EXPLORATORY AND CONFIRMATORY ANALYSES OF A HOSPITAL EMPLOYEE SATISFACTION SURVEY

by

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ABSTRACT

KENNETH TODD REDDEN. Exploratory and confirmatory analyses of a hospital employee satisfaction survey. (Under the direction of DR. CLAUDIA FLOWERS)

This study explored the factor structure of a 22-item survey developed to measure employee satisfaction in a healthcare setting. The purpose was to determine if a *homegrown* survey possessed factors known to measure employee satisfaction. First an exploratory factor analysis (EFA) was conducted, then using a different dataset, the EFA results were examined using confirmatory factor analysis (CFA). A total of 2,216 employees were administered the survey, and the respondents were randomly divided into two samples, one for use with the EFA and the second sample was used for the CFA. Results from the EFA suggested two factors were present. The factors were measuring (a) satisfaction with management and (b) intrinsic satisfaction. The CFA results supported the findings of the EFA. The findings suggested the internally developed survey did not measure a large array of satisfaction indicators as one would hope; however, its use is appropriate if the intended scope and/or purpose are recognized. Implications of these findings and further research are discussed.

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LIST OF ABBREVIATIONS

AGFI	adjusted goodness of fit index
CFA	confirmatory factor analysis
DDI	development dimensions international
DIF	differential item functioning
EFA	exploratory factor analysis
GFI	goodness of fit index
JDI	job descriptive index
JIG	job in general scale
NA	negative affect
NFI	normed fit index
PA	positive affect
PCA	principal components analysis
PAF	principal axis factoring
RMSEA	root mean square error of approximation
SEM	structural equation model
SHRM	society for human resource management

CHAPTER I: INTRODUCTION

The corporate culture for most organizations has evolved over several years into a setting where employees demand satisfaction with their job, supervisor, salary, benefits, and peers. These factors are prioritized differently across populations, but overall satisfaction is expected and often equated to employee retention. As a result, anxious administrators invest in measures of satisfaction in an effort to retain employees, avoid crisis, and control expenses. Companies developing employee satisfaction surveys capitalize on these concerns and market their products as the means for assisting leadership in gaining insight into employee opinion. Climate survey results are used to guide corporate decisions that could impact the success of the employee base, and ultimately the future of the organization. Because these decisions are vital to an organization's success, the survey must be an instrument that can be trusted by leadership. When developing surveys, companies consider how the results will be used. Ideally, testing professionals must consider if the instrument measures what it is intended to measure, if

the items measure consistently throughout the instrument, measure the same construct, and must feel confident the results can be applied to varying populations across the organization.

A leading healthcare survey company reports on their webpage that their instruments undergo a complete reliability and validity assessment based on more than 14,000 employees from 54 different health care facilities (Research, n.d.). These studies include convergent and discriminate analyses, factor analysis used to identify the underlying factors being measured, and multiple regression to determine how well survey items explain overall satisfaction. Unfortunately, the value of many tools used in the service industry are rarely based on adequate psychometric properties, and do not consider the complexity of satisfaction.

Statement of the Problem and Purpose of the Study

Surveys with a limited number of items cannot adequately measure the complex dimensions of satisfaction. This study investigated an employee satisfaction survey with 22 items, seeking to identify the existence of multiple embedded factors that have been associated with employee satisfaction. The study used a sample of 2,216 archived de-identified surveys. The total sample was

randomly divided in approximately half using SPSS and assigned to two new groups. Using data from the first group only, the researcher conducted exploratory factor analyses (EFA) identifying factor loads. Once the factors were identified, the first group was discarded. Secondly, a confirmatory factor analysis (CFA) using structured equation modeling (SEM) was conducted based on the factors identified in the first group.

This study answered the following research questions:

1. What factors exist across the employee satisfaction survey data?
2. As a means of cross-validation and using the second half of the data, will the fit of a structural equation model yield the same factors across the employee satisfaction survey data as identified in the exploratory analysis?

Significance of the Research

According to some estimates, the average cost of employee turnover could total as much as 150% of an employee's salary (Bliss, n.d.). Based on an employee making an annual salary of $50,000, Bliss suggests the cost of turnover would be $75,000 per employee. If a mid-sized company with 1,000 employees had a 10% annual rate of turnover, the annual cost of turnover would exceed $7.5

million dollars. Employers are investing significant amounts of revenue to retain employees, and satisfaction surveys are at the forefront of ideas for obtaining insight into employee satisfaction. Considering the cost of surveying employees, coupled with the importance of the knowledge obtained by a survey, the instrument must be reliable, valid and multidimensional.

Definition of Key Terms

Climate Survey. Studies of employees' perceptions and perspectives of an organization. The surveys address attitudes and concerns that help leaders work with employees to instill positive changes.

Employee Satisfaction. A measure of how happy and content workers are with their job, supervisor, and working environment, and how well their desires and needs at work are being met.

Structural Equation Model (SEM). A statistical modeling technique used for confirmatory purposes similar to multiple regressions. SEM is thought to be a more powerful analysis taking into account the modeling of interactions, nonlinearities, correlated independents, measurement error, correlated error terms, multiple latent independents each measured by multiple indicators, and one or more latent dependents also each with multiple indicators.

Exploratory Factor Analysis(EFA). Exploratory factor analysis is used to identify the underlying factor structure of a measure and to examine its internal reliability. EFA is used to reduce a large number of items (i.e. survey items, test questions) to a small number of factors.

Confirmatory Factor Analysis (CFA). Confirmatory Factor Analysis allows the investigator to test the hypothesis that a relationship between a number of observed variables (survey items) and their underlying latent construct(s) exists.

Delimitations

1. The study included employees at a single medium-sized medical center located in the southeastern part of the United States.
2. The sample frame included a representative group of de-identified employees from all departments within the medical center.
3. The survey items used included those on the satisfaction survey utilized internally by the medical center.
4. The employees represented various departments including administration, nursing services, information services, education, environmental

services, nutrition services, facilities, security, finance, allied health services, medical staff services, research and medical staff.

Limitations

1. The study focused on intact groups with no random selection.
2. The study focused only on satisfaction surveys with no known technical characteristics, currently used within a single healthcare setting (inpatient and outpatient).

Overview of the Study's Methodology

Archived de-indentified survey data from 2006-2008 was collected from the human resources department serving a medical center in the southeastern part of the United States. Data for each of the 22 survey items was provided. The human resources department personnel did not obtain demographic data when the instrument was administered. The study used a sample of archived de-identified surveys equaling 2,216. The total sample was randomly divided in approximately half using SPSS and assigned to two new groups. Using data from the first group only, the researcher used SPSS statistical software version 16 and conduct exploratory factor analyses to identify any existing satisfaction factors. Once the factors were

identified, the second group was then used for the remainder of the study. Using the second half of the data, the investigator conducted a confirmatory factor analysis to determine if a Structural Equation Model (SEM) fit the empirical data. LISREL software version 8.3 was used to build a Structural Equation Model to determine this fit.

Organization of the Dissertation

Chapter 1 of dissertation includes the introduction, overview and purpose of the study, significance of the research, definition of key terms, delimitations and limitations of the study, and overview of the study's methodology, and the organization of the study.

Chapter 2 contains a review of historical studies related to employee satisfaction, theoretical models, and implications of satisfaction. In addition, satisfaction studies related to healthcare environments are included as well as measurement examples.

Chapter 3 includes the methodology, including research design, the research hypothesis, population details and sampling procedures, details about the survey studied, and the data collection procedures.

Chapter 4 presents a description of the findings and analysis of the data in terms of the research questions.

Chapter 5 contains a summary of the study and discussion of the findings. In addition this chapter includes implications, limitations, recommendations for further research, and concluding remarks.

CHAPTER II: LITERATURE REVIEW

Definition and Historical Context of Satisfaction

One can best understand *satisfaction* when they first consider the historical context. As early as 1911, *Scientific Management*, also known as Taylorism, had an impact on the study of job satisfaction. Frederick Winslow Taylor (Taylor, 1911) believed there was a single best way to perform any given task. His writings contributed significantly to changes in industrial production philosophies. These influences led to a shift from skilled labor and piecework to the more modern approach of assembly lines and hourly wages. Taylorism was a rigid model adhering to three basic principles. These principles included 1) the country suffers at the hand of inefficiency in almost every daily act, 2) the cure for inefficiency lies in systematic management instead of wasting time searching for an unusual or extraordinary employee, and 3) the best management is based on true science grounded in laws, rules, and principles at its foundation. The introduction and application of Scientific Management did increase productivity at the onset. However, the

philosophies focused on the task and deviated from concerns about the employee.

The move from apprenticeship-type professions to the manufacturing setting prompted scientists to study the well-being of the employee. During the decade of the 1930's, many studies were conducted to assess affect in the workplace. It was during this time that organizational psychologists recognized the importance of affect, or satisfaction, in the workplace. The impetus for these studies was often to protect the worker. Factory employees had traded the joys of autonomy for narrow job descriptions, long hours, and dimly lit environments with poor ventilation. The effect of these conditions was studied with the intent of eradicating an environment unhealthy to the employee (Fisher & Hanna, 1931). Early studies suggested a strong relationship between the employee's attitude and their level of job satisfaction (Kornhauser & Sharp, 1932), and this attitude often influenced their ability to perform within environments considered less than favorable. According to Locke (1976), satisfaction is a positive and pleasurable feeling resulting when one appraises their work experience and finds it aligning with their expectations. The expectations, or needs originate from personal experiences

outside of the workplace as well as influences from family, friends and societal cues. When expectations are formulated in the employee's mind, they serve as the frame of reference for satisfaction with the job. Over a period of time, the worker will appraise their job and its level of congruency with these expectations. The greater the congruency with individual needs, the higher the level of satisfaction. Not only is satisfaction a result of one's aspirations being met, studies also suggest having personal needs met in the workplace yields greater commitment, increased performance, and decreases one's propensity to leave (Brown & Peterson, 1993), decreases turnover (Koeske & Kirk, 1995), and increases customers' perception of work quality (Hartline & Ferrell, 1996). Satisfaction was viewed as a multi-factored construct during the 1930's as well. Hoppock (1935) used quantitative surveys and interviewed teachers from a Pennsylvania community found supervision, family expectations, and emotional maladjustment contributed toward satisfaction. Further evidence can be found in the famous Hawthorne studies suggesting the workplace is a social organization and the employee's interaction within this social environment is more of a contributing factor than individual difference (Roethlisberger & Dickson, 1939). Review of the literature

suggests thousands of studies were conducted for almost half a century following the 1930's. However, the focus of these studies became more narrow. One workplace event, condition, or outcome after another was assessed using quantifiable measures of job satisfaction. However, these were typically not grounded in a well-articulated theoretical frame of reference (Brief & Weiss, 2002).

According to Brief & Weiss (2002), it was not until the mid-1980's and 1990's that scientists revisited mood and emotions as they relate to job satisfaction. This holistic approach considered *mood* as a state of feeling not prompted by stimuli and not significant enough to affect performance. However, *emotions* are those feelings normally related to circumstances or occurrences significant enough to affect thought process and potentially impact performance. The re-emergence of an affective focus in the study of satisfaction was most likely related to the rising interest in organizational behavior and the growth of the field of industrial-organizational psychology.

Studies have shown that job satisfaction and general temperament are not mutually exclusive (Watson & Slack, 1993). Affective dispositions broadly influence satisfaction as workers derive pleasure or displeasure from their jobs as well as other areas of their lives.

Conversely, because job satisfaction is an important life domain, it could lead to more general life satisfaction and better emotional adjustment. Watson & Slack studied the extent to which job satisfaction is related to two broad emotional traits. These traits were defined as Positive Affect (PA) and Negative Affect (NA). Eighty-two employees completed trait PA and NA scales as part of their participation in a comprehensive health and fitness project. Participants were retested between 9 and 39 months later. In addition, participants completed job change and satisfaction measures. Trait PA and NA were not only significantly related to several aspects of concurrent employee satisfaction, but also predicted some factors of job satisfaction that were assessed up to two years out from the initial period of data collection. A final analysis using multiple regression techniques indicated emotional temperament, major job changes, and occupational quality variables each made independent contributions to the prediction of job satisfaction. A separate study surveying hospital employees found both PA and NA significantly correlated with job satisfaction (r = .44, p < .01, and r = -.27, p < .01, respectively)(Agho, Mueller, & Price, 1993).

Levin and Stokes (1989) found that NA was significantly correlated with job satisfaction (r = -.31, p < .01). This relationship remained significant once job characteristics such as autonomy and skill variety were controlled (β = -.18, p < .01). In a sample of employees working for various organizations, Necowitz and Roznowski (1994) found that NA was significantly, negatively related to three factors of job satisfaction [work (r = -.29, p < .05), supervision (r = -.22, p < .05), and coworkers (r = -.20, p < .05)], but not to others [pay (r = -.06, *ns*) and promotions (r = -.03,*ns*)]. In a second study of students working on enriched and un-enriched tasks, Necowitz and Roznowski found that NA was negatively correlated with task satisfaction (r = -.25, p < .05). In a longitudinal study of university employees, Watson and Slack (1993) found that while NA was significantly, negatively correlated with several job satisfaction factors at Time 1 and Time 2 (e.g., work satisfaction, r = -.32, p < .05, and r = -.38, p < .05, respectively), NA was not significantly correlated with overall job satisfaction at Time 1 (r = -.09,*ns*) or Time 2 (r = -.18, *ns*). Like NA, PA was not significantly correlated with every job satisfaction factor, but it was significantly correlated with overall job satisfaction at Time 1 (r = .29, p < .05) and Time 2 (r = .33, p < .05).

Based on these and other studies, it appears that both PA and NA are generally related to job satisfaction and demonstrate that job satisfaction can be viewed in the context of the more general emotional lives of employees.

It is important to note that while the majority of studies focus on the affective nature of satisfaction, many organizational scientists do not deny the cognitive domain. Of particular interest to some is the relationship between affect-driven and judgment-driven behaviors. Affective-driven behaviors are relatively immediate behavioral and cognitive outcomes of affective states (Weiss & Cropanzano, 1996). However, some align with the teachings of psychologist and writer Albert Ellis and his Rational Emotive Behavioral Therapy model (Ellis, 1957). Ellis' model is represented by the acronym *ABC*. The letter *A* stands for *Activating Event*, which is an occurrence that eventually leads to *C*, or *Consequences*. However, Ellis was of the opinion that *B*, a set of *Beliefs*, actually serves as a mediator between the activating event and the emotional consequences. If the employee is psychologically healthy, their belief system will lead to far less dramatic emotional consequences when appraising the level of congruency between their job circumstances and their needs.

Job satisfaction is not easily defined. In its

simplest form, one can agree with Locke (1976) and describe it as a positive and pleasurable feeling resulting when one appraises their work experience. However, the construct of employee satisfaction as described above is influenced by cognitive and affective domains, beliefs, attitudes and behaviors and is actually quite complex.

Theoretical Models of Satisfaction

Based on theory and evidence supported by empirical studies, several models have been comprised to explain job satisfaction. These models demonstrate the progressive understanding of satisfaction, moving from a work-centered model toward a humanistic paradigm.

Maslow's Hierarchy of Needs

As an American Psychologist, Abraham Maslow was known as the leader of the humanistic school of psychology emerging in the 1950's and 1960's. His theory is best known for describing human needs in the form of a progressive ladder. This hierarchy suggests one level of needs typically rests on the prior satisfaction of more pre-potent needs. He believed no need or drive can be treated as if it were isolated or discrete; every drive is related to the state of satisfaction or dissatisfaction of other drives (Maslow, 1943). Maslow's hierarchy theory proposes basic physiological needs must be met as a pre-requisite to

all others. Building on the physiological platform is safety, followed by social needs, esteem and finally self-actualization. This progressive model has gained much attention since it was introduced in 1943; however, many followers of Maslow forget he recognized the complexity of the human psyche and admitted that motivation theory is not synonymous with behavior theory. Motivations are only one influence of human behavior. While behavior is almost always motivated, it is also almost always biological, cultural and determined by circumstances.

Herzberg's Two-Factor Theory

Abraham Maslow's theory of motivation served as a foundation to Frederick Herzberg's *motivation-hygiene* theory popularized in the late 1950's. Herzberg postulated that job satisfaction and dissatisfaction should be seen as two separate entities, each with its own motivational underpinnings. Employees derive internal satisfaction from elements related to the work itself while dissatisfaction is a product of their surroundings or the work environment (Legg, 2004). Motivation refers to the work itself, achievement (Maslow's self-actualization), recognition (Maslow's esteem), responsibility, and advancement opportunities. According to Herzberg, hygiene factors cannot motivate employees directly, but serve to minimize

dissatisfaction (Syptak, Marsland, & Ulmer, 1999). In other words, the absence or mismanagement of hygiene factors can decrease satisfaction, serving as a barrier to the motivation factors. Hygiene factors include policies, supervision, salary (Maslow's physiological and safety), interpersonal relations (Maslow's social), and working conditions.

Dispositional Theory

The Dispositional Theory proposed that dispositions are stable, personal, and individualistic and often produce positive or negative attitudes no matter the circumstances (Reilly, 2005). The theory received some support when researchers demonstrated that on average genetic inheritance consistently accounts for 50% of the variance in personality traits of twins reared together or apart as measured by the California Psychological Inventory (Bouchard, Lykken, McGue, Segal, & Tellegen, 1990). Additional genetic studies yielded empirical results indicating that approximately 30% of the observed variance in overall job satisfaction was due to genetic factors (Arvey, Bouchard, Segal, & Abraham, 1989). This study yielded these same results even when job characteristics such as complexity, motor skill requirements, and the physical demands were held constant.

Core Self-Evaluation Model

In an effort to narrow the scope of the Dispositional Theory, the Core Self-evaluation Model was proposed (Judge & Bono, 2001). Judge and Bono described four core self-evaluations that determine one's disposition towards job satisfaction. These include self-esteem, general self-efficacy, locus of control, and emotional stability (low-neuroticism). Advocates of this model believe higher levels of self-esteem and general self-efficacy lead to increased work satisfaction. Having an internal locus of control leads to higher job satisfaction. Finally, lower levels of neuroticism lead to higher satisfaction. These core elements speak to the fundamental beliefs that employees adopt about themselves and their work environments. They serve as filters used by workers to view themselves and their circumstances and therefore can influence levels of satisfaction (Judge & Larsen, 2001).

Job Characteristics Model

The Job Characteristics Model is more of a paradigm than a theory; however, it has influenced many studies of job satisfaction. The model suggests that essential, enriched, or complex jobs are associated with an increase in job satisfaction, motivation, and job performance (Hackman & Oldham, 1975; Hackman & Oldham, 1976; Hackman &

Oldham, 1980). Proponents of this model assume that five core job characteristics (skill variety, task identity, task significance, autonomy, and feedback from job) directly influence three critical psychological states (experienced meaningfulness of the work, experienced responsibility for outcomes of the work, and knowledge of the actual results of the work activities), which in turn affect performance outcomes (internal work motivation, growth satisfaction, overall job satisfaction, work effectiveness, and absenteeism). In addition, supporters suggest three factors exist (knowledge and skill growth, need strength, and context satisfaction) and serve to moderate between the job characteristics-critical psychological states relationships and the critical psychological states-work outcomes relationships (Fried & Ferris, 1987). The Fried & Ferris meta-analysis reviewed 76 *Job Characteristics Model* studies. Their findings suggest modest support for the model overall and found no evidence to support the criticism cast by some investigators who oppose the model (O'Brien, 1982; Roberts & Glick, 1981).

Range of Affect Theory

Possibly the most popular of all job satisfaction theories is Edwin A. Locke's Range of Affect Theory. In his book, *The Nature and Causes of Job Satisfaction* (1976),

Locke reports job satisfaction is difficult to define, though not much has changed since the mid-1940s. Employees have always had needs, goals and motivations; however, an employee experiences satisfaction when a job well done is recognized by a superior, praised by peers, and when they feel content with their job. Satisfaction comes from working in settings where he/she does not have to suppress behaviors or beliefs, receives good benefits and enjoys the job itself. With all this being said, Locke argued that none of these things serve as a consensus for satisfaction because employees are unique, diverse, come from different backgrounds, and may be driven by diverse goals and motivations.

When describing Range of Affect Theory, Jex and Britt (2002) say, "factors of the work are differentially weighed when employees make their assessment of job satisfaction" (p. 117). For example, if autonomy is important to an employee and he/she is given assignments and the independence to complete those assignments, this would have a large impact on their overall satisfaction. However, if autonomy is relatively unimportant, the fact that expectations are met or unmet in this area will have minimal impact on levels of overall satisfaction.

This theory was tested by Chia-Huei Wu (2008) by examining 332 undergraduates using the quality of life measurement. The results of their hierarchical linear modeling supported Locke's theory. The findings revealed that the relationship between item have-want discrepancy and item satisfaction is stronger for high importance items than low importance items for given individuals.

As previously noted, Locke believes factor importance is a key determinant of the level of satisfaction associated with a given job factor. Many studies conducted in the United States have supported this theory (McFarlin & Rice, 1992; McFarlin, Rice, Schweizer, & Paullay, 1987; Mobley & Locke, 1970). McFarlin (1995) explored this theory with South African employees by questioning if workers in other countries display moderating effects for factor importance that are consistent with the range-of-affect hypothesis. Including 122 employees, the investigators assessed 12 job factors similar to those evaluated in American studies. Factor satisfaction, factor importance, prevalence of each factor within the work setting, perceived have-want discrepancy, and transformation of discrepancy scores were all measured in this study. Two-step hierarchical multiple regression analysis was conducted on each job factor for a total of 24 analyses. The variables' factor amount and

factor importance were first entered into the model and then the product of the first two variables was entered into the model to capture the factor amount by factor importance interaction. Entering perceived discrepancy and factor importance into the model as stage one followed by the product of the first two variables as stage two tested the second hypothesis. This model was used to capture the perceived discrepancy and factor importance interaction. Each hypothesis predicted that both methods of assessing the value fulfillment would interact with factor importance affecting satisfaction. Hypothesis one was supported moderately based on the statistical significance of 7 out of 12 factor amount x factor importance interactions. However, the second analysis yielded 11 of 12 perceived discrepancy by factor importance interactions suggesting even greater support for the second hypothesis. All interactions were plotted creating separate regression lines for participants reporting high and low importance levels for each factor. All significant interactions supported the range-of-affect theory. The regression line slopes predicting factor satisfaction were consistently steeper for participants reporting high factor importance than for respondents reporting low factor importance. These patterns demonstrated support for the theory. In fact, this

held true whether satisfaction was being predicted from factor amount (Ha^1) or from perceived have-want discrepancies (Ha^2).

Investigator's Theoretical Frame

Each of these models provides a structure tenable to defining and understanding job satisfaction. Each has a foundation, though at differing degrees, grounded in needs and motivational theory. This investigator, based on personal and professional experience, along with the study of leadership, satisfaction and motivational theory, has adopted several components of the aforementioned theories to describe satisfaction.

It is not difficult to accept Herzberg's work as an accurate depiction of employee satisfaction; however, the motivators and hygiene components are not as mutually exclusive as he defines. Nevertheless, Herzberg's hygiene factors along with the four core self-evaluation components align well with this writer's interpretation of satisfaction. Unless conditioned otherwise, most people have a strong desire to perform well and to contribute to something larger than themselves. Herzberg's motivators of achievement, responsibility, and advancement opportunities support these assumptions. In addition, recognition of a job well done is important. One could argue that these also

reflect the levels of self-esteem and self-actualization described by Maslow. This investigator would place Herzberg's interpersonal relations into the motivator category paralleling Maslow's social needs instead of placing it in the hygiene category. The four core components of the core self-evaluation theory add several other factors to the mix including self-esteem, self-efficacy, locus of control, and emotional stability. These may influence and actually facilitate the likelihood of experiencing satisfaction, but are not areas that can be directly controlled by the employer or factors of satisfaction themselves. They may actually be more related to Reilly's dispositional theory (2005). Edwin Locke stated that not much has changed since the mid-1940s. This appears to be an accurate statement. As noted, this writer agrees optimal satisfaction includes the motivators of Herzberg and recognizes that both nature and nurture play an indirect role in the achievement of satisfaction. Locke simply echoes these truths and highlights the reality that satisfaction is multi-dimensional and a multi-factored scale is necessary for accurate measurement.

Demographic Comparisons of Satisfaction

While the aforementioned factors all influence job satisfaction, there is a body of evidence suggesting more personal characteristics such as age, gender, and race may also play an important role. Studies investigating the relationship between a worker's age and job satisfaction, while controlling for length of service, found a linear relationship between the two factors (Bernberg, 1954). At the time, Bernberg offered no explanation of his findings. Hulin and Smith (1965) used multiple correlation to explain similar findings and suggested the positive linear relationship was due to the employee's "ability to better adjust his expectations to what the job environment provides" (p.54). Mirroring Edwin Locke's earlier theory, this suggests the more congruent one's expectations are with the return, the greater the level of satisfaction. Additionally, the greater the tenure of an employee, the more successful they are at predicting and avoiding frustration.

Related to age is the phenomenon of generational differences. In their book entitled *Generations at Work*, Zemke, Raines, & Filipczak (1999) described four primary generational groups (p. 4). These include:

- *The Veterans 1922-1943* – Those born prior to WWII and whose earliest memories and influences are associated with that world-engulfing event
- *Baby Boomers 1943-1960* – Those born during or after WWII and raised in the era of extreme optimism, opportunity, and progress
- *Generation Xers 1960-1980* – Those born after the baby boom and came of age deep in the shadow of the Boomers and the rise of the Asian Tiger
- *Generation Nexters 1980-2000* – Those born of the Baby Boomers and the early Xers and into our current high-tech, neo-optimistic time

Note the overlap between the generations. This is important, as there are no clear delineations showing where one generation ends and the other begins. Nevertheless, there are often distinct differences between these groups within the workplace (Sherman, 2006). The Veterans look to history and its lessons when faced with decisions. They are loyal to the organization and respectful of authority. They are far less interested in intrinsic means of satisfaction, and more interested in doing a good job for their employer. The Baby Boomers grew up post-war when intact families where the norm. They are encouraged to value individualism and to express themselves. Here we begin to see the demand

for satisfaction and having personal needs met. They have a strong work ethic and their job is defined by their self-worth and evaluation of others. The Generation-X employee experienced high divorce rates and was reared in single-family homes. Most likely, both parents worked outside the home. They became self-reliant, and valued the balance between work and life. They demand satisfaction and will look elsewhere if it does not exist to their standards. Technology is an important part of their lives. The Generation Nexters, or Millennial Generation, have witnessed acts of terrorism, violence, and drugs. Parents raised the Nexters by drawing them close during threatening times. As a result, the Nexters grow to depend on their parents for safety and security. They accept multiculturalism as a way of life and technology provides instant access to communications, news, and food preparation. Interestingly, many believe the pendulum has moved for this generation toward adopting the values of the Veterans. A 2006 study (Westerman & Yamamura) surveyed 234 accountants. The investigators were examining the generational and gender differences among work environment preferences. The results indicated the importance of "goal orientation and system work environment fit for younger generation workers on satisfaction and intention to remain;

and relationship fit on Baby Boomers" (p. 156). The Boomers also reported higher levels of overall satisfaction than younger generation employees.

Gender may be a contributing factor as well. In 2007 the Association of Medical Colleges partnered with the Collaborative on Academic Careers in Higher Education. These organizations administered a survey to full-time faculty at 10 medical schools. The survey addressed satisfaction with institutional climate and culture, promotion policies, faculty recruitment and retention, and overall satisfaction ("Differences in U.S. Medical School Faculty Job Satisfaction by Gender," 2008). Based on 3,208 respondents, the investigators found men were consistently more satisfied across all variables than their female counterparts. A study designed to measure job satisfaction conducted in South Korea enrolled 5,218 public employees (male, 79%; female, 19.7%) (Kim, 2005). Overall satisfaction between men and women was compared using a *t*-test. This study found women to be significantly more satisfied than men; however, the affect size was small and may have been impacted by the large variance in the number of responses between men and women. The author of the study postulated that Korean women are more satisfied because 1) they compare themselves to other women, expecting less from

work and are therefore satisfied with less, 2) are socialized not to express their discontent, and 3) women and men are different in what they value in a job. It should be noted that a limited number of studies do claim to refute these findings. One such study stated when factors such as marital status, spouse's work status, and existence of children are controlled in the statistical model, there is no statistically significant gender difference in overall job satisfaction (Weaver, 1978). Some might argue that these variables are related to gender differences, directly affecting job satisfaction, and should not be adjusted.

The literature reporting on racial differences and job satisfaction is limited. However, a recent report did address this topic while reviewing college faculty satisfaction with institutional climate, culture and collegiality (Le, 2009). Le reported that when compared to white faculty members, Asians, African Americans, and Native Americans were significantly less satisfied across a series of 10 questions addressing the aforementioned factors, with Asians being the least satisfied. However, Asian faculty were found to accept the level of scholarly expectation from administration as more reasonable than did white faculty and were more satisfied with how they spend

their time and the number of hours worked than their white colleagues. Asian faculty were of the opinion that their institution's practices do not make raising children and the tenure track compatible and when compared to white participants, did not feel their supervisors were fair in rating their performance.

In addition to the listed demographic characteristics, research has revealed that intelligence, and similarly education influence satisfaction. Studies have supported the theory that intelligence is a strong correlate with factors including educational and occupational accomplishments as well as job performance (Gottfredson, 1986; O'Reilly & Chatman, 1994; Schmidt, Ones, & Hunter, 1992). A study looking at the relationship between intelligence and job satisfaction used archived data from the National Longitudinal Survey of Youth. This study reviewed a sample pool of 12,686 Americans including a large population of African Americans, Hispanics, and economically disadvantaged whites born between 1957 and 1964. The study utilized a final sample of 5,423 respondents meeting inclusion criteria and measured intelligence, occupation, job complexity, and global satisfaction (Ganzach, 1998). Occupational data represented numerous professions including positions traditionally

considered as entry level as well as high-level occupations such as banking, technology, and teaching. The investigators found a positive relationship between intelligence and job satisfaction, though the direct effect may be non-existent. The study found that job complexity serves as a mediating variable between intelligence and satisfaction. When the employee is intelligent, the job must possess a high degree of complexity; otherwise satisfaction levels will decline.

As noted, the relationship between education and intelligence are most often found to be statistically significant. If an employee's level of intelligence and job satisfaction were related, one would expect a positive relationship between education and job satisfaction. Studying white men and women, Glenn and Weaver (1982) found education serving as a positive and statistically significant predictor of job satisfaction. However, further analysis suggests that several control variables such as age, earnings, occupational prestige, autonomy and authority play a role in the outcome.

In line with the behavioral paradigm, and paralleling theories of earlier noted scientists, a study did find that emotional affect is positively related to job satisfaction. Though statistically significant, the contributory factor

of both negative and positive emotions to satisfaction is weak. Further regression analysis suggested each contributed uniquely to overall general satisfaction (C. Fisher, 2000). Other behavioral experts believe personality characteristics may influence job satisfaction, and in turn impact turnover. A meta-analysis was conducted with an interest in the relationship between the *Big Five* personality factors and job satisfaction (Zimmerman, 2008). The Big Five refers to a model that suggests personality-relevant adjectives can be clustered under five global factors including 1) extraversion, 2) agreeableness, 3) conscientiousness, 4) emotional stability, and 5) openness to experience (Saucier & Goldberg, 1998). When correlated with a metric representing an employee's intent to quit, Zimmerman found emotional stability yielded the strongest coefficient (r = -.29), followed by conscientiousness (r = -.16), and extraversion (r = -.12).

Implications of Satisfaction

To understand the implications of satisfaction, it may be best to discuss the impact of dissatisfied employees. One significant effect of dissatisfaction is employee turnover (M. Brown & Hayes, 1997; Howard, Liu, Wellins, & Williams, 2007; Konnerth, 2008; Shields, 2001). These studies suggest voluntary turnover is increasing

particularly among young employees, proves costly to employers, and disrupts productivity.

Dissatisfied employees often displace their unhappiness on customers. Inappropriate behavior may not be deliberate, but it can be clearly obvious to customers. Many employees will project on to customers exactly what they feel they're receiving from the employer; thus employee dissatisfaction leads directly to customer dissatisfaction. There are significant studies that support a positive correlation between employee satisfaction and customer satisfaction (Desmarais, 2005; Employee Satisfaction -- A Necessity for Keeping Customers Satisfied," 2007; Leonard, N.D.; McConnell, 2006; Wangenheim, Evanschitzky, & Wunderlich, 2007). These studies clearly show the link between employee and customer satisfaction and support the premise that unhappy employees have difficulty providing good customer service.

Finally, some claim a relationship exists between satisfaction and performance (Petty, McGee, & Cavender, 1984). While service industries are negatively affected by poor customer service when satisfaction is low, organizations manufacturing goods recognize a decline in productivity as employees become increasingly dissatisfied (Appelbaum, et al., 2005; Iaffaldano & Muchinsky, 1985;

Kiani, Khurshid, Ahsan, & Sajid, 2008; Organ, 1977).

However, it should be noted that this relationship has been found lacking in many other comprehensive reviews. For example, Brayfield and Crockett (1955) reviewed several studies correlating job satisfaction and performance and concluded there is little evidence that employee attitudes typically measured by satisfaction surveys bear any simple, appreciable relationship to performance on the job. Another investigator reviewed 23 studies finding a correlation of .14 between performance and satisfaction (Vroom, 1964). A final study included a meta-analysis of 312 independent samples contained in 254 studies (N = 54,417)(Judge, Thoresen, Bono, & Patton, 2001). This study yielded a moderate average correlation between performance and satisfaction (r = .33) in top-tier journals and even lower (r = .26) in lesser-ranked and unranked journals (r = .25). These findings all suggest the relationship between performance and satisfaction is minimal and potentially absent, implying these variables are mutually exclusive of one another.

Employee Satisfaction in Healthcare

Today's physician often chooses lifestyle and intrinsic satisfaction over monetary gain. Healthcare leaders are beginning to understand this and react. A recent study surveyed 104 physician leaders including CEOs, vice-presidents of medical affairs, medical directors, department chairs and consultants (Matheny, 2008). When asked to describe successful means of improving job satisfaction among physicians, 46% suggested improving communications and personal relationships, 9% said to improve leadership quality, and only 3% noted financial gain as a means of increasing satisfaction. This premise was further evident in a study designed to gain knowledge used in the development of an effective instrument measuring physician satisfaction (Konrad, et al., 1999). Konrad and his colleagues reviewed several models intended for this task and found the survey must measure 1) autonomy, 2) relationships with colleagues, 3) relationships with staff, 4) relationships with patients, 5) compensation, 6) resources, and 7) status. An earlier study (Lichtenstein, 1984) found similar patterns in the factors necessary to adequately measure physician satisfaction. Like the Konrad study, Lichtenstein found that intrinsic factors contribute far more to satisfaction

than income. The Lichtenstein study found available resources, self-directed autonomy, other-directed autonomy, patient relationships, professional relationships, and status contributing more toward satisfaction than income.

Many similar factors have been found across other professions and geographical regions, equally contributing toward satisfaction. The Development Dimensions International, Inc. (DDI) and Society for Human Resource Management (SHRM) study (Howard, et al., 2007) found that Chinese employees and human resources professionals identify "lack of growth and development opportunities with the current employer and the availability of better opportunities elsewhere" (p. 2) as the top two reasons employees resign their positions. OfficePro, a popular business research journal, contained the results of a study surveying 245 human resource professionals and 7,101 employees across a variety of work settings ("We Are Happier At Work," 2008). Findings revealed relationships with co-workers and management ranked significantly higher than compensation and benefits as contributory factors to satisfaction. Other studies found job security ("Employee Job Satisfaction: The Latest Ratings.," 2008), and a supportive work environment ("Employee Satisfaction: Study

Shows It's Time to Re-Evaluate All You Know," 2008), also contribute to high rates of satisfaction.

Further Implications in a Healthcare Environment

Healthcare settings, like any other fast-paced environment, are dynamic and require timely action when addressing issues such as turnover, satisfaction, and quality of performance. Add the factor of patient care to the equation, and these items become even more critical. An "organization is as strong and successful as its employees" (Das, Gupta, & Tomar, 2005), and the ability to measure satisfaction in key areas provides leaders with the necessary information to address these opportunities for improvement.

Studies suggest the nursing profession is faced with significant turnover rates in the healthcare arena. Kate Christmas (Christmas, 2008) reports a 27.1% average voluntary turnover rate among new graduate nurses during their first year of employment. At the time of their writing, Letvak and Buck (2008) reported a potential shortfall of Registered Nurses as high as 36% with hospitals experiencing an RN vacancy rate averaging from 8.5% to 14%. This ongoing challenge forces nursing supervisors to ask what factors impact these retention rates. Researchers would suggest nursing retention is

directly related to job satisfaction and other workplace variables (Coomber & Barriball, 2007; Ulrich, Buerhaus, Donelan, Norman, & Dittus, 2005). Mirroring other employee satisfaction studies in the U.S., Coomber and Barriball found in their Great Britain study that stress and leadership issues influence job satisfaction, while wages have less of an effect. This study was conducted while the rate of nurses leaving the profession in Great Britain was averaging 9.4%. With more than 356,000 nurses in their universal healthcare system, this amounted to 33,500 nurses each year. An earlier study revealed consistent findings reporting that satisfaction was related to autonomy, benefits, task variety, promotion opportunities and education level (Parsons, 1998).

A study of 944 acute care nurses in rural Canada revealed nine variables that accounted for 38% of the total variance in job satisfaction (Penz, Stewart, D'Arcy, & Morgan, 2008). These factors included equipment and supplies, scheduling satisfaction, psychological job demands, home communication satisfaction, community support, number of workplace nurses, gender, adequate/appropriate staffing, and perceived barriers to continuing education.

A 2008 study (Zaghloul, Al-Hussaini, & Al-Bassam) used an ordinal regression analysis and examined satisfaction among 276 nurses in an academic medical institution. The leadership style of their immediate supervisor (β = 2.91, p = 0.02) and challenging work opportunities (β = 1.40, p = 0.03) stood out as significant contributors to satisfaction.

Like the U.S. and Britain study, other countries have discovered similar trends when researching employee satisfaction among clinical healthcare workers. In 2007, an instrument was used to assess job satisfaction for six job components across four different Norwegian hospitals (Bjork, Samdal, Hansen, Torstad, & Hamilton, 2007). Surveying 2,095 respondents, investigators learned professional status accounted for the highest degree of satisfaction, closely followed by interaction and autonomy. There were significant differences in job satisfaction related to age, level of education, and tenure. Nurses older than the mean age of 37 were more satisfied than their younger peers and those with a Masters degree were more satisfied than the less educated. Nurses who had worked at the facility more than eight years or in a unit for more than five years were more satisfied than nurses who had worked a shorter timeframe.

These studies continue to emphasize the importance of assessing employee satisfaction and understanding the factors that influence this complex construct. Employees abandoning the profession they once loved goes beyond simple burnout (Firth & Britton, 1989), and speaks to the many factors that encompass employee satisfaction.

Measuring Satisfaction

The Price-Mueller Job Satisfaction Survey is an example of an instrument designed to measure multiple factors of satisfaction (Price & Mueller, 1986). There are a total of 30 questions rated on a 5-point Likert scale. Scores range from 30 (dissatisfaction) to 150 (satisfaction). The instrument measures five factors including routinization, integration, distributive justice, autonomy, and promotional opportunity. This tool has proven useful at measuring many of the factors noted in the aforementioned studies. It is both valid and reliable with Cronbach's alpha measuring from 0.72 to 0.95 (M = 0.85) across all variables.

Two additional scales are the Job Descriptive Index (JDI) and the Job In General Scale (JIG). The JDI was designed to measure various factors of job satisfaction and the JIG was developed to provide an overall assessment of job satisfaction (Smith, et al., 1969). The JDI is the more

versatile of the two, designed with five subscales containing 72 items, and can be used to monitor changes in the work environment, identify problems in the workplace, and evaluate the effects of a job improvement program. The JDI measures five discriminate factors including (1) satisfaction with the job itself, (2) salary, (3) opportunities for advancement, (4) satisfaction with immediate supervisor, and (5) satisfaction with coworkers. The original instrument was developed in 1959 and has been revised at least twice. In 1997, Cronbach's alpha applied using 1,600 surveys revealed a range from 0.86 to 0.91. Several validity measures have been applied including correlation with other measures known to assess satisfaction, factors analysis, and item response theory models.

Other studies of the JDI have revealed additional factors beyond those described by its developers. A 1986 study published in the Academy of Management Journal reported some studies have generated as many as nine factors (Jung, Dalessio, & Johnson, 1986). The salary and promotion loadings remained stable. However, the supervisor and coworker factors split into separate factors for ability and interpersonal relations. The satisfaction with the job in general scale split into three factors to

include challenging work, frustration with work, and job fulfillment. Jung and his colleagues tested the stability of both the five-factor and the nine-factor models. The data suggested the five-factor model remained stable across a variety of situations and groups of participants. Evaluation of the nine-factor model did find enough consistent evidence to support the possibility of future refinements to the JDI to include additional scales. Whether one adopts the five-factor or the nine-factor model, the data supports the instrument does indeed yield factors consistent with employee job satisfaction.

Summary

The complexities associated with employee satisfaction have been substantiated in the literature. People are complex, their innate characteristics and learned behavior is complicated, and their personal frame of reference is woven throughout the decisions they make about career choices and commitment to their employer. These unique characteristics must be considered when assessing the many factors of satisfaction. More than 75% of organizations survey their employees either annually or biannually (Paul & Bracken, 1995). When seeking direction, employers invest an exorbitant amount of resources hiring consultants who survey their workforce and report the findings. Theorists

as well as empirical studies describe satisfaction as a multi-dimensional construct. Multi-factored instruments do exist; however, *homegrown* surveys are common, less expensive to develop and implement, and are often used indiscriminately across organizations. Because important management decisions are made based on the outcome of these surveys, it is important they measure multiple factors of satisfaction; otherwise they are limited in scope and the outcome may prove unreliable and invalid. The one-survey-fits-all concept of surveying employees may prove inappropriate for making important management decisions. This evidence and lack of empirical studies supporting the use of *homegrown* surveys warrants the investigational design of this dissertation.

CHAPTER III: METHODS

The purpose of this study was to evaluate the existence of factors embedded in an employee satisfaction survey designed internally within a medical center. The existence of multiple factors and the instrument's ability to measure these factors is paramount if leaders are to rely on the results in making decisions. This chapter describes the (a) participants and setting, (b) instrumentation, (c) preliminary data preparation, (d) exploratory data analyses, (e) confirmatory data analysis, and (f) summary of the chapter.

Participants and Setting

A 457-bed medical center located in the southeastern region of the United States offers numerous inpatient and outpatient services including internal medicine, family medicine and multiple subspecialties. On an annual basis, all employees are asked to complete a 22-item satisfaction survey. The survey is completed within 30 days of the employee's hire date, and then annually each subsequent

year during the employee's birth month. The data averages are reported to the administrative staff on a monthly basis and the individual responses are archived confidentially in a Microsoft Excel spreadsheet maintained by the Human Resources Department. The participants in this research were de-identified and their archived employee satisfaction survey results collected between 2006 and 2008 were used for the study. Participants' demographic data was not obtained as part of the survey process and was not available for consideration in this study.

Instrumentation

Details about the 22-item employee satisfaction survey instrument were obtained by conducting an interview with the Human Resources employee responsible for managing and reporting the assessment data. The employee reported Human Resources personnel developed the instrument internally. The 22 questions were derived from a more extensive instrument and were chosen at face value by administrative personnel based on what they believed were questions that best assessed satisfaction in a short-form design (See Appendix A). The original instrument included 100 items before it was streamlined by the Human Resources Department. More details about the instrument and its design were not available as no one involved in redesigning

the instrument presently works at the medical center. The psychometric attributes of the instrument have never been assessed quantitatively. The instrument is based on a 5-point scale using the following anchors:

1 – Strongly Disagree

2 – Disagree

3 – Neutral

4 – Agree

5 – Strongly Agree

Preliminary Data Preparation

Following IRB approval, the anonymous survey results were obtained from the Human Resources Department in a Microsoft Excel spreadsheet format. The spreadsheet was imported into SPSS Version 16 for analyses. For purposes of this study, the complete data set was randomly divided in approximately half. The first data set contained the results for 1,017 surveys while the second data set contained the outcomes for the remaining 1,062 surveys.

Exploratory Factor Analyses

Exploratory factor analyses, including principal component analysis and principal axis factoring analysis, were conducted using the first of the two data sets in an effort to extract as many significant factors as possible. These statistical methods were selected as the literature

clearly substantiates factor analysis as most appropriate for exploratory purposes. (Cokley, Bernard, Cunningham, & Motoike, 2001; Fairchild, Horst, Finney, & Barron, 2004; Flowers & Algozzine, 2000; J. K. J. Howard, 1999; Oswald, Schmitt, Kim, Ramsay, & Gillespie, 2004). Once the factors were identified, data set #1 was no longer needed for the remainder of the study.

Prior to running the analysis, all variables were examined for accuracy of data entry, outliers, missing values, plausibility of data, and normality of the distribution. Skewness and kurtosis coefficients were also reviewed. Existence of univariate outliers was assessed and multicollinearity was reviewed as the investigator assessed eigenvalues greater than zero. The eigenvalue index was created graphically and reviewed by way of a scree plot.

As a means of identifying any underlying factors, SPSS was used to perform a principal component factor analysis while incorporating a varimax rotation on the 22-item employee satisfaction survey. The varimax rotation had been the most commonly used rotation method according to many sources, followed by oblique methods (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Osborne, 2008). The varimax rotation minimized the complexity of the components by making the large loadings larger and the small loadings

smaller within each component (Tabachnick & Fidell, 2007). To allow for better structure and delineation of factors in the component matrix, all factor loadings less than .40 were suppressed. This value was predetermined prior to the study as a moderate measure of homogeneity.

The factors were named based on common themes identified across survey questions. The questions were also given to a third-party who was asked to review the questions in the survey, group then according to common semantics and then assign a name to the groups.

Due to the existence of a strong relationship between factors, a second exploratory analysis was conducted. A principal axis factor method was employed using a direct oblimin rotation. The results of the two exploratory analyses were compared and a model selected for the confirmatory study.

Confirmatory Factor Analysis Using SEM

The second data set was used for a confirmatory factor analysis using Structural Equation Modeling (SEM). Confirmatory Factor Analysis uses models to represent relationships among observed variables, with the same goal of providing a quantitative test of theoretical models hypothesized by the investigator. The models depict how sets of variables define a construct (satisfaction) and how

these constructs are related (Schumacker & Lomax, 2004). Using strictly a confirmatory approach, the researcher used Schumaker and Lomax's five-step process and included (1) model specification, (2) model identification, (3) model estimation, (4) model testing, and (5) model modification. This analysis was chosen for several reasons. First, CFA assumptions are flexible, allowing interpretation even in the face of multicollinearity. Second, this approach to confirmatory factor analysis reduces measurement error by having multiple indicators per latent variable; and finally, SEM allows for model testing rather than simply yielding coefficients.

Before evaluating the overall fit of the model, the data were screened for outliers, missing data, and multivariate normality. The following sections describe the process that was used to prepare the data and evaluate the fit of the empirical data to the conceptual model.

1) Model specification based on results of EFA: Based on latent and observed variables, a conceptual model was designed using the latest version of LISREL software.

2) Model identification: Pieces and parameters were reviewed. The investigator anticipated there would be more pieces of information than parameters to estimate, therefore providing an over-identified model.

3) Model estimation: Using LISREL, the input data was based on the covariance matrix and the estimation procedure used was maximum likelihood.

4) Model testing: Prior to any modifications, the model was tested for fit using chi-square, chi-square ratio (less than 2 is acceptable), Root Mean Square Error of Approximation (RMSEA; less than .07 is acceptable), Adjusted Goodness of Fit Index (AGFI; greater than .90 is accepable), Normed Fit Index (NFI; greater than .90 is acceptable), and Comparative Fit Index (CFI; greater than .90 is acceptable).

5) Model modifications: When faced with a model fit that could be improved, appropriate modifications were made to determine a better fit. Modification indices were used to determine how to modify the model specification.

Anticipated Ethical Issues

Because the data was archived and de-identified, there were no anticipated ethical issues associated with this study.

Summary

Using the results from 2,216 anonymous employee satisfaction surveys, the data were divided into two sets. Exploratory analyses were conducted using the first data set to determine if factors exist measuring employee

satisfaction. Once the factors were identified using EFA, the questions (observed variables) associated with each factor (latent variables) were used to test the fit of a confirmatory model using structural equation modeling.

CHAPTER IV: RESULTS

Introduction

This chapter describes the results of exploratory factor analyses (EFA) used to identify the presence of factors within a survey instrument used to measure employee satisfaction, followed by a confirmatory factor analysis (CFA) designed to test the findings of the EFA. A description of the sample, data screening and results of the exploratory and confirmatory analyses are presented in the following sections.

Description of the Sample

Based on an interview with a human resources employee, it was determined that the data represented results from 2,216 employee satisfaction surveys administered between 2006 and 2008. These surveys were completed by employees working in departments that include administration, nursing services, information services, education, environmental services, nutrition services, facilities, security, finance, allied health services, medical staff services, research and medical staff. The data was de-identified and no demographic characteristics were obtained during the

survey and therefore not available for this study. The data set contained 2,216 case including 137 (6.2%) surveys with missing data. These surveys were removed from the data. The remaining 2,079 surveys were randomly divided into two separate data sets using SPSS *select cases* utility. The first data set contained 1,017 cases and was used in the EFA. The remaining 1,062 cases were used for the CFA.

Data Screening and Descriptive Statistics

Each data set was screened using SPSS to assess for the presence of outliers, normality, linearity, and factorability of the correlation matrix. Means and standard deviations were reviewed for new data sets and found to be plausible (see Table 1). Less than five univariant outliers were found for each question and were include in the analysis. Coefficients of skewness and kurtosis were reviewed and revealed numerous items were slightly negatively skewed across both data sets (-.569 to -1.466) and kurtosis slightly elevated for several cases (.258 to 5.865). Visual inspection of P-P Plots support the data is linear. Further review of histograms, and significant Shapiro-Wilk values greater than .672 ($p < .001$) for each question in the first data set and values greater than .693 ($p < .001$) for each question in the second data set supports univariant normality. Inspection of the matrix for

the exploratory analyses located in Appendix B and the matrix for the confirmatory analysis located in Appendix C shows small to moderate correlation coefficients among the items.

Table 1

Descriptive Statistics For Original And New Data Sets

Items	Original Data			Data Set #1			Data Set #2		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Q1	2079	3.96	.94	1017	3.96	.95	1062	3.96	.92
Q2	2079	4.04	.98	1017	4.05	.98	1062	4.03	.98
Q3	2079	3.89	.86	1017	3.88	.86	1062	3.90	.86
Q4	2079	3.91	.90	1017	3.90	.89	1062	3.91	.91
Q5	2079	3.84	1.00	1017	3.80	1.00	1062	3.88	1.00
Q6	2079	3.80	.98	1017	3.77	1.01	1062	3.83	.96
Q7	2079	4.06	.80	1017	4.05	.78	1062	4.06	.82
Q8	2079	3.77	.95	1017	3.74	.95	1062	3.79	.96
Q9	2079	4.02	.80	1017	4.01	.78	1062	4.02	.81
Q10	2079	3.44	1.15	1017	3.43	1.15	1062	3.44	1.14
Q11	2079	3.98	.91	1017	3.98	.90	1062	3.98	.92
Q12	2079	4.00	.82	1017	3.98	.84	1062	4.01	.81
Q13	2079	4.10	.76	1017	4.13	.75	1062	4.07	.76
Q14	2079	4.21	.65	1017	4.21	.65	1062	4.21	.64

Table 1 (continued)

Descriptive Statistics For Original And New Data Sets

Items	Original Data			Data Set #1			Data Set #2		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Q15	2079	4.22	.66	1017	4.22	.64	1062	4.21	.67
Q16	2079	4.31	.70	1017	4.32	.68	1062	4.30	.71
Q17	2079	4.28	.65	1017	4.28	.66	1062	4.29	.65
Q18	2079	4.16	.72	1017	4.16	.71	1062	4.16	.74
Q19	2079	3.96	.80	1017	3.96	.79	1062	3.96	.80
Q20	2079	3.91	.88	1017	3.92	.87	1062	3.91	.90
Q21	2079	3.50	1.13	1017	3.48	1.12	1062	3.52	1.14
Q22	2079	4.14	.78	1017	4.15	.77	1062	4.13	.79

Exploratory Factor Analyses Results

Factorability for data set #1 was tested using Bartlett's test of Sphericity and found to be tenable ($X^2(231) = 13668.21$, $p < .0001$). The diagonals of the anti-image correlation matrix were all greater than .5, supporting the acceptance of including all items in the analysis. Finally, the communalities were all above .42. This provides further evidence that each item shared some common variance with other items.

Principal components analysis (PCA) was used with a varimax rotation because the primary purpose was to

identify and compute satisfaction survey scores to identify the underlying factors. The initial eigenvalues suggested the first factor explained 49.02% of the variance, and the second factor explained 7.16% of the variance. This can be seen visually using a scree plot as shown below in Figure 1.

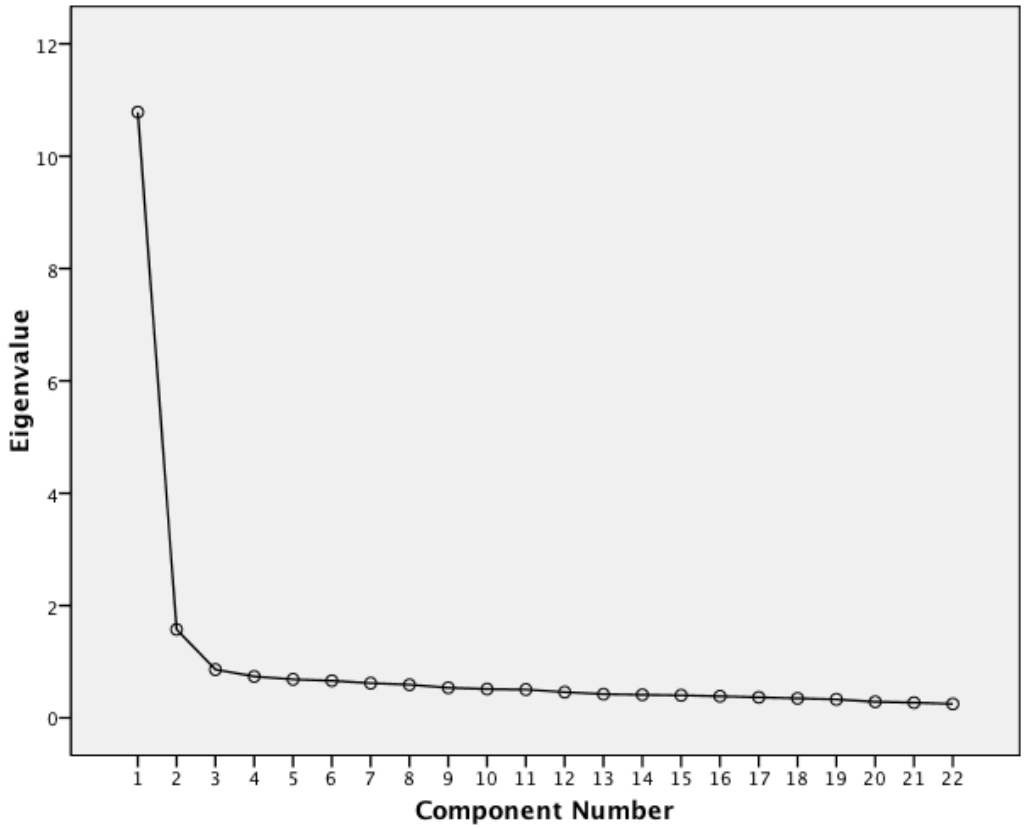

Figure 1. Scree Plot Resulting From Principal Component Analysis

Loadings of variables on factors are reported using the rotated components matrix in Table 2. These variables are ordered and grouped by size of loading to facilitate interpretation. Loadings under .40 were suppressed in the

table. The first factor appears to measure *employee satisfaction with management* (Cronbach's Alpha = .91). Questions 1, 2, 3, 4, 5, 6, 8, and 10 directly referenced management in the survey questions, allowing employees to rate their satisfaction with management in several areas of performance and response to employee needs. The communalities suggest the variance accounted for by these questions ranges from 51% – 68%. Questions 9, 13, 14, 15, 16, 17, 18, and 22 were associated with a second factor measuring *intrinsic satisfaction* (Cronbach's Alpha = .90). These questions addressed an employee's feelings about their job in general, their contribution to the good of others, making a difference, and recognizing the connection between their job responsibilities and the overarching vision of the organization. The communalities suggest the variance accounted for by these questions ranges from 51% – 70%.

Question 21 referenced morale within the department. It loaded highly with the first factor but does not appear at face value to be directly related to satisfaction with management. Questions 7, 11, 12, 19, and 20 cross-loaded between both factors. The statements used in these questions made it unclear what they were measuring. It did

not appear they were clearly measuring either of the extracted factors.

The investigator recruited four independent participants to review the survey items, group them based on their semantics and identify a label for the two groups. This was done to increase objectivity in naming these factors (latent variables) with associated items (observed variables). While there were minor differences in how they each grouped the questions, the majority of questions were grouped similarly to what was produced by the EFA, and each participant stated the factors were related to satisfaction with management and satisfaction with their job based on something more intrinsically related.

Table 2

Factor Loadings and Communalities Based on a Principle Components Analysis With Varimax Rotation for a 22-Item Employee Satisfaction Survey

Questions	Components	
	1	2
Q8 – Management genuinely seeks and responds to suggestions and ideas	**.775**	
Q10 – Managers avoid playing favorites	**.774**	
Q5 – Management shows appreciation for good work and extra effort	**.763**	

Note. Factor loadings < .40 were suppressed. Bold type represents items significantly loading on each factor.

Table 2 (continued)

Factor Loadings and Communalities Based on a Principle Components Analysis With Varimax Rotation for a 22-Item Employee Satisfaction Survey

Questions	Components 1	2
Q2 – Management is approachable, easy to talk to	**.751**	
Q4 – Management is honest and ethical in its business practices	**.737**	
Q1 – Management keeps me informed about important issues and changes	**.661**	
Q21– The morale in my department is good	.622	
Q3 – Management has a clear view of where the organization is going and how to get there	**.619**	
Q6 – I am offered training or development to further myself professionally	**.600**	
Q11 –People are treated fairly regardless Of their age, race, sex, national origin, or sexual orientation	.565	.432
Q7 – I am given the resources and equipment to do my job	.487	.433
Q17– I feel good about the ways we contribute to the community		**.804**
Q16– When I look at what we accomplish, I'm proud to say I work here		**.786**
Q13 – I feel I make a difference here		**.692**

Note. Factor loadings < .40 were suppressed. Bold type represents items significantly loading on each factor.

Table 2 (continued)

Factor Loadings and Communalities Based on a Principle Components Analysis With Varimax Rotation for a 22-Item Employee Satisfaction Survey

Questions	Components	
	1	2
Q14- I believe we are committed to building a culture of safety		**.780**
Q15-I understand the relationship between what I do and my department's overall goals and objectives		**.713**
Q13 – I feel I make a difference here		**.692**
Q18 – New employees are made to feel welcome		**.637**
Q22 – Generally speaking, I am satisfied with my job	.436	**.625**
Q9 – Our facilities contribute to a good working environment		**.604**
Q19 – People celebrate special events around here	.400	.525
Q20 – There is a "family" or "team" feeling here	.501	.519
Q12- Performance evaluations provide me with useful feedback regarding my performance	.461	.515

Note. Factor loadings < .40 were suppressed. Bold type represents items significantly loading on each factor.

The PCA method assumes components (factors) are uncorrelated. In an effort to ensure the appropriate identification of factors and questions associated with

each factor, a principal axis factoring (PAF) method using a direct oblimin rotation was employed. This analysis accounts for the covariation among factors.

Similar to the principle component analysis, the eigenvalues suggested the first factor explained 46.88% of the variance, and the second factor explained 5.24% of the variance. This can be seen visually with the scree plot shown in Figure 2.

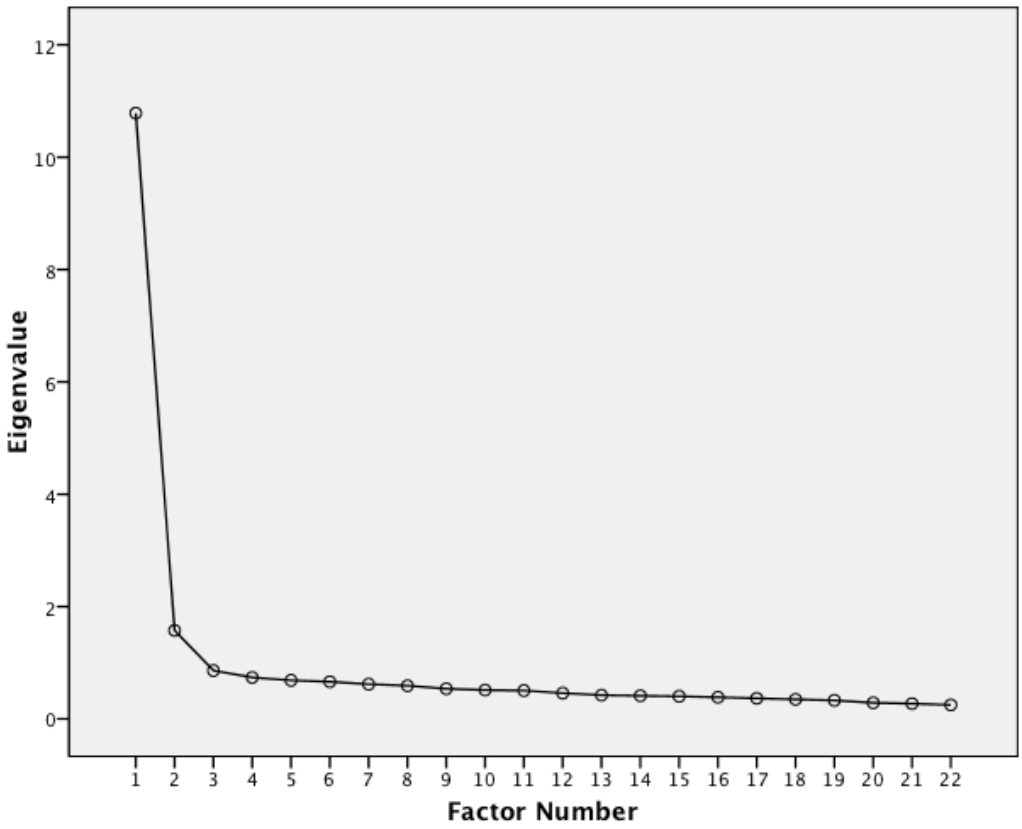

Figure 2. Scree Plot Resulting From Principal Axis Factoring

Pattern and structure coefficients are reported in Table 3. These variables are ordered and grouped by size of loading to facilitate interpretation. Pattern coefficients under .40 were suppressed in the analysis. Study of the pattern matrix and structure matrix reveal patterns very similar to those identified in the PCA. The investigator accepted the item loadings identified in the pattern matrix as unique factors when coefficients also revealed a high degree of unique and shared contribution in the structure matrix when compared to the other factor. Based on these criteria, the first factor loadings appear to mirror the PCA findings, including inclusion of question 21, and measures employee satisfaction with management. Items that loaded on the second factor and presented high coefficients in the structure matrix related to this factor included the same questions that loaded on the second factor in the PCA. Three of the six items that cross-loaded in the PCA method (questions 7, 20 & 12) did not load using the PAF method.

Table 3

Pattern Matrix and Structure Matrix Based on Principle Axis Factoring With Direct Oblimin Rotation for a 22-Item Employee Satisfaction Survey

	Pattern Matrix		Structure Matrix	
Items	Factor 1	Factor 2	Factor 1	Factor 2
10	.85	----	.76	.50
8	.84	----	.80	.56
5	.82	----	.79	.55
2	.79	----	.76	.53
4	.76	----	.78	.58
1	.64	----	.68	.52
21	.58	----	.68	.55
3	.57	----	.68	.56
6	.56	----	.61	.47
11	.49	----	.67	.60
7	----	----	.60	.57
20	----	----	.66	.65
17	----	.89	.50	.78
16	----	.83	.59	.82
14	----	.82	.53	.77
15	----	.69	.57	.74
13	----	.66	.53	.70

Table 3 (continued)

Pattern Matrix and Structure Matrix Based on Principle Axis Factoring With Direct Oblimin Rotation for a 22-Item Employee Satisfaction Survey

	Pattern Matrix		Structure Matrix	
Items	Factor 1	Factor 2	Factor 1	Factor 2
18	----	.57	.56	.68
22	----	.53	.65	.72
9	----	.52	.59	.67
19	----	.40	.57	.60
12	----	----	.62	.63

Summary of the Exploratory Factor Analyses

The principal component analysis using an orthogonal varimax rotation and the principal axis factoring analysis using a direct oblimin rotation was conducted as exploratory analyses. Both analyses identified the same item-factor relationships. The variance accounted for by each item is slightly larger for the PAF method and can be seen in Table 4 by reviewing the communalities obtained for each exploratory method.

Table 4

Comparison of Communalities Between Principal Component Analysis and Principal Axis Factoring for a 22-Item Employee Satisfaction Survey

Items	*Principal Component Analysis*	*Principal Axis Factoring*
Q1	.51	.45
Q2	.58	.53
Q3	.53	.50
Q4	.66	.62
Q5	.65	.62
Q6	.42	.38
Q7	.43	.40
Q8	.62	.59
Q9	.51	.48
Q10	.66	.62
Q11	.56	.53
Q12	.48	.45
Q13	.52	.47
Q14	.62	.55
Q15	.60	.54
Q16	.69	.67
Q17	.68	.62
Q18	.57	.52
Q19	.44	.39
Q20	.58	.55
Q21	.51	.47
Q22	.56	.53

Confirmatory Factor Analysis Results

The two factors identified in the EFA were found to be correlated (.69) suggesting factors extracted by way of principal axis factoring were most appropriate for

confirmatory analysis. However, the items coefficients on each factor were the same for both the PCA and PAF methods. Unlike the PCA, the PAF method did exclude items 7, 20 & 12 from loading, and this method represents the variance in items explained by a factor on both a unique and shared basis. In addition, the pattern matrix contains coefficients, representing only unique contributions. These considerations would ordinarily make the PAF method more robust for a confirmatory analysis.

The data set used in the CFA contains survey results from 1,062 participants and should serve as an adequate sample allowing a reasonable attempt at obtaining a model that fits the data.

Model Specification

LISREL version 8.7 was used in conducting the CFA. The software was used in estimating the correct covariance matrix and by default the application used listwise selection of cases, although this did not change the sample size of 1,062 used in the model because there were no missing data in the set.

The EFA yielded a model suggesting that 16 of 22 items from the employee satisfaction survey serve as appropriate observed variables representing two unique latent constructs. These latent constructs included *employee*

satisfaction with management and intrinsic satisfaction. The original measurement model was first reviewed for goodness of fit. This conceptual model can be seen in Figure 3.

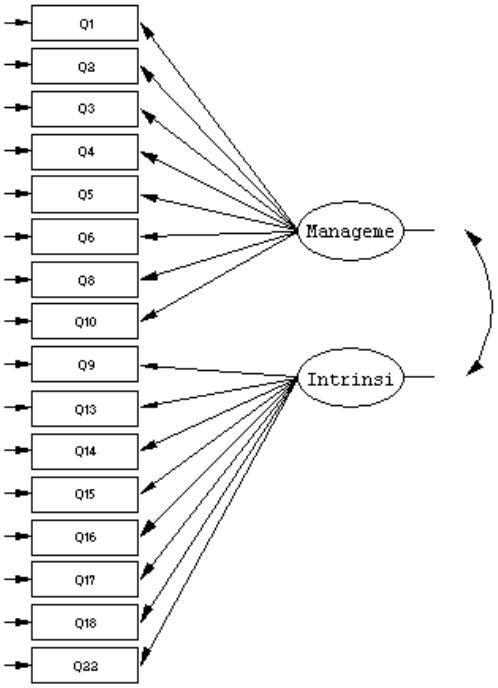

Figure 3. Conceptual Model – Confirmatory Factor Analysis

Model Identification and Estimation

This model had more pieces of information than parameters to estimate and was found to be over-identified. The model was developed using the covariance matrix from raw data and the estimation technique was maximum likelihood.

Model Testing

Model testing was used to evaluate the two-factor solution with 16 employee satisfaction items. Fit indices

used to determine this fit include Normal Theory Weighted Least Chi Square, Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normed Fit Index (NFI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). Fit indices used to estimate fit were based on parameters reported by Hancock and Mueller (2006). The fit indices are reported in Table 5 and indicate an adequate fit of the data to the two-factor model.

Table 5

Goodness-Of-Fit for the Initial 2-Factor Model and Related Observable Variables without Modifications

Model	X^2	*df*	X^2/df	GFI	AGFI	NFI	CFI	RMSEA
Two Factor Model Without Modifi-cations	572.78	103	5.56	.94	.92	.98	.99	.066

The standardized path coefficients between the latent variables and the observed variables were statistically significant and ranged from .67-.86. The R^2 and error variance for each question are reported in Table 6.

Table 6

Error Terms and Correlation Coefficient for Each Observed Variable and its Perspective Latent Variable

Latent Variables	Observed variables	Error Terms	R^2
Satisfaction With Management	Question 1	0.54	0.68
	Question 2	0.46	0.74
	Question 3	0.48	0.72
	Question 4	0.37	0.79
	Question 5	0.40	0.77
	Question 6	0.62	0.62
	Question 8	0.39	0.78
	Question 10	0.43	0.75
Intrinsic Satisfaction	Question 9	0.55	0.67
	Question 13	0.54	0.68
	Question 14	0.49	0.72
	Question 15	0.44	0.75
	Question 16	0.32	0.82
	Question 17	0.42	0.75
	Question 18	0.49	0.71
	Question 22	0.48	0.72

Model Modification

Based on the indices used, the model did fit the empirical data and all associated *t*-tests scores were significant. As discovered in the exploratory analyses, the relationship between the two latent variables was highly correlated (.79). Though the model did fit relatively well, modifications were applied to increase the goodness-of-fit. Seven modifications were made to free fixed parameters. These modifications did influence a better fit as indicated in Table 7. This is particularly noticeable in the change in Chi Square and Root Mean Square Error of Approximation.

Table 7

Goodness-Of-Fit Comparison for the 2-Factor Model and Related Observed Variables With and Without Modifications

Model	X^2	*df*	X^2/df	GFI	AGFI	NFI	CFI	RMSEA
Two Factor Model *Without* Modifi-cations	572.78	103	5.56	.94	.92	.98	.99	.066
Two Factor Model *With* Modifi-cations	341.98	96	3.56	.96	.95	.99	.99	.049

The modified model showing all modifications can be seen in Figure 4. It is important to note that the standardized path coefficients between the latent variables and observed variables remained between .63 and .80 with all *t*-test scores remaining statistically significant. The SIMPLIS syntax used for model building and modifications can be found in Appendix D.

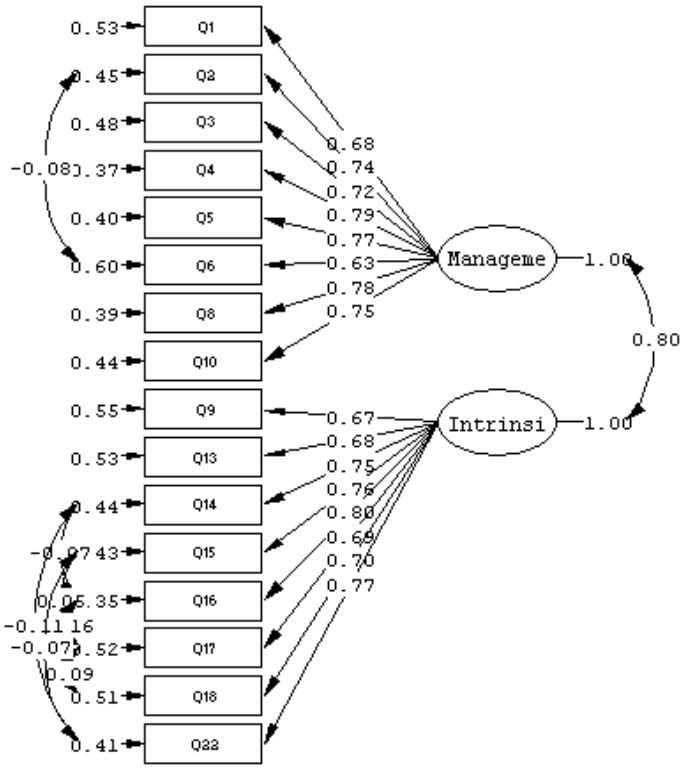

Figure 4. Modified Model – Confirmatory Factor Analysis

Summary

This study investigated the employee satisfaction survey responses of 2,079 healthcare employees. Using 1,017 randomly selected cases, exploratory methods including

principal components and principal axis factoring analyses indentified two underlying factors measuring satisfaction with management (8 of 22 items) and intrinsic satisfaction (8 of 22 items). The survey items measuring satisfaction with management assessed the employees' satisfaction with their immediate supervisor in several areas of performance and response to employee needs. The second factor measuring intrinsic satisfaction addressed an employee's general feelings about their job, contributions to the welfare of others, making a difference, and recognizing the connection between their role as an employee and the overarching purpose of the organization. There were five items that did not load on a particular factor and one that loaded on the first factor but did not clearly fit satisfaction with management based on the wording of the survey question.

Following the exploratory analyses, the remaining 1,062 cases were used in a confirmatory study employing structural equation modeling. The two latent variables (factors) identified in the EFA were entered into the model along with their respective observed variables (survey items). Fit indices used to estimate the fit of the model revealed a significant fit, supporting the findings of the exploratory study.

Chapter V: SUMMARY AND DISCUSSION

Purpose of the Study

Recognizing the importance of employee satisfaction and the negative impact of a dissatisfied workforce has been well documented in the literature. There have been many theories adopted over the years that profess to explain employee satisfaction. Legg (2004) referenced Herzberg's Motivation-Hygiene Theory suggesting satisfaction is internal, influenced by elements related to the work itself while dissatisfaction is a product of worker's surroundings or the work environment. Still others hold to the theory that satisfaction is derived more from intrinsic factors such as self-esteem, general self-efficacy, locus of control, and emotional stability (Judge & Bono, 2001). Whether one yields to the belief that intrinsic factors influence satisfaction, or that satisfaction is more a byproduct of extrinsic environmental factors, there is little disagreement that the construct of satisfaction is complex and multi-dimensional. This is supported by both anecdotal writings and empirical studies. Therefore, an instrument used to assess satisfaction should

be multi-dimensional in design with the ability to yield both valid and reliable outcomes. Only then can leaders make the decisions necessary to increase satisfaction among their constituents.

Research Design

Anonymous data archived by the Human Resources Department at a medical center located in the southeastern region of the United States was obtained for this study. The data represented satisfaction survey results for employees working in every department including administration, nursing services, information services, education, environmental services, nutrition services, facilities, security, finance, allied health services, medical staff services, research and physicians. The study used EFA to identify the presence of factors, embedded in the survey, known to be associated with employee satisfaction. Once factors were identified, the factors along with their respective questions were entered into a structural equation model to determine the model's goodness of fit to the empirical data.

Research Questions

Two major research questions for this study were as follows:

1. What factors exist across the employee satisfaction survey data?
2. Based on the second half of the data, will the fit of a Structural Equation Model yield the same factors across the employee satisfaction survey data as identified in the exploratory analyses?

Data Analysis Results

Exploratory Factor Analyses Results

Principle component analysis and exploratory factor analysis were first conducted to examine the number of factors that could be extracted from the survey data. Both methods yielded similar results suggesting eight items loaded on factor one and eight items were associated with a second factor. The remaining six items did not clearly load on either factor.

Based on the semantics of the questions loading on factor one, it appeared these questions were measuring satisfaction with management. Some studies suggest satisfaction with a supervisor is an appropriate measure of satisfaction, and the Job Descriptive Index was designed to measure this factor as well as others. In fact some experts

say people do not quit their job, they quit their supervisor. However, several studies cited suggest there are many other factors that contribute to satisfaction. Employees may appreciate their supervisor but express dissatisfaction with limited resources, contribution to an overall good, level of autonomy within the corporate culture, status, professional relationships, professional development opportunities, or salary.

A construct not often mentioned in the literature, but seemingly measured by the instrument studied, is intrinsic satisfaction. Questions associated with this second factor spoke of the employees' work environment, feelings of making a difference, welcoming new employees, and a culture of safety, general satisfaction, and feeling proud about working with the organization. At the risk of over-simplifying Abraham Maslow's theory, these questions are most closely associated with his safety, social, self-esteem and possibly self-actualization needs within a single factor.

Confirmatory Factor Analysis Results

The model specification used in the CFA was built on the theory that the first latent variable identified as satisfaction with management could be explained by eight of the observed variables included in questions 1, 2, 3, 4, 5,

6, 8, and 10. The latent variable identified as intrinsic satisfaction could be explained by eight additional observed variables included in questions 9, 13, 14, 15, 16, 17, 18, and 22. Questions that did not load in the pattern matrix or were too closely correlated to the factor score were not included in the CFA. These included questions 7, 11, 12, 19 and 20. These questions were vague in their description and appeared to be attempting to measure several different factors including satisfaction with resources and equipment, equitable treatment of employees without discrimination, feedback about performance, and feelings of a family atmosphere. Question 21 loaded highly on satisfaction with management. However, the theoretical rationale for this association was unclear so the question was not included in the confirmatory model.

Results of the CFA suggested the two-factor model fit the empirical data without modifications. Modifications did, however, improve the fit but were not necessary to support the exploratory findings. The statistically significant relationship between the observed variables and latent variables supported the association of the questions with each factor.

Implications of the Study

The findings imply the instrument reviewed is appropriate for measuring employees' satisfaction with management as well as a measuring intrinsic satisfaction. As previously noted, this instrument was derived from a longer form consisting of 100 items. It appeared those responsible for decreasing the items wanted to be assured employees at the medical center were satisfied with management's job performance and the employees' overall satisfaction with their job based on what it means to them personally. It should be noted that while the investigator was researching the origin of the instrument, it was learned that employees completing the survey were often unclear which level of management they were expected to rate. Some interpreted the questions to mean members of senior administration; some rated the department director while others rated their immediate supervisor during their shift. This was later clarified to means one's immediate supervisor.

The results of the EFA are consistent with previous studies. Research conducted by Aronson, Sieveking, Laurenceau, and Bellet (2003) as well as Koustelios and Bagiatis (1997) identified factors from an employee survey measuring satisfaction with management. Another study

surveyed 983 professionals working in a residential setting for aging adults (Chou, Boldy, & Lee, 2002). Like the instrument assessed in this dissertation, Chou, Boldy and Lee found a survey measuring personal and intrinsic satisfaction with the job. However, it should be noted that these studies all found their instruments measuring multiple factors including satisfaction with workload, professional support, training, team spirit, working conditions, and quality of facilities. In fact, each of these studies found no less than six factors embedded within the survey. These findings are in line with the need for a multi-factored instrument required to measure a multi-dimensional construct like employee satisfaction. Unfortunately, these were not the findings related to the instrument studied in this dissertation. The 22-item instrument used by the medical center consisted of only two dimensions and was limited in its scope measuring internal satisfaction and satisfaction with one's supervisor.

As previously noted, *homegrown* surveys like this are common, less expensive to develop and are often used indiscriminately across organizations. As this study shows, their scope of measurement can be narrow; therefore, decisions made based on these instruments risk being

invalid and unreliable if used beyond their intended design.

Limitations of The Study

The following limitations were recognized with this study:

1. The study was limited to a sample representing only one medical center and a single instrument.
2. The population studied was diverse but there was no design determining if the instrument measured equally across all populations without bias.
3. There were no demographic data available for comparative studies.

Recommendations for Further Research

The findings and limitations of this study led the researcher to make the following recommendations for further research:

1. Employees who complete a satisfaction survey should provide similar responses regardless of their gender, race, ethnicity, educational level or role as an employee. A study incorporating an assessment of measurement bias would allow the researcher to assess the appropriateness of using a survey across diverse populations and professions.

This would require more demographic data than was available for this dissertation.

2. Future studies should incorporate the participants' demographic data necessary to assess any differences between groups based on diverse characteristics.

Concluding Remarks

A significant body of research suggests employee satisfaction stems from many sources, with some of these sources personally weighted heavier than others. Employers recognize the importance of developing insight into employee satisfaction, its relationship to retention, and the cost of replacing a disappearing workforce. Surveys are the primary means of measuring satisfaction and the need for these instruments to measure the multiple dimensions of satisfaction is well documented. Instruments with a narrow scope have their place if leadership intentionally wishes to measure a specific area of satisfaction. However, if measuring a broad spectrum of satisfaction is the goal, an instrument containing multiple factors with strong psychometric properties is necessary.

The findings of this study revealed *homegrown* employee satisfaction surveys may indeed play a role in assessing satisfaction. This study indentified the one used at the medical center had its limitations; however, it may have

been appropriate if administration simply wished to assess how employees felt about their immediate supervisor and if they felt good about their job. Surveys will most likely remain the primary means of assessing employee satisfaction, and if used appropriately, may decrease turnover and cost while positively influencing both employee and customer satisfaction.

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APPENDIX A: EMPLOYEE SATISFACTION SURVEY QUESTIONS

1. Management keeps me informed about important issues and changes.

2. Management is approachable, easy to talk to.

3. Management has a clear view of where the organization is going and how to get there.

4. Management is honest and ethical in its business practices.

5. Management shows appreciation for good work and extra effort.

6. I am offered training or development to further myself professionally.

7. I am given the resources and equipment to do my job.

8. Management genuinely seeks and responds to suggestions and ideas.

9. Our facilities contribute to a good working environment.

10. Managers avoid playing favorites.

11. People are treated fairly regardless of their age, race, sex, national origin, or sexual orientation.

12. Performance evaluations provide me with useful feedback regarding my performance.

13. I feel I make a difference here.

14. I believe we are committed to building a culture of safety.

15. I understand the relationship between what I do and my department’s overall goals and objectives.

16. When I look at what we accomplish, I'm proud to say I work here.

APPENDIX A: EMPLOYEE SATISFACTION SURVEY QUESTIONS (CONTINUED)

17. I feel good about the ways we contribute to the community.

18. New employees are made to feel welcome.

19. People celebrate special events around here.

20. There is a "family" or "team" feeling here.

21. The morale in my department is good.

22. Generally speaking, I am satisfied with my job.

APPENDIX B: CORRELATION MATRIX
EXPLORATORY ANALYSES

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22
Q1	1	.58	.57	.58	.50	.41	.41	.52	.41	.47	.45	.42	.37	.38	.42	.41	.38	.40	.39	.43	.43	.45
Q2	.58	1	.51	.64	.60	.45	.43	.61	.42	.53	.52	.44	.38	.36	.41	.45	.37	.44	.41	.47	.51	.51
Q3	.57	.51	1	.58	.52	.41	.40	.55	.45	.48	.44	.49	.39	.45	.45	.44	.42	.39	.38	.42	.42	.47
Q4	.58	.64	.58	1	.57	.44	.47	.62	.48	.59	.59	.44	.39	.47	.43	.47	.43	.43	.41	.48	.50	.49
Q5	.50	.60	.52	.57	1	.49	.47	.65	.46	.62	.50	.49	.41	.39	.43	.45	.37	.40	.47	.54	.55	.49
Q6	.41	.45	.41	.44	.49	1	.41	.52	.39	.46	.37	.41	.37	.31	.36	.38	.34	.35	.36	.40	.42	.42
Q7	.41	.43	.40	.47	.47	.41	1	.48	.51	.45	.41	.45	.36	.45	.44	.46	.40	.41	.39	.38	.42	.47
Q8	.52	.61	.55	.62	.65	.52	.48	1	.45	.64	.50	.47	.40	.42	.46	.46	.40	.41	.46	.51	.53	.50
Q9	.41	.42	.45	.48	.46	.39	.51	.45	1	.41	.45	.43	.43	.56	.48	.53	.54	.48	.42	.45	.44	.49
Q10	.47	.53	.48	.59	.62	.46	.45	.64	.41	1	.60	.45	.38	.35	.41	.39	.32	.42	.38	.48	.54	.44
Q11	.45	.52	.44	.59	.50	.37	.41	.50	.45	.60	1	.47	.46	.45	.48	.51	.44	.47	.42	.46	.42	.45
Q12	.42	.44	.49	.44	.49	.41	.45	.47	.43	.45	.47	1	.46	.49	.48	.51	.43	.44	.44	.45	.42	.52
Q13	.37	.38	.39	.39	.41	.37	.36	.40	.43	.38	.46	.46	1	.54	.57	.56	.53	.44	.44	.48	.39	.54
Q14	.38	.36	.45	.47	.39	.31	.45	.42	.56	.35	.45	.49	.54	1	.60	.61	.63	.51	.44	.42	.38	.52
Q15	.42	.41	.45	.43	.43	.36	.44	.46	.48	.41	.48	.48	.57	.60	1	.59	.56	.49	.43	.51	.44	.54
Q16	.41	.45	.44	.47	.45	.38	.46	.46	.53	.39	.51	.51	.56	.61	.59	1	.70	.54	.45	.55	.43	.65
Q17	.38	.37	.42	.43	.37	.34	.40	.40	.54	.32	.44	.43	.53	.63	.56	.70	1	.53	.44	.45	.36	.51
Q18	.40	.44	.39	.43	.40	.35	.41	.41	.48	.42	.47	.44	.44	.51	.49	.54	.53	1	.50	.52	.44	.48
Q19	.39	.41	.38	.41	.47	.36	.39	.46	.42	.38	.42	.44	.44	.44	.43	.45	.44	.50	1	.54	.42	.47
Q20	.43	.47	.42	.48	.54	.40	.38	.51	.45	.48	.46	.45	.48	.42	.51	.55	.45	.52	.54	1	.58	.55
Q21	.43	.51	.42	.50	.55	.42	.42	.53	.44	.54	.42	.42	.39	.38	.44	.43	.36	.44	.42	.58	1	.53
Q22	.45	.51	.47	.49	.49	.42	.47	.50	.49	.44	.45	.52	.54	.52	.54	.65	.51	.48	.47	.55	.53	1

Note: The items across the top and left side represent the twenty-two items in the survey.

APPENDIX C: CORRELATION MATRIX
CONFIRMATORY ANALYSIS

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22
Q1	1	.53	.54	.55	.50	.44	.44	.52	.45	.47	.45	.42	.36	.39	.40	.42	.33	.39	.33	.46	.44	.46
Q2	.53	1	.52	.62	.56	.39	.43	.57	.47	.57	.54	.42	.38	.37	.43	.47	.38	.42	.37	.49	.45	.49
Q3	.54	.52	1	.59	.54	.44	.45	.55	.46	.51	.49	.49	.42	.42	.46	.50	.45	.42	.36	.47	.44	.47
Q4	.55	.62	.59	1	.62	.46	.45	.59	.50	.62	.58	.49	.44	.39	.47	.49	.43	.43	.35	.51	.50	.51
Q5	.50	.56	.54	.62	1	.52	.43	.62	.51	.61	.54	.53	.43	.41	.40	.43	.38	.45	.44	.53	.53	.50
Q6	.44	.39	.44	.46	.52	1	.41	.49	.45	.45	.44	.45	.38	.38	.40	.43	.38	.39	.39	.42	.39	.42
Q7	.44	.43	.45	.45	.43	.41	1	.45	.52	.37	.43	.44	.39	.47	.43	.46	.44	.42	.42	.45	.42	.45
Q8	.52	.57	.55	.59	.62	.49	.45	1	.47	.62	.52	.48	.43	.44	.46	.50	.41	.50	.43	.52	.53	.52
Q9	.45	.47	.46	.50	.51	.45	.52	.47	1	.43	.50	.47	.43	.50	.50	.54	.46	.45	.43	.51	.45	.49
Q10	.47	.57	.51	.62	.61	.45	.37	.62	.43	1	.65	.44	.40	.37	.40	.43	.37	.46	.38	.53	.56	.51
Q11	.45	.54	.49	.58	.54	.44	.43	.52	.50	.65	1	.50	.45	.43	.45	.48	.43	.46	.40	.54	.49	.48
Q12	.42	.42	.49	.49	.53	.45	.44	.48	.47	.44	.50	1	.50	.45	.44	.51	.46	.48	.40	.49	.41	.47
Q13	.36	.38	.42	.44	.43	.38	.39	.43	.43	.40	.45	.50	1	.53	.54	.55	.48	.46	.43	.53	.42	.50
Q14	.39	.37	.42	.39	.41	.38	.47	.44	.50	.37	.43	.45	.53	1	.59	.55	.57	.55	.45	.49	.37	.46
Q15	.40	.43	.46	.47	.40	.40	.43	.46	.50	.40	.45	.44	.54	.59	1	.62	.58	.50	.40	.46	.38	.50
Q16	.42	.47	.50	.49	.43	.43	.46	.50	.54	.43	.48	.51	.55	.55	.62	1	.71	.57	.47	.53	.44	.62
Q17	.33	.38	.45	.43	.38	.38	.44	.41	.46	.37	.43	.46	.48	.57	.58	.71	1	.58	.45	.47	.36	.50
Q18	.39	.42	.42	.43	.45	.39	.42	.50	.45	.46	.46	.48	.46	.55	.50	.57	.58	1	.53	.55	.43	.54
Q19	.33	.37	.36	.35	.44	.39	.42	.43	.43	.38	.40	.40	.43	.45	.40	.47	.45	.53	1	.57	.45	.42
Q20	.46	.49	.47	.51	.53	.42	.45	.52	.51	.53	.54	.49	.53	.49	.46	.53	.47	.55	.57	1	.60	.61
Q21	.44	.45	.44	.50	.53	.39	.42	.53	.45	.56	.49	.41	.42	.37	.38	.44	.36	.43	.45	.60	1	.55
Q22	.46	.49	.47	.51	.50	.42	.45	.52	.49	.51	.48	.47	.50	.46	.50	.62	.50	.54	.42	.61	.55	1

Note: The items across the top and left side represent the twenty-two items in the survey.

APPENDIX D: SEM PATH ANALYSIS SYNTAX

```
Confirmatory Factor Analysis
Raw Data from file 'C:\Documents and
Settings\ktredden\Desktop\UNCC Data From Lisrel\CFA.psf'
Latent Variables  Management Intrinsic
Relationships
Q1 = Management
Q2 = Management
Q3 = Management
Q4 = Management
Q5 = Management
Q6 = Management
Q8 = Management
Q10 = Management
Q13 = Intrinsic
Q14 = Intrinsic
Q15 = Intrinsic
Q16 = Intrinsic
Q17 = Intrinsic
Q9 = Intrinsic
Q18 = Intrinsic
Q22 = Intrinsic
Let Q17 and Q16 correlate
Let Q22 and Q14 correlate
Let Q18 and Q17 correlate
Let Q22 and Q15 correlate
Let Q16 and Q14 correlate
Let Q6 and Q2 correlate
Let Q17 and Q15 correlate
Path Diagram
End of Problem
```