcomes—such as rewards and interesting work.

Comparing this ratio to other employees, an employee makes a determination as to whether he perceives his rewards are comparatively fair. To be equitable and fair, the link between individual and organizational performance should be clear (Hackman & Suttle, 1977). If the distribution system of rewards is unfair, inaccurate, or unattainable, it can be as ineffective as not using reward systems at all (Vandenberg, 1996).

Other research supports Hackman and Suttle's work. Intrinsic rewards focus more on presumptions and feelings of fairness in addition to other uncompensated reward systems. Employees have a perception of accomplishment when performing an assignment recognized by others to be a contribution to the goals or mission of the organization (Lawler, 1986).

Finally, organizations should reward loyalty and performance with advancement. When feasible, an organization should support employees by allowing them to pursue further education, which will make them more valuable to the organization and more fulfilled professionally (Herzberg, 1987).

Many employees receive training in topics specifically required by an employer such as instruction in the use of the computer software used by their department. However, management must train employees on how to respond to organizational needs. Additionally, an organization may benefit by supporting employee efforts to obtain continuing education. Individual interest could vary as maturity and situational factors intervene during a career. Thus, a person that was

content in a position earlier in their career may need reassignment later during their career with an organization (Robbins, 2003).

Another of the instruments of development is employee goals. Goals are an employee's road map, so they must be clear and easy to comprehend. Effective goals are written down in specific terms, have time frames, and are measurable. The procedure of writing goals down helps employees voluntarily commit to them. Effective goals also successfully yield a payoff that employee's value. It is important that the employees buy in to the goal; otherwise, they will effectively lose motivation when obstacles occur. Effective goals result from organizational strategy and guidance, and are significant to the organization. Effective goals are achievable but challenging, and provide room for growth (Schnur & Butz, 1994).

The aspect of participative leadership in transformational leadership makes this style of leadership appealing to the followers (Tannebaum & Schmidt, 1973; Vroom & Yetton, 1973). Development results when opportunities to use various procedures that allow some influence over the leader’s decisions increase the employee’s sense of ownership and buy-in to the plan or vision of the firm.

The value of participative leadership and brainstorming has evolved as a decision-making process. Brainstorming results as consideration of input from many sources instead of the decision resting with a single directing individual, guaranteeing that all constituencies in the process have the opportunity to participate. Proponents of participatory leadership claim this type of decision-

making promotes cooperation, improves communication, facilitates conflict resolution, and ensures the mission, purposes, and strategic goals of the firm are effectively guiding the employees. Motivational aspects of this style are that the subordinates gain a sense of ownership and responsibility for the actions of the group; they experience power sharing, and an increase in commitment to the goal (Conger, 1988).

Few issues have changed much in the past decade or two as the role of the organization in its employees' careers (Sullivan, 1999). The organization's role has gone from paternalism- in which the organization took virtually complete responsibility for managing its employees' careers – to supporting individuals as they take personal responsibility for their future. Careers have gone from a series of upward moves with increasing income, authority, status, and security to one in which people adapt quickly, learn continuously, and change their work identities over time (Robbins, 2003).

Redding (1972) published 10 Postulates on Organizational Communication, which contains a useful reference to feedback. The fifth postulate supported the importance of feedback in organizations. He made an important distinction between feedback receptiveness (the extent to which managers are open to subordinate feedback) and feedback responsiveness (the extent to which managers give feedback to subordinates). It is important to attempt to maintain a balance (Jablin & Putnam, 2001).

According to the balanced scorecard approach (Heinz, 2001), there are

three principle sub-components to the learning and growth perspective: people, systems, and organizational procedures. The balanced scorecard will often aid organizations to determine needs to address. By identifying these organizational shortcomings, businesses can invest in the appropriate training and encouraging new skills for employees, enhance information technology and systems, and align organizational procedures and routines.

Leadership as well as followers (employees) can also certainly receive encouragement. One of Deming's fourteen points is to improve constantly and forever the system of production and service. It is management's permanent job to work continually on the system. A conclusion of Tichy and DeVanna (1986) is organizations need to encourage positive criticism. Ideas can now be compared allowing management to identify areas exerting the greatest negative impact on business performance and their possible causes. Subsequently, implementation of corrective action to eliminate each negative contributor until the true cause or causes of the discrepancy occurs.

The mention of corrective action transitions to another potential way to regard encouragement in the leader-employee interaction and the vehicle is feedback. Feedback is leadership's most widespread reinforcement supplied to the employee and it can be a corrective method or as a positive outcome reinforcement depending on circumstance. Supervisory feedback is required to improve the subordinate's performance of the job and can affect either the

subordinate's ability or motivation to do the job (Locke, Lathem, Saari, & Bobco, 1986).

When used as a positive reinforcement, feedback can be highly rewarding to the employee and serve as encouragement. However, when the employment of feedback is to remedy a negative outcome, the employee could judge it extremely punitive. Therefore, it is in the leader's best interest to present the negative feedback as an encouragement such as constructive criticism. Subordinates will find as fair and accurate negative feedback about their failures if the causes are bad luck or external circumstances rather than their lack of ability or motivation and the feedback is about task, not about them (Liden, Ferris, & Dienesch, 1988).

The relative importance of appropriate feedback to the firm cannot be overemphasized. Organizations need to be aware that good employees do not always make good supervisors (Robbins, 2003). The function of supervisor is extremely difficult. It requires leadership skills and the ability to treat all employees fairly. Organizations should encourage supervisors to use positive feedback whenever possible and should establish a set means of employee evaluation and feedback so that no one feels singled out (Peters & Austin, 1985). Conversely, a lack of trust, economic threats, fear of personal failure, loss of status and power, and resentment of interferences influence subordinates negatively (Yukl, 1997).

*Job Satisfaction and Goal Congruence*

As previously noted, the congruence between an individual's values and the organization's values significantly correlates with organizational commitment, job satisfaction, intention to quit, and turnover (Kreitner & Kinicki, 1997). The primary goal of communicating the leadership vision is to reduce ambiguity within the organization and solidify purpose of direction. Therefore, to terminate any misunderstanding of the subordinate's purpose within the organization it is imperative that the organizational leadership communicate as effectively as possible its vision and goals to the subordinates. Yukl (1997) lists several leadership behaviors, which point out various aspects of both verbal and non-verbal communication styles. Substantiating Yukl's list, Bennis & Nanus (1985) list the following four practices repeated by effective leaders in an organization:

- Create a clear vision of the future state of the organization
- Enable leaders to be social architects for the organization
- Create trust idealized influence
- Enable creative deployment of self through positive self-regard

There are many methods, or media, that the transmitter may opt for in the process of delivering the intended communication. According to the theory of media richness, derived from Daft and Lengel's work (1986), some of these media have a greater capacity to convey the communication intended by the transmitter. The researchers refer to the capacity to convey the communication intended in their research as the richness of the media. Adapted from Daft and Lengel, the

following forms of interpersonal communication are listed in decreasing order of richness: face-to-face dialogue, video conferencing, telephone conversation, voice mail, email, informal letters/memos, originator's video tape, formal written document, formal numerical document (Hellriegel, D., Slocum, J. W., & Woodman, R. W., 1986).

Lengel and Daft (1988) went on to meticulously explain that the selection of media usage was a measurable executive (leadership) skill and were able to display empirically that the effective selection of media correlated with high performing managers in the study conducted. "A rich personal medium is filled with cues that capture subtlety, emotion, and urgency." The main emphasis of their findings was high performing managers (effective leaders) would use the richer media, especially face-to-face dialogue, in a non-routine executive situation and defer the more routine communication tasks to a leaner media such as a memo. The study shows that "effective communication hinges on the selection of the medium that has the capacity to engage both the sender and receiver in mutual understanding of the message".

Reinforcing the position that face-to-face dialogue is the richest of the media is Redding (1972). He noted that in an organization, "anything is a potential message". This could include a multitude of possible message transmissions, intended or not. Misunderstandings leading to unmotivated or demoralized followers could result from these types of communications bolstering the necessity for a media rich communication process. Redding also implied that

an effective leader was a "participative manager" and would have "…the ability to listen to his associates, especially his subordinates. Moreover, such listening is generally described as "empathic" – which should be differentiated from other kinds of listening, e.g., listening in order to comprehend and retain information, listening in order to analyze logically, and listening in order to refuse."

Furthermore, as subordinates experience exposure to the certainties of today's global business environment, they need to be encouraged that the organization's hierarchy is aware of their significant concerns and providing strategic planning to address them. The organizational hierarchy provides this reassurance through effective communication of information.

Goal congruence is another term coined by Vroom & Jago (1988) describing the relationship between the firm's goals and the subordinate's goals. They reasoned that it was important to a firm that the subordinate share the same vision as the firm to reap benefit from the goal's realization. One method to reinforce the behavioral traits that the firm desires is to implement policies that adhere to the tenets described in the reinforcement theory. The reinforcement theory states people will exert higher levels of effort in reinforced tasks. Reinforcers are consequences that, when immediately following a response, increase the probability that the behavior will be repeated (Robbins & De Cenzo, 1998, 322).

Therefore, it is imperative that the organizational hierarchy communicate effectively its vision and goals to the subordinates to reduce resistance to change

and establish a desire to embrace the new organizational climate. In this effort, the organizational hierarchy must attempt to adhere to the highest standards of quality, completeness, and honesty in delivering the message to subordinates.

The communication of the vision is composed of two main components forming a double helix of sorts, transmitting and receiving. It is the organizational hierarchy's responsibility to transmit the vision effectively and to ascertain that receipt of the communication was accurate by monitoring and soliciting subordinate feedback. Internal monitoring is important to the organization in that it facilitates the employment of previously mentioned positive reinforcements to subordinates such as recognition, clarifying, and support. Empirical studies have shown supporting evidence, that monitoring helps organizations achieve desired outcomes (Komaki, 1986; Jenster, 1987).

*Job Satisfaction and Leadership's Ethics*

Northouse (2001) stated a spirit of cooperation often develops between transformational leaders and their followers. Followers want to emulate the leaders because they have learned to trust them and believe in the ideas for which they stand.

Previous discussion considered the components in Redding's list. However, the third element of the list deserves comment in this literature section and that element is trust. "The architecture of leadership, all the theories and guidelines, fall apart without honesty and integrity. It is the keystone that holds

an organization together." (Babbie, 1999). Unethical dealings by employees cause untold loss to organizations every year. The loss influences not only the share value but furthermore the morale of the employee. One of the promising aspects of effective leadership is that the employees trust the organizational leadership. Without this trust, the employee or follower is less likely to be motivated.

One of the foundations to build the coveted trust, confidence, and credibility solicited by the organizational hierarchy is the use of effective communications. Without effective communications, employee job satisfaction suffers as well as the quality of the service encountered between the firm's employees and the firm's customers (Schneider & Bowen, 1985). This lack of effective communications will potentially lead to a decrease in role clarity, an increase in job tension and a decrease in job satisfaction.

*Summation of Job Satisfaction*

Spector (1997) believes that job satisfaction is the most frequently studied variable in organizational research. He states, "the humanitarian perspective is that people deserve to be treated fairly and with respect." Human beings are more than rational creatures. They are not animated machines. How employees personally feel, think, and see the company and their work have a significant impact on the character and quality of their work, their relation to management, and their response to innovation and change (Deetz, Tracy, and Simpson, 2000).

Job satisfaction is one of the most frequently studied variables in Organizational Behavior. A group of Organizational Behavior scholars calculated there were more than 5,000 articles written on the subject between 1957 and 1992 (Kreitner & Kinicki, 1997). A good measure of this preoccupation with job satisfaction stems from Herzberg's motivator-hygiene theory. As previously discussed, Herzberg's theory assumes there is a causal linkage from job satisfaction to motivation, and ultimately to job performance. This suggests that the best way to increase performance is to improve job satisfaction. Unfortunately, subsequent research has found the job satisfaction to performance relationship to be less than clear-cut. Consequently, researchers need to categorize the various causes and consequences of job satisfaction.

Employee involvement and empowerment are essential keys to establish the introduction set of experiences to obtain employee satisfaction (Cohen, Ledford, & Spreitzer, 1996; Locke & Schweiger, 1979; Scott, Bishop, & Chen, 2003; Sefton, 1999). Job satisfaction is an affective or emotional response toward various facets of one's job. This definition means job satisfaction is not a unitary concept. Rather, a person can be relatively satisfied with one aspect of his or her job and dissatisfied with one or more other aspects. For example, researchers at Cornell University developed the Job Descriptive Index (JDI) to assess one's satisfaction with the following job dimensions: work, pay, promotions, co-workers, and supervision. Taking a more analytical approach, researchers at the University of Minnesota concluded there are 20 different dimensions underlying

job satisfaction. This study uncovered six components with various quantities of facets.

Yukl (1997) cites Burns as saying, "Transforming leadership is a process by which leaders and followers raise one another to higher levels of morality and motivation." This "raising to higher levels" is reminiscent of obtaining self-actualization in Maslow's (1943) Hierarchy of Needs theory. When leaders clearly communicate a shared a shared vision for the organization, they ennoble those who work on its behalf. They elevate the human spirit (Kouzes & Posner, 2002).

Employee satisfaction is an emotional state resulting from the experiences an employee accumulates at work. This process partially relies on both the logical and emotional influences of the work environment. Leaders who can strengthen others can boost worker performance. At the core, it is all about how leaders make people feel. Paying attention to the emotional factors may seem obvious. Yet, nearly 19 percent of all U.S. workers (approximately 24.7 million people), feel powerless and are actively disengaged from their workplaces. This particular fact cost the economy approximately $300 billion in economic performance. Actively disengaged workers report nearly 120 million days missed annually, more than three times the number of days missed by their more engaged peers (Author, 2001).

In this period of frequent corporate restructuring and rapid technological change, successful companies must have employees who are genuinely open to

innovation and to changing roles, and are able to efficiently work together productively (Cranny et al., 1992). The area of interest relating to employee satisfaction is associated with interpersonal relationships in a group environment as well as relationships among groups.

Employee job satisfaction is multifaceted. Another of the features receiving much attention is the correlation between a subordinate's job satisfaction and monetary compensation. According to Adams (1963) Equity Theory, if a subordinate perceives adequate distribution of rewards in exchange for the employee's output, the subordinate will be motivated to continue to produce at a minimum of the current level. Conversely, if the subordinate does not feel that distribution of rewards is adequate to compensate the employee's output, a de-motivating situation has occurred and the subordinate's productivity will decline.

Monetary compensation is an illustrative example of an extrinsic motivation (Petri, 1991; Deci, 1975). This is motivation of a subordinate by external influencing factors, as opposed to the internal drivers of intrinsic motivation previously described. Extrinsic motivation drives subordinates to do things for tangible rewards or pressures, rather than for the potential perception of emotional fulfillment.

Redding (1972) delineated his personal vision of the ideal climate, which an effective organizational hierarchy would rationally seek to establish ultimately. His components for this climate are (1) supportiveness; (2) participative decision

making; (3) trust, confidence, and credibility; (4) openness and candor; (5) emphasis on high performance goals. These characteristics describe, in broad terms, stimuli used frequently to frequently invoke subordinate perceptions and emotional responses in an organizational environment.

Every active member of an organizational sub-culture has a perception of reality based on experiences or preconception. This individual reality overarches our decision-making process and leads to formulation of reactions in various situations. An atmosphere of openness and candor will aid the cohesiveness of the organizational hierarchy by exposing misguided notions regarding individuals and groups. By exposing these idiosyncrasies, …the cultural difference that has to be taken into account may turn out to be as important as that found in certain contrasting sets of values that determine the hierarchy of negotiating objectives themselves, or as trivial as behavior mannerisms that subtly block confidence and trust (Fisher, 1980). Similar to the mechanisms that make diversity in the workplace successful, the acknowledgement of sub-culture differences and sensitivity of their potential to help or harm workplace efficiency is beneficial.

Perhaps, the primary tool used to motivate is to displace subordinates from security in the status quo or moving them out of their comfort zone. Kotter (1996) claims one must create a sense of urgency to disrupt this sense of complacency towards change. Ohno (1988) said, "it usually takes a company-threatening crisis - a severe market slump, for example, or a technological breakthrough by a competitor - to put the fear of God into management and

employees. Only in crisis do people awaken readily to the need for fundamental change." Yet another approach forwarded by a theory of Abraham Maslow, The Hierarchy of Needs Theory, stating that a satisfied need no longer creates tension and therefore does not motivate. Maslow believed that the key to motivation is to determine where an individual is along the needs hierarchy and focus motivation efforts at the point where needs become essentially unfulfilled. The theory would suggest diminishing a subordinate's sense of safety might produce a willingness to migrate from the status quo.

A study at Ford Motor Credit Corporation found that employee's satisfaction with their workload, team, job, and the company overall were statistically correlated to the level of customer satisfaction with the company's services (Johnson, Ryan, & Schmit, 1994). In another study at Sears, researchers found that an increase in employee satisfaction of four percent leads to an identical increase in customer satisfaction (Rucci, Kirn, & Quinn, 1998).

Obviously, given today's business environment, the need for a firm to increase the subordinate's awareness of customer satisfaction is important. Much of the research that has been concluded deals with the quality of employee satisfaction and its correlation to customer satisfaction (Adsit, London, Crom, & Jones, 1996; Schmit & Allscheid, 1995; Hall, 1998; Kotter, 1996).

The expectancy theory also argues that individuals analyze effort-performance, performance-reward, and rewards-personal goals relationships, and their level of effort depends on the strengths of their expectations that these

relationships can be achieved (Robbins & De Cenzo, 1998, 324).

A long-standing principle of a transformational style of leadership is that followers are enticed to break away from the status quo in pursuit of reaching the goal(s) or vision of the organizational hierarchy. Often the technique used by an organization to disturb the subordinate's reliance on the status quo is benchmarking "…the process of identifying, understanding, and adapting outstanding practices and processes from organizations anywhere in the world to help your organization improve its performance" (Robbins & De Cenzo, 1998). Informally, referring to benchmarking seemingly admit that another organization does something better; then, learning from and improving upon its processes. Although benchmarking is not a true science and has drawbacks, it has proven itself as a wonderful tool for quality improvement (Dattakumar & Jagadeesh, 2003).

Previously, the study discussed McGregor's Theory X. The other side of McGregor's dichotomy is Theory Y. This philosophy held assumptions about human nature that were more positive:

1) employees can view work as being as natural as rest or play;
2) a person will exercise self-direction and self-control if he or she is committed to the objectives;
3) the average person can learn to accept, even seek, responsibility;
4) the ability to make good decisions is widely dispersed throughout the population, and not necessarily the sole province of supervisors.

McGregor seems to be advocating a transformational style of leadership with Theory Y. The concepts of teamwork, empowerment, and employee participation in decision making all stem from these four attitudes in Theory Y. Warren Bennis (1989), one of today's premier authors of leadership literature, believes that, "We can create systems that facilitate our work, rather than being preoccupied with checks and controls of people who want to beat or exploit the system."

Systems Theory has taken our understanding of management principles beyond the level of the individual or the individual department. An analogy to the precept is that an individual is only one cell in a living organism consisting of many cells. Contrast this concept to Machiavellianism, in which the interaction of interpersonal relationships in a two-way exchange. According to the Systems Theory, a leader or employee is someone embedded in an environment of multiple inputs from the environment, the organization, the immediate work group, the task, the leader's behavior, and his or her relationships with subordinates and outputs in terms of effective performance and satisfactions (Bass, 1990).

*Organizational Sub-cultures*

There is a natural migration by individuals toward groups and social stratification. Maslow (1943) would have associated this with fulfilling the need of the individual for safety and social interaction. Examining the accumulation of

social capital and networking abilities, Young and Parker (2000) examined the extent to which collective climates are comprised of individuals with similar interpretive schemata such as work values and need strength or consist of individuals who share work group or interaction group membership. They found clear evidence that collective climates relate to employee interaction groups.

Organizational culture is the pattern of shared values and beliefs that helps individuals to understand the way the organization functions and so provides them with norms for behavior in the organization.

In this study, the research questions address five job-types within the sample population: management staff, engineering personnel, salaried employees, union represented workers, and non-salaried personnel

The ability to achieve is supported by carefully built in and supported targets (Deetz, Tracy, and Simpson, 2000). In-group members, as described by the Leader-Member Exchange Theory, experience the positive results; such as receiving more information, influence, confidence, and concern. This manifests itself in more dependable, more involved, and more communicative followers. Research indicates that these employees have a reduced turnover rate, perform better, and receive more and faster promotions. The followers show more commitment, have better job attitudes, and get more attention, support, and participation from their leader. Out-group members do not display the same positive attitudes, work commitment, or reap the same positive career advancements. The conclusion of the studies involving the leader-member-

exchange theory states leaders should develop high quality exchanges with all followers.

*Summary and Critique of Existing Literature*

The studies cited and others relevant to the study of leadership have laid an excellent foundation for the future researchers in this field to build upon. The cited research and theories have logically progressed by building upon the advancements of others and have consistently described the techniques found to be successful in the motivation of individuals. These techniques generally appeal to the ego of the individual by indicating that the organizational hierarchy appreciates the value of the subordinate.

Through the analysis of the existing literature, finding distinct relationships relating to leadership options, employee empowerment, and employee satisfaction is an achievable goal. Employee satisfaction, like empowerment, is an emotional state from the perceptions a subordinate has at their place of employment. However, it is important to note that regardless of the type of stimuli used by the leadership, "…all the theories and guidelines, fall apart without honesty and integrity. Honesty is the keystone that holds an organization together." (Phillips, 1993, 52).

In order to achieve the profit maximization desired, continuous improvement within an organization is a function that firms in the private sector utilize. These continuous improvement initiatives uncover new and better methods of production and providing services resulting in the economic

advantage over competitors so eagerly sought in a continuously changing business environment. Secular firms do not exclusively pursue continuous improvement; non-profit organizations also seek avenues providing efficient application of scarce resources, particularly labor. One of the continuous improvement methodologies employed by these organizations in attempting to locate and capture latent resources is the integration of precepts and processes researchers and innovators at other organizations have found to be generally effective into their own organizational cultures. As a result of identifying these positive characteristics to be reproduced, many organizations are investing large quantities of capital, both human and financial, into programs providing various approaches desiring to increase the personal satisfaction that a subordinate derives by association with the organization and thereby increase productivity and/or efficiency.

# CHAPTER III

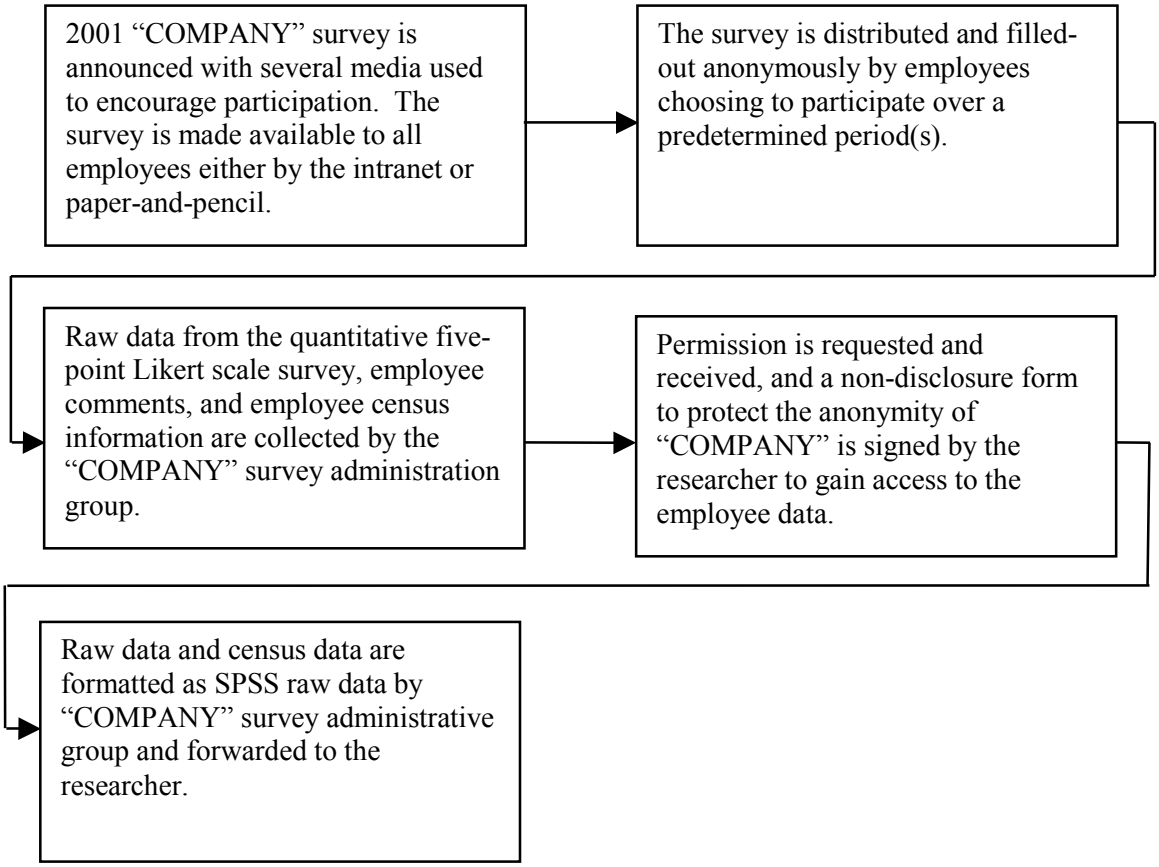
# METHODOLOGY

## *Introduction*

During 2001, a fortune 500 company hereafter referred to as the "firm", conducted multiple employee satisfaction surveys. The firm, as one method to benchmark itself against other top tier corporations, interprets the raw data from its employee satisfaction surveys. The firm has and continues to conduct these employee satisfaction surveys on an annual basis at a minimum. The firm now has a large database of observations that are made available only to a very few individuals, via special permission, contractual agreement, and for limited research.

Figure 1 depicts the flow of events that lead to the acquisition of the firm's raw data for this study. Due to the firm's sensitivity regarding confidentiality, it was a laborious process to obtain the restricted set of raw data for the study. The firm provided the raw survey data once it obtained several documented assurances of confidentiality. Although this was a time-consuming process, it was critical to the success of the study.

*Figure 1:* Firm's process of collecting and distributing raw data (Light, 2004)




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*Description of the Firm's Measurement and Instrument*

The publicly held firm, as part of its internal study on work-related attitudes, perceptions, and employee satisfaction, collects data at its facilities across the United States. The number of participants providing usable replies exceeded ($n$ > 35,000) in the raw data received. Distributed in 2001, the observed data in this study contained responses to 45 questions or statements. Appendix A contains the contents of the firm's survey.

The media for the employee survey was both electronic and traditional

paper-and-pencil. In 2003, administration of 67 percent of the surveys was to employees via the company intranet. Asked to complete the survey on a voluntary basis, employees were aware that their individual responses—including any comments—were confidential. The employees were provided time to complete the survey during their regular work schedule. The response rate for the company was very good at approximately 62 percent. This study will consider the data collected as random since all employees received the questionnaires however, employee participation was not required or linked to a specific employee in any manner.

The values of the five-point Likert scale used by the firm's instrument counted the most favorable responses, such as "Very Satisfied" with a value of one, and the least favorable responses, such as "Very Dissatisfied" with a value of five. Thus, when comparing mean scores lower values are the more favorable values. A mean value of 3.00 designates that the overall score of the sample population is neutral, while any score below 3.00 indicates a more favorable feeling and greater than 3.00 would specify a more unfavorable feeling.

Table 1 illustrates the various scales associated with the firm's survey questions.

Table 1

*Nomenclatures for responses on the employee survey instrument*

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Strongly Agree | Agree | Neither Agree of Disagree | Disagree | Strongly Disagree |
| Very Satisfied | Satisfied | Neither Satisfied of Dissatisfied | Dissatisfied | Very Dissatisfied |
| Very Good | Good | Fair | Poor | Very Poor |
| Certainly | Probably | Not Sure | Probably Not | Certainly Not |
| Almost Always True | Often True | Sometimes True Sometimes Untrue | Often Untrue | Almost Always Untrue |

*Recoding of Variables for the Study*

In order to isolate the employee job-types, the study must recode the data obtained from the firm's survey variable "paycode". The firm's survey instrument asked participants to label themselves with a variety of options. Table 2 shows the raw data variable codes and job descriptions.

Table 2

*Raw data, variable codes and job descriptions*

| Code | Description |
|---|---|
| 001 | Hourly |
| 002 | Salaried, Group A |
| 004 | Engineer |
| 006 | Salaried, Group B |
| 008 | Management, Group A |
| 009 | Management, Group B |
| 010 | Management, Group B |
| 011 | Union, Group A |
| 012 | Union, Group B |
| 013 | Salaried, Group C |
| 000 | Other |

In recoding the variable, the investigation chooses to error on the side of caution to minimize any threat to the validity of the results. Due to the non-exclusive groups that are in the paycode variables, the recoding will attempt to limit any threats to the internal validity. For the subordinate job-type: engineer; the study will recode variables 001, 002, 004, 006, 011, 012, and 013 into a new variable identified as "Engr". Omission of the variable codes 008, 009, 010, and 000 are due to the uncertain nature of the categories or if members of the group were Engineers. For the subordinate job-type management; the study will recode variables 001, 002, 006, 008, 009, 010, 011, 012, and 013 into a new variable

identified as “Mgmt”. Omission of the variable 000 is due to its ambiguous nature. Omission of the variable 004 is because it was unknown how many managers were Engineers. The recoding continued until all possible employee pay codes were in the job-type categories on interest. A summary of the resultant recoded data is in Table 3.

Table 3

*Recoded data: employee job-type, variable label, and code*

| Job-type | Label | Code |
|---|---|---|
| Engineering | Engineering employees | 001 |
| | Non-engineering employees | 000 |
| Salaried | Salaried employees | 001 |
| | Non-salaried employees | 000 |
| Management | Management employees | 001 |
| | Non-management employees | 000 |
| Non-salaried | Non-salaried employees | 001 |
| | Other employees | 000 |
| Union | Union employees | 001 |
| | Non-union employees | 000 |

*Frequency Analysis of Job-types*

Table 4 illustrates the number of samples common to each of the job-type groups formed by the recoded data for the Survey One data. Table 5 illustrates the number of samples common to each of the job-type groups formed by the recoded data for the Survey Two data.

Table 4

*Survey One employees by job-type*

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Management | 3969 | 8.4 | 10.0 | 10.0 |
| | Engineers | 5932 | 12.6 | 14.9 | 24.9 |
| | Salaried | 13459 | 28.5 | 33.9 | 58.8 |
| | Union | 592 | 1.3 | 1.5 | 60.3 |
| | Non-salaried | 15749 | 33.3 | 39.7 | 100.0 |
| | Total | 39701 | 84.0 | 100.0 | |
| Missing | .00 | 7563 | 16.0 | | |
| Total | | 47264 | 100.0 | | |

Table 5

*Survey Two employees by job-type*

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Management | 3480 | 8.2 | 9.6 | 9.6 |
| | Engineers | 5629 | 13.3 | 15.6 | 25.2 |
| | Salaried | 10944 | 25.9 | 30.3 | 55.5 |
| | Union | 582 | 1.4 | 1.6 | 57.1 |
| | Non-salaried | 15502 | 36.6 | 42.9 | 100.0 |
| | Total | 36137 | 85.4 | 100.0 | |
| Missing | .00 | 6199 | 14.6 | | |
| Total | | 42336 | 100.0 | | |

*Protection of Human Subjects by Research Study*

This study adhered to the compliance policies and stipulations as set forth, required and monitored by the University of Oklahoma Internal Review Board. The following quotation is from the university's IRB website (University of Oklahoma Internal Review Board, N. D.):

> "Prior to initiation of any research project that involves the use of human subjects conducted at or by researchers, faculty, staff or students of the University of Oklahoma…, the proposed research protocol must be reviewed and approved by the OU-NC Institutional Review Board (OU-NC IRB). The OU-NC IRB has jurisdiction to review and approve human subjects research conducted at the University of Oklahoma-Norman Campus and University of Oklahoma-Tulsa Campus (non-medical), and Cameron University."

"The OU-NC IRB reviews research protocols in an effort to safeguard the rights and welfare of human subjects involved in research and to assist researchers and the University in our mutual obligation to comply with all federal, state, and OU-NC regulations and policies with respect to protection of human subjects in research. All research which may result in publication or public presentation, involving human subjects or use of data on human subjects that will be performed by faculty, staff or students of OU-NC, OU-Tulsa (non-medical) or Cameron University must be reviewed by the OU-NC IRB."

A copy of the University of Oklahoma IRB approval is included in the Appendix.

*Protection of Firm's Identity by Research Study*

This distribution of data obtained for this study was raw data to the principle investigator under a signed agreement, which covers the acquisition, analysis, and dissemination of the firm's data. The agreement requires the identity of the firm not to be disclosed in any form within the research documentation.

*Target Population*

The concern selected for this investigation is a Fortune 100 company involved in the aerospace and manufacturing sector. The population of the corporation is diverse; sites vary across several geographical locations in North America; workers range in job-type from skilled labor to professional and administrative workers, technical workers including degreed engineers, and managerial employees. The population comprises a diverse ethnic background and a considerable quantity of female employees, although no provision for these specific demographic data was in the sample survey. From this, the quantity of responses for quantitative analysis surpassed thirty-five thousand ($n > 35{,}000$).

*Validity of the Measurement*

A measure (e.g. a test, a questionnaire or a scale) is useful if it is reliable and valid. A measure is valid if it measures what it purports to measure. Assessment of the validity can be in several ways depending on the measure and

its use.

*Construct Validity*

Construct validation is appropriate whenever the researcher wants to draw inferences from test scores to a behavior domain. A test's construct validity is the degree to which it measures the intended behavior domain or other theoretical constructs or traits. More specifically, construct validity can be understood as the extent to which the behavior domain or the constructs of theoretical interest have been successfully operationalized. For example, in this study the firm may be interested in determining employee's satisfaction within the working environment. Since "satisfaction within the working environment" is a construct which cannot be adequately represented by a criterion or defined by a universe of content, the firm chose to develop a questionnaire of 45 items in order to tap the construct "satisfaction" and collect the data. The question is how does the firm know that what it is measuring through the questionnaire is actually the employee's satisfaction with the working environment and not something else or a mixture with other constructs such as the employee's longevity and its influence on propensity to change employers? In this case, a construct validation is appropriate. Establishing construct validity is an ongoing process that involves the verification of predictions made about the test scores. Procedures for construct validation may include correlations between test scores and designated criterion variables, differentiation between groups, factor analysis, multitrait-multimethod matrix analysis, or analysis of variance components within the

framework of theory (Babbie, 1999).

*Factorial Validity*

Factorial validity is a form of construct validity established through a factor analysis. Factor analysis allows one to analyze numerous variables at a time, to unravel relationships among variables correlated in highly complex ways, to report gradated relationships of variables to factions, and to stress parsimonious solutions. Usually the aim is to summarize the interrelationships among the variables in a concise but accurate manner as an aid in conceptualization. Some of the purposes for which factor analysis follow:

1. Through factor-analytic techniques, identification of a minimum number of variables for further research is simultaneous with maximizing the amount of information in the analysis. Reduction of the original set of variables to a much smaller set that accounts for most of the reliable variance of the initial variable pool is the goal. The smaller sets of variables are operational representatives of the constructs underlying the complete set of variables.
2. Factor analysis searches data for possible qualitative and quantitative distinctions, and is particularly useful when the sheer amount of available data exceeds comprehensibility. Out of this exploratory work, arise new constructs and hypotheses for future theory and research. The contribution of exploratory research to science is, of course, completely dependent upon adequately

pursuing the results in future research studies to confirm or reject the hypotheses developed.

3. If a domain of data hypothesized to have certain qualitative and quantitative distinctions, then factor analysis can test this hypothesis. If the hypotheses are tenable, the various factors will represent the theoretically derived qualitative distinctions. If one variable is hypothesized to be more related to one factor than another, this quantitative distinction can also be checked (Gorsuch 1983).

*Principle Component Analysis*

*Sample Size*

Correlation coefficients fluctuate from sample to sample, much more so in small samples than in large. Therefore, the reliability of the analysis is also dependent on sample size. Field (2000) reviews many suggestions about the sample size necessary for principle component analysis and concludes that it depends on many things. In general, over 300 cases are probably adequate but communalities after extraction should probably be above 0.5 (see Field, 2000). Since the data investigated in this study equal sample size $n > 35{,}000$, confidence in the reliability of the principle component analysis is high.

*Data Screening*

In order to verify the validity of the data supplied by the firm, a complete analysis of the data determined relationships between variables. Pearson Product

Moment Correlation Coefficients analysis and Fisher z' test evaluated the components generated by the principle component analysis for correlations and differences. Correlation research is a study, which describes in quantitative terms the degree to which the variables are related. If the components generated by the principle component analysis are measuring the same, underlying dimensions (or dimensions) then expect they correlate with each other (because they are measuring the same thing). If any variables are found that do not correlate with any other variables (or very few) then these variables will be excluded, except as noted, in further analysis.

Additional checks insured that none of the variables correlated too highly. Although mild multicollinearity is not problematic for factor analysis, it is important to avoid extreme multicollinearity (i.e. variables that are very highly correlated) and singularity (variables perfectly correlated). At this stage, the analysis decided to eliminate any variables that do not correlate with any other variables or that correlate very highly with other variables ($R < 0.9$) (Field, 2000).

*Structural Equation Modeling*

In order to synthesize a construct for a particular dataset, this study uses structural equation modeling to display variables together into a coherent model, which specifies causal-effect relationships among those variables. The Keynesian model can illustrate the importance of model building. John Maynard Keynes, the most well known British economist in the 20th century, introduced the Keynesian model. This model hypothesizes how government spending can trigger more

spending in other economic sectors. This idea, "multiplier," originated from another economist instead of John Keynes; however, that economist is virtually unknown while John Keynes has gained worldwide reputation. It is because instead of introducing a piece of concept, John Keynes built a comprehensive model for explaining the relationships among government expenditures, employment, money supply, inflation, interest rate, investment, and gross domestic product.

The model produced by the research will specify how well some variables could predict some other variables. Because the prediction involves relationships between the variables, the model could be viewed as a regression model. In addition, since the relationships form a "chain" or a "path," the model is also known as path model. In structural equation modeling, draws upon prior knowledge from past research to guide the logic of the model (Hox & Bechger, 1998).

*Analysis on Variance*

In this study, the research examines the various job-types to ascertain if there is a statistically significant difference between the perceived job satisfaction levels among the job-types. This is accomplished by comparison of the mean level of satisfaction for each job-type category with mean levels of the other job-type categories. A typical null hypothesis is $H_0$: $mean_1 = mean_2 = mean_3 = mean_4 = mean_5$, with $H_1$: $H_0$ is false. In the above case and in the case here, the researcher could evaluate the hypothesis by conducting a series of several t-tests.

However, in doing so, a validation of the calculations would expose that doing multiple t-tests changes the value of alpha from the intent. For example, for the test the investigator selected an alpha of .05, the tests in the above hypothesis would employ by iteration an alpha of .226. This is referred to as a family-wise cumulative type I error and is described by Keppel (1991), "...the more comparisons we conduct, the more type I errors we will make when the null hypothesis is true. He goes on to provide the following formula

$$\alpha_{FW} = 1 - (1 - \alpha)^c$$

where c represents the number of orthogonal comparisons that are conducted.

Sir Ronald Fisher produced a method to avoid the discrepancy produced by multiple t-tests, when he developed the ANOVA procedure. Fisher prompted researchers to perform an ANOVA first; then, if and only if the ANOVA rejects $H_0$ proceed to the t-tests (Maxwell & Delaney, 1990).

This study relies heavily upon the ability to perform Analysis on Variance (ANOVA). In general, the purpose of analysis of variance (ANOVA) is to test for significant differences between means in a typical hypothesis as described above.

The test statistic for ANOVA is F (honoring Fisher). To use the test statistic to examine the level of job satisfaction among the job-types, researchers first need two things: the df (degrees of freedom) for the numerator of the F-ratio (i.e., the number of groups minus one), and the df for the denominator (*n*). The F table furnishes researchers a value to use as the critical value in comparisons. The F statistic subsequently calculated for the multiple group comparison and

evaluated against the critical value obtained from the F table. If the calculated value of F is less than the critical value obtained from the F table, do not reject $H_0$.

*Data Analysis*

This study will use the Statistical Program for Social Science© (SPSS™) software package for the extraction of relevant statistical information and graphic illustration. The scientific research community (Maxwell & Delaney, 1990; Newbold, 1995; Toothaker, 1993; Webster, 1992) references this robust program due to its familiarity within the academic community and acceptance as a common academic tool for use on research endeavors that are academic in nature.

# CHAPTER 4

## *RESULTS*

### *Introduction*

The chapter begins with descriptive information regarding the sampling technique. An explanation of the procedure for collecting the population's responses follows. Next, the study includes a brief narrative describing the intended measurement. Subsequently, the report contains comments on the statistical software used to analyze and graphically describe the data. The discourse that follows details the principle component analysis and structural equation modeling performed to determine the Survey One and Survey Two variable groupings and model construct. The next portion of the chapter applies the analytical tools to the data precisely determining outcomes relative to the hypothesis questions. The following section of the chapter describes significant differences observed between the variables contributing to employee satisfaction.

### *Data Collection by the Firm*

Employees were encouraged to participate through a variety of contacts made by all levels of the management hierarchy. The vast majority of input accumulated was by means of a self-administered questionnaire on the firm's intranet. During this exercise about three-quarters of all surveys administered were electronic. If the intranet was unavailable to an employee, those employees received a paper copy of the survey and they were to return it in a sealed envelope provided safeguarding confidentiality. The distribution of the survey was to all of

the firm's employees currently appearing in the human resources database. Participation was voluntary and respondents could maintain complete anonymity, if they elected, by returning the questionnaire without any specific identifying information. Guarantees to all participants were that individual responses would be confidential. The actual percentage of employees participating in the survey was sixty-two percent of the eligible employees.

Once collected, a database stored the empirical information. A summary comprehensive report then compiled information for each participating business unit of the firm as well as the overall results for the firm. Finally, assessment of the outcomes for corrective action, if warranted, concluded the process.

*Intended Measurement by the Firm*

The instrument of measurement utilized by this study developed as a vehicle to measure their employee's attitudes across a variety of parameters but specifically job satisfaction (see Appendix A). Selection of the items for the firm's study was by a subcommittee team, which represented various sites and organizations within the firm. According to the firm, the basis of selection of variables examined by the employee satisfaction survey was the following:

- A study of how other companies measure morale.
- A statistical factor analyses (item groups) and correlation conducted on the firm's Employee Survey data.
- Selected items are measurable.
- Selected items reflect predictable unit productivity.
- Selected items would show significant changes in the firm's organizations that have actively addressed morale issues.

- Factors represented by the items shown in other companies to predict productivity, motivation, turnover, unionization and customer satisfaction.
- All items are benchmark company items in order to make it possible to make industry comparisons.

The measure of the firm's employee satisfaction uses a number of different factors. These factors were selected based on past survey results. Main contributing factors identified indicated employees are more willing to contribute to the success of a company if they have support from management, the tools they need to do the job, a sense of participation in decisions that affect their work, and so on. Therefore, the firm states that it developed the survey to measure:

- Employee involvement
- Management practices
- Communication
- Learning and development opportunities
- Recognition and rewards
- Teamwork
- Job security and pay
- Competitiveness

The assessment of these factors is in 12 survey questions. These questions are included in all employee surveys and have been part of the survey process for the past 10 years. The specific employee satisfaction questions are:

- My job makes good use of my skills and abilities.
- Conditions on my job allow me to be about as productive as I could be.
- I feel encouraged to come up with new and better ways of doing things.
- How satisfied are you with your involvement in decisions that affect your work?
- I have enough information to do my job well.
- How satisfied are you with the recognition you receive for doing a good job?

- The people I work with cooperate to get the job done.
- I am given a real opportunity to improve my skills.
- Overall, how good a job do you feel is being done by your immediate manager?
- How do you rate the amount of pay you get on the job?
- How do you rate the firm in providing job security for people like yourself?
- The firm is making the changes necessary to compete effectively.

The questionnaire asked each participant to respond using a 5-point Likert-type scale with responses ranging from strongly agrees to disagree strongly. The use of a quantifiable scale to extrapolate information from non-mathematical statements has been integrated into systems such as the Likert scale (Babbie, 1999), which was used with the firm's survey instrument. While there are issues and concerns about the limitations of such scales, the accepted use of this method is in behavioral and attitudinal research, including employee satisfaction (Ellickson, 2002; Eskildsen & Dahlgaard, 2000; Savery, 1989; Scott, Bishop, & Chen, 2003; Waters & Roach, 1971). The five-point Likert scale is common in various areas of research; the general population is familiar with the format using a continuum similar to "disagree strongly" to "strongly agree". Therefore, the use of a Likert scale is a benefit as it would reduce the amount of potential confusion and increase the internal validity of the questionnaire.

*Statistical Software*

This study will use the Statistical Program for Social Science© (SPSS™) and Analysis of MOment Structures© (AMOS™) software packages for the extraction of relevant statistical information and graphic illustration. The

scientific research community (Kline, 1998; Maxwell & Delaney, 1990; Newbold, 1995; Toothaker, 1993; Webster, 1992) references these robust programs due to their familiarity within the academic community and acceptance as common academic tools for use on research endeavors that are academic in nature.

*Description of Sample Populations*

Table 6 describes the participant by job-type in sample populations for the Survey One and Survey Two data received from the firm. The sample populations consist of approximately 10 percent Management, 16 percent Engineers, thirty percent Salaried, 2 percent Union, and 43 percent Non-salaried employees. Note that the firm did not explain furnishing only the union-represented employee responses from southern California to the research study. This accounts for the proportionately low percentage of contributors represented by a union; however, the analysis ignores the percentage of union represented employees, as the quantity of union participants is sufficient to extract valid conclusions.

Although the actual quantities of eligible employees by job-type is not available; it is known, as previously mentioned, that the participation rate was approximately 62 percent of the eligible employees.

Table 6

*Frequencies of job-types examined within sample populations*

| Job-type | Survey One *n* | Survey One % | Survey Two *n* | Survey Two % |
|---|---|---|---|---|
| Management | 3969 | 10 | 3480 | 9.6 |
| Engineers | 5932 | 14.9 | 5629 | 15.6 |
| Salaried | 13459 | 33.9 | 10944 | 30.3 |
| Union | 592 | 1.5 | 582 | 1.6 |
| Non-salaried | 15749 | 39.7 | 15502 | 42.9 |
| Total | 39701 | 100 | 36137 | 100 |

*Description of Quantitative Analysis*

The ultimate goal of this research is to distinguish contributing variables strongly influencing employee job satisfaction. To this end, the research will investigate the variables found in the data sets for the analytical appropriateness of an exploratory principle component analysis (PCA). Accomplishment of this is through selection of two tests available in the SPSS™ statistical software program: Bartlett's Test of Sphericity and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.

In the exploratory PCA, the analysis used Bartlett's Test of Sphericity to evaluate the initial solution for both sets of data. PCA requires that the probability associated with Bartlett's Test of Sphericity be less than the level of

significance ($p < .01$). The probability associated with the Bartlett test is <0.001 for both the Survey One and Survey Two variables, which satisfies this requirement.

Principal component analysis requires that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) be greater than 0.50 for each individual variable as well as the set of variables. On iteration one, the MSA for all of the individual variables included in the analysis was greater than 0.5 (0.977 for Survey One and 0.977 for Survey Two), supporting their retention in the analysis.

The variables in the two data sets successfully surpassed the criteria of the KMO and Bartlett's tests; therefore, the data is appropriate for examination with PCA. Rotation of the reference axes often aids with interpretability of factors in principle component analysis. Component loadings can be rotated; i.e., described by a different system of coordinates, either visually or analytically. Depending on angular separation of the reference axes, the rotation can be either orthogonal or oblique. The best orthogonal analytic rotation method is Kaiser's Varimax also referred to as orthogonal rotation (Schwab, 2005).

Obtaining a factor solution through PCA is an iterative process that usually requires repeating the SPSS™ PCA procedure a number of times to reach a satisfactory solution. Analysis of the PCA begins by identifying a group of variables whose representation by a smaller set of components parsimoniously accounts for the variance. The result of the PCA tells which components represent which variables, and which variables are to remain as individual

variables because the component solution does not adequately represent their information (Schwab, 2005).

The analysis subjects the initial solution to review for the following conditions (Gorsuch, 1983):

1. The derived components explain 50% or more of the variance in each of the variables, i.e. have a communality greater than 0.50
2. None of the variables have loadings, or correlations, of 0.40 or higher for more than one component, i.e. do not have complex structure
3. None of the components has only one variable in it

The analysis removes any problematic variables and the PCA repeats until the components contain only compliant variables. The initial PCA for Survey One indicated that the variables representing the firm's questions 4, 20, 28, and 39, are non-compliant with condition 1. Additionally, the variables representing the firm's questions 9, 10, 29, 37, and 44 are non-compliant with condition 2. The analysis removes these variables for the next iteration. The second PCA indicated that the variables representing the firm's questions 3, 6, and 36 are non-compliant with condition 2. The analysis removes these variables for the next iteration. The third PCA indicated the variable representing the firm's question number 1 is non-compliant with condition 1 and the variables representing the firm's questions 7 and 41 are non-compliant with condition 2. The analysis removes these variables for the next iteration. The fourth PCA indicated that the variable representing the firm's question 8 is non-compliant with condition 1.

The analysis removes this variable for the next iteration. The fifth PCA indicated that all remaining 28 variables are satisfactory for the Survey One analysis. The same procedure was performed for the Survey Two data.

The repetitive PCA procedure for the Survey One data resulted in 5 components, each with more than one variable loading on them. The repetitive PCA procedure for the Survey Two data resulted in 4 components, each with more than one variable loading on them. The PCA's are comprised of components that explained at least 50% of the variance individually and collectively explained 64.5% of the Survey One and 65.6% of the Survey Two variances. Table 7 illustrates the components, their Eigenvalues, and the percentage of the variance attributed to each component for the Survey One and Survey Two sets of data.

Table 7

*Eigenvalues and explainable Survey One and Survey Two variance by components derived from principle component analysis of the firm's survey questions.*

| Component | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Survey One | | | | | |
| Eigenvalue | 11.884 | 2.148 | 1.707 | 1.211 | 1.105 |
| % variance explained | 42.444 | 7.673 | 6.095 | 4.325 | 3.948 |
| Survey Two | | | | | |
| Eigenvalue | 9.431 | 2.143 | 1.661 | 1.191 | |
| % variance explained | 42.867 | 9.740 | 7.550 | 5.414 | |

Based on the results of a principal component analysis of the 44 variables in each of the data sets, a parsimonious representation of the information in the Survey One variables is possible with 5 components and 28 individual variables. Additionally, a parsimonious representation of the information in the Survey Two variables is possible with 4 components and 22 individual variables.

*Survey One Principle Component Analysis*

As stated, the results of the factor analysis on the Survey One data provided 5 components and 28 variables that contributed to the observed results of the firm's questions regarding employee job satisfaction. Table 8 through Table 12 contains descriptions of the five components as obtained through the PCA for the Survey One data.

Table 8 displays the strongest inter-correlated Survey One variables in the firm's survey questions. Thirteen of the firm's survey questions (variables) loaded into this component. A new recoded variable C1 in the Survey One data corresponds to the variables designated by the component 1 in the PCA.

Table 8

*Survey One component 1: contributing variables for C1 (Leader-employee Engagement)*

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 18. My immediate supervisor/manager considers my ideas and opinions important. | .811 | .187 | .190 | .111 | .075 |
| 19. Overall, how good a job do you feel is being done by your immediate supervisor/manager? | .808 | .171 | .204 | .028 | .159 |
| 15. My immediate supervisor/manager provides the support I need to satisfy my customers | .791 | .162 | .239 | .070 | .135 |
| 13. My immediate supervisor/manager encourages me to take appropriate action without waiting for approval. | .755 | .148 | .127 | .115 | -.014 |
| 14. My immediate supervisor/manager encourages me to work across organizational and functional boundaries. | .742 | .198 | .137 | .136 | -.075 |
| 16. My immediate supervisor/manager helps me obtain the equipment and tools I need to satisfy my customers. | .722 | .134 | .256 | .102 | .161 |
| 21. My supervisor helps me obtain the developmental experiences I need to do my job well. | .719 | .151 | .262 | .123 | .193 |
| 22. I receive the needed coaching and feedback about my performance. | .688 | .152 | .286 | .122 | .191 |
| 2. I feel encourage to come up with new and better ways of doing things. | .547 | .217 | .343 | .248 | .155 |
| 5. How satisfied are you with your involvement in decisions that affect your work? | .535 | .212 | .286 | .294 | .219 |
| 38. Management will act upon reported unethical practices. | .524 | .377 | .071 | .334 | .057 |
| 35. In my organization, staffing decisions are typically based on ability and skills. | .508 | .384 | .152 | .325 | .102 |
| 34. I can report unethical practices without fear of reprisal. | .495 | .385 | .011 | .358 | .054 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 9 displays the second strongest inter-correlated Survey One variables in the firm's survey questions. Four of the firm's survey questions

(variables) loaded into this component. A new recoded variable C2 in the Survey One data corresponds to the variables designated by the component 2 in the PCA.

Table 9

*Survey One component 2: contributing variables for C2 (Group-employee Relationship)*

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 33. The people I work with cooperate to get the job done. | .231 | .788 | .185 | .062 | .041 |
| 31. The members of my work group have the skills and abilities to get the job done. | .126 | .733 | .197 | .014 | .148 |
| 30. The members of my work group have a "can do" attitude. | .300 | .716 | .260 | .127 | .080 |
| 32. My work group effectively teams with other work groups and organizations. | .322 | .686 | .280 | .142 | .009 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 10 displays the third strongest inter-correlated Survey One variables in the firm's survey questions. Five of the firm's survey questions (variables) loaded into this component. A new recoded variable C3 corresponds to the variables designated by the component 3 in the PCA.

Table 10

*Survey One component 3: contributing variables for C3 (Clarity of Task)*

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 23. In my organization, one of our goals involves reducing the cycle times of our processes. | .219 | .095 | .720 | .136 | .095 |
| 26. My work group looks for ways to change processes to improve productivity. | .316 | .329 | .677 | .135 | .053 |
| 24. In my work group, we eliminate practices that stand in the way of achieving results. | .314 | .237 | .660 | .201 | .124 |
| 27. I know my work group's current performance (quality, cost, delivery, and customer satisfaction). | .246 | .187 | .618 | .212 | .101 |
| 25. My work group has a clear understanding of our customers' needs. | .245 | .359 | .595 | .149 | .113 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 11 displays the forth-strongest inter-correlated Survey One variables in the firm's survey questions. Three of the firm's survey questions (variables) loaded into this component. A new recoded variable C4 in the Survey One data corresponds to the variables designated by the component 4 in the PCA.

Table 11

*Survey One component 4: contributing variables for C4 (Leadership Commitment)*

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 11. Senior Executives at the firm clearly communicate the long-term strategy of the company. | .136 | .073 | .159 | .835 | .128 |
| 17. The Leadership Team gives us a clear picture of our business strategy. | .202 | .091 | .242 | .787 | .158 |
| 12. The firm is making the changes necessary to compete effectively. | .164 | .100 | .213 | .707 | .257 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 12 displays the fifth strongest inter-correlated Survey One variables in the firm's survey questions. Three of the firm's survey questions (variables) loaded into this component. A new recoded variable C5 in the Survey One data corresponds to the variables designated by the component 5 in the PCA.

Table 12

*Survey One component 5: contributing variables for C5 (Satisfaction with Status Quo)*

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 40. How do you rate the amount of pay you get on your job? | .065 | -.002 | .053 | .078 | .810 |
| 43. If you have your own way, will you be working for the firm 12 months from now? | .162 | .120 | .127 | .150 | .744 |
| 42. How would you rate the firm as a company to work for compared to other companies? | .193 | .148 | .154 | .334 | .731 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

*Survey Two Principle Component Analysis*

The results of the factor analysis on the Survey Two data provided 4 components and 22 variables that contributed to the observed results of the firm's questions regarding employee job satisfaction. Table 13 through Table 16 contains descriptions of the four components as obtained through the PCA for the Survey Two data.

Table 13 displays the strongest inter-correlated Survey Two variables in the firm's survey questions. Nine of the firm's survey questions (variables) loaded into this component. A new recoded variable C1 in the Survey Two data corresponds to the variables designated by the component 1 in the PCA.

Table 13

*Survey Two component 1: contributing variables for C1 (Leader-employee Engagement)*

| | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 19. Overall, how good a job do you feel is being done by your immediate supervisor/manager? | .820 | .237 | .054 | .162 |
| 18. My immediate supervisor/manager considers my ideas and opinions important. | .816 | .242 | .125 | .081 |
| 15. My immediate supervisor/manager provides the support I need to satisfy my customers | .811 | .244 | .115 | .132 |
| 13. My immediate supervisor/manager encourages me to take appropriate action without waiting for approval. | .761 | .179 | .131 | -.020 |
| 16. My immediate supervisor/manager helps me obtain the equipment and tools I need to satisfy my customers. | .746 | .225 | .152 | .159 |
| 14. My immediate supervisor/manager encourages me to work across organizational and functional boundaries. | .743 | .231 | .149 | -.086 |
| 21. My supervisor helps me obtain the developmental experiences I need to do my job well. | .736 | .241 | .154 | .207 |
| 22. I receive the needed coaching and feedback about my performance. | .708 | .250 | .157 | .205 |
| 5. How satisfied are you with your involvement in decisions that affect your work? | .533 | .306 | .317 | .234 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 14 displays the second strongest inter-correlated Survey Two variables in the firm's survey questions. Seven of the firm's survey questions (variables) loaded into this component. A new recoded variable C2 in the Survey Two data corresponds to the variables designated by the component 2 in the PCA.

Table 14

*Survey Two component 2: contributing variables for C2 (Group-employee Relationship)*

| | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 33. The people I work with cooperate to get the job done. | .214 | .794 | .048 | .026 |
| 30. The members of my work group have a "can do" attitude. | .292 | .758 | .128 | .079 |
| 31. The members of my work group have the skills and abilities to get the job done. | .118 | .744 | .008 | .136 |
| 32. My work group effectively teams with other work groups and organizations. | .322 | .739 | .151 | .004 |
| 26. My work group looks for ways to change processes to improve productivity. | .374 | .579 | .245 | .092 |
| 25. My work group has a clear understanding of our customer's needs. | .297 | .579 | .256 | .140 |
| 24. In my work group, we eliminate practices that stand in the way of achieving results. | .372 | .487 | .317 | .165 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 15 displays the third strongest inter-correlated Survey Two variables in the firm's survey questions. Three of the firm's survey questions (variables) loaded into this component. A new recoded variable C3 corresponds to the variables designated by the component 3 in the PCA.

Table 15

*Survey Two component 3: contributing variables for C3 (Leadership Commitment)*

| | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 11. Senior Executives at the firm clearly communicate the long-term strategy of the company. | .142 | .117 | .857 | .118 |
| 17. The Leadership Team gives us a clear picture of our business strategy. | .219 | .168 | .824 | .156 |
| 12. The firm is making the changes necessary to compete effectively. | .172 | .167 | .736 | .255 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 16 displays the forth-strongest inter-correlated Survey Two variables in the firm's survey questions. Three of the firm's survey questions (variables) loaded into this component. A new recoded variable C4 in the Survey Two data corresponds to the variables designated by the component 4 in the PCA.

Table 16

*Survey Two component 4: contributing variables for C4 (Satisfaction with Status Quo)*

| | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 40. How do you rate the amount of pay you get on your job? | .059 | .004 | .081 | .812 |
| 43. If you have your own way, will you be working for the firm 12 months from now? | .163 | .149 | .158 | .746 |
| 42. How would you rate the firm as a company to work for compared to other companies? | .187 | .181 | .337 | .737 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

*Reliability of Data*

In order to evaluate further the content homogeneousity of the extracted components, Cronbach's alpha test examining the internal consistency reliability was calculated. A high alpha (measured from 0 to 1) indicates good internal consistency and suggests that there is at least one homogeneous dimension underlying the scores on the instrument. The results also indicate that reliability does not increase due to the removal of any variables. Table 17 displays the results for the Survey One and Survey Two data.

Table 17

*Survey One and Survey Two reliability analyses – scale (alpha)*

| Item | Mean | Std Dev | Corrected Item-Total Correlation | Alpha if Item Deleted |
|---|---|---|---|---|
| C1 (Survey One) | 34.5016 | 10.7840 | .7359 | .7505 |
| C2 (Survey One) | 9.5414 | 3.3019 | .6453 | .6402 |
| C3 (Survey One) | 12.8365 | 3.9209 | .7352 | .5952 |
| C4 (Survey One) | 9.0276 | 2.8439 | .5508 | .6736 |
| C5 (Survey One) | 7.2370 | 2.5968 | .4495 | .6977 |
| Survey One Alpha = .7099 | | | | |
| C1 (Survey Two) | 23.7673 | 7.7970 | .6767 | .6134 |
| C2 (Survey Two) | 17.3680 | 5.2906 | .6799 | .5322 |
| C3 (Survey Two) | 9.0791 | 2.8430 | .5313 | .6814 |
| C4 (Survey Two) | 7.2130 | 2.6056 | .4413 | .7150 |
| Survey Two Alpha = .7141 | | | | |

*Component Nomenclature*

For the purpose of clarity, the following associations distinguish the component's relationship to employee satisfaction; the nomenclature arises from the common general theme of the questions comprising the component. For the Survey One components:

$C_1$1.....Leader-employee engagement

$C_1$2.....Group-employee relationship

$C_1$3.....Clarity of task

$C_1$4.....Leadership commitment

$C_1$5.....Satisfaction with status quo

For the Survey Two components:

$C_2$1.....Leader-employee engagement

$C_2$2.....Group-employee relationship

$C_2$3.....Leadership commitment

$C_2$4.....Satisfaction with status quo

*Structural Equation Model for Survey One data*

Figure 2 presents the assumed single factor model for the Survey One data based upon the PCA. Furthermore, the model assumes latent variable "error" to have a variance of one. Item i45 represents the variable common to the survey question "Taking everything into account, the firm is a great place to work." Item i45 also represents job satisfaction, which is the point of interest for the research. Additionally, the figure illustrates the 5 manifest variables (C1 through C5) and

assumes they reflect i45's underlying factors $C_1$1 through $C_1$5 as described in the preceding nomenclature section. Each of the variables has been shown in previous research to be relational to job satisfaction as mentioned in chapter 2. The extents to which these measured items actually tap into the underlying factor are determined by estimating their respective path loadings as shown in Figure 3.

*Figure 2.* Single factor structural equation model for the Survey One data

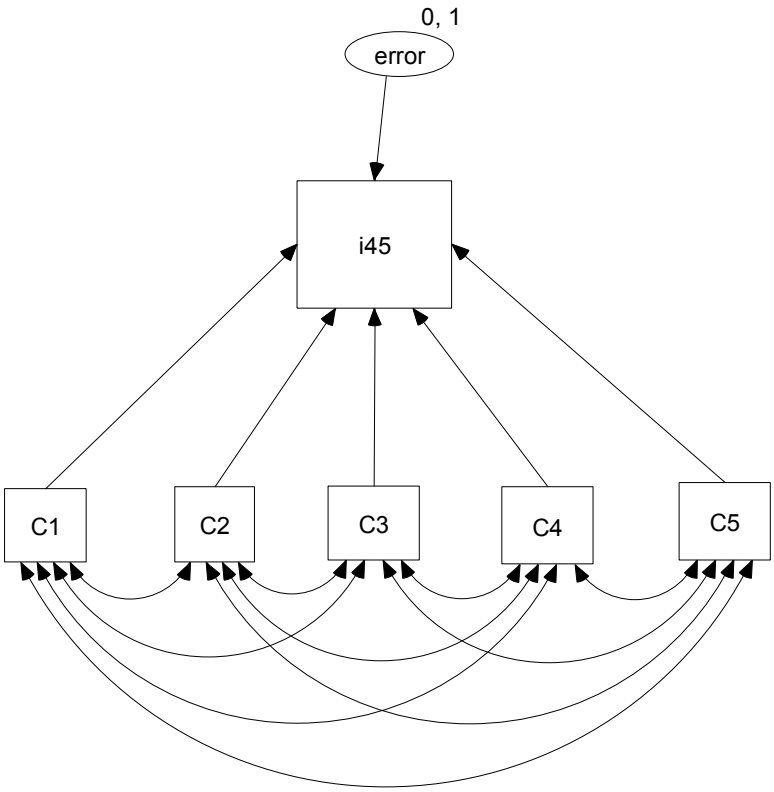
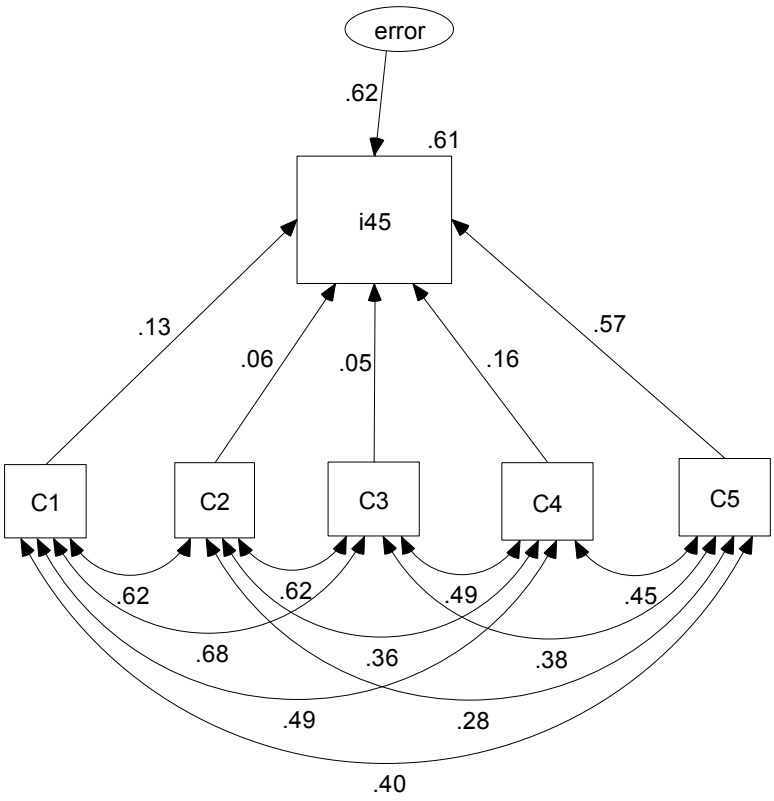


*Figure 3*. Single factor structural equation model for the Survey One data standardized results




$R^2 = .61$

The path diagram shown in Figure 3 represents a clear hypothesis about the factor structure. In this case, the model assumes that C1 through C5 are contributing factors to i45 (job satisfaction). Models of this kind are called restricted or confirmatory factor analysis (CFA) models. In structural equation modeling, the confirmatory factor model is imposed on the data. The purpose of structural equation modeling is twofold. First, it aims to obtain estimates of the parameters of the model, i.e. the factor loadings, the variances and covariances of

the factor, and the residual error variances of the observed variables (Hox & Bechger, 1998).

Modern SEM software computes a bewildering array of goodness-to-fit indices. However, a relatively modern approach to model fit is to accept that models are only approximations, and that perfect fit may be too much to ask for. Instead, the problem is to assess how well a given model approximates the true model. The view led to the development of an index called the Root Mean Square Error of Approximation (RMSEA). If the approximation is good, the RMSEA should be small. Typically, a RMSEA of less than 0.05 is required, and statistical tests of confidence can be computed to test if the RMSEA is significantly larger than this lower bound (Hox & Bechger, 1998).

Table 18

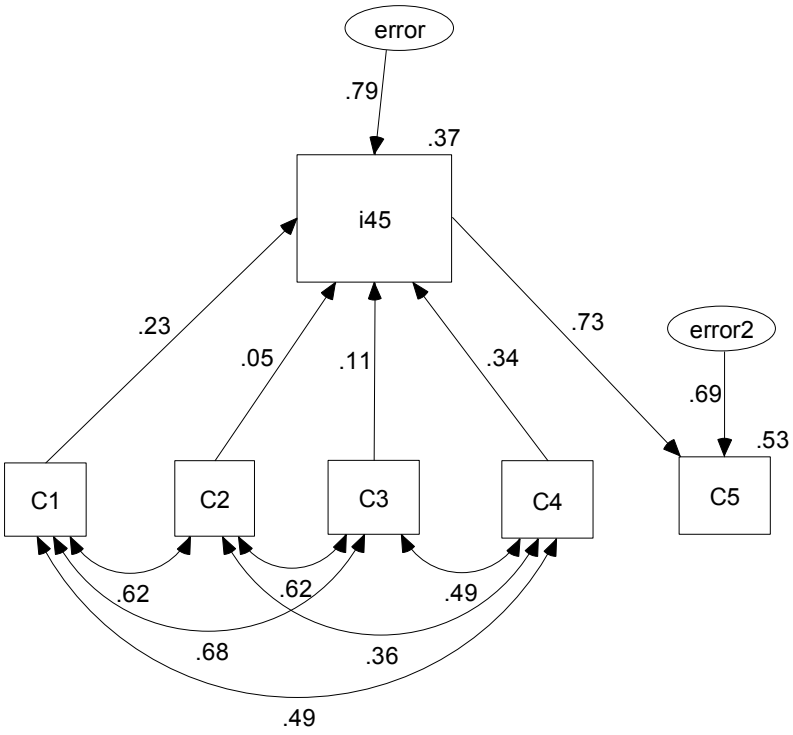
*RMSEA for the Survey One model shown in Figure 3*

| Model | RMSEA | LO 90 | HI 90 | PCLOSE |
|---|---|---|---|---|
| Independence model | .357 | .356 | .359 | .000 |

Table 18 shows the RMSEA for the model shown in Figure 2. The RMSEA value of .357 is significantly high to cause re-evaluation of the model's construct. Of particular interest is the fact that when considering structural equation models, the variables may have two different types of effect. The first type is direct effect, which is when a connecting path in a causal model between two variables occurs without an intervening third variable. In the second case,

indirect effect, a compound path connecting two or more variables in a causal model occurs through an intervening third variable. Based upon the indirect effect, an alternate model, as shown in Figure 4, demonstrates results that are more favorable, RMSEA = .063, as shown in Table 19.

*Figure 4.* Alternate single factor structural equation model for the Survey One data standardized results




*R2 = .53*

Table 19

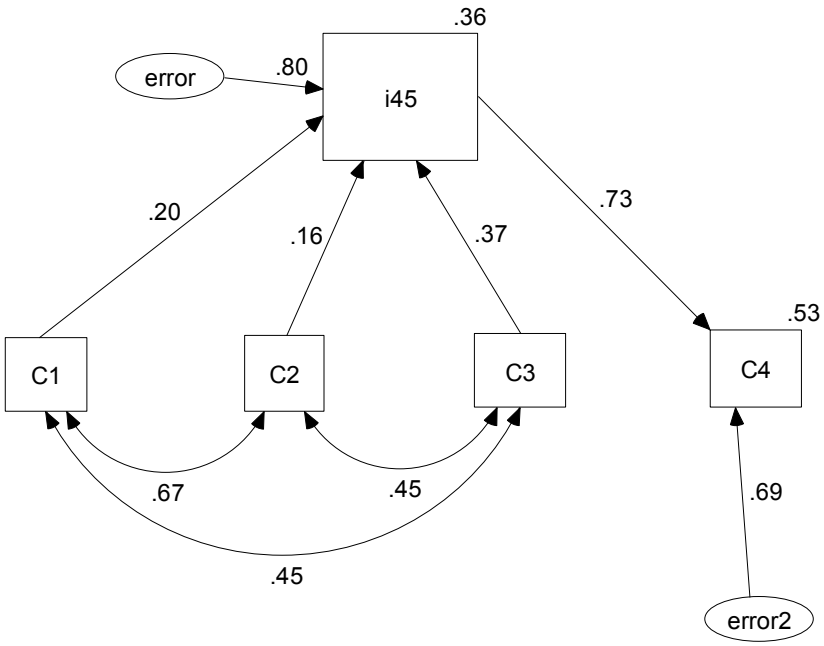
*RMSEA for the Survey One model shown in Figure 4*

| Model | RMSEA | LO 90 | HI 90 | PCLOSE |
|---|---|---|---|---|
| Default model | .063 | .060 | .067 | .000 |
| Independence model | .357 | .356 | .359 | .000 |

*Structural Equation Model for Survey Two data*

Figure 5 presents a single factor model for the Survey Two data. The model assumes latent variable "error" to have a variance of one. Item i45 represents the variable common to the survey question "Taking everything into account, the firm is a great place to work." Item i45 also represents the point of interest for the research. Based upon the lesson learned during the Survey One SEM, the figure illustrates the 3 manifest variables (C1 through C3) and assumes they reflect i45's underlying factors $C_2 1$ through $C_2 3$ as described in the nomenclature section. Each of the variables has been shown in previous research to influence job satisfaction as demonstrated in Chapter 2. The extents to which these measured items actually tap into the underlying factor are determined by estimating their respective path loadings as shown in Figure 4. In this case, as with the Survey One data, the model displays an indirect effect, a compound path connecting two or more variables in a causal model occurs through an intervening third variable i45. Based upon the indirect effect, a model, as shown in Figure 5, demonstrates results that are acceptable as shown in Table 20.

*Figure 5*. Single factor structural equation model for the Survey Two data




$R^2 = .53$

Table 20

*RMSEA for the Survey Two model shown in Figure 5*

| Model | RMSEA | LO 90 | HI 90 | PCLOSE |
|---|---|---|---|---|
| Default model | .070 | .065 | .075 | .000 |
| Independence model | .365 | .363 | .367 | .000 |

*ANOVA Analysis Relative to Job-type*

At this point, the analysis makes three assumptions about the data: (1) observations were independent within and between groups; (2) the data is normally distributed; and (3) there is homogeneity of variances. The assumptions predicate the employment of the analysis of variance (ANOVA) procedure in the research.

Hypothesis 3 investigates the possible difference in perceptions regarding job satisfaction among the five job-types: (a) management, (b) engineering, (c) salaried, (d) union, and (e) non-salaried. The researcher performed an analysis of variance (ANOVA) between the job-types with i45 (job satisfaction) as the dependent variable. In addition, the analysis uses a Tukey HSD (honestly significant difference) post hoc testing process. The Tukey method is preferred when the number of groups is large as it is a very conservative pairwise comparison test, and researchers prefer to be conservative and a large number of groups threaten to inflate Type I errors. Table 21 shows the results of the ANOVA for the Survey One analysis and Table 22 describes the analysis for the Survey Two data.

The Tukey HSD post hoc testing process provides additional information when considering the differences between job-type variables. Tables 23 and 24 summarize the results of the process across the five job-types on employee satisfaction and indicate any significant differences found. Tables 25 and 26 order the job-type satisfaction rankings by the reverse magnitude of the group

means the Survey One and Survey Two data; therefore, the ranking of satisfaction with leader-employee engagement is, from most to least, managers, salaried, engineers, non-salaried, and union. Later, this section contains a description of any significant differences. All differences are significant at the .01 level unless noted otherwise.

Table 21

*Results of the ANOVA for the Survey One analysis*

**Tests of Between-Subjects Effects**

Dependent Variable: 45. Taking everything into account, the firm is a great place to work.

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Noncent. Parameter | Observed Power[a] |
|---|---|---|---|---|---|---|---|---|
| Corrected Model | 1681.545[b] | 4 | 420.386 | 418.394 | .000 | .041 | 1673.577 | 1.000 |
| Intercept | 71023.1 | 1 | 71023.1 | 70686.6 | .000 | .642 | 70686.571 | 1.000 |
| GROUPX | 1681.545 | 4 | 420.386 | 418.394 | .000 | .041 | 1673.577 | 1.000 |
| Error | 39591.6 | 39404 | 1.005 | | | | | |
| Total | 297250 | 39409 | | | | | | |
| Corrected Total | 41273.1 | 39408 | | | | | | |

a. Computed using alpha = .01

b. R Squared = .041 (Adjusted R Squared = .041)

Table 22

*Results of the ANOVA for the Survey Two analysis*

**Tests of Between-Subjects Effects**

Dependent Variable: 45. Taking everything into account, the firm is a great place to work.

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Noncent. Parameter | Observed Power[a] |
|---|---|---|---|---|---|---|---|---|
| Corrected Model | 1603.178[b] | 4 | 400.794 | 395.738 | .000 | .042 | 1582.951 | 1.000 |
| Intercept | 67826.3 | 1 | 67826.3 | 66970.6 | .000 | .651 | 66970.593 | 1.000 |
| GROUPX | 1603.178 | 4 | 400.794 | 395.738 | .000 | .042 | 1582.951 | 1.000 |
| Error | 36316.2 | 35858 | 1.013 | | | | | |
| Total | 271156 | 35863 | | | | | | |
| Corrected Total | 37919.4 | 35862 | | | | | | |

a. Computed using alpha = .01

b. R Squared = .042 (Adjusted R Squared = .042)

Table 23

*Significant differences between Survey One job-types regarding job satisfaction*

**Multiple Comparisons**

Dependent Variable: 45. Taking everything into account, the firm is a great place to work.
Tukey HSD

| (I) Employees by Job-type Survey one | (J) Employees by Job-type Survey one | Mean Difference (I-J) | Std. Error | Sig. | 99% Confidence Interval Lower Bound | 99% Confidence Interval Upper Bound |
|---|---|---|---|---|---|---|
| Management | Engineers | -.75* | .021 | .000 | -.82 | -.69 |
| | Salaried | -.23* | .018 | .000 | -.29 | -.17 |
| | Union | -.37* | .045 | .000 | -.51 | -.22 |
| | Non-salaried | -.39* | .018 | .000 | -.45 | -.34 |
| Engineers | Management | .75* | .021 | .000 | .69 | .82 |
| | Salaried | .53* | .016 | .000 | .48 | .58 |
| | Union | .38* | .044 | .000 | .24 | .53 |
| | Non-salaried | .36* | .015 | .000 | .31 | .41 |
| Salaried | Management | .23* | .018 | .000 | .17 | .29 |
| | Engineers | -.53* | .016 | .000 | -.58 | -.48 |
| | Union | -.14* | .042 | .007 | -.28 | .00 |
| | Non-salaried | -.17* | .012 | .000 | -.21 | -.13 |
| Union | Management | .37* | .045 | .000 | .22 | .51 |
| | Engineers | -.38* | .044 | .000 | -.53 | -.24 |
| | Salaried | .14* | .042 | .007 | .00 | .28 |
| | Non-salaried | -.03 | .042 | .973 | -.16 | .11 |
| Non-salaried | Management | .39* | .018 | .000 | .34 | .45 |
| | Engineers | -.36* | .015 | .000 | -.41 | -.31 |
| | Salaried | .17* | .012 | .000 | .13 | .21 |
| | Union | .03 | .042 | .973 | -.11 | .16 |

Based on observed means.

*. The mean difference is significant at the .01 level.

Table 24

*Significant differences between Survey Two job-types regarding job satisfaction*

**Multiple Comparisons**

Dependent Variable: 45. Taking everything into account, the firm is a great place to work.
Tukey HSD

| (I) Employees by Job-type Survey two | (J) Employees by Job-type Survey two | Mean Difference (I-J) | Std. Error | Sig. | 99% Confidence Interval Lower Bound | 99% Confidence Interval Upper Bound |
|---|---|---|---|---|---|---|
| Management | Engineers | -.76* | .022 | .000 | -.83 | -.69 |
| | Salaried | -.22* | .020 | .000 | -.28 | -.15 |
| | Union | -.37* | .045 | .000 | -.52 | -.22 |
| | Non-salaried | -.41* | .019 | .000 | -.47 | -.35 |
| Engineers | Management | .76* | .022 | .000 | .69 | .83 |
| | Salaried | .54* | .017 | .000 | .49 | .60 |
| | Union | .39* | .044 | .000 | .24 | .53 |
| | Non-salaried | .35* | .016 | .000 | .30 | .40 |
| Salaried | Management | .22* | .020 | .000 | .15 | .28 |
| | Engineers | -.54* | .017 | .000 | -.60 | -.49 |
| | Union | -.16* | .043 | .003 | -.30 | -.02 |
| | Non-salaried | -.19* | .013 | .000 | -.23 | -.15 |
| Union | Management | .37* | .045 | .000 | .22 | .52 |
| | Engineers | -.39* | .044 | .000 | -.53 | -.24 |
| | Salaried | .16* | .043 | .003 | .02 | .30 |
| | Non-salaried | -.04 | .043 | .914 | -.18 | .10 |
| Non-salaried | Management | .41* | .019 | .000 | .35 | .47 |
| | Engineers | -.35* | .016 | .000 | -.40 | -.30 |
| | Salaried | .19* | .013 | .000 | .15 | .23 |
| | Union | .04 | .043 | .914 | -.10 | .18 |

Based on observed means.

*. The mean difference is significant at the .01 level.

Table 25

*Survey One job-type ranking per magnitude of group means*

**45. Taking everything into account, the firm is a great place to work.**

Tukey HSD[a,b,c]

| Employees by Job-type Survey one | N | Subset 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Management | 3961 | 2.20 | | | |
| Salaried | 13411 | | 2.42 | | |
| Union | 581 | | | 2.57 | |
| Non-salaried | 15548 | | | 2.59 | |
| Engineers | 5908 | | | | 2.95 |
| Sig. | | 1.000 | 1.000 | .913 | 1.000 |

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = 1.005.

a. Uses Harmonic Mean Sample Size = 2191.275.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

c. Alpha = .01.

Table 26

*Survey Two job-type ranking per magnitude of group means*

**45. Taking everything into account, the firm is a great place to work.**

Tukey HSD[a,b,c]

| Employees by Job-type Survey two | N | Subset 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Management | 3472 | 2.19 | | | |
| Salaried | 10905 | | 2.40 | | |
| Union | 572 | | | 2.56 | |
| Non-salaried | 15303 | | | 2.59 | |
| Engineers | 5611 | | | | 2.94 |
| Sig. | | 1.000 | 1.000 | .764 | 1.000 |

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = 1.013.

a. Uses Harmonic Mean Sample Size = 2108.335.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

c. Alpha = .01.

With respect to Hypothesis 3, there is a significant difference in the perception of overall job satisfaction between job-type categories in both the Survey One and Survey Two data. As shown in Table 21, the ANOVA procedure resulted in an $F$ (4, 41273) = 418.394, $p < .01$ for the Survey One data and $F$ (4, 37919) = 395.738, $p < .01$ for the Survey Two data shown in Table 22.

The ANOVA procedure displays the calculated "partial eta-squared" which is an indicator of the effect that the component has on the job-type groups.

Values higher that 0.3 would generally indicate a strong effect. Values between 0.10 and 0.29 are a medium effect and the effect of values between .04 and .09 is weak. Values less than 0.03 are very weak. In hypothesis 3, the Survey One and the Survey Two effects of the leader-employee engagement scores of .041 and .042 respectively indicate a weak effect on the employee job-types.

Additionally, the ANOVA procedure reports the observed power of the calculation. By setting the significance level to .01 as the cutoff for rejecting the null hypothesis, the probability of making a Type 1 error, rejecting the null when it is actually true, also reduces to .01. However, the possibility of making a Type 2 error, failing to reject the null when it is false, is increased. The observed power column reports power = 1 – probability of a Type 2 error; therefore, the closer the reported number to 1.000 the less the probability of rejecting the null hypothesis when it is false. In hypothesis 3, the Survey One and the Survey Two observed power is 1.000 and consequently acceptable.

Further, the Tukey HSD post hoc testing of both Survey One and Survey Two data sets indicated where the significant differences in job satisfaction are between the job-types. By examining the mean difference it is found that managers were significantly more satisfied than salaried, union, non-salaried, and engineering employees were. Salaried employees were significantly more satisfied than union, non-salaried, and engineering employees were. Finally, union and non-salaried employees were significantly more satisfied than engineering employees were.

The analysis supports Hypothesis 3 $H_0$ for the Survey One and Survey Two data.

# CHAPTER 5

# DISCUSSION, RECOMMENDATIONS, AND CONCLUSIONS

## *Summary*

This study indicates that employee job satisfaction is multidimensional and tends to reflect a combination of the process theory and situational model construct. However, this study does show that there is a similarity between the two constructs uncovered and that the difference, although shown to be significant in the analysis, may indeed be a temporary symptom of a short term outside influence. Interestingly, the study finds that job satisfaction is both a predictor variable and predicted by other variables. Furthermore, the analysis in this study shows that the composite structure of the variables significantly impacting employee job satisfaction are dynamic in nature and are subject to change with situational variances. The analysis also finds employees in different job-types have significantly different perceptions of satisfaction within the defined construct.

## *Convergence or Divergence with Past Literature*

Past literature has confirmed the relevancy of the correlation between

1. leader-employee engagement and employee satisfaction (Harter, et al., 2002);
2. between employee productivity and employee satisfaction (Leana, 1992; Huselid, 1995);

3. between group engagement and employee satisfaction (Dimarco, 1975);
4. between agreement with the firm's strategy and employee satisfaction (Muchinsky, 1977);
5. between the leadership's ethics and employee satisfaction (Mayer, 1995)

This study supports the notion that employee job satisfaction is dependent upon many considerations but focuses on satisfaction with the leader/group to employee interaction.

Furthermore, few studies have considered a large manufacturing firm with a labor base of this volume and distribution and measured the significance of contributing factors across multiple employment levels. The measurements distinguished differences in job satisfaction and perspectives across five different job-types in the organizational hierarchy: (a) management, (b) engineering, (c) salaried, (d) union, and (e) non-salaried personnel. Additionally, existing measures of job satisfaction largely neglect satisfaction with management interaction (Crede, Dalal, and Bashshur, 2003). This attaches further relevance to this study's findings in terms of adding knowledge to the field.

*Specific Research Needed to Clarify or Extend Findings*

Hypotheses 1 and 2 address the construct of job satisfaction and indicate that it is dynamic. However, these findings are based upon an insufficient number of samplings to be deemed as a trend to consider. Additional research using this

firm's database would be beneficial to add clarity.

This study has raised questions that call for additional research. Specifically, this analysis notes in hypotheses 3, management and salaried employees consistently are more satisfied than the engineers, union, and non-salaried employees. Researchers need to investigate the disparities found among the various employment job-types to distinguish root cause(s).

The management staff differs from the other job-types examined in this study in that they have subordinates they influence and they have superiors from which influences come. Investigators may seek to clarify whether or not the wording of the questionnaire needs revision so that characteristics are distinct between the two forms of influences.

*Hypothesis 1 Analysis*

In chapter 1, the first of three research questions is presented: "Does the examined data indicate if the employees perception of job satisfaction is unidimensional or multidimensional in construct?" To resolve the question, hypothesis 1 was formulated.

- Hypothesis 1 ($H_0$): There is no significant relationship between the significant contributing variables between the data from Survey One and Survey Two.
  - Alternative Hypothesis 1 ($H_1$): There is a significant relationship between the significant contributing variables between the data from Survey One and Survey Two.

The principle component analysis reveals that the surveys differ in the number of contributing factors and the survey questions that constitute each of the factors. Survey One has 5 contributing factors and 28 contributing survey questions. Survey Two has 4 contributing factors and 22 contributing survey questions.

However, the Survey Two composite structure of the construct is nearly identical to the Survey One construct with the exception of Survey One's inclusion of $C_1 3$, clarity of task. As mentioned, the extraneous component in the Survey One data, although shown to be significant in the analysis, may indeed be a temporary symptom of a short term outside influence. There is no quantitative methodology for comparison of the two constructs; the variance is generally an interpretation on the number of extracted components and whether the items consistently load on the same components. The important fundamental is that the same variables are included in each analysis and study complies with this rule.

It is interesting to note that the two sets of data analyzed originate in the year 2001. The first survey occurred prior to the events of September 11$^{th}$ and the second occurred afterward. It is arguable that the employees attitudes, especially in the aerospace sector, were influenced by the chain of events that followed the event.

*Hypothesis 2 Analysis*

In chapter 1, the second of the three research questions is presented: "Does the examined data indicate if the employee's perception of job satisfaction is static or dynamic?" To resolve the question, hypothesis 2 was formulated.

- Hypothesis 2 ($H_0$): There is no significant difference in the measured levels of perceived employee satisfaction between the data from Survey One and Survey Two.
  - Alternative Hypothesis 2 ($H_1$): There is a significant difference in the measured levels of perceived employee satisfaction between the data from Survey One and Survey Two.

Hypothesis 2 addresses the relationship between the significant contributing variables of the data from Survey One and Survey Two. A comparison between the sum contribution to i45, job satisfaction, of the 4 factors from the Survey One SEM shown in Figure 3 and the contribution of the 3 factors for the Survey Two SEM shown in Figure 4 is the target of interest. Regarding the Survey One data, the $R^2$ correlation coefficient between the contributing variables and i45 were found to be .37 as shown in Figure 3. Regarding the Survey Two data, the $R^2$ correlation coefficient between the contributing variables and i45 were found to be .36 as shown in Figure 4.

To determine whether the Survey One correlation is significantly different from the Survey Two correlation, it is necessary to perform a Fisher z'

transformation. Transformation of each of the two correlations occurs according to the following equation:

$$z' = 1/2 \, [\, \ln(1 + r) - \ln (1 - r)]$$

From these transformations, z1' and z2' are obtained. Then, it is necessary to compute the standard error for the Fisher's z transformation. Often, the difference computed is between different sized random samples. Dividing the difference between the two transformed correlations by the standard error to yields a normal curve deviate.

$$z = \frac{z_1' - z_2'}{\sqrt{\frac{1}{n_1 - 3} + \frac{1}{n_2 - 3}}}$$

If this is greater than 1.96, then the difference between the correlations is significant at the .05 level.

For hypothesis 2, 0.37 relates to z1' and z2' relates to 0.36. Using the equations above and the appropriate sample sizes, z = 1.375; therefore, the difference between the Survey One and Survey Two correlations are insignificant at $p < .05$.

*Hypothesis 3 Analysis*

In chapter 1, the third of the three research questions is presented: "Is there a difference between job-types (management, engineering, salary, union, and non-salary) and the employee's perception of job satisfaction?" To resolve the question, hypothesis 3 was formulated.

- Hypothesis 3 ($H_0$): There is no significant difference in the perceived employee satisfaction levels by the different job-type categories.
  - Alternative Hypothesis 3 ($H_1$): There is a significant difference in the perceived employee satisfaction levels by the different job-type categories.

With respect to Hypothesis 3, there is a significant difference in the perception of overall job satisfaction between job-type categories in both the Survey One and Survey Two data. As shown in Table 19, the ANOVA procedure resulted in an $F$ (4, 41273) = 418.394, $p < .01$ for the Survey One data and $F$ (4, 37919) = 395.738, $p < .01$ for the Survey Two data shown in Table 20.

The ANOVA procedure displays the calculated "partial eta-squared" which is an indicator of the effect that the component has on the job-type groups. Values higher that 0.3 would generally indicate a strong effect. Values between 0.10 and 0.29 are a medium effect and the effect of values between .04 and .09 is weak. Values less than 0.03 are very weak. In hypothesis 3, the Survey One and the Survey Two effects of job satisfaction scores of .041 and .042 respectively indicate a weak effect on the employee job-types.

Additionally, the ANOVA procedure reports the observed power of the calculation. By setting the significance level to .01 as the cutoff for rejecting the null hypothesis, the probability of making a Type 1 error, rejecting the null when it is actually true, also reduces to .01. However, the possibility of making a Type 2 error, failing to reject the null when it is false, is increased. The observed power column reports power = 1 – probability of a Type 2 error; therefore, the closer the reported number to 1.000 the less the probability of rejecting the null hypothesis when it is false. In hypothesis 3, the Survey One and the Survey Two observed power is 1.000 and consequently acceptable.

Further, the Tukey HSD post hoc testing of both Survey One and Survey Two data sets indicated where the significant differences in job satisfaction are between the job-types. Managers were significantly more satisfied than salaried, union, non-salaried, and engineering employees were. Salaried employees were significantly more satisfied than union, non-salaried, and engineering employees were. Finally, union and non-salaried employees were significantly more satisfied than engineering employees were.

The analysis supports Hypothesis 3 $H_0$ for the Survey One and Survey Two data.

*Theoretical Implications*

The concept of employee satisfaction has been of interest to researchers throughout the global industrial and academic communities. Often researchers representing these entities attempt to explain relationships in order to support

productivity. This study provides further evidence that employee satisfaction relates to various factors, including the cerebral concepts of interpersonal interactions and membership in a specific job-type.

With respect to theory, one of the prevailing theoretical models in the research area is Yukl's (1997) guidelines for creating an effective leadership style. Yukl's guidelines are in essence an aggregate form of many preceding theories. For example, Yukl's guidelines call for a leader to "express confidence in subordinates" and to "celebrate subordinate successes". Although the data observed from the firm indicated that leadership was able to transmit these feeling of value and recognition to their subordinates, the leadership (managerial staff) were not distributing these equally. The findings present somewhat of a dilemma for leadership in that expectations are for them to accommodate the intrinsic motivators of their subordinates equally.

Additionally, this study indicates that of all of the potential motivators named by various theories, positive social interaction is the main stimulus for job satisfaction and acceptance of the status quo. The social comparison theory (Festinger, 1954) contends that we learn about our own abilities and attitudes by comparing ourselves with other people and their opinions. Mostly, we seek to compare ourselves with someone against whom we believe we should have reasonable similarity, although in the absence of such a benchmark, we will use almost anyone. It would be interesting to find out with whom the various job-types are comparing.

*Research Implications*

With respect to research methodology, perhaps researchers will find the construct of significant correlations shown in this study useful. This study demonstrates that derived employee satisfaction is from multiples of factors that may be important to control in further investigations.

Furthermore, to determine accurately the perceptions of employees, this research displays the importance of identifying the employee sub-cultures within the organization. The sub-cultures in this study were limited to job-type categories due to the limited availability of demographic information released by the firm. However, even this limited demographic information revealed statistically significant differences in perceptions among the sub-cultures.

Regarding another potential aspect for future researchers to consider, previously mentioned was that there is the expectation that management provide equal motivation to all workers. The equity theory according to Robbins and De Cenzo (1998) is a theory that states employees perceive what they can get from a job situation (outcomes) in relation to what they put into it (inputs), and then compare their input-outcome ratio with the input-outcome ratio of others. It would be of interest to consider if satisfying the equity theory is beneficial or not to the organization. The biased opinion that equity is or is not a requirement within an efficient organization may lead to incorrect assumptions inferred regarding the data.

Additionally, the research contained in this study indicates that leaders are

the most satisfied employees within the organization. Although the data does not lead to the causation, the organizational culture probably treats management differently and provides additional forms of compensation. However, self-perceived autonomy (self-efficacy) could be a hidden variable that future research could address. The research could seek to determine relationships between satisfied employees in a position, which is considered generally undesirable, and their perceived self-efficacy.

*Applied implications*

As noted, this study illustrates firms must be aware of the differences in perceptions across job-types. Particularly disturbing is the close alignment of perception by those who are in the closest proximity to the executive levels. All of these employees were lock step in their satisfaction levels for the components. This could lead to an executive receiving the impression that the satisfaction levels are the same throughout the firm, which is in conflict with this study's findings.

*General Limitations of the Study*

Note the following limitations of this study:

1. A limitation of the study is the participant responses on the employee satisfaction survey (no employee comments).
2. A limitation of the study is restriction to the employees at the firm.
3. A limitation of the study is restriction to secondary data analysis. The firm collected original data and withheld complete disclosure of the

data's demographics.

*Analyses and Statistical Power*

The ANOVA procedure reports the observed power of the calculation. By setting the significance level to .01 as the cutoff for rejecting the null hypothesis, the probability of making a Type 1 error, rejecting the null when it is actually true, reduces to .01. However, the possibility of making a Type 2 error, failing to reject the null when it is false, is increased. The observed power column reports power = 1 – probability of a Type 2 error; therefore, the closer the reported number to 1.000 the less the probability of rejecting the null hypothesis when it is false. In this study, the Survey One and the Survey Two observed power is 1.000 and consequently acceptable.

*Future Directions*

Comparing the same approximate population over a series of years in a longitudinal study would be another direction for further research. Investigations might include questions regarding attitudes influenced strongly by exogenous conditions such as the economy. To better understand their benefit, cause and effect comparisons between initiatives put in place by the firm and employee satisfaction deserves further research.

Another possible direction is analysis of the relationship between the exchange mechanisms the leadership employs to provide the perception of employee satisfaction. Since all job-types varied in responses, it would be interesting investigate for differing distribution methods among the job-types.

Additionally, application of the analysis on the various layers of management to seek significant differences within the organizational leadership would be an intriguing path. Concentrating on differences between management levels with a special consideration for functional differences would be a further focus of this type of analysis.

Employee satisfaction research is a dynamic endeavor. A static event such as an employee survey will disclose relationships between employee satisfaction and contributing variables relevant to only a particular time and circumstance. It is imperative that institutions engaged in the investigation of employee satisfaction continue to mature the instruments and analysis employed to maintain their relevance.

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# APPENDIX

*The University of Oklahoma*

OFFICE OF HUMAN RESEARCH PARTICIPANT PROTECTION

September 3, 2004

Mr. Patrick Neal Shay
Organizational Leadership
8410 East 107th St
Tulsa, OK. 74133

Dear Mr. Shay:

Your research application, "A Psychometric Analysis of an Employee Satisfaction Index," has been reviewed according to the policies of the Institutional Review Board and found to be exempt from the requirements for full board review. Your project is approved under the regulations of the University of Oklahoma - Norman campus Policies and Procedures for the Protection of Human Subjects in Research Activities.

Should you wish to deviate from the described protocol, you must notify this office, in writing, noting any changes or revisions in the protocol and/or informed consent document, and obtain prior approval. Changes may include but are not limited to adding data collection sites, adding or removing investigators, revising the research protocol, and changing the subject selection criteria. A copy of the approved informed consent document(s) is attached for your use.

Should you have any questions, please contact me at 325-8110 or irb@ou.edu.

Cordially,

Lynn Devenport, Ph.D.
Vice Chair
Institutional Review Board – Norman Campus (FWA #00003191)

FY2005-46

cc: Prof. A.J. Kondonassis, Economics

660 Parrington Oval, Suite 316, Norman, Oklahoma 73019-3085 PHONE: (405) 325-8110 FAX: (405) 325-2373

*Firm's Survey Questions*

(The questionnaire asked each participant to respond using a 5-point Likert-type scale with responses ranging from *strongly agrees to strongly disagree*.)

EMPLOYEE INVOLVEMENT / ENGAGEMENT

1. My job makes good use of my skills and abilities.

2. I feel encouraged to come up with new and better ways of doing things.

3. Conditions in my job allow me to be as productive as I could be.

4. I have enough information to do my job well.

5. How satisfied are you with your involvement in decisions that affect your work?

6. How satisfied are you with the recognition you receive for doing a good job?

LEADERSHIP / FOCUS

7. Management provides the resources necessary to implement new programs or processes.

8. Managers in my work group effectively address performance issues.

9. I feel well informed about what is expected in my job.

10. I can see a clear link between my work and my Operating Group's objectives.

11. Senior Executives at "the firm" clearly communicate the long-term strategy of the company.

12. "The firm" is making the changes necessary to compete effectively.

13. My immediate supervisor/manager encourages me to take appropriate action without waiting for approval.

14. My immediate supervisor/manager encourages me to work across organizational and functional boundaries.

15. My immediate supervisor/manager provides the support I need to satisfy my customers.

16. My immediate supervisor/manager helps me obtain the equipment and tools I need to satisfy my customers.

17. The “firm’s” Leadership Team gives us a clear picture of our business strategy.

18. My immediate supervisor/manager considers my ideas and opinions important.

19. Overall, how good a job do you feel is being done by your immediate supervisor/manager?

LEARNING AND DEVELOPMENT

20. I am given a real opportunity to improve my skills at the “firm”.

21. My immediate supervisor/manager helps me obtain the developmental experience I need to do my job well.

22. I receive the needed coaching and feedback about my performance.

RUNNING A HEALTHY BUSINESS

23. In my organization, one of our goals involves reducing the cycle times of our processes.

24. In my work group, we eliminate practices that stand in the way of achieving results.

25. My work group has a clear understanding of our customers’ needs.

26. My work group looks for ways to change processes to improve productivity.

27. I know my work group's current performance (quality, cost, delivery, and customer satisfaction).

28. I am held accountable for the quality of products/services I provide my customers.

PEOPLE WORKING TOGETHER / TEAMING

29. I feel valued as an employee of “the firm”.

30. The members of my work group have a "can do" attitude.

31. The members of my work group have the skills and abilities to get the job done.

32. My work group effectively teams with other work groups and organizations.

33. The people I work with cooperate to get the job done.

INTEGRITY / DIVERSITY

34. I can report unethical practices without fear of reprisal.

35. In my organization, staffing decisions are typically based on ability and skills.

36. My work group has a climate in which diverse perspectives are valued.

37. I feel free to communicate bad news to my management.

38. Management will act upon reported unethical practices.

39. I feel safe from accidents and health hazards in my work area.

OVERALL

40. How do you rate the amount of pay you get on your job?

41. How do you rate “the firm” in providing job security for people like yourself?

42. How would you rate “the firm” as a company to work for compared to other companies?

43. If you have your own way, will you be working for “the firm” 12 months from now?

44. My Operating Group uses the employee survey feedback to make improvements.

45. Taking everything into account, the firm is a great place to work.

*The "Firm's" Employee Satisfaction Index*

The Employee Satisfaction Index is the average of:

1. Job makes good use of skills and abilities.
2. Encouraged to come up with new and better ways.
3. Conditions allow me to be productive.
4. Have enough information to do my job well.
5. Satisfied with involvement in decisions.
6. Satisfied with recognition for job.
12. The "firm" is making changes to compete.
19. Overall job done by your manager.
20. Opportunity to improve my skills.
33. People cooperate to get the job done.
40. Amount of pay you get on the job.
41. The "firm" provides security.