THE EFFECTS OF EMPLOYMENT DEVELOPMENT AND OTHER FACTORS ON

INTENTION TO STAY AMONG EMPLOYEES OF FOUR-YEAR, PUBLIC

INSTITUTIONS OF HIGHER EDUCATION IN TEXAS

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by

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DEDICATION

This dissertation is dedicated to Debbie Marie Thorne, whose counsel and encouragement provided emotional bedrock; and my parents, Floyd and Melanie Quinn, who were always there for me.

Thank you for your enduring love and support.

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Structural equation modeling was used to examine the influence of hypothetical constructs on employee intention to stay with employers of four-year, public institutions of higher education in Texas. The effects of four latent, construct variables: a) employment development; b) team effectiveness; c) supervisor effectiveness, and d) job satisfaction on employee intention to stay were examined. Respondents consisted of staff and faculty employees of twelve institutions of higher education represented in two datasets for fiscal years 2008 and 2010. Additionally, differential item functioning of the indicator variables employed during the study was examined. For both the 2008 and 2010 study samples, none of the estimates associated with turnover intention were significant

at a .05 level of significance. Therefore, there were no statistically significant relationships indicated between Employee Intention to Stay and Employment Development, Supervisor Effectiveness, Team Effectiveness and Job Satisfaction among survey respondents. The study also revealed some concerns regarding the construction and utilization of the Survey of Organizational Excellence (SOE) instrument related to construct development and differential item functioning. It is highly recommended The Institute for Organizational Excellence investigate the factorial validity of the construct variables utilized in their data analyses. Finally, it is recommended the institute investigate gender and other group response differences associated with the SOE to determine whether such differences are truly indicative of inherent bias linked to instrument items.

CHAPTER I

INTRODUCTION TO THE STUDY

Turnover among Texas state employees is a significant and growing concern. According to the Texas State Auditor's Office (2009), Texas state agencies recorded a loss of 17.3% of their public sector workforce, representing 25,804 employees, during fiscal year FY 2008. In FY 2009, the Texas State Auditor's Office (2011) recorded a 14.4% loss to the state agency workforce, representing 22,184 employees. Most recently, in FY 2010, the turnover rate among state agency employees was 14.6%, representing 22,893 employees.

While these figures include both voluntary and involuntary separations, the voluntary departure of highly productive employees is of greatest concern to human resources practitioners and the organizations they support. In FY 2010, the State realized a staggering loss of 12,535 agency employees due to separations unassociated with retirements and involuntary terminations. The number of voluntary separations among state agency employees has remained generally constant: in FY 2009, the State recorded 12,473 voluntary departures unrelated to retirement.

An additional concern is that the State Auditor's Office (2011) continues to report a disproportionate number of minority employees represented in the State's turnover figures. According to the State Auditor's Office (2011),

employees within the Black ethnic category had the highest turnover rate

(17.2 percent) [representing 5,888 employees] among all ethnic categories

in fiscal year 2010. All other ethnic categories had turnover rates in fiscal

year 2010 that were lower than the statewide turnover rate of 14.6 percent.

(p. 8)

And while the overall turnover rate in FY 2010 was recorded at 14.6%, some job

classifications within the State's agency workforce were particularly hard hit. At 42.8%,

the Mental Retardation Assistant job classification experienced the highest turnover

among job classifications and was followed by Juvenile Corrections Officer (29.6%) and

Licensed Vocational Nurse (29.2%). Other titles experiencing high turnover in 2010

included Child Protective Services Specialist (24%), Nurse (20.3%) and Correctional

Officer (20.2%). Job classifications with high turnover during FY 2010 are illustrated in

Table 1.

Table 1-*State Agency Job Classifications with Turnover Rates of 20.0% or More during FY 2010*

Job classification	Average headcount	Separations	Turnover rate (%)
Mental Retardation Assistant	7,700.3	3,292.0	42.8
Juvenile Correctional Officer	2,018.8	597.0	29.6
Licensed Vocational Nurse	1,219.3	356.0	29.2
Food Service Worker	747.8	207.0	27.7
Psychiatric Nursing Assistant	3,089.8	810.0	26.2
Substance Abuse Counselor	112.0	28.0	25.0
Trooper Trainee	261.3	64.0	24.5

Table 1-Continued

Job classification	Average headcount	Separations	Turnover rate (%)
Child Protective Services Specialist	5,294.8	1,272.0	24.0
Cook	330.8	71.0	21.5
Veterans Service Representative	277.0	57.0	20.6
Nurse	2,334.3	474.0	20.3
Correctional Officer	28,072.8	5,669.0	20.2
Security Officer	500.8	101.0	20.2
Associate Psychologist	399.8	80.0	20.0

In researching actual turnover experienced by public institutions of higher education in Texas, an inquiry into this activity at the six largest institutions in the state (The University of Texas at Austin, Texas A&M University, Texas Tech University, University of Houston, Texas State University-San Marcos, and The University of Texas at San Antonio) was undertaken by the author. As displayed in Tables 2 and 3 on the following page, the combined staff of these institutions numbered 26,202 employees in FY 2008 and 29,190 employees in FY 2010. Their combined turnover yielded losses of 3,644 employees in FY 2008 and 3,546 employees in FY 2010. Of these employees, 2,914 voluntarily departed in FY 2008 and 2,489 voluntarily departed in FY 2010. Additionally, 377 university employees retired from state service in FY 2008 and 576 retired in FY 2010 (Texas State Auditor's Office, 2010). The increased number of retirements is a telling indication of the effects of an aging workforce and the challenge it presents to public organizations attempting to maintain trained and capable leaders and employees.

Table 2-*Turnover of University Staff Employees in FY 2008*

University	Total staff	Voluntary losses	Involuntary losses	Retirements	% Total losses
University of Texas at Austin	10,279.0	856.0	118.0	126.0	10.7
Texas A&M University at College Station	6,127.0	779.0	83.0	99.0	15.7
Texas Tech University	3,049.0	353.0	32.0	49.0	14.2
University of Houston	3,325.0	442.0	62.0	37.0	16.3
Texas State University-San Marcos	1,782.0	165.0	12.0	34.0	11.8
The University of Texas at San Antonio	1,640.0	319.0	48.0	32.0	24.3
Totals	26,202.0	2,914.0	353.0	377.0	13.9

Table 3-*Turnover of University Staff Employees in FY 2010*

University	Total staff	Voluntary losses	Involuntary losses	Retirements	% Total losses
University of Texas at Austin	10,426.0	810.0	162.0	279.0	12.0
Texas A&M University at College Station	6,278.0	688.0	81.0	134.0	14.4
Texas Tech University	3,005.0	289.0	63.0	23.0	12.5
University of Houston	3,562.0	299.0	109.0	57.0	13.1
Texas State University-San Marcos	1,930.0	147.0	27.0	44.0	11.3
The University of Texas at San Antonio	3,989.0	256.0	39.0	39.0	8.4
Totals	29,190.0	2,489.0	481.0	576.0	22.4

Of the reasons cited by staff employees who voluntarily exited state employment in FY 2010 (Texas State Auditor's Office, 2011) and completed the state employee exit survey, many cited factors related to ineffective supervision as central to their departure. Specifically, these employees mentioned poor working conditions, lack of career opportunities, opportunities for better pay elsewhere, and issues with a supervisor as determining factors. Organization managers occupy positions of varying degrees of influence over such factors. This assertion is supported by seminal research (Hackman and Lawler, 1971; Hamner, 1974; Herzburg, 1959; Vroom, 1964) conducted in the areas of employee motivation, job satisfaction, and organizational culture, which will be discussed at length in the second chapter of this dissertation.

To appreciate the State's continuing concern regarding this issue, it is important to note that there are many challenges associated with the departure of skilled and capable employees. According to the Texas State Auditor's Office (2011), these challenges include productivity losses stemming from

- the absence of trained and productive workers;

- disrupted work schedules; and

- efforts to recruit, hire, and train replacement workers.

Additional challenges which may confront organizations are

- decreased employee morale in response to an uncompensated increase in workload; and

- loss of intellectual and relationship capital built by the departing employee.

Statement of the Problem

The retention of talented employees continues to present challenges for both state agencies and public institutions of higher education in Texas. According to the Texas State Auditor's Office (2007), the median age of an agency employee was 44 years in FY 2006. In FY 2004, the median age of an agency employee was 42.8 years (Texas State Auditor's Office, 2005). "The public workforce in Texas is aging. [From FY 2000 to FY 2004] the number of employees between the ages of 16 and 49 has decreased by 11 percent, while the number of employees 50 years and older has increased by 12 percent. This trend will continue as the baby-boomers age" (Texas State Auditor's Office, 2004, p. 4). In the coming years, as more and more state employees approach retirement age, it is anticipated that the number of retirements will increase dramatically. In response to the expected rise in retirements and the compounding effect of voluntary turnover unrelated to retirement, it is imperative that action be taken now to reduce the rate of employee-driven turnover experienced by state agencies and public institutions of higher education.

There is a noticeable dearth of research in this area as it relates to employees of public institutions of higher education. Previous studies were limited to for-profit, private sector organizations and public sector agencies. Due in large part to the significant cultural differences and operational imperatives that exist between these organizational types and public institutions of higher education, the direct transference of findings derived from these earlier studies cannot be assumed. As such, there is a clear and pressing need for further research in this area as it relates to public institutions of higher education.

The lack of an adequately staffed, motivated, and skilled university workforce presents tremendous challenges in meeting the administrative and educational requirements inherent to the mission of any university. To this end, the purpose of this study is to examine the effects of Employment Development on Employee Intention to Stay among staff employees of public, four-year universities in Texas. In addition, the effects of three other factors—Supervisor Effectiveness, Team Effectiveness, and Job Satisfaction—and their relationships to Employee Intention to Stay will be examined. These factors were selected for study in response to a thorough review of the existing literature, which consistently finds statistically significant relationships between and among these variables. Moreover, each is shown to have a marked influence on employee decisions to depart from or remain with their organizations.

Study Design and Theoretical Basis

The goal of this quantitative research study is to determine the relationship between Employment Development and Intention to Stay at four-year, public institutions of higher education in Texas. Additionally, several other variable relationships related to Intention to Stay will be explored. Supervisor Effectiveness and Team Effectiveness, both construct variables, and their direct relationships to Intention to Stay will be examined. Also, the mediating influence of Intention to Stay on Employment Development, Supervisor Effectiveness, and Team Effectiveness as related to Job Satisfaction will be investigated.

The method of analysis utilized during this study will be Structural Equation Modeling (SEM). SEM allows for the ability to analyze construct variables that cannot be measured directly but that can be estimated from other directly measured variables

(Schreiber, Nora, Stage, Barlow, and King, 2006). This relationship is graphically displayed using one or more path diagrams. In these models, a distinction is made between exogenous and endogenous variables. Pedhazur (1982) describes exogenous variables as those variables whose variability is determined by factors existing outside of the path model. Endogenous variables are those variables whose variation is explained by other variables located within the path model. Contained within each structural equation model is a structural model indicating possible causal relationships between endogenous and exogenous variables and a measurement model indicating the relationships between construct variables and the measured or indicator variables which comprise them (Schreiber et al., 2006).

In analyzing the data associated with this study, Statistical Package for the Social Sciences (SPSS) will be used to generate the descriptive statistics associated with the dataset as well as to ascertain the bivariate correlations that exist between the study variables. Analysis of Moment Structures (AMOS) software will be used to construct the study path diagrams as well as to evaluate model fit from the program's text outputs. SEM will be employed to determine the strength of the correlational relationships between the various study variables.

According to Byrne (2010), use of statistical models offers an effective, efficient, and expedient way of characterizing the composite construction underlying a set of directly observed and measurable variables. Once a path model is constructed, SEM can be used to calculate direct estimates of relationships between the various study variables. Unlike path analysis which employs simple bivariate correlations to ascertain the degree of relationships present in a series of structural models and their mathematical

foundations, SEM provides for the simultaneous analysis of all variable relationships utilizing data from each of the mathematical equations that comprise the foundational basis of a research model (Hair, Black, Babin, Anderson, and Tatham, 2006). The value of such an analysis will be discussed in greater detail in the methods section of this dissertation.

Theoretical Framework

I will employ a behaviorist epistemological perspective throughout the course of this study. While there are many varieties of this epistemology and it is difficult to ascertain common tenets to each, "the adaptation of the organism to its environment" (O'Donohue and Kitchener, 1999, p. 4) appears to be a shared and fundamental component. I will employ a version of behaviorism often referred to as radical behaviorism. Skinner (1974), credited as the father of radical behaviorism, postulated that environmental factors have a great effect on individual behavior. Information regarding these environmental factors contributes greatly to the prediction and control of individual behavior.

Skinner discounted the teachings of mentalists as destructive and essentially meaningless. According to Skinner, internal factors unassociated with observable behavior have no value from a research perspective. The influence of environment is of paramount importance in understanding and affecting individual behavior. Skinner believed the problem associated with mentalist teachings is that they are almost entirely inferential. Behaviorism allows for the progressive and methodical analysis of behavior due exclusively to environmental factors. Clearly, those factors can be controlled and, once regulated, are thought to alter behavioral tendencies. The prediction of such

behavioral tendencies based on environmental conditions upon which those behaviors are often linked form the theoretical and practical basis for this study.

In his discussion of behavioral drivers, Skinner defines the concept of operant conditioning. He submits that behaviors having highly significant consequences are more likely to be reinforced and therefore are more likely to occur. Such behaviors are strengthened by their consequences, and he refers to these consequences as *reinforcers*. He further postulates that individuals operating under similar conditions are very likely to behave in the same manner. Skinner characterizes the nature of reinforcement as either positive or negative. Positive reinforcers strengthen behaviors that generate positive behaviors. Negative reinforcers strengthen behaviors that diminish or terminate negative behaviors.

The control of reinforcement within a given environment can certainly have troubling consequences. In discussing the concept of control, Skinner contends that it is often exerted in ways that provide reinforcement to those exerting it. An unfortunate outcome of such control is often the promotion of aversive conditions or outright exploitation of those individuals subjected to it. The result of such behavior can have devastating consequences for individuals as well as the organization as a whole. Skinner advocates the importance of a thorough examination and understanding of the conditions under which people govern, provide service, educate, and incentivize others.

Motivation and Leadership Theories

While the work of several researchers is discussed in this section, the theoretical basis for this study is primarily informed by the seminal works of Frederick Herzberg, John Stacey Adams, and Victor Vroom.

Herzberg (1959) identifies and discusses a variety of factors that he concludes affect the workplace environment by influencing both employee motivation and job satisfaction. According to Herzberg, job satisfaction is considered an outgrowth of achievement, recognition, challenging work, responsibility, and career advancement. When these factors are present in a job, Herzberg proclaims the employee will experience positive feelings towards his employment that inevitably result in improved work performance.

Conversely, job dissatisfaction is driven by other factors present in the work environment. These factors, as related by Herzberg, are organizational policies and practices, quality of supervision, relationships with others (particularly supervisors), work settings, job security, benefits, and pay. These dissatisfiers, which Herzberg characterizes as *hygiene factors*, can reduce or eliminate job dissatisfaction and enhance performance to a degree, when properly applied, but will not deliver optimal levels of performance. To achieve high performance outcomes, management must introduce motivation strategies that focus on the nature and quality of the work environment.

The variables explored during the course of this study are closely aligned with those recognized by Herzberg as strongly influencing employee attitudes towards level of workplace satisfaction and employee turnover. According to Miner (2005), feelings of unfairness were the most frequently reported source of job dissatisfaction in Herzberg's early research. Although Herzberg paid little attention to this environmental condition, the research conducted by Adams (Miner, 2005) centered around a desire or need for fairness, justice, and equity in the workplace.

In formulating his Equity Theory, Adams postulated that employees may perceive they are under-rewarded when compared to the rewards offered to their counterparts for their work contributions. The theory is grounded in an exchange of actions. An employee generates an action which generates a return action by his or her employer. What the employee provides may be regarded as contributions to a relationship. For these contributions to achieve their desired ends, they must be deemed significant to the overall relationship. Otherwise, the anticipated results of such contributions may not be realized and lead to a perception of organizational inequity.

According to Adams, another consideration in the formulation of perceived inequity is the orientation of employees to specific people or groups utilized in gauging the equity of this bartering relationship. Inequity is considered to exist when a comparison of outcomes to inputs is perceived to deviate significantly from those outcomes and inputs of the reference source. A perception of inequity tends to bring about dissatisfaction that often manifests as anger if employees perceive they are under-rewarded or guilt if they believe they are over-rewarded. And while considered an extreme reaction, voluntary termination of employment provides the individual with a method for dealing with perceived inequity by ending exposure to the inequity-producing situation.

Equity Theory, as described by Adams (Miner, 2005), would suggest an influential relationship exists between employee perceptions of job satisfaction, supervisor effectiveness, team effectiveness, employment development, and employee intention to stay. In consideration of such environmental factors and in an attempt to positively influence employee attitudes towards their employment, Hackman and Lawler

(1971) focused attention on the concept of job enrichment and proffered the following theoretical tenets:

1. The likelihood of employees engaging in a particular behavior is enhanced if they perceive they can achieve a valued outcome.

2. The value associated with these outcomes is derived from a desire to satisfy psychological or physiological needs.

3. To the extent that organizational goals are aligned with individual goals, employees will work hard to achieve them.

4. Lower level needs are no longer considered motivational incentives. These needs have given way to higher-level needs associated with personal growth and development or achievement of high-value accomplishments.

5. Employees will experience higher-level needs satisfaction when they work on meaningful jobs that provide them with feedback on their work pursuits.

In response, Hackman and Lawler proposed a series of action principles or guidelines intended to enhance the perceived quality of the work environment. These action principles for employers convey the following:

1. Work groups should be created in order to heighten skill variety and task significance.

2. Work tasks should be organized in a manner that increases skill variety and task association.

3. Client relationships should be fostered in order to enhance skill variety, autonomy, and feedback.

4. Job quality should be enhanced through the integration of responsibilities and controls previously held by management.

5. Performance feedback avenues should be created and encouraged, particularly from the job itself.

Hackman and Lawler go on to suggest that the characteristics inherent to a job are the single best predictor of workplace satisfaction.

Similarly, Vroom's (1964) research was principally based on the notion that employees have a tendency to favor certain purposes or outcomes over others. In regard to these favored outcomes, they are inclined to anticipate feelings of satisfaction should a favored outcome be realized. Vroom employs the term *valence* to characterize the feelings attributed to these outcomes. If positive valence exists, achieving the outcome is preferred to not achieving it. Conversely, negative valence characterizes a circumstance when the achievement or realization of an outcome is not preferred by employees. In formulating the valence of a given outcome, Vroom presents the following proposition:

> The valence of an outcome to a person is a monotonically increasing function of the algebraic sum of the products of the valences of all other outcomes and his conceptions of its instrumentality for the attainment of these other outcomes. (p. 17)

In essence, the magnitude of the valence of a given outcome is contingent upon the degree to which it is seen as contributing to other outcomes and the valence of those outcomes. Vroom applied this proposition to research associated with occupational choice, job satisfaction, and job performance. Moreover, he identified an additional and fundamental factor affecting his proposition: *expectancy*. Expectancy is the perceived

probability that the presentation of a given action will deliver or contribute to the realization of a favored or preferred outcome. The term *force* is used to characterize the degree of motivation derived from such expectations. When an action is perceived to lead to many favorable outcomes, the degree of force can be considerable. According to Vroom, the amount of force motivating an employee in the execution of a job is the product of the effects of altering degrees of functioning plus the expectation that this degree of effort will result in the achievement of a desired outcome.

Hamner's (1974) formulations extend the work of Skinner (1974) and his research and writings in the area of operant behavior. Hamner defined learning as "a relatively permanent change in behavior potentiality that results from reinforced practice or experience" (p. 87). Performance is the transference of what is taught to what is performed. Through reinforcement, particular behaviors are encouraged and, as a result, occur more frequently. Hamner proposed four categories of response to workplace conditions: positive reinforcement, avoidance learning, extinction, and punishment.

For the purpose of this study, I will limit discussion to the behavioral response of positive reinforcement. According to Skinner, positive reinforcement encourages any behavior that perpetuates it. Building upon this concept, Hamner proposed that in a workplace setting, positive reinforcers such as advancement, recognition, and compensation are acquired through experience. He further postulates that what provides reinforcement for one employee may not be a reinforcing condition for another. The degree of reinforcement is dependent upon an employee's earlier reinforcement experience. In terms of utility, Hamner provides the following guidelines on the effective usage of reinforcement theory in the workplace:

1. Choose reinforcers that are influential and enduring for the individual.

2. Make the incidence of reinforcement dependent upon the demonstration of desired behaviors.

3. Provide reinforcement so that consistency in the demonstration of desired behaviors is established.

In addressing how employers may encourage the demonstration of desired behaviors, Hamner discusses several rules for the usage of operant conditioning techniques:

1. Avoid providing the same degree of reinforcement to all employees; differentiate based upon levels of performance.

2. Failure to respond to the desired behaviors has reinforcing consequences.

3. Inform an employee what behaviors receive reinforcement.

4. Inform an employee what behavioral changes are necessary.

5. Avoid public reprimands; there may be consequences for such actions beyond the individual being chastised.

6. Provide consequences that are proportionate to the demonstrated behavior.

Hamner also relates that workplace training provides an excellent opportunity for informed managers to shape behavior so that it can be regulated by reinforcement practices. He suggests that such reinforcement will lead to enhanced levels of job satisfaction and contentment with employment.

In addition to the formulation of his theory of work and motivation, Vroom is also credited with contributing to the formulation of Normative Decision Process Theory. Vroom and Yetton (1973) explored the sharing of decision-making responsibilities with groups of employees within the workplace. In determining what level of decision-making

was appropriate within the context of a given situation, Vroom and Yetton first identified

a series of possible management decision-making behaviors:

1. Using available information, the manager decides on a course of action himself.

2. Taking into consideration information from subordinates, the manager decides on
   a course of action himself.

3. The manager imparts the problem to key subordinates individually, soliciting their
   input, then decides on a course of action himself.

4. The manager discusses the problem with subordinates as a group, soliciting their
   collective input, and decides on a course of action himself.

5. The manager discusses the problem with subordinates as a group, facilitating this
   discussion in an attempt to reach a consensus solution to the problem, and is
   agreeable to accepting this solution to resolve the problem.

Additionally, Vroom and Yetton developed a guide for managers to assist them in the

implementation of these decision-making behaviors. The guide consists of several rules

designed to improve the quality of decision-making as well as to encourage employee

acceptance of the resulting decision.

1. If the manager is confronted with a critical decision and lacks the knowledge or
   understanding to resolve the problem personally, the manager does not determine
   a course of action independently.

2. If the manager is confronted with a critical decision and subordinates are
   uncommitted to the organizational goal, the manager should not attempt to
   facilitate a consensus decision.

3. If subordinate acceptance of the decision is critical to its successful accomplishment, and management is uncertain that an autocratic decision rendered by the manager would be well-received, the manager should involve subordinates in the decision-making process.

4. If subordinate acceptance of the decision is critical to its successful accomplishment, management is uncertain that an autocratic decision rendered by the manager would be well-received, and subordinates are likely to be conflicted over the situation, the manager should involve subordinates in the decision-making process.

5. If the value of the decision lacks importance, subordinate acceptance of the decision is critical to its successful accomplishment, and it is uncertain that an autocratic decision rendered by the manager would be well-received, the manager should facilitate a consensus decision by subordinate employees.

6. If approval of the decision is important, it is uncertain that an autocratic decision rendered by the manager would be well-received, and subordinates are trustworthy, the manager should facilitate a consensus decision by subordinate employees.

Utilizing these guidelines, management can determine the degree to which employee involvement in decision-making may be appropriate. Unlike a more autocratic approach to organizational decision-making, there is value in employing a more participative style of management. According to Miner (2005), existing research lends support to the belief that, under certain conditions, participative management can be quite effective.

Research Questions

In light of the previously conducted research in this area, I have formulated the following research questions for this study:

1. Do the psychometric properties of the Survey of Organizational Excellence (SOE) instrument exhibit adequate evidence of internal consistency reliability?

2. Does the SOE exhibit adequate evidence of factorial validity?

3. Do the items comprising the SOE exhibit differential item functioning (i.e. item bias) between gender groups?

4. How does Employment Development affect Employee Intention to Stay at four-year, public institutions of higher education in Texas?

5. How does Team Effectiveness affect Employee Intention to Stay at four-year, public institutions of higher education in Texas?

6. How does Supervisor Effectiveness affect Employee Intention to Stay at four-year, public institutions of higher education in Texas?

7. How does Employment Development affect Job Satisfaction at four-year, public institutions of higher education in Texas?

8. How does Intention to Stay affect the relationship between Employment Development, Supervisor Effectiveness, Team Effectiveness and Job Satisfaction at four-year, public institutions of higher education in Texas?

9. How does Employment Development affect Team Effectiveness at four-year, public institutions of higher education in Texas?

10. How does Employment Development affect Supervisor Effectiveness at four-year, public institutions of higher education in Texas?

11. How does Supervisor Effectiveness affect Team Effectiveness at four-year, public institutions of higher education in Texas?

This study will examine the relationships between and among the four construct variables—Employment Development, Supervisor Effectiveness, Team Effectiveness, Job Satisfaction—and the one measured variable, Employee Intention to Stay.

Significance of the Study

It is quite evident that employee turnover is an important performance indicator for public universities in Texas. In researching data routinely submitted by state universities to oversight agencies such as The Texas Higher Education Coordinating Board, the Texas State Auditor's Office, and the Legislative Budget Board, nearly all are academic (e.g., number of college graduates each year, number of online courses) or financial in nature. The single exception is the reporting of faculty and staff hiring and turnover. In fact, employee hiring and turnover remains the only non-academic/non-financial performance indicator reported by public institutions of higher education in Texas to the state legislature.

Of particular interest is the loss of skilled minority employees. The number of ethnic minorities employed by a public institution of higher education in Texas is a principal component of that organization's affirmative action plan. These plans are required by Executive Order No. 11,246 (1965) and are subject to inspection by the Equal Employment Opportunity Commission and the Department of Labor. An under-represented workforce potentially subjects a university to serious financial consequences such as the loss of financial aid funding and the opportunity to apply for federal grants. There are also reputational repercussions resulting from increased scrutiny by these

oversight agencies. Arguably, if low employee turnover coupled with high minority retention are significant evaluative measures for public institutions of higher education, the reduction of employee turnover is an important strategic consideration.

Definition of Terms

1.   Employment Development is described by Wright and Davis (2003) as worker perceptions of "opportunities in the organization for training, future career growth, and general skill development" (p. 74). According to Bergiel, Nguyen, Clenney, and Taylor (2009), "such actions by the organization constitute a crucial part of its fulfillment of the informal contract between itself and employees" (p. 208). As it pertains to this study, employment development is defined as the perceived commitment of the organization in addressing the workplace development needs of its employees. In this context, the term describes an environment which is supportive of employee advancement in terms of skill development and career progression.

2.   The Equal Employment Opportunity Commission (EEOC) is responsible "for enforcing federal laws that make it illegal to discriminate against a job applicant or an employee because of the person's race, color, religion, sex, national origin, age, disability or genetic information" (EEOC, n.d., para 1).

3.   Executive Order No. 11,246 "prohibits federal contractors and federally-assisted construction contractors and subcontractors who do over $10,000 in Government business in one year from discriminating in employment decisions on the basis of race, color, religion, sex, or national origin. The Executive Order also requires Government contractors to take affirmative action to ensure that equal opportunity is provided in all aspects of their employment" (Executive Order No. 11,246, 1965).

4.   The Institute for Organizational Excellence "provides surveying services to over a hundred state agencies and institutions of higher education. [Their] largest continuous project is the Survey of Organizational Excellence. [They] also sponsor with the Office of the Governor the Governor's Conference on Organizational Excellence, Forum on Excellence, [and] Customer Service Symposium" (The Institute for Organizational Excellence, n.d., para 1).

5.   Job Satisfaction is defined by Ellickson and Logsdon (2001) as "the extent to which employees like their work, an attitude based on employee perceptions (negative or positive) of their job or work environment" (p. 174). Locke (1976) describes job satisfaction as the "pleasurable or positive emotional state resulting from the appraisal of one's job or job experience" (p. 1300). Wright and Davis (2003) build upon this definition by characterizing job satisfaction as "representing an interaction between employees and their work environment by gauging the congruence between what employees want from their jobs and what employees feel they receive" (p. 70). For the purpose of this study, job satisfaction is a measure of employee perceptions regarding their ability to perform their best work and the balance between work and personal life.

6.   Supervisor effectiveness as characterized by Hansen (1987) is a complex measure that is latent in nature and influenced by a variety of factors including the ability to effectively communicate, integrity and honesty, conscientiousness, and personal interest in employees. As defined by The Institute for Organizational Excellence, supervisor effectiveness "provides insight into the nature of supervisory relationships in the organization, including the quality of communication, leadership, and fairness that employees perceive exist between supervisors and themselves" (Survey of Organizational

Excellence Definitions, n.d., para 12). As it pertains to this study, supervisor effectiveness is defined as the perception of supervisory behaviors oriented towards the establishment of a workplace that is conducive and supportive of the needs of workers by providing timely performance feedback, participative opportunities, unification of efforts directed at performance outcomes, and is free of favoritism.

7.   Survey of Organizational Excellence (SOE) is administered by The Institute for Organizational Excellence and "assists organizational leadership by providing information about work force issues that impact the quality of service ultimately delivered to all customers. The data provide information not only about employees' perceptions of the effectiveness of their own organization, but also about employees' satisfaction with their employer" (SOE, n.d., para 1).

8.   Team effectiveness is characterized by Kivimaki et al. (2007) in the context of team climate with measures that closely resemble those used by the SOE to construct the team effectiveness variable. Kivimaki et al. state that team climate is often manifest as "clarity and commitment to objectives, participation, task orientation, and support for innovation" (p. 2). Similarly, Cohen, Ledford and Spreitzer (1996) postulate that three variables associated with self-managed work teams can predict their effectiveness: group task design, group characteristics, and employee involvement. As it pertains to this study, team effectiveness is a measure characterized by the presence of timely performance feedback provided to work groups, the degree of autonomy of work groups, the perceived efficiency of these work groups, and the degree to which work groups are involved in the establishment of performance-enhancing practices.

9.   Texas Workforce Commission's Civil Rights Division (TWCCRD) "has statutory responsibilities for developing statistical information in conjunction with the [Texas] Comptroller's Office on the hiring of minorities and women by state agencies. This information is reported to the Legislature at the beginning of each legislative session" (Texas Workforce Commission's Civil Rights Division, n.d., para 3).

Assumptions and Limitations

Initially, logistic regression will be performed on those indicator variables that contribute to the formation of the construct variables employed during this study. The purpose of this analysis is intended to determine the degree of gender bias which may be present in the survey items which serve as the indicator variables in this study and form the measurement portion of the structural equation model. Logistic regression allows a researcher to predict a discrete outcome, such as group membership, from a group of variables that may be continuous, discrete, dichotomous, or a combination of these variables. Unlike linear regression, logistic regression can accommodate a variety of variable relationships due to the application of a non-linear log transformation to the predicted odds ratio (Hair et al., 2006; Tabachnick and Fidell, 2007).

Regarding assumptions and limitations associated with logistic regression, adequate sample size is an important consideration in order to avoid exceptionally large parameter estimates and errors. Also, logistic regression assumes a linear relationship between continuous predictor variables and the logit transformation of the binary dependent variable, although logistic regression does not assume linear relationships among predictor variables. Additionally, like all forms of regression, logistic regression is sensitive to multicollinearity among predictor variables. Finally, logistic regression

assumes independence of response among instrument items (Hair et al., 2006; Tabachnick and Fidell, 2007). The topic of logistic regression will be discussed in greater detail in chapters III and IV of the dissertation.

Structural equation modeling will be employed to construct and analyze the path model under investigation. In terms of limitations, SEM is unable to test directionality in variable relationships. The directions of the arrows employed in a structural equation model graphically represent the researcher's hypotheses of causality within the model. The researcher's choice of variables and directional paths constrain the model's ability to recreate the relationship forces observed in the natural environment.

Pedhazur (1982) describes several assumptions related to path models that must be considered when employing a path analysis:

- The relationships among the model's variables are linear, additive, and causal.

- Each residual is independent and uncorrelated with the variables that precede it.

- There is a recursive, one-way causal flow inherent in a path model.

- The variables contained in the model are measured on an interval scale and without error.

Also, it must be noted that while there exists a substantial amount of information addressing workplace factors that influence employee job satisfaction and intention to stay, the variables employed during this study are not defined in precisely the same manner. Regarding transference, the data I will utilize during the course of this study will be derived from small to midsize institutions of higher education located in rural or small, metropolitan locations which may affect the transferability of findings.

Finally, the question of how to address missing data in respondent records must be discussed. I will employ a complete case or listwise deletion approach which requires the complete elimination of these records from consideration. This method has traditionally been viewed as the most appropriate approach to employ in SEM data analysis (Hair et al., 2006). However, a noted disadvantage to utilizing listwise deletion is the possible introduction of bias in the estimates of the relationships among the study variables (Hair et al., 2006; Tabachnick and Fidell, 2007).

CHAPTER II

REVIEW OF THE LITERATURE

In addition to the earlier research cited in Chapter I regarding behaviorist, motivation, and leadership theories, this chapter presents the findings of current research related to workplace factors that influence employee desires to remain with an employer. I will provide definitions of key terms as well as discuss several workplace factors shown to be highly influential in resignation decisions.

A review of the extant literature reveals a significant research stream on the topics of employee retention, and many of those articles examine the relationships between retention and employment development, supervisor effectiveness, team effectiveness, and job satisfaction. Additionally, it was noted that a variety of industries and professions, including telemarketing, nursing, law enforcement, secondary education, and athletics, are represented in these research studies. However, as stated earlier, there was a noticeable dearth of research literature specific to public institutions of higher education.

Employment Development and Employee Intention to Stay

The association between employment development and employee intention to stay has been well documented by numerous studies involving employees in both the private and public sectors (e.g., Chew and Chan, 2008; Dennis, 2006; Owens, 2006; Rowden, 2002; Soonhee, 2005). Chew and Chan examined the impact of several human resource practices on employee organizational commitment and intention to stay. One of

these practices was the implementation of training and career development strategies. The authors suggest that many forward-thinking employers are striving to create a positive organizational climate in an attempt to retain valuable employees through a variety of human resource initiatives. The authors further claim that although conventional wisdom suggests that trained individuals become more marketable and consequently might leave the organization at the first opportunity, studies indicate that if their training needs are met, employees may be more likely to remain with their employers. In fact, the results of their study serve to substantiate this claim.

During the study, Chew and Chan investigated the human resource practice of training and career development using a four-item Likert scale that measured employee perceptions of organizational commitment to their development as well as the adequacy of the training they received from their employer. The study participants were full-time employees of nine large public and private organizations operating in Australia. The researchers concluded that training and development did indeed have a significant and positive association with an employee's intention to remain with their employer. Although it was not established that employees who are provided with more development opportunities are more committed to their organizations, they do appear more likely to remain with their organizations.

In a similar study involving public sector employees, Owens (2006) investigated the relationship between training participation and turnover intention. In researching this topic, Owens generated a sample consisting of employees from a local state government subdivision in the southeastern United States. These employees either had or had not completed a supervisory training course consisting of basic supervisory skills,

communication skills, and a review of organizational policies and procedures. The results of the study indicated a strong positive correlation between training participation and low turnover intention.

Rowden (2002) sought to identify the high performance work practices of a select group of successful manufacturing companies operating in the southeastern portion of the United States. He defined successful companies as having demonstrated a profit for each of the preceding five consecutive years while experiencing low levels of employee turnover. The results of the study indicated that the most commonly shared high-performance work practices among these companies included training and development opportunities for employees. In his analysis, Rowden concluded the most important success strategy for employers is a demonstrated commitment to the training and development of employees working for the organization.

Dennis (2006) discusses the results of a 2006 survey conducted by the American Institute of Certified Professional Accountants (AICPA) intended to reveal the attitudes and goals of young accounting professionals. The survey was conducted for the purpose of gaining insights into those organizational factors which influence both employment and retention decisions among AICPA professionals. In general, accounting firms recognize the only distinguishing factor between them and their competition is the quality of their people. To this end, firms are keenly interested in strategies that encourage retention among their top performing employees. The survey found that career growth opportunities is the top consideration for young accountants joining a firm and that training is a vitally important prerequisite to that advancement.

Bergiel, Nguyen, Clenney, and Taylor (2009) explored whether job embeddedness was a mediator of the relationship between training and an employee's intention to quit. For the purpose of this study, job embeddedness was described as consisting of three dimensions: links to other people through teams and groups; self-perceptions of fit in regards to job, organization, and community; and perceived sacrifices associated with changing jobs. The study involved employees of a state department of corrections facility in the southeastern United States. An analysis of results indicated that, while there existed significant and positive correlations between job embeddedness and compensation, supervisor support, and growth opportunity, the relationship between training and intention to quit was not significantly mediated by job embeddedness. Also, researchers determined that a significant correlation existed between training and an employee's intention to quit without the additional considerations of job fit, community association within the organization, or sacrifice associated with changing jobs.

Lundberg and Marshallsav (2007) discuss research undertaken by the Australian government on the training and retention issues of older workers in the labor force. The study explored the attitudes of older workers regarding their continued participation in the workforce past retirement age. Encouraging such behavior is intended to ameliorate the effects of an aging population on the labor market. The results of the study indicated that older workers did not need to be persuaded to work beyond their retirement age. Additionally, the findings suggested a need for the training of supervisors and younger workers to counter perceptions of age-based stereotypes and age-related discrimination. The authors concluded that older workers seek equal access to training programs which enable them to maintain their skills and stay abreast of developments in technology.

Sahinidis and Bouris (2008) investigated the connection between perceived employee training effectiveness and job satisfaction, motivation, and commitment to an employer. The authors surveyed employees of five large Greek organizations after they had completed a performance-enhancing training program. The information solicited from these participants was related to their attitudes towards the training program as well as their employers. The results of the study indicated a positive relationship existed between perceived training effectiveness and job satisfaction, motivation, and commitment to an employer.

Pollitt (2008) discussed the results of a training program which was introduced by a company in the United Kingdom to improve employee performance at call centers located in Dover, England; Calais, France; and Europoort, The Netherlands. The company consistently experienced high levels of turnover amongst its staff members. After a site closure and new executive appointments in 2004, the company experienced 60% turnover during a three-month period. In response, a robust training and development effort was initiated which was eventually recognized with a United Kingdom National Training Award. The program instituted by the company consisted of an initial screening component for new recruits, establishment of a training environment where they could comfortably become established in their roles, and the delivery of training content related to customer service skills and workplace productivity. As a result of the implementation of this program, the annual turnover experienced by the company dropped below 30%.

The findings from each of these studies serve to underscore the importance of organizational commitment to employee development and the effects of such a commitment on employee attitudes towards intention to remain with an employer.

Supervisor Effectiveness and Employee Intention to Stay

In addressing the subject of supervisor effectiveness, Doh, Stumpf, Tymon, and Haid (2008) questioned whether the use of compensation as a primary retention tool was an effective strategy. In 2007, a team of researchers from the Villanova School of Business initiated a study of the Indian labor market to investigate non-pecuniary rewards that positively influence employee retention. Despite salary increases averaging more than 15% annually in some industries, annual turnover rates among young professionals were quite high, ranging from 15 to 50%. During the course of their study, the researchers surveyed employees of 28 diverse companies about their attitudes towards their employers, including their intention to remain or leave employment. The findings revealed four factors which appeared to be highly influential in affecting employee turnover decisions: performance management practices, professional development practices, the quality of supervision, and the company's socially responsible posture. In turn, these factors influenced the formulation of two employee attitudes: job satisfaction and pride in the organization. Researchers concluded that the finest companies to work for provide a high degree of management support as well as training and development opportunities to their employees very early in their employment.

In her research involving public-sector workers in the United States, Kim Soonhee (2005) examined the effects of job characteristics, work environment, and human resource management practices on employee turnover intentions. The results of

her study indicated work exhaustion, an emphasis on participatory management, and opportunities for advancement were statistically significant factors affecting turnover intentions while salary satisfaction was not a significant consideration.

This finding was further supported by research conducted by Buelens and Van den Broeck (2007) involving public and private sector employees in Belgium. Buelens and Van den Broeck proposed public sector employees are more motivated by a supportive work environment and less motivated by extrinsic monetary rewards. Their findings confirmed that civil servants were less motivated by financial considerations. Additionally, their findings served to affirm their proposition that public sector workers were more strongly motivated by a desire to work in supportive working environments, which is indicative of effective supervisory practices.

Team Effectiveness and Employee Intention to Stay

In studies exploring the relationship between team effectiveness to employee intention to remain with an employer, Thacker, and Holl (2008) sought to identify specific behaviorally-based training content for management trainees with a foundation in employee beliefs about effective management behaviors and the relationship of these behaviors to employee satisfaction. The authors argued that if behaviors that are linked to employee satisfaction could be effectively communicated to management trainees, graduates of this training would be prepared to interact with employees in a manner more conducive to good employee relations. To this end, a study was undertaken involving employees from two disparate organizations, a non-profit social services agency and a for-profit manufacturing company. The results of the study confirmed that, indeed, specific managerial behaviors such as building team pride, leading by example, and

respectful treatment of others were identified by employees as effective management behaviors. Additionally, those behaviors were found to relate significantly and positively to employee job satisfaction.

In their study of the influence of team climate on employee intention to leave among hospital employees, Kivimaki et al. (2007) utilized the Team Climate Inventory (TCI) to determine employee attitudes towards coworkers and to assess their turnover intentions. The authors found that poor team climate was strongly correlated with employee intention to leave their employment. Additionally, the authors determined that turnover intention strongly predicted actual turnover among these employees.

Each of these studies serves to reinforce the need for, and importance of, social affiliation within the workplace. The absence of such a connection, potentially resulting in inefficient work processes and reduced organizational productivity, may inevitably lead to a desire among employees to terminate their employment.

This conclusion is further supported by the research of Griffin, Patterson and West (2001) involving manufacturing companies operating in the United Kingdom. They explored the role of supervisory support in influencing teamwork and the resulting effect on employee job satisfaction and organizational commitment. The authors determined that a higher level of job enrichment connected with teamwork was associated with greater perceptions of job autonomy. This heightened perception of job autonomy spurred greater levels of job satisfaction and organizational commitment among employees.

This finding was further supported by research conducted by Kirkman and Rosen (1999) involving four private companies in the southeastern portion of the United States which had introduced employee teams into their work processes. The authors found that

work teams were most effective when they were autonomous in nature, members experienced meaningfulness in their work, and these teams had a significant influence on organizational operations. Additionally, the authors found organizational commitment to be highly and significantly correlated with team effectiveness and empowerment outcomes. The higher the level of empowerment experienced by team members, the greater their degree of job satisfaction.

Likewise, in his study involving steel workers employed in the United States, Berg (1999) found that employee commitment was significantly and positively affected by job autonomy. Berg interviewed managers at 18 plants on the topics of organizational performance, workplace practices, and human resources practices. In addition to these interviews, he surveyed hourly workers at each location. Berg concluded that worker job satisfaction and commitment was driven less by their affiliation with a work team and much more by whether or not they were able to utilize their knowledge and skills. Employees were most concerned with how roles within work teams were defined. This finding further highlights the importance of management involvement in constructing teams in a way that allows employees to function to their greatest potential and perform as effectively and efficiently as possible.

This assessment was further validated in a study conducted by Cohen and Ledford (1994) of self-managing work teams operating in a telecommunications company located in the United States. Cohen and Ledford reported that self-managed work teams were more effective than groups managed in a more traditional manner. Additionally, the authors found that participants of self-managing teams possessed higher levels of job satisfaction, growth needs satisfaction, social needs satisfaction, and group satisfaction.

Self-managing teams also scored higher on perceptions of group functioning and performance.

Clearly, these studies indicate the ability of work groups to self-regulate their behavior on project-related or whole tasks serves to influence perceptions of job satisfaction and commitment among members, in part, by allowing these employees the opportunity to utilize their knowledge and skills and function in an autonomous fashion.

Job Satisfaction and Employee Intention to Stay

In exploring the relationship between employee job satisfaction and intention to remain with an employer, Moynihan and Pandey (2007) examined the influence of social networks and value congruence on turnover intention among employees of public and not-for-profit organizations. The study's findings indicate employees who receive and/or provide significant coworker support are less likely to seek opportunities elsewhere. The findings also suggest employees who share the values of the organization are less likely to consider separation. Finally, the authors found employee job satisfaction negatively and significantly influenced turnover intention.

That finding is consistent with the conclusions reached by Van Dick et al. (2004) in their study of individuals employed by a large regional bank in Germany. The authors proposed that organizational identification would be significantly and strongly correlated with turnover intention and job satisfaction would serve to mediate that relationship. The results of their study did indeed indicate organizational identification was strongly correlated with job satisfaction which in turn had a significant effect on turnover intention. The simultaneous consideration of both identification and satisfaction accounted for a substantial amount of variance in turnover intention. Additionally, the

authors concluded encouraging organizational identification would not only produce lower turnover intentions among employees but also greater job satisfaction.

Brown and Yoshioka (2003) explored mission attachment, job satisfaction, and turnover intention among employees of a nonprofit organization involved in youth and recreation services. The study findings indicated significant and positive correlations between these variables. Those employees who indicated they were happy in their work were more inclined to point out they had faith in the purpose of the organization and that their efforts contributed significantly to that purpose. Similarly, these employees were more inclined to express career aspirations with the organization.

The implication of these findings is clear. The importance of linking employee views and sensitivities to business practices presents an actionable context for organizational change that directly addresses employee concerns. Lending further support to this assessment, Rust et al. (1996) examined the relationship between turnover intention and job satisfaction among certified nurse's assistants. The authors concluded employee satisfaction was driven by satisfaction with managerial processes related to employee wellbeing which, in turn, strongly influenced attitudes towards turnover. The two strongest drivers of job satisfaction among these employees was work design and work environment. From a retention perspective, this conclusion serves to bolster the importance of linking employee perspectives regarding work and the work environment to organizational processes and shifting our view of employees in the workplace from servant to customer. Such a shift is critical as highly qualified employees become scarce and competition for these valued resources continues to increase.

Employment Development, Team Effectiveness, and Supervisor Effectiveness

There exists a substantial amount of research documenting the relationships between employment development, team effectiveness, and supervisor effectiveness. This research tends to characterize the relationships between these factors as positive and significant and underscores their significance to related factors such as work productivity, job satisfaction, and turnover intention. Many of these interaction effects were discussed earlier in this chapter. I would like to include the findings of several additional studies pertaining to this topic.

In her study of the effects of transformational leadership on employee empowerment and team effectiveness, Ozaralli (2003) proposed such a relationship would lead to increased levels of employee empowerment and team effectiveness among 152 employees working in a variety of industries in Turkey. The results of her study do, in fact, indicate that "transformational leadership contributes to the prediction of subordinates' self-reported empowerment and the more a team's members experience team empowerment, the more effective the team will perform" (p. 335). Additionally, Ozaralli found when leaders delegate responsibility and heighten group authority, team members were more apt to experience feelings of value, influence, and independence in their jobs due to the assumption of additional responsibility. They also experienced greater levels of enthusiasm for their work and more actively collaborated within their work teams.

Such findings may explain the widespread adoption of self-managed, self-directed work teams in a variety of organizational settings. Sisaye (2005) explored the effects that organizational management, culture, and change have on the adoption and activities of

work teams. He found a significant shift related to organizational management practices due in large part to the growing complexity of these organizations. The introduction of work teams was instrumental in providing work environments for employees with related interests and specialty to collaborate on projects for the purpose of enhancing overall organizational functioning. Teams were often involved in monitoring production quality, controlling costs, organizing and instituting incentive programs, and designing and implementing work process changes. In order to successfully implement such initiatives, effective managerial practices and a commitment to employee development were deemed necessary considerations in the formation and implementation of effective work teams.

This conclusion is supported by the findings of Spreitzer, Cohen, and Ledford (1999) in their research involving work teams in service organizations. The authors determined that effective leaders create work teams with adequate and appropriate knowledge and skills, team member stability, and high performance achieving norms. They also assign work that is appropriate for teams. In doing so, the leader plays a critical role in furnishing team members with needed training and resources. They also provide team members with shared goals, the achievement of which is a joint responsibility. As opposed to handling the day-to-day workings of the team, the more effectual function of the leader is thought to be team design and development.

In their study of the relationship between emotional intelligence and the effectiveness of team operations (Prati, Douglas, Ferris, Ammeter, and Buckley, 2003), researchers concluded that emotionally intelligent individuals are more inclined to demonstrate behaviors that enhance team association and cohesiveness, innovation, and communication—all of which are considered essential to successful team collaboration

and productivity. The role of the emotionally intelligent leader in such an undertaking is to function as group facilitator, encouraging collective action and supportive interactions among team members. This group cohesiveness was found to build a high degree of trust among team members as well as facilitate efficient and effective decision-making and overall improved work performance. The researchers espouse the use of emotional intelligence training from a developmental standpoint "as a revolutionary means to improve organizational performance…by enhancing organizational member interactions, contributions, and organizational member welfare" (p. 35).

CHAPTER III

METHODS

In this chapter, I will discuss the criteria that were influential in my selection of structural equation modeling (SEM) as the appropriate technique for evaluating the effects of employee development, team effectiveness, and supervisor effectiveness on both job satisfaction and turnover intention. I will also discuss how the construct variables will be formulated employing specific and measurable survey items from the Survey of Organizational Excellence. I will discuss the use of logistic regression to ascertain the degree of gender bias inherent to the survey items employed during this study. I will also define key terms associated with structural equation modeling.

Structural Equation Modeling

According to Byrne (2010), use of statistical models offers an effective, efficient, and expedient way of characterizing the composite construction underlying a set of directly observed and measurable variables. Portrayed graphically or by use of mathematical equations, models such as these serve to elucidate how observed and construct variables are correlated to one another.

SEM is a statistical technique that employs an assenting or confirmatory approach to investigating the structural hypothesis believed to influence some occurrence or event.

The term suggests two central characteristics of the method: (a) that the underlying activities being examined are produced by structural equations, and (b) that these activities can be portrayed graphically in the form of a model to enable a clearer understanding of the theory under investigation. The resulting model can then be examined analytically to ascertain the degree to which it is consistent with the data.

In pursuing this study, SEM is an appropriate and helpful technique because it allows for an *a priori* analysis of data for extrapolation purposes (Byrne, 2001). Alternative procedures are typically descriptive by design which makes testing a hypothesis problematic if not unachievable (Byrne, 2010). Through the use of SEM, the researcher is able to pre-select and explore those relationships that are of significance. For the purposes of this study, the relationships between the variables Employment Development, Team Effectiveness, Supervisor Effectiveness, Intention to Stay, and Job Satisfaction will be explored.

As is plainly apparent from the literature review associated with this investigation, there are a large number of studies involving a wide variety of organizational types that have documented significant relationships between and among these variables. However, I have been unable to locate any studies involving employees of institutions of higher education. As such, this investigation is reasonable and significant in terms of contribution to the existing body of research literature.

Key Terms

The following terms are commonly associated with SEM and their inclusion here is intended to provide an introductory overview of basic concepts and terminology.

1.   A priori. Means *prior to*. An approach to research that involves deductive

reasoning that leads from a general principle to a theorized event. Characterizes research

pursuits based on hypothesis or theory rather than the results of experimentation (Byrne,

2010; Hair et al., 2006).

2.   Causal inference. A dependence relationship involving two or more variables in

which the researcher hypothesizes that one or more variables bring about an outcome

represented by at least one other variable contained within the model (Hair et al., 2006).

3.   Chi-square. A statistic that examines the probability of test takers from different

groups with the same ability levels correctly responding to an item. Follows a goodness-

of-fit logic by testing the null hypothesis between an expected number of examinee

responses in a particular category and the actual number observed to respond in that

category (Isaac and Michael, 1995).

4.   Correlation. A number situated between -1.00 and 1.00 that indicates the intensity

of association between two variables. Zero denotes no association. Positive correlations

denote that variables vary directly. Negative correlations denote a negative association.

At + or − 1.0 the variables correlate exactly; between + or − 1.0 and zero, the variables

increasingly correlate more poorly (Krathwohl, 2004).

5.   Covariate. Considered a source of variability in a structural equation model that is

not controlled for in the experimental design of a study but is thought to have an

influence on the dependent or criterion variable (Lomax, 1998).

6.   Cronbach's Alpha. Determines the internal consistency or average correlation of

items in a survey instrument to gauge its reliability for the purpose of prediction.

According to Santos (1999), "since summated scales are an assembly of interrelated

items designed to measure underlying constructs, it is very important to know whether the same set of items would elicit the same responses if the same questions are recast and re-administered to the same respondents. Variables derived from test instruments are declared to be reliable only when they provide stable and reliable responses over a repeated administration of the test" (para 2).

7.   Data. Score assessments tied directly to the measured or observed variables employed in a quantitative study and obtained from the sample population (Byrne, 2010).

8.   Degrees of freedom. The number of freely fluctuation values in a given data set (Hurlburt, 2006).

9.   Dependence relationship. A regression relationship in which one independent variable is connected to a dependent variable by way of a one-headed arrow (Hair et al., 2006).

10.   Dependent variable. The outcome factor or variable that is of principle interest during a research study (Hurlburt, 2006).

11.   Differential item functioning (DIF). A technique utilized in the analysis of psychometric bias. Occurs when respondents from dissimilar groups demonstrate different probabilities of success in responding to test items after matching on the abilities those items are intended to evaluate (Rogers, 2005; Scarpati, Wells, Lewis and Jirka, 2011; Zumbo, 1999).

12.   Effect size. An index used to indicate the magnitude of an obtained result or relationship (Fraenkel and Wallen, 2009).

13.   Endogenous variables. Variables that are theoretically determined by other factors contained within the model (Hair et al., 2006).

14.   Exogenous variables. Variables that cause changes in the values of other variables contained within a structural equation model. Changes in the values of exogenous variables are unexplained by factors contained within these models (Byrne, 2010).

15.   Factor analysis. An analytic approach that is used to examine the relationships between and among variables and to discuss variables in terms of their collective causal features (Fraenkel and Wallen, 2009; Hair et al., 2006; Isaac and Michael, 1995; Loehlin, 2004).

16.   Goodness-of-fit (GOF). Used to indicate how well a specified model reproduces the covariance matrix among the indicator items. Measures are classed into three general groups: absolute measures, incremental measures, and parsimony fit measures (Hair et al., 2006).

17.   Independent variable. A variable that is presumed to affect the criterion or dependent variable under study and is integrated into the research design so that its effect can be ascertained (Fraenkel and Wallen, 2009).

18.   Latent construct. An unobserved variable that is represented or measured by one or more indicator variables that serve to define the unobserved variable (Hair et al., 2006; Loehlin, 2004).

19.   Logistic Regression DIF model. Statistical procedure that offers a model-based methodology for exploring differential item functioning (Swaminathan and Rogers, 1990; Zumbo, 1999).

20.   Measurement model. The component of a structural equation model that graphically portrays the relationships between observed and measurable indicator variables and the construct variables they establish (Byrne, 2010; Hair et al., 2006).

21.   Model. A representation of a theorized structure that connects observed variables to construct or latent variables by employing data derived from a sample population (Byrne, 2010).

22.   Multicollinearity. The extent to which one variable can be explained by the other variables in an analysis. As this measure increases, it becomes difficult to ascertain the effects of any one variable due to the interrelationships of the variables contained within the model (Hair et al., 2006). High intercorrelations between variables indicate the variables may be measuring the same information.

23.   Null model. Hypothesized to be the simplest model that can be theoretically supportable (Hair et al., 2006). Certain elements of the data are held constant, and others are allowed to vary stochastically to create new assemblage patterns. The null model thus functions as a standard statistical null hypothesis for detecting a pattern, in contrast to a scientific hypothesis, which is a mechanism to explain the pattern (Gotelli and McGill, 2006).

24.   Residuals. Individual differences between observed covariance terms and estimated covariance terms (Byrne, 2010; Hair et al., 2006). Considered a measure of the unexplained error of prediction.

25.   Structural Equation Model. A statistical approach to the exploration of structural hypotheses involving multiple and observed factors. The term communicates two central features of the procedure: 1) that the causal processes under investigation are represented by structural equations, and 2) that the structural elements can be portrayed diagrammatically to allow for a clearer understanding of the concepts under investigation (Anderson and Gerbing, 1988; Byrne, 2010; Hair et al., 2006; Lomax, 1998).

26.   Validity. The extent to which an instrument accurately indicates or evaluates the concept the researcher is endeavoring to investigate (Hair et al., 2006; Tabachnick and Fidell, 2007).

Sampling and Data

The data utilized in this study will be derived from the Survey of Organizational Excellence (SOE), which was produced by The Institute for Organizational Excellence (IOE) located on the campus of The University of Texas at Austin. The SOE is intended to assist management at all levels within state government by delivering information about workforce related issues that influence the operational effectiveness of the enterprise. The information derived from the survey not only relates employees' views of the efficacy and efficiency of their own organizations but also employee perceptions related to satisfaction with employment. Being cognizant of such perceptions is vital to an employer's ability to recruit and preserve a high quality workforce. The IOE's principle goal in pursing this activity is the promotion of organizational excellence through employee involvement and accountability.

The SOE consists of 16 demographic measures and 84 survey items. The demographic measures produce both ordinal and nominal data, depending on the dichotomous or polytomous nature of the measure. The survey items are polytomous and generate ordinal data utilizing a five-point Likert scale with response categories ranging from "strongly disagree" to "strongly agree." While the instrument allows for six possible responses, records containing one or more *not applicable* responses for the indicator variables utilized during this study were treated as unanswered items and eliminated from consideration.

According to IOE, there are two sets of survey items. The first set of items address the organization as a whole, while the second set of items explores employee attitudes towards assigned work groups. These items are presented in the form of five major organizational dimensions: work group, work setting, organizational features, communication, and personal demands. Contained within each dimension are construct measures derived from specific survey items. Table 4 depicts the SOE dimensions and constructs.

Table 4-*Survey of Organizational Excellence Dimensions and Constructs*

Dimension I Work Group	Dimension II Work Setting	Dimension III Organizational Features	Dimension IV Communication	Dimension V Personal Demands
Supervisor Effectiveness	Fair pay	Change Oriented	Internal	Time and Stress
Team Effectiveness	Physical Environment	Goal Oriented	Availability	Burnout
Fairness	Benefits	Holographic	External	Empowerment
Job Satisfaction	Employment Development	Strategic		
Diversity		Quality		

Variables in the Study

In pursuing this study, I will employ the following three pre-established constructs as predictor variables: Employment Development, Supervisor Effectiveness, Team Effectiveness. Employee Intention to Stay is a dichotomous measured variable derived from a single demographic item contained within the instrument. Job Satisfaction, a construct variable, will serve as the study's criterion or outcome variable. Table 5 provides a listing of all study variables.

Table 5-*Comprehensive Listing of Study Variables and How They Are Employed*

Variable	Interval, Ordinal, or Nominal	Composite Variable	Fit In Model
q18	Interval	Supervisor Effectiveness	Endogenous
q31	Interval	Supervisor Effectiveness	Endogenous
q45	Interval	Supervisor Effectiveness	Endogenous
q49	Interval	Supervisor Effectiveness	Endogenous
q17	Interval	Team Effectiveness	Endogenous
q19	Interval	Team Effectiveness	Endogenous
q21	Interval	Team Effectiveness	Endogenous
q25	Interval	Team Effectiveness	Endogenous
q27	Interval	Team Effectiveness	Endogenous
q46	Interval	Team Effectiveness	Endogenous
q16	Interval	Employment Development	Exogenous
q33	Interval	Employment Development	Exogenous
q34	Interval	Employment Development	Exogenous
q35	Interval	Employment Development	Exogenous
q36	Interval	Employment Development	Exogenous
q22	Interval	Job Satisfaction	Outcome
q40	Interval	Job Satisfaction	Outcome
q41	Interval	Job Satisfaction	Outcome
Work Two Years	Nominal	Intention to Stay	Endogenous

Two sample populations will be studied during the course of this research. In FY 2008, the SOE was administered to employees of eight public, four-year institutions of higher education. In FY 2010, the SOE was administered to employees of seven public, four-year institutions of higher education. Of these institutions, only three are represented in both datasets. All respondents voluntarily elected to participate in the survey, and a

detailed report of the findings along with conclusions and recommendations was provided to each participating institution.

For the purpose of this study, the data gathered from these institutions in FY 2008 and FY 2010 will be analyzed in the aggregate for each year to provide cumulative findings for each sample population. Additionally, incomplete records will be purged from the study through the use of listwise deletion, which is considered an appropriate method for treating missing data in SEM (Hair et al., 2006).

Research Hypotheses

Based on an a priori review of the existing research literature available on the topic of employee intention to remain with an employer, the following hypotheses will be tested during this study:

(H1)   The Survey of Organizational Excellence instrument exhibits adequate scale/score reliability.

(H2)   The Survey of Organizational Excellence instrument exhibits adequate evidence of factorial validity.

(H3)   The Survey of Organizational Excellence instrument exhibits no evidence of gender differential item functioning.

(H4)   There is a significant and positive relationship between Employment Development and Employee Intention to Stay among employees of four-year, public institutions in Texas.

(H5)   There is a significant and positive relationship between Supervisor Effectiveness and Employee Intention to Stay among employees of four-year, public institutions in Texas.

(H6)   There is a significant and positive relationship between Team Effectiveness and Employee Intention to Stay among employees of four-year, public institutions in Texas.

(H7)   There is a significant and positive relationship between Employment Development and Job Satisfaction among employees of four-year, public institutions in Texas.

(H8)   There is a significant and positive mediating relationship between Employee Intention to Stay and Employment Development, Supervisor Effectiveness, Team Effectiveness and Job Satisfaction among employees of four-year, public institutions in Texas.

(H9)   There is a significant and positive relationship between Employment Development and Supervisor Effectiveness among employees of four-year, public institutions in Texas.

(H10) There is a significant and positive relationship between Supervisor Effectiveness and Team Effectiveness among employees of four-year, public institutions in Texas.

(H11) There is a significant and positive relationship between Employment Development and Team Effectiveness among employees of four-year, public institutions in Texas.

Utilizing a behaviorist theoretical perspective, I intend to argue that altering the workplace environment in a manner that positively influences organizational commitment to Employment Development, Supervisor Effectiveness, and Team

Effectiveness will positively and significantly influence Employee Intention to Stay as well as the degree of Job Satisfaction experienced by employees.

Factorial Validity Evidence

Overall factorial validity of study variables can be determined through separate analyses of content and construct validity (Cronbach and Meehl, 1955). Content validity is based on the extent to which a measure indicates a particular and intended domain of content. In other words, content validity refers to whether or not the item content is appropriate for the stated research questions under investigation.

As discussed earlier in this dissertation, the data utilized in this study will be derived from the Survey of Organizational Excellence (SOE) which was produced by The Institute of Organizational Effectiveness (IOE) located on the campus of the University of Texas at Austin. The SOE is intended to assist management at all levels within state government by delivering information about workforce related issues that influence the operational effectiveness of the organization. The information derived from the survey not only relates employees' views of the efficacy and efficiency of their own organizations but also employee perceptions related to satisfaction with employment. Being cognizant of such perceptions is vital to an employer's ability to recruit and preserve a high quality workforce. The IOE's principle goal in pursing this activity is the promotion of organizational excellence through employee involvement and accountability.

The SOE consists of 16 demographic measures and 84 survey items. The demographic measures produce both ordinal and nominal data, depending on the dichotomous or polytomous nature of the measure. The survey items generate ordinal

data utilizing a five-point Likert scale with response categories ranging from "strongly disagree" to "strongly agree." While the instrument allows for six possible responses, records containing one or more *not applicable* responses for the indicator variables utilized during this study were treated as unanswered items and eliminated from consideration. The SOE instrument is provided in Appendix A.

Construct validity is the pursuit of consonance between a theoretical concept and a particular measurement model or procedure. In the context of this study, I will examine and evaluate the results of the measurement models for each latent construct employed during this study and discuss how the information derived from this analysis was interpreted in light of the intended purpose of the instrument. Specifically, I will examine and interpret the text outputs generated from the model analyses provided by the AMOS program software.

Measurement of the Criterion Variable

The variable Job Satisfaction is derived from three survey items: 1) we are given the opportunity to do our best work, 2) the pace of the work in this organization enables me to do a good job, and 3) the environment supports a balance between work and personal life. These items will be scored using a five-point Likert scale ranging from "strongly disagree" to "strongly agree."

Measurement of Predictor Variables

There are four predictor variables explored during the course of this study. Each of these variables is derived from specific SOE survey items. The variable Employment Development is comprised from the following items: 1) work groups or committees are trained to incorporate the opinions of other members, 2) learning opportunities or training

are made available for personal growth and development, 3) learning opportunities or training are made available for professional growth or skills development, 4) we have access to information about job opportunities, conferences, workshops, and training, and 5) my supervisor is supportive of my career goals. These items will be scored using a five-point Likert scale ranging from "strongly disagree" to "strongly agree."

The variable Supervisor Effectiveness is derived from four survey items: 1) we have an opportunity to participate in the goal setting process, 2) we are given accurate feedback about our performance, 3) people who challenge the status quo are valued, and 4) favoritism (special treatment) is not an issue in raises and promotions. These items will be scored using a five-point Likert scale ranging from "strongly disagree" to "strongly agree."

The variable Team Effectiveness is derived from six survey items: 1) work groups or committees receive adequate feedback that helps improve performance, 2) decision making and control are given to employees doing the actual work, 3) there is a sense of trust throughout the organization, 4) we are efficient, 5) there is a real feeling of teamwork, and 6) work groups or committees are involved in making work processes more effective. These items will be scored using a five-point Likert scale ranging from "strongly disagree" to "strongly agree."

Finally, the variable Employee Intention to Stay is derived from a single survey item: I plan to be working for this institution in two years. This variable was scored using a two-point nominal scale ("Yes" or "No").

Method of Analyses

After obtaining the data, instrument items used to define multiple constructs utilized in the study will be consigned to a single construct to encourage unidimensionality and discourage multicollinearity. I determined Cronbach's Alpha coefficients for each construct variable to ensure the measure is reliable and therefore appropriate for analysis.

Structural equation modeling was used to assess model fit and determine the strength of the correlational relationships between the study variables. These variables were selected for use after an extensive review of the existing literature and a desire to conduct research and generate findings that add to the current body of knowledge related to this topic. In this way, the study would be undertaken a priori, thereby generating findings that either support of refute previously established research hypotheses.

AMOS software were utilized to calculate standardized effect sizes among the variables contained within the models employed during the study. One structural equation model was constructed containing predictor and criterion variables. For each predictor variable represented in the model, there was a path coefficient indicating the amount of expected change in the criterion variable derived from a unit change in the predictor variable (Pedhazur, 1982). The relationship between these variables was recursive in nature, meaning that the effects between the variables were unidirectional. This consideration was depicted in the model by way of single-headed arrows traveling from each predictor variable to the criterion variable.

Correlational variances between the study's predictor variables was also examined. Each of the residual effects or error measures (which represent the difference

between predicted and obtained values in the study) was assumed to be uncorrelated with any of the variables in the path diagram in which it appeared (Pedhazur, 1982).

Model fit indices were considered in an effort to produce the most efficient and explanatory model possible. These indices will be discussed in detail in the results section of the dissertation. On the following page, Figure 1 depicts the structural equation model I employed during this study.
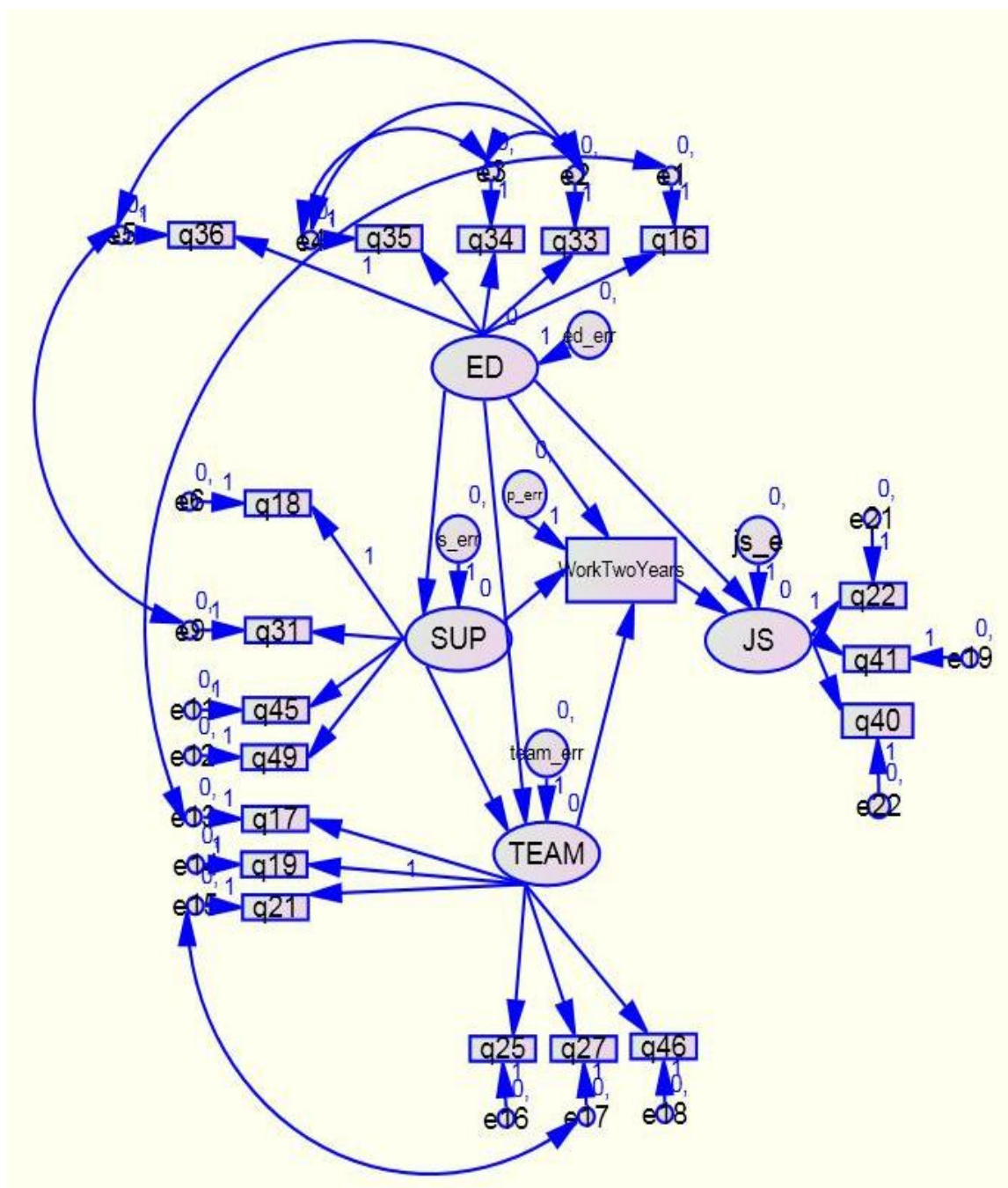
Figure 1-*Conceptual Structural Equation Model*
Latent constructs are shown in ellipses and observed variables are shown in rectangles.

Additionally, logistic regression will be employed to ascertain if differential item functioning (also sometimes referred to in older literature as item bias) across gender is evident in the survey items. A common problem associated with the formulation and analysis of unobserved, construct variables is the introduction of bias associated with the individual item responses linked to a construct. Respondents may comprehend successive survey items as recurrences of the first item and may not consider these items separately but rather respond to each from a given frame of reference (Sijtsma and Molenaar, 2002). For example, respondents may perceive that an instrument measuring attitude concerning animal rights presents the same inquiry again and again: are you in support of animal rights, yes or no? A young employee who is unhappy with her supervisor's management style may allow that disposition to negatively affect all of her responses on a workplace satisfaction survey. The respondent may uncritically answer items in such a survey without examining the precise wording of each item in an attempt to establish a position and, in this way, introduce a degree of bias. To avoid such occurrences, careful item and instrument development along with clear directions for respondents is essential.

The logistic regression model for predicting the likelihood or probability of a correct item response is

$$P(u = 1 | \theta) = \frac{e^{(\beta_0 + \beta_1 \theta)}}{[1 + e^{(\beta_0 + \beta_1 \theta)}]},$$

where u indicates the response to the item, Θ indicates the observed ability of the individual in terms of the underlying dimension under investigation, β_0 indicates the intercept point, and β_1 indicates the measure of the slope. This is the standard logistic

regression model for predicting a dichotomous or binary dependent variable from the independent variables being explored (Swaminathan and Rogers, 1990).

Summary

Logistic regression will be used to determine a) if gender DIF exists in items comprising the instrument used in this study, and (b) the magnitude of existing DIF if present. The use of logistic regression is required given the binary nature of the group association (gender) under investigation. This is due to the use of dummy codes in the analysis process and the non-linear nature of the scoring associated with binary variables employing these codes. Structural equation modeling will be used to analyze the relationships between the study's predictor variables—Employment Development, Team Effectiveness, Supervisor Effectiveness, and Intention to Stay—when compared to the study's criterion variable, Job Satisfaction. The structural equation model created to explore these relationships is intended to ascertain the magnitude of the effect sizes between and among these variables. Based on the resulting effect sizes, I hope to effectively predict behavioral outcomes related to these factors. With such information, public institutions of higher education, indeed any organization, will be better positioned to influence employee retention rates by instituting workplace practices that positively and significantly affect Employment Development, Supervisor Effectiveness, and Team Effectiveness practices in the organization.

CHAPTER IV

RESULTS

Chapter IV provides an analysis of the influences of Employment Development, Supervisor Effectiveness, and Team Effectiveness on Employee Intention to Stay as well as the mediating effects of Employee Intention to Stay on Job Satisfaction at four-year, public institutions of higher education in Texas. Two samples consisting of survey responses provided by participants between the years 2008 and 2010 were examined and the findings are presented in the following order: (a) descriptive statistics associated with each sample, (b) gender bias associated with indicator variables employed in measurement models, (c) internal consistency analysis of each sample, (d) assessment of goodness-of-fit indices for each sample, and (e) evaluation of research questions.

Samples

The datasets utilized during this study were provided by the Institute for Organizational Excellence located at The University of Texas at Austin. The study employed the use of two samples consisting of survey responses provided by participants between the years 2008 and 2010. Table 6 provides the demographic characteristics of each sample. When preparing these samples for analysis, survey items used as indicator variables for the study's measurement models were examined for missing data, and incomplete records were purged from each dataset in a listwise deletion. Demographic characteristics are displayed as frequency counts. Table 6 provides an examination of

both study samples by type of employment (staff or faculty), gender, role (supervisor or non-supervisor), and intention to remain with current employer for at least a two-year period. In both samples, over two-thirds of respondents indicated that they were staff employees (68.3% in 2008 and 69.8% in 2010). Additionally, well over half of respondents were female (61.9% in 2008 and 59.3% in 2010) and non-supervisors (59.1% in 2008 and 56.6% in 2010). The vast majority of respondents intend to remain with their employer for at least two years (89.7% in 2008 and 90.3% in 2010).

Table 6-*Demographic Characteristics*

Characteristic	2008 Sample		2010 Sample	
	Frequency	Percent (%)	Frequency	Percent (%)
Employment				
Faculty	318	31.7	410	30.2
Staff	686	68.3	946	69.8
Total	1004	100.0	1356	100.0
Gender				
Male	383	38.1	552	40.7
Female	621	61.9	804	59.3
Total	1004	100.0	1356	100.0
Supervisor				
Yes	411	40.9	589	43.4
No	593	59.1	767	56.6
Total	1004	100.0	1356	100.0
Work Two Years				
Yes	901	89.7	1225	90.3
No	103	10.3	131	9.7
Total	1004	100.0	1356	100.0

DIF Logistic Regression Results

According to the American Educational Research Association (1999), differential item functioning (DIF) exists when responses to an instrument item from respondents of equivalent capability vary according to their group affiliation. It is highly recommended that researchers seek out and remove aspects of instrument design, subject matter, and presentation that may bias item responses for particular groups. To that end, an analysis of possible gender bias associated with the indicator variables used to create the construct variables employed during this study was undertaken. The results of this analysis are presented below (Table 7 and Table 8). Table 7 contains the DIF analysis of indicator variables utilizing the 2008 dataset. Table 8 provides the same analysis utilizing the 2010 dataset.

For DIF to be present in an indicator variable or single item response, a high degree of significance in the relationship between participant responses and the variable *gender* is necessary. The DIF analyses for this study were conducted in SPSS and accomplished through the use of binary logistic regression. In conducting this analysis, each of the survey items was evaluated separately as opposed to performing a single, all-inclusive run in order to avoid the possibility of an inflated error rate as items do influence one another. Gender was utilized as the dependent variable in this analysis and item responses associated with the study's measurement models were included as independent variables.

Given the binary nature of gender as presented in the Survey of Organizational Excellence, logistic regression was determined to be an appropriate analytic technique.

At a .05 level of significance or α value, the following items indicated varying degrees of gender-related differentiation in group responses associated with the 2008 dataset:

- We are given the opportunity to do our best work (q22).

- We are efficient (q25).

- We are given accurate feedback about our performance (q31).

- Learning opportunities/training are made available for personal growth and development (q33).

- Learning opportunities/training are made available for professional growth/skills development (q34).

Likewise, these items indicated gender-related group differentiation in responses associated with the 2010 dataset:

- There is a sense of trust throughout the organization (q21).

- We are given the opportunity to do our best work (q22).

- We are efficient (q25).

- We are given accurate feedback about our performance (q31).

- Learning opportunities/training are made available for professional growth/skills development (q34).

- We have access to information about job opportunities, conferences, workshops, and training (q35).

- People who challenge the status quo are valued (q45).

- Work groups or committees are involved in making work processes more effective (q46).

Curiously, several of these items are common to both datasets:

- We are given the opportunity to do our best work (q22).

- We are efficient (q25).

- We are given accurate feedback about our performance (q31).

- Learning opportunities/training are made available for professional growth/skills development (q34).

Given the nature of an employee attitude survey, the absence of right and wrong item responses, and the wide range of survey participants, I consider the high degree of differentiation in responses associated with gender affiliation an indication of the organizational experiences of men and women employed by Texas institutions of higher education rather than item-related bias. While it remains unclear what environmental factors shaped these responses, women scored these items higher than their male counterparts in literally every case, thus indicating a more favorable impression of the workplace (Table 9).

It is difficult to conclude with certainty that survey item bias is responsible for these differences in response. As defined, differential item functioning occurs when respondents from dissimilar groups demonstrate different probabilities of success in responding to test items after matching on the abilities those items are intended to evaluate (Rogers, 2005; Scarpati, Wells, Lewis and Jirka, 2011; Zumbo, 1999). In this case, there appears to be very limited association between respondents. In fact, it is probable that the only factor they have in common as a unified group is employment with a public university in Texas. The sample populations likely include staff and temporary employees working in a wide range of occupational areas, tenured faculty members, and adjunct faculty. While clearly a significant finding in terms of the manner in which men

and women view the workplace relative to these survey items, it is unclear if the

association is truly indicative of a bias inherent to the SOE instrument.

Table 7-*DIF Analysis 2008 Sample*

Variable	B	S.E.	Wald	*Df*	Sig.	Exp(B)
q16	.048	.060	.637	1	.425	1.049
q33	*.129*	*.060*	*4.600*	*1*	*.032*	*1.138*
q34	*.152*	*.062*	*6.043*	*1*	*.014*	*1.164*
q35	.086	.069	1.541	1	.214	1.089
q36	.073	.059	1.499	1	.221	1.075
q18	.075	.059	1.639	1	.201	1.078
q31	*.197*	*.064*	*9.591*	*1*	*.002*	*1.218*
q45	.043	.053	.656	1	.418	1.044
q49	.020	.049	.164	1	.686	1.020
q17	.054	.061	.788	1	.375	1.055
q19	-.036	.055	.443	1	.506	.964
q21	.049	.052	.873	1	.350	1.050
q25	*.267*	*.059*	*20.597*	*1*	*.000*	*1.306*
q27	.088	.053	2.717	1	.099	1.092
q46	.101	.062	2.631	1	.105	1.106
q22	*.174*	*.058*	*8.913*	*1*	*.003*	*1.190*
q41	.035	.069	.253	1	.615	1.035
q40	..092	.059	2.445	1	.118	1.096

Note. Items producing P values of less than .05 are bolded and italicized.

Table 8-*DIF Analysis 2010 Sample*

Variable	B	S.E.	Wald	*df*	Sig.	Exp(B)
q16	.061	.053	1.357	1	.244	1.063
q33	.098	.052	3.602	1	.058	1.103
q34	*.107*	*.053*	*4.084*	*1*	*.043*	*1.113*
q35	*.150*	*.057*	*7.029*	*1*	*.008*	*1.162*
q36	.090	.052	2.969	1	.085	1.094
q18	.049	.050	.964	1	.326	1.050
q31	*.146*	*.052*	*7.928*	*1*	*.005*	*1.157*
q45	*.102*	*.047*	*4.664*	*1*	*.031*	*1.108*
q49	.061	.043	2.004	1	1.157	1.063
q17	.058	.054	1.157	1	.282	1.060
q19	.034	.047	.521	1	.471	1.034
q21	*.095*	*.046*	*4.236*	*1*	*.040*	*1.099*
q25	*.168*	*.049*	*11.605*	*1*	*.001*	*1.183*
q27	.056	.047	1.387	1	.239	1.057
q46	*.203*	*.054*	*14.077*	*1*	*.000*	*1.225*
q22	*.119*	*.052*	*5.224*	*1*	*.022*	*1.127*
q41	.002	.058	.001	1	.977	1.002
q40	.089	.051	3.075	1	.080	1.093

Note. Items producing P values of less than .05 are bolded and italicized.

Table 9-*Response Means for Items Indicating Possible Gender Bias*

_____

Sex		*q22*	*q25*	*q31*	q33	*q34*		
2008 Sample								
Male	Mean	*3.55*	*3.34*	*3.42*	3.57	*3.65*		
	N	*383*	*383*	*383*	383	*383*		
	STDV	*1.20*	*1.20*	*1.06*	1.09	*1.07*		
Female	Mean	*3.77*	*3.67*	*3.63*	3.72	*3.82*		
	N	*621*	*621*	*621*	621	*621*		
	STDV	*1.04*	*1.04*	*.99*	1.06	*1.02*		
Total	Mean	*3.68*	*3.54*	*3.55*	3.66	*3.75*		
	N	*1004*	*1004*	*1004*	1004	*1004*		
	STDV	*1.11*	*1.11*	*1.02*	1.07	*1.04*		

Sex		q21	*q22*	*q25*	*q31*	*q34*	q35	q45	q46
2010 Sample									
Male	Mean	3.10	*3.64*	*3.43*	*3.40*	*3.61*	3.66	3.05	3.33
	N	552	*552*	*552*	*552*	*552*	552	552	552
	STDV	1.23	*1.09*	*1.16*	*1.09*	*1.05*	.98	1.24	1.04
Female	Mean	3.24	*3.78*	*3.64*	*3.56*	*3.73*	3.80	3.19	3.54
	N	804	*804*	*804*	*804*	*804*	804	804	804
	STDV	1.18	*1.03*	*1.08*	*1.05*	*1.04*	.96	1.12	1.01
Total	Mean	3.18	*3.72*	*3.56*	*3.50*	*3.68*	3.74	3.13	3.45
	N	1356	*1356*	*1356*	*1356*	*1356*	1356	1356	1356
	STDV	1.20	*1.06*	*1.12*	*1.07*	*1.04*	.97	1.17	1.03

_____

Note. Items common to both samples are bolded and italicized.

Internal Consistency Analyses

Scale analyses were conducted in SPSS to determine the degree of internal

consistency among those survey items used as indicator variables in the study's

measurement models. Results of those analyses are presented in Table 10. According to

Krathwohl (2004), internal consistency reliability provides substantiation that the survey

items employed as indicator variables in a structural equation model are homogeneous,

measure a specific construct, and correlate highly with one another. High internal

consistency reliability is necessary for a measure to be interpretable.

Cronbach's Alpha is one measure of internal consistency used in calculating the

reliability of instrument items that are not scored right versus wrong as in the case of an

employee attitude survey (Fraenkel and Wallen, 2009). Cronbach's Alpha provides an

internal consistency reliability measure that ranges from 0 to 1, with values of .60 to .70

considered the lowest levels of acceptability (Hair et al., 2006). As displayed in Table 10,

both samples utilized during this study provide adequate internal consistency reliability

values for the construct variables under investigation.

Table 10-*Reliability Statistics*

Indicator Variable	Construct Variable	Cronbach's Alpha (2008 Sample)	Cronbach's Alpha (2010 Sample)
q17	Team Effectiveness	0.916	0.903
q19			
q21			
q25			
q27			
q46			
	Supervisor Effectiveness	0.875	0.852
q18			
q31			
q45			
q49			
	Employment	0.867	0.859
q36	Development		

Table 10-Continued

Indicator Variable	Construct Variable	Cronbach's Alpha (2008 Sample)	Cronbach's Alpha (2010 Sample)
q35			
q34			
q33			
q16			
q22	Job Satisfaction	0.796	0.793
q41			
q40			

Assessing Overall Model Fit

The principle intent of the estimation process in structural equation modeling is to generate relationship estimates such that any incongruence that exists between the sample covariance and the population covariance is minimal (Byrne, 2010). An analysis of goodness-of-fit indices associated with a study model is an essential activity in the evaluative process. Table 11 provides a series of model-fit indicators that show the degree of divergence between sample estimates and anticipated population estimates.

Additionally, the table presents these measures in the context of three models; a sample or hypothesized model, a saturated model, and an independence model. The hypothesized model displays the indicator measures for the sample population, the saturated model sets the number of estimated parameters equal to the number of data points and in this way, is the least restricted, and the independence model which is the most restricted due to the complete independence of all variables contained in the model (Byrne, 2010). The saturated and independence models provide reference points along a

goodness-of-fit continuum, each positioned on one extreme or the other of this continuum

and serve to provide a helpful comparison to the measures generated by the hypothesized

model. Each measure contained in Table 11 will be evaluated for each sample model and

discussed below.

Table 11-*Model Fit Summary*

Model	χ^2	*df*	*p*	CMIN/*df*	CFI	RMSEA	NPAR	AIC	BCC
2008 Sample	658.195	138	<.001	4.770	.964	.061	71	800.195	803.084
Saturated Model	.000	0			1.000		209	418.000	426.505
Independence Model	14816.571	171	<.001	86.647	.000	.292	38	14892.571	14894.117
2010 Sample	852.652	138	<.001	6.179	.960	.059	71	994.652	996.608
Saturated Model	.000	0			1.000		209	418.000	423.758
Independence Model	18087.941	190	<.001	95.200	.000	.253	19	18125.941	18126.465

The chi-square statistic (χ^2) is used to investigate whether or not distributions of

variables differ from one another. Chi-square provides a statistical evaluation of

difference used to contrast the observed and estimated covariance matrices. Chi-square is

the only analytic that has a direct statistical test of its significance (Hair et al., 2006). It is represented mathematically by the following equation:

$$\chi^2 = \textbf{(N-1)(Observed sample covariance matrix-SEM estimated covariance matrix)}$$

In this equation, N represents sample size. It is immediately apparent that even if the differences in the covariance matrices remained constant, the χ^2 value would increase as sample size increases (Hair et al., 2006). Similarly, the SEM estimated covariance matrix is influenced by the number of parameters to be estimated, so degrees of freedom (*df*) also affect the χ^2 statistic. For these reasons, the first four statistics contained in Table 11 are typically reported simultaneously.

At $\alpha < .05$, *df* = 138, $p < .001$, and estimated χ^2 values of 658.195 (2008 sample) and 852.652 (2010 sample), these findings would certainly raise some concern. However, it is universally recognized that the chi-square statistic is especially sensitive to highly complex models and large sample sizes. Considering both the complexity of the model under investigation as well as the sizes of the 2008 and 2010 samples, a reasonable argument can be made for discounting the significance of these chi-square measures.

The CMIN/*df* is an attempt to adjust for model complexity in the χ^2 statistic. According to Byrne (1989), for a workable model, the value of CMIN/*df* should be close to a value of 1.0. Conversely, a CMIN/*df* ratio greater than 2.0 is considered an insufficient fit. As with the χ^2 values for both study samples, the CMIN/*df* ratios are higher than desired and therefore unsatisfactory.

The Comparative Fit Index (CFI) is a model fit indicator derived from the comparison of a hypothesized model with the independence or null model. The measure provides an amount of total covariation present in the data. CFI values range from zero to 1.0, and a minimum value of .95 is the advised cutoff for goodness-of-fit evaluation (Hu

and Bentler, 1999). Both samples employed during this study possess CFI values in excess of .95 indicating good model fit.

The root mean square error of approximation (RMSEA) considers the error of approximation in the population and essentially answers the question, "How well would the model, with unknown but optimal parameter values, fit the population covariance matrix if it were available?" (Browne and Cudeck, 1993, pp. 137-138). This discrepancy is expressed per degree of freedom making the RMSEA particularly sensitive to the number of estimated parameters in the model. As discussed by Browne and Cudeck, RMSEA values of less than .05 indicate good fit while values approaching .08 are still considered reasonable and therefore suitable for study. The RMSEA values for both the 2008 and 2010 study samples are considered acceptable at .061 and .059, respectively.

The nonparametric statistic (NPAR) represents the number of parameters to be estimated in the model under investigation. The model utilized during this study consists of 71 distinct parameters: 22 regression weights, seven co-variances, 23 residuals, and 19 intercepts, each indicating a presumed relationship between and among measured or construct variables (Kline, 2005).

Akaike's Information Criterion (AIC) addresses the issue of parsimony in the assessment of model fit. Statistical goodness-of-fit as well as the number of estimated parameters are considered. The AIC is used in the comparison of two or more models with smaller values indicating a better fitting hypothesized model (Hu and Bentler, 1995). The AIC statistic reflects "the extent to which parameter estimates from the original sample will cross-validate in future samples" (Byrne, 2010, p. 82). As depicted in Table 11, the AIC values generated for both the 2008 and 2010 samples appear acceptable as

each is situated on the lower end of the range between the saturated model and the independence model.

The Browne-Cudeck Criterion (BCC) functions in the same fashion as the AIC. The principal difference among them is that the BCC inflicts a greater penalty than the AIC when dealing with complex models. Additionally, while both statistics utilize χ^2 in their formulation, the BCC also considers the number of variables present in the model as well as the size of the sample population. Once again, smaller values are indicative of a better fitting hypothesized model (Byrne, 2010; Schreiber et al., 2006). Like the AIC statistic, the BCC values produced for both the 2008 and 2010 samples are situated on the lower end of the range between the saturated model and the independence model. As such, these measures appear to be acceptable indicators of goodness-of-fit.

Hoelter (1983) established a goodness-of-fit statistic which provides an estimate of the sample size at which the null hypothesis applied to a given model is rejected. Hoelter suggested that achieving a critical N level greater than 200 indicates an adequately sized study sample. AMOS provides for critical N analysis at both .05 and .01 levels of significance. As indicated in Table 12, the N values for both samples under investigation indicate adequate sample size at both the .05 and .01 levels of significance.

Table 12-*Determining Adequacy of Sample Size*

Sample	Hoelter's Critical N (.05)	Hoelter's Critical N (.01)
2008	254	274
2010	288	310

In summary, while the chi-square and the CMIN/*df* statistics were unacceptably high, these measures were undoubtedly influenced by the large sample sizes present in the 2008 and 2010 datasets. Values for the AIC and BCC, while certainly not optimal, appear reasonable as they are positioned closer to the saturated model in the value ranges for each sample. The CFI and RMSEA values both indicate good model fit. Finally, the critical N values for both samples indicate adequate size.

Standardized Direct, Indirect, and Total Effects

Standardized regression estimates are very helpful when comparing the relationship effects between different variables for a given sample population (Loehlin, 2004). The translation of unstandardized coefficients to standardized correlations allows for meaningful interpretations and conclusions regarding the interaction effects of predictor variables on a criterion or outcome variable. As depicted in the structural portion of the research model presented in Figure 2, there are numerous direct and indirect effects that exist between and among these variables.

A direct effect occurs when two variables are connected by a single, unbroken arrow signifying one uninterrupted relationship. An indirect effect occurs when there is a sequence of relationships among variables with at least one intervening variable involved in these relationships. In other words, a sequence of two or more direct effects represented graphically by multiple arrows between variables.

In the model depicted in Figure 2, direct effects are observed between Employment Development (ED) and Job Satisfaction (JS), ED and Team Effectiveness (TEAM), ED and Supervisor Effectiveness (SUP), SUP and TEAM, TEAM and Employee Intention to Stay (Work Two Years), SUP and Work Two Years, ED and

Work Two Years, and Work Two Years and JS. Most of the indirect effects contained in this model include the construct predictor variables ED, SUP, TEAM, and the construct, criterion variable JS as mediated by the observed and dichotomous variable, Work Two Years. Additionally, the relationships between the variables ED, SUP, and TEAM represent other indirect effects contained within this model.
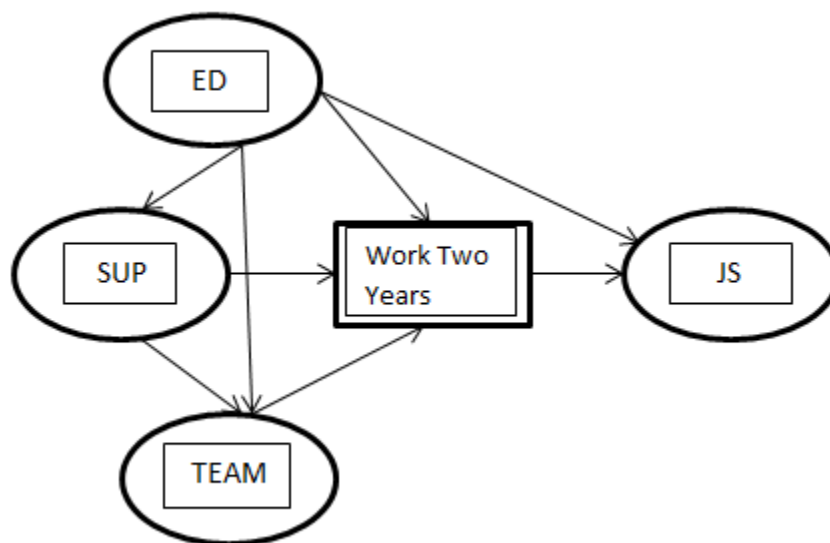
Figure 2-*Structural Model with Direct and Indirect Paths.* This diagram depicts the structural portion of the structural equation model displaying both direct and indirect effects. The variables Employment Development (ED), Supervisor Effectiveness (SUP), Team Effectiveness (TEAM), and Job Satisfaction (JS) are constructs. Work Two Years is a measured, dichotomous variable representing Employee Intention to Stay.

Total effects on the criterion variable were achieved by computing the sum of the direct and indirect effects among predictor variables and the mediating variable, Work Two Years. Standardized correlations for direct, indirect and total effects are portrayed in tables 13, 14, and 15 located below. These tables list the factor loadings for every indicator variable employed in the formation of the construct variables utilized throughout this study.

In evaluating the direct effects between variables (Table 13), it is immediately apparent that the high correlations that exist between several of the predictor variables contained in the structural model are troublesome. These correlations suggest a high degree of multicollinearity, which is a problematic development. High correlations indicate the variables may be redundant in nature. This redundancy or duplication calls into question the fundamental validity of these factors and the constructs they purport to represent. Basically, there is evidence that the predictor variables are so closely related that they may not indicate the theoretical constructs they are intended to measure (Hair et al., 2006), but possibly indicate another multidimensional construct instead.

In examining the findings generated from the 2008 sample, there exists a high degree of correlation between Supervisor Effectiveness and Employment Development (.975). The same is true of the findings produced from the 2010 sample. While such high multicollinearity is a reason for model revision or reformulation, in the present study, the model was retained because a primary goal of the study was to evaluate the psychometric properties of subcomponents of the scale and how they work in relation to social organization theory. The correlation between Supervisor Effectiveness and Employment Development is .986. This indicates that for every unit increase in Supervisor Effectiveness, the variable Employment Development increases by one unit. Again, this finding implies that the variables may in fact represent the same measure.

While not approaching the magnitude of correlation that exists between Employment Development and Supervisor Effectiveness, other constructs within the structural model yielded significant and substantial correlations for both the 2008 and 2010 study samples. The correlation between Team Effectiveness and Supervisor

Effectiveness were .765 and .591, respectively. The correlation between Team

Effectiveness and Employment Development were .240 and .410. However, this finding

was not statistically significant at a .05 level of significance.

The mediating variable Work Two Years, which represents turnover intention, is

the only variable to present a negative relationship in comparison to the other variables

employed in this study. Given the design of the instrument, a negative correlation is not

surprising. For the survey items comprising the construct variables, a low value response

indicates disagreement. The five-point Likert scale utilized by these items ranges from 1)

"strongly disagree" to 5) "strongly agree." The single item measure representing turnover

intention, Work Two Years, is a dichotomous variable and only allows two possible

responses; 1) "I agree" and 2) "I disagree." From solely an instrument design perspective,

the change in direction of these responses provides the opportunity to generate negative

correlations. The estimates between Job Satisfaction and Work Two Years for the 2008

and 2010 study samples was -.018 and .026, respectively. While directionally opposite,

both indicate similar strengths of relationship, which are so extremely low as to be

insignificant. Additionally, these findings were not significant at a .05 level of

significance.

Table 13-*Standardized Direct Effects*

_____

Sample	Variable	Employment Development	Supervisor Effectiveness	Team Effectiveness	Work Two Years	Job Satisfaction
2008	Supervisor Effectiveness	.975				
	Team Effectiveness	.240	.765			
	Work Two Years	-.402	-.673	.826		
	Job Satisfaction	.943			-.018	
	q40					.714
	q41					.649
	q22					.859
	q46			.816		
	q27			.826		
	q25			.713		
	q21			.819		
	q19			.791		
	q17			.824		
	q49		.774			
	q45		.841			
	q31		.794			
	q18		.795			

Table 13-Continued

Sample	Variable	Employment Development	Supervisor Effectiveness	Team Effectiveness	Work Two Years	Job Satisfaction
	q36	.713				
	q35	.614				
	q34	.630				
	q33	.627				
	q16	.807				
2010	Supervisor Effectiveness	.986				
	Team Effectiveness	.410	.591			
	Work Two Years	-2.526	-2.180	4.503		
	Job Satisfaction	.938			.026	
	q40					.707
	q41					.671
	q22					.830
	q46			.781		
	q27			.824		
	q25			.689		
	q21			.810		
	q19			.761		
	q17			.789		

Table 13-Continued

Sample	Variable	Employment Development	Supervisor Effectiveness	Team Effectiveness	Work Two Years	Job Satisfaction
	q49		.729			
	q45		.818			
	q31		.777			
	q18		.752			
	q36	.688				
	q35	.607				
	q34	.597				
	q33	.617				
	q16	.766				

Note. Missing values indicate no model relationship.

Table 14 displays the standardized indirect effects of the relationships between the study variables. These data are provided for both the 2008 and 2010 samples. The most significant relationship between the construct variables present in the structural model exists between Team Effectiveness and Employment Development. Those estimates are .746 and .582, respectively, however neither was significant at a .05 level of significance.

Regarding the study's mediating variable, estimates between Work Two Years and Employment Development varied greatly between the two study samples. The 2008 sample produced a correlation of .158 while the 2010 sample produced a correlation of 2.319 which clearly indicates an AMOS estimation error as standardized correlations are

limited to values between -1 and +1. However, neither of these correlations was significant at a .05 level of significance.

The estimates between Work Two Years and Supervisor Effectiveness also varied greatly between the two study samples. The 2008 sample produced an estimate of .632 while the 2010 sample generated an estimate of 2.661. Once again, the latter measure is attributed to an AMOS estimation error. However, neither of these estimates was significant at a .05 level of significance.

Table 14-*Standardized Indirect Effects*

Sample	Variable	Employment Development	Supervisor Effectiveness	Team Effectiveness	Work Two Years	Job Satisfaction
2008	Supervisor Effectiveness					
	Team Effectiveness	.746				
	Work Two Years	.158	.632			
	Job Satisfaction	.004	.001	-.015		
	q40	.676	.001	-.010	-.013	
	q41	.615		-.009	-.011	
	q22	.813	.001	-.012	-.015	
	q46	.805	.624			
	q27	.815	.632			
	q25	.703	.546			
	q21	.808	.627			
	q19	.780	.605			
	q17	.813	.630			
	q49	.755				

Table 14-Continued

Sample	Variable	Employment Development	Supervisor Effectiveness	Team Effectiveness	Work Two Years	Job Satisfaction
	q45	.820				
	q31	.774				
	q18	.775				
	q36					
	q35					
	q34					
	q33					
	q16					
2010	Supervisor Effectiveness					
	Team Effectiveness	.582				
	Work Two Years	2.319	2.661			
	Job Satisfaction	-.005	.013	.119		
	q40	.659	.009	.084	.019	
	q41	.626	.009	.080	.018	
	q22	.774	.011	.099	.022	
	q46	.775	.462			
	q27	.818	.487			
	q25	.683	.407			
	q21	.803	.478			
	q19	.755	.449			
	q17	.783	.466			
	q49	.718				

Table 14-Continued

Sample	Variable	Employment Development	Supervisor Effectiveness	Team Effectiveness	Work Two Years	Job Satisfaction
	q45	.806				
	q31	.766				
	q18	.741				
	q36					
	q35					
	q34					
	q33					
	q16					

Note. Missing values indicate no model relationship.

In analyzing the total effects associated with both study samples, the relationships between Employment Development and Supervisor Effectiveness, Team Effectiveness, and Job Satisfaction were quite large. The 2008 sample provides the following correlations with Employment Development: Supervisor Effectiveness (.975), Team Effectiveness (.986), and Job Satisfaction (.947). The 2010 sample provides the following correlations with Employment Development: Supervisor Effectiveness (.986), Team Effectiveness (.992), and Job Satisfaction (.933).

For both the 2008 and 2010 samples, only the relationships involving Supervisor Effectiveness and Job Satisfaction are significant at a .001 level of significance. However, it must once again be noted that a highly correlated relationship between predictor variables is indicative of multicollinearity. Multicollinearity implies the predictor variables employed by the structural portion of the structural equation model

are so closely associated that they may not actually indicate the theoretical constructs they are intended to measure (Hair et al., 2006).

The relationship between Team Effectiveness and Supervisor Effectiveness provides estimates of .765 for the 2008 sample and .591 for the 2010 sample. Both of these correlations are significant at the .001 level of significance and show a strong, positive relationship exists between these two variables. None of the estimates associated with Work Two Years are statistically significant at the .05 level of significance in either study sample.

Table 15-*Standardized Total Effects*

Sample	Variable	Employment Development	Supervisor Effectiveness	Team Effectiveness	Work Two Years	Job Satisfaction
2008	Supervisor Effectiveness	.975				
	Team Effectiveness	.986	.765			
	Work Two Years	-.244	-.041	.826		
	Job Satisfaction	.947	.001	-.015	-.018	
	q40	.676	.001	-.010	-.013	.714
	q41	.615	.000	-.009	-.011	.649
	q22	.813	.001	-.012	-.015	.859
	q46	.805	.624	.816		
	q27	.815	.632	.826		
	q25	.703	.546	.713		
	q21	.808	.627	.819		
	q19	.780	.605	.791		
	q17	.813	.630	.824		
	q49	.755	.774			
	q45	.820	.841			

Table 15-Continued

Sample	Variable	Employment Development	Supervisor Effectiveness	Team Effectiveness	Work Two Years	Job Satisfaction
	q31	.774	.794			
	q18	.775	.795			
	q36	.713				
	q35	.614				
	q34	.630				
	q33	.627				
	q16	.807				
2010	Supervisor Effectiveness	.986				
	Team Effectiveness	.992	.591			
	Work Two Years	-.207	.480	4.503		
	Job Satisfaction	.933	.013	.119	.026	
	q40	.659	.009	.084	.019	.707
	q41	.626	.009	.080	.018	.671
	q22	.774	.011	.099	.022	.830
	q46	.775	.462	.781		
	q27	.818	.487	.824		
	q25	.683	.407	.689		
	q21	.803	.478	.810		
	q19	.755	.449	.761		
	q17	.783	.466	.789		
	q49	.718	.729			
	q45	.806	.818			
	q31	.766	.777			
	q18	.741	.752			
	q36	.688				

Table 15-Continued

Sample	Variable	Employment Development	Supervisor Effectiveness	Team Effectiveness	Work Two Years	Job Satisfaction
	q35	.607				
	q34	.597				
	q33	.617				
	q16	.766				

Note. Missing values indicate no model relationship.

Assessing Practical Importance

In any correlational study, it is important to evaluate the practical significance of the findings, especially when the research generates well-estimated effect sizes (Rosenthal, 1994). In engaging in this evaluation, researchers rely on two primary types of effect sizes, the *r* family and the *d* family (Rosenthal and DiMatteo, 2001). I will focus this discussion on the *r* family of product moment correlations. These include

> Pearson's *r* when both variables are continuous, *phi* when both variables are dichotomous, point biserial *r* when one variable is continuous and one is dichotomous, *rho* when both variables are in ranked form, and *Z*, the Fisher transformation of *r* (p. 70).

This family also contains several squared indices of *r* and related measures such as r^2, commonly referred to as the *Coefficient of Determination*. In evaluating practical effect, squared indices are sometimes problematic because of the loss of directionality. Additionally, the magnitude of measures is frequently misinterpreted. Regarding concerns stemming from the interpretation of practical significance associated with the magnitude of measures, these are often directed at low value estimates of r^2. Utilizing

Cohen's operational definitions of small, medium, and large effect sizes for *r*, a small effect measure is .10, a medium effect measure is .30, and a large effect measure is .50 (Cohen, 1987). These are decidedly smaller than comparable measures of *d* which are .20, .50, and .80, respectively.

Given the magnitude and direction of the statistically significant effects generated from this study, I am unconcerned regarding either loss of directionality or misinterpretation of extremely small effect sizes. The statistically significant relationships apparent between construct variables employed in this study are positive and highly correlated. An assessment of practical significance is a moot point when relationships between variables fail to achieve statistical significance at a .05 level of significance.

Both *r* and *d* estimates can be readily converted to one another utilizing the following formulas:

$$r = \sqrt{\frac{d^2}{d^2 + 4}}$$

$$d = \frac{2r}{\sqrt{1 - r^2}}$$

However, effect size *r* offers certain benefits over the use of *d*. First, transforming *d*'s to *r*'s is reasonable because *r* in its point biserial variation denotes an association between two levels of predictor variable and scores on the criterion variable. Transforming the continuous Pearson's *r* to the dichotomous *d* drops information. Secondly, *r* is more easily deciphered in terms of practical importance than *d* (Rosenthal and DiMatteo, 2001).

Therefore, for the purpose of this study, I will employ the r^2 Coefficient of Determination analysis to assess degree of practical effect among statistically significant

factor relationships and discuss those analyses in the next section of this paper. These analyses utilizing r^2 will provide the amount of variance shared by factors and varies from 0 to 1. The formula for r^2 is simply the amount of explained variance divided by the total variance generating the percentage of shared variance. For example, an r value of 0.11 results in an r^2 value of .0121 meaning 1.2% of the variance of either variable is shared with the other variable. Such a low proportion of variance would likely not be perceivable from informal observation and indicates a poor measure of practical effect.

Findings for Research Questions and Hypotheses

1. Do the psychometric properties of the Survey of Organizational Excellence (SOE) instrument exhibit adequate evidence of internal consistency reliability?

For the construct variables employed during this study, Cronbach's Alpha values for both the 2008 and 2010 samples indicate high degrees of internal consistency reliability. Specifically, Team Effectiveness exhibited coefficients of .92 and .90 respectively, Supervisor Effectiveness exhibited coefficients of .88 and .85, Employment Development exhibited coefficients of .87 and .86, and Job Satisfaction exhibited coefficients of .80 and .79. Each of these values is considered an acceptable measure of internal consistency reliability. Cronbach's Alpha analysis provides measures ranging from 0 to 1, with a value of .70 considered the lowest acceptable level of internal consistency reliability (Crocker and Algina, 1986; Hair et al., 2006).

2. Does the SOE exhibit adequate evidence of factorial validity?

It is apparent from an analysis of the relationship effects between the predictor variables for both sample populations that there exists a high degree of multicollinearity.

This presents problems in analysis because multicollinearity creates shared variance between variables, thus inhibiting the ability to predict the criterion or outcome measure as well as determine the comparative role of each predictor variable in this analysis (Hair et al., 2006). This assessment indicates our variables function redundantly in nature and calls into question the validity of the constructs they represent. In other words, there is evidence that the predictor variables employed in the structural portion of the structural equation model are so closely related that they may not actually measure the distinct theoretical constructs they are intended to measure (Hair et al., 2006).

3. Do the items comprising the SOE exhibit differential item functioning (i.e. item bias) between gender or ethnic groups?

At a .05 level of significance, several survey items indicated some degree of gender differentiation associated with the 2008 sample and the 2010 sample, as well as differentiation apparent in both study samples. The following items indicated gender differences in response among respondents of the 2008 sample: we are given the opportunity to do our best work (q22), we are efficient (q25), we are given accurate feedback about our performance (q31), learning opportunities/training are made available for personal growth and development (q33), and learning opportunities/training are made available for professional growth/skills development (q34).

Likewise, these items indicate differing degrees of gender response associated with the 2010 dataset: there is a sense of trust throughout the organization (q21), we are given the opportunity to do our best work (q22), we are efficient (q25), we are given accurate feedback about our performance (q31), learning opportunities/training are made available for professional growth/skills development (q34), we have access to

information about job opportunities, conferences, workshops, and training (q35), people who challenge the status quo are valued (q45), and work groups or committees are involved in making work processes more effective (q46).

Curiously, several of these items are common to both datasets; specifically: we are given the opportunity to do our best work (q22), we are efficient (q25), we are given accurate feedback about our performance (q31), and learning opportunities/training are made available for professional growth/skills development (q34).

Rather than characterizing such findings as gender-related bias, it appears the high degree of association between these item responses and gender affiliation are indicative of the organizational experiences of men and women in public higher education workplaces in Texas. It should be noted that, in literally every case, women scored these items higher than their male counterparts, which indicates a higher degree of workplace satisfaction (Table 9). Women simply exhibit a greater level of satisfaction with their work environment than their male counterparts. Whether such a finding indicates inherent bias associated with the SOE instrument is unclear. It does certainly inform distinct and group centered attitudes regarding satisfaction with the public university workplace that must be further explored.

Differential item functioning occurs when respondents from dissimilar groups demonstrate different probabilities of success in responding to test items after matching on the abilities those items are intended to evaluates (Rogers, 2005; Scarpati, Wells, Lewis and Jirka, 2011; Zumbo, 1999). In this case, there is likely little match association between respondents. The only factor they have in common as a group is employment with a public university in Texas. The sample populations include staff employees

working in a variety of fields, tenured faculty members, adjunct faculty, and temporary employees. While clearly a significant finding regarding the manner in which men and women view the university workplace, it is unclear if the association is truly indicative of a bias inherent to the SOE instrument.

4. How does Employment Development affect Employee Intention to Stay at four-year, Texas public institutions of higher education?

The 2008 sample yielded an estimated, standardized total effect of -.244 as compared to the 2010 sample which provided an estimate of -.207. While these estimates are negative and low in terms of their magnitude, neither is significant at a .05 level of significance. Therefore, there is no statistically significant relationship apparent between Employment Development and Intention to Stay among employees of four-year, public institutions of higher education in Texas.

5. How does Team Effectiveness affect Employee Intention to Stay at four-year, Texas public institutions of higher education?

The 2008 study sample yielded an estimated, standardized total effect of .826 as compared to the results of the 2010 sample which provided an estimate of 4.503. While the estimate for the 2008 sample is positive and high in terms of the magnitude, it is not significant at a .05 level of significance. Also, the estimate for the 2010 sample is clearly in error as standardized estimates must range between -1.0 and +1.0. This is indicative of a data integrity issue associated with the 2010 sample. Not surprisingly, this estimate was also not significant at a .05 level of significance. Therefore, there is no statistically significant relationship apparent between Employment Development and Intention to Stay among employees of four-year, public institutions of higher education in Texas.

6. How does Supervisor Effectiveness affect Employee Intention to Stay at four-year, Texas public institutions of higher education?

   The 2008 sample yielded an estimated total effect of -.041 as compared to the 2010 sample which provided an estimate of .480. While the 2008 sample provided an estimate that was negative and low in magnitude, the 2010 sample provided an estimate that was positive and medium in magnitude. Neither estimate was significant at a .05 level of significance. Therefore, there is no statistically significant relationship apparent between Supervisor Effectiveness and Employee Intention to Stay among employees of four-year, public institutions of higher education in Texas.

7. How does Employment Development affect Job Satisfaction at four-year, Texas public institutions of higher education?

   With statistically significant probabilities at a .001 level of significance, the 2008 sample yielded an estimated total effect of .947 as compared to the 2010 sample which provided an estimate of .933. Given that standardized estimates between variables range from between -1 to +1, estimates of this magnitude indicate an extremely large and significant relationship between these two study variables. So high in fact, from a practical standpoint, every unit increase in employment development results in a corresponding increase in job satisfaction.

   Additionally, the positive nature of these estimates indicates that as Employment Development increases, Job Satisfaction increases. With r values for the 2008 and 2010 samples of .947 and .933, respectively, the corresponding r^2 values of .8986 and .8705 indicate 89% and 87% shared variance between these variables indicating a very large practical effect. In summary, these findings reveal a very large, positive, practical and

statistically significant relationship exists between Employment Development and Job Satisfaction among employees of four-year, public institutions of higher education in Texas.

8. How does Intention to Stay affect the relationship between Employment Development, Supervisor Effectiveness, Team Effectiveness, and Job Satisfaction at four-year, Texas public institutions of higher education?

For the 2008 study sample, the total standardized correlation between Employment Development and Intention to Stay was -.244, the estimate between Supervisor Effectiveness and Intention to Stay was -.041, the estimate between Team Effectiveness and Intention to Stay was .826, and the estimate between Intention to Stay and Job Satisfaction was -.018. Clearly, the mediating effect of Intention to Stay in this model was to substantially reduce the effects of the predictor constructs Employment Development, Supervisor Effectiveness, and Team Effectiveness on the criterion construct, Job Satisfaction.

For the 2010 study sample, the total standardized estimate between Employment Development and Intention to Stay was -.207, the estimate between Supervisor Effectiveness and Intention to Stay was .480, the estimate between Team Effectiveness and Intention to Stay was 4.503, and the estimate between Intention to Stay and Job Satisfaction was .026. As with the 2008 study sample, the mediating effect of Intention to Stay reduced the effects of the predictor constructs Employment Development, Supervisor Effectiveness, and Team Effectiveness on the criterion construct, Job Satisfaction.

For both the 2008 and 2010 study samples, none of the estimates associated with Intention to Stay were significant at a .05 level of significance. Therefore, there were no statistically significant relationships indicated between Employee Intention to Stay, Employment Development, Supervisor Effectiveness, Team Effectiveness and Job Satisfaction among employees of four-year, public institutions of higher education in Texas.

9. How does Employment Development affect Team Effectiveness at four-year, Texas public institutions of higher education?

The 2008 sample yielded an estimated total effect of .986. The 2010 sample provided an estimate of .992. Both estimates are positive in direction of effect and extremely large. As both constructs serve as predictor variables in the study model, such high correlations are indicative of multicollinearity which calls into question the fundamental validity of these constructs. That said, neither estimate was significant at a .05 level of significance. Therefore, there is no statistically significant relationship evident between Employment Development and Team Effectiveness among employees of four-year, public institutions of higher education in Texas.

10. How does Employment Development affect Supervisor Effectiveness at four-year, Texas public institutions of higher education?

With statistically significant probabilities at a .001 level of significance, the 2008 sample yielded an estimated total effect of .975 as compared to the 2010 sample which provided an estimate of .986. With r values for the 2008 and 2010 samples of .975 and .986, respectively, the corresponding r^2 values of .9506 and .9722 indicate 95% and 97% shared variance indicative of a very large practical effect. As both variables serve as

predictor constructs in the study model, such high correlations are evidence of multicollinearity, which calls into question the fundamental validity of these constructs. In spite of this consideration, the findings do indicate that a strong, positive, practical, and statistically significant relationship exists between the variables.

11. How does Supervisor Effectiveness affect Team Effectiveness at four-year, Texas public institutions of higher education?

The 2008 study sample yielded an estimated total effect of .765. The 2010 sample provided an estimate of .591. Both estimates are positive in the direction of their effects and medium in magnitude. They are also statistically significant at a .001 level of significance. With r values for the 2008 and 2010 samples of .765 and .591, respectively, the corresponding r^2 values of .5852 and .3493 indicate 59% and 35% shared variance indicative of a moderately large practical effect. In summary, the findings do indicate a moderately strong, positive, practical and statistically significant relationship exists between Supervisor Effectiveness and Team Effectiveness among employees of four-year, public institutions of higher education in Texas.

Summary

For the construct variables employed during this study, Cronbach's Alpha values for both the 2008 and 2010 datasets indicate high degrees of internal consistency reliability. Regarding factorial validity, it is apparent from an analysis of the relationship effects that exist between the predictor variables for both study samples that suggests a high degree of multicollinearity. This discovery presents potential problems in analysis because multicollinearity creates shared variance between variables, thus fundamentally inhibiting the ability to predict the criterion measure as well as determine the comparative

role of each predictor variable in the analysis (Hair et al., 2006). In other words, there is evidence that the predictor variables employed in the structural portion of the structural equation model are so closely associated that they may not effectively measure the theoretical constructs they are intended to measure (Hair et al., 2006).

The results of an analysis of differential item functioning for each study sample indicated some degree of gender differentiation associated with several survey items. Curiously, several of these items were common to both study samples, specifically, 1) we are given the opportunity to do our best work (q22), 2) we are efficient (q25), 3) we are given accurate feedback about our performance (q31), and 4) learning opportunities/training are made available for professional growth/skills development. Rather than characterize these findings as gender-related bias, it appears the high degree of association between these item responses and gender affiliation are indicative of the organizational experiences of men and women in the Texas, public higher education workplace. It should be noted that, in literally every case, women scored these items higher than their male counterparts, indicating a higher degree of workplace satisfaction (Table 9). Whether these findings indicate inherent bias associated with the SOE instrument is unclear. It does certainly evidence distinct and group-centered attitudes regarding satisfaction with the public university workplace and, as such, suggests areas for further exploration by The Institute for Organizational Excellence.

Regarding the variables comprising the structural component of the structural equation model, both study samples indicated strong to moderately strong, positive, practical, and statistically significant relationships between the variables Employment Development and Supervisor Effectiveness. However, as discussed earlier, such strong

correlations between predictor variables in a structural equation model indicate
multicollinearity and present potential concerns regarding factorial validity. The analysis
of the relationship between Employment Development and Job Satisfaction also reveals a
strong, positive, practical and statistically significant association, but estimates of this
magnitude between a predictor and a criterion variable are of much less concern. Also,
the relationship between Supervisor Effectiveness and Team Effectiveness provides
strongly correlated and highly significant estimates for both study samples. There is no
indication of statistically significant relationships between Supervisor Effectiveness and
Intention to Stay, Employment Development and Intention to Stay, Team Effectiveness
and Intention to Stay, and Employment Development and Team Effectiveness. Also,
there were no statistically significant relationships indicated between Intention to Stay
serving as a mediating variable and Employment Development, Supervisor Effectiveness,
Team Effectiveness, and Job Satisfaction.

CHAPTER V

DISCUSSION AND CONCLUSIONS

The final chapter of this dissertation considers the implications of the relationships between and among the variables Employment Development, Supervisor Effectiveness, Team Effectiveness, Employee Intention to Stay, and Job Satisfaction. Given the global competition for talent and the increasing organization attrition due to an aging workforce, the retention of trained, competent, and motivated employees is certainly an operational imperative. For managers employed by the State of Texas, legislative reports investigating turnover among state agency employees as well as those employed by public institutions of higher education serve to underscore the importance of employee retention to the state legislature.

As evidenced by the existing research literature associated with this topic, establishing a workplace that promotes job satisfaction and retention among employees requires an understanding of the following points: a) the positive effects associated with career development opportunities and initiatives, b) competent and effective supervision, and c) positive group dynamics. The present study explores the effects of these factors on job satisfaction and intention to remain employed by public institutions of higher education in Texas.

Review of Research Study

My purpose in pursuing this study was two-fold: 1) analyze the relationships between the factors comprising the predictor and criterion variables employed during this study, and 2) examine the Survey of Organizational Excellence (SOE) instrument and several of the pre-established constructs used by the Institute for Organizational Excellence in the analysis, assessment, and report of findings to organizations that choose to participate in survey opportunities. Regarding the variables explored during this study, the nature of the current research literature associated with the relational interactions between the variables was considered in the formulation of the structural equation model.

Respondent data for the SOE representing several public institutions of higher education in Texas were used in these analyses. Two sample populations were studied during the course of this research. In FY 2008, the SOE was administered to employees of eight public, four-year institutions of higher education. In FY 2010, the same version of the SOE was administered to employees of seven public, four-year institutions of higher education. Of these institutions, only three were represented in both samples. These participating institutions represented small to mid-size organizations located in rural or small metropolitan locations throughout the state of Texas. The data gathered from these institutions were analyzed in the aggregate for each year group and resulted in cumulative findings for each sample population.

Using established but slightly modified constructs from The Institute for Organizational Excellence in their data analyses and reporting and supported by an a priori examination of the extant literature, a structural equation model was developed to explore the relationships between and among the variables Employment Development,

Supervisor Effectiveness, Team Effectiveness, Employee Intention to Stay, and Job Satisfaction. The constructs were modified by removing redundant indicator variables present in multiple measurement models contained within the structural model in an attempt to promote unidimensionality.

The structural model consisted of three latent construct variables: Employment Development, Supervisor Effectiveness, and Team Effectiveness. A mediating dichotomous, measured variable, Employee Intention to Stay, was also incorporated into the structural model. The criterion, construct variable employed in the structural model was Job Satisfaction. Standardized estimates were produced for both the FY 2008 and FY 2010 study samples representing 1,004 and 1,356 respondents respectively.

Additionally, a differential item functioning (DIF) analysis was conducted to determine the presence of gender bias associated with the study's indicator variables. Given the binary nature of the measure GENDER, the factor under investigation, binary logistic regression was employed to ascertain if any bias existed and the degree of such bias.

Review of Literature Findings

An extensive review of the existing research literature associated with employee job satisfaction and retention provided the foundation upon which this study was conceived and undertaken. Additionally, the theoretical basis of the study was informed by the seminal works of Frederick Herzberg, John Stacey Adams, and Victor Vroom. The epistemological framework was informed by the behaviorist research conducted by B.F. Skinner.

Herzberg (1959) identifies and discusses a variety of factors which he concludes affect the workplace environment influencing both employee motivation and job satisfaction. According to Herzberg's Hygiene Theory, job satisfaction is an outgrowth of achievement, recognition, challenging work, responsibility, and career advancement. These factors are closely associated with the constructs employed in this study. When these elements are present in a job, Herzberg asserts the employee will experience positive feelings towards employment. While other factors most certainly influence employee attitudes towards job satisfaction and intention to remain with an employer, management strategies that focus on addressing these considerations lead to the highest level outcomes.

Equity Theory, as described by Adams (Miner, 2005), would suggest an influential relationship exists between employee perceptions of job satisfaction, supervisor effectiveness, team effectiveness, employment development, and employee intention to stay. According to Adams, a perception of inequity tends to bring about job dissatisfaction, often manifested as anger, if employees perceive they are under-rewarded, or guilt, if they believe they are over-rewarded. And while considered an extreme reaction, voluntary separation provides employees with a method for dealing with perceived inequity by ending exposure to the inequity-producing situation.

Vroom's (1964) research was principally based on the notion that employees have a tendency to favor certain purposes or outcomes over others. A fundamental principle of Expectancy Theory is the understanding that the magnitude of a favorable response to a given outcome is contingent upon the degree to which it contributes to other outcomes and the favorableness of those outcomes. Vroom applied this theoretical

proposition to research associated with occupational choice, job satisfaction, and job performance.

Each of these researchers and their associated theories discuss workplace factors that are closely aligned with the structural variables employed in the present study. They also imply a behaviorist perspective in the belief that management efforts to control these factors in a manner favorable to both employees and supervisors will significantly and positively influence behaviors associated with workplace satisfaction and worker retention (Skinner, 1974).

In reviewing previous research associated with workplace satisfaction and intention to remain with an employer, it was readily apparent that studies exploring these factors often incorporated career advancement and development opportunities, supervisor support and effectiveness, and quality of group interaction measures. My review provided the following findings related to the variables employed in the present study:

- There exists a significant and positive relationship between Employment Development and Employee Intention to Stay (Bergiel, Nguyen, Lundberg and Marshallsav, 2007; Chew and Chan, 2008; Clenney, and Taylor, 2009; Dennis, 2006; Owens, 2006; Pollitt, 2008; Rowden, 2002; Sahinidis and Bouris, 2008).

- There exists a significant and positive relationship between Supervisor Effectiveness and Employee Intention to Stay (Buelens and Van den Broeck, 2007; Doh, Stumpf, Tymon and Haid, 2008; Soonhee, 2005).

- There exists a significant and positive relationship between Team Effectiveness and Employee Intention to Stay (Berg, 1999; Griffin, Patterson and West, 2001; Kirkman and Rosen, 1999; Kivimaki et al., 2007; Thacker and Holl, 2008).

- There exists a significant and negative relationship between Job Satisfaction and Turnover Intention (Brown and Yoshioka, 2003; Moynihan and Pandey, 2007; Rust, Stewart, Miller and Pielack, 1996; Van Dick et al., 2004).

- There exists a significant and positive relationship between Employment Development and Job Satisfaction (Sahinidis and Bouris, 2008; Thacker and Holl, 2008; Wright and Davis, 2003).

- There exists significant and positive relationships between Employment Development, Supervisor Effectiveness, and Team Effectiveness (Ozaralli, 2003; Prati, Douglas, Ferris, Ammeter, and Buckley, 2003; Sisaye, 2005; Spreitzer, Cohen and Ledford, 1999; Whitfield, Anthony and Kacmar, 1995).

Discussion of Results

The findings generated from this research study are revealing and insightful in many respects. Most significantly, it was determined:

- There is some degree of gender DIF in responses associated with several of the survey items that were utilized as indicator variables during this study and employed in measurement models contained within the overall structural equation model.

- There are factorial validity concerns regarding the predictor variables employed during this study. The high degree of shared variance between them is indicative of multicollinearity and raises concerns regarding their construct meaning.

- As a mediating variable, Employee Intention to Stay was not statistically significant at a .05 level of significance with any associated variables employed during this study.

- There were strong to moderately strong, positive, practical, and statistically significant estimates generated between the construct variables Employment Development and Job Satisfaction, Employment Development and Supervisor Effectiveness, and Supervisor Effectiveness and Team Effectiveness. These relationships were anticipated given the conclusions drawn from a review of the existing research literature.

Key Structural Pathways

Figure 3 on the following page depicts the structural portion of the structural equation model and displays total effects for both the 2008 and 2010 study samples as well as their corresponding significance values.
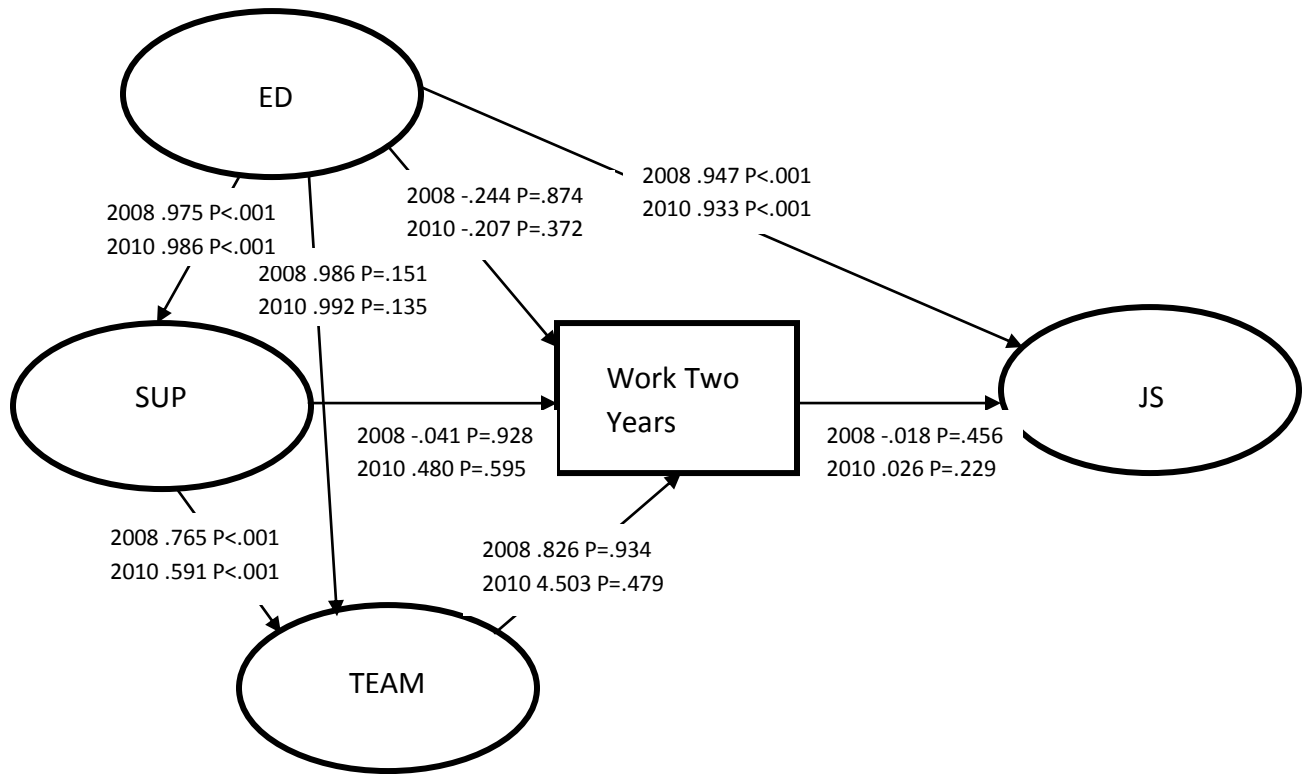
Figure 3-*Core Model with Standardized Total Effects and Significance Values* Construct designations: Employment Development (ED), Supervisor Effectiveness (SUP), Team Effectiveness (TEAM), Job Satisfaction (JS), and Employee Intention to Stay (Work Two Years).

The key paths depicted in the structural model utilized during this study involved the following construct associations: Employment Development to Supervisor Effectiveness, Supervisor Effectiveness to Team Effectiveness, and Employment Development to Job Satisfaction.

As anticipated from a review of the research literature, a strong, positive, practical and statistically significant relationship exists between Employment Development and Supervisor Effectiveness. Standardized total effects for the 2008 and 2010 study samples were .975 and .986, respectively, with correspondingly high shared variance values of 95% and 97% between these variables indicating a large degree of practical significance. It is reasonable to expect that high marks for management effectiveness would be

forthcoming from a committed and supportive view of the importance of career development to a workforce.

Likewise, the relationship between Supervisor Effectiveness and Team Effectiveness was strong, positive, and significant with total effects for the 2008 and 2010 study samples of .765 and .591, respectively, with correspondingly high shared variance values of 59% and 35% between these variables indicating a moderately large degree of practical significance. As apparent from the literature review for this study, effective management interaction is critical to positive group dynamics and productive, efficient, and highly collaborative work teams. Clearly, these findings lend support and credibility to the work of earlier researchers in this area.

However, as stated previously in this chapter, a high degree of cross or shared variance among predictor variables is evidence of multicollinearity, which raises questions regarding the factorial validity of the latent construct variables. In other words, there is some question as to whether or not they truly measure what they purport to measure (Hair et al., 2006). Of course, a review of the existing research literature does indicate that strong associations between these variables do, in fact, exist. A case can be made that production of such high correlations between these factors indicates very strong relationships between them because they are, by their very nature, highly correlated.

Surprisingly, the relationships between the study's predictor constructs and the dichotomous, measured variable, Intention to Stay, were wide ranging in their associated effect sizes. The values were both positive and negative, and from high to low in degree of magnitude. However, in every case, these measures were not significant at a .05 level

of significance. Additionally, the estimates generated by both study samples that examined the relationship between Employee Intention to Stay and Job Satisfaction were as inconsistent as the examination of predictor constructs. These values were -0.018 for the 2008 sample and .026 for the 2010 sample. Neither was significant at a .05 level of significance.

Such inconsistency in association is not consistent with prior research findings, and yet, upon closer examination, these data reveal an interesting and unanticipated development. While fully 25% of respondents in 2008 and 24.1% in 2010 indicated either a neutral response or some level of dissatisfaction with their employment, only 10.3% of respondents in 2008 and 9.7% of respondents in 2010 indicated an intention to depart their employment within two years. While some employees are clearly not satisfied with their employment, the vast majority of these employees in both study samples intend to remain with their employer. This accounts for the inability to ascertain any degree of statistical significance associated with the relationships between this variable and variables contained within the study model. Regardless of level of Job Satisfaction, and satisfaction associated with Employment Development, Supervisor Effectiveness, and Team Effectiveness, the vast majority of respondents intend to remain employed by their present employer.

Thus, the generally low turnover rates experienced by these institutions in 2008 and 2010 were not indicative of higher levels of job satisfaction. Among members of these two sample populations, Job Satisfaction was not a significant, influencing factor in decisions regarding whether to stay or depart their employment. This is a controversial

development when examined in the context of recent research into employee job satisfaction and intention to remain with an employer.

Oddly, the findings of this study do not reflect the economic turbulence of the period under study. In 2008, the nation's economy entered into recession and the unemployment rate soared. There were fears of a full-scale economic collapse (Kouwe, 2008). In 2010, the economy was weak, but a slow recovery, as indicated by growing private sector jobs numbers, was underway. In the public sector, the effects of the nation's poor economy were only beginning to take hold. There was growing concern over discussions of layoffs affecting employees of state agencies and public universities. Many public employees did lose their jobs (Leonhardt, 2011).

In stark contrast, the Texas economy proved quite resilient. Although there appeared to be some indication of a slowing economy in 2008 and 2009, economic losses in Texas proved modest, especially considering the state of the nation's economy. According to the Texas Comptroller of Public Accounts (2010),

> two factors have worked to insulate Texas from the national economic downturn. First, oil and natural gas prices soared in fiscal year 2008, resulting in rapid job growth in the energy sector, which, despite higher fuel costs at the pump, benefitted the state's economy and tax revenues through increased exploration and production and the addition of high-paying jobs. Second, Texas exports, which were boosted by a weak U.S. dollar, grew at double-digit rates through the past five fiscal years. (p. 1)

It was not until 2010 that public universities began to feel the effects of the state's economic struggles. Budgets were cut, but jobs remained mostly untouched. And it was

only as a result of the last legislative session that some limited layoffs of university employees occurred. This activity would not be reflected in the two samples under investigation in the present study. From a practical perspective, the public university landscape in Texas during the period under investigation remained generally unaffected by the nation's economic woes.

Key Indicator Variables

The indicator variables used in the formation of the construct variables utilized during this study must be discussed due to the substantial contributions each makes to its associated construct. These relationships are all positive, significant at a .001 level of significance, and substantial in magnitude. As discussed earlier in this paper, given the large number of respondents in both study samples, a high level of significance associated with those measures is not unusual. The likelihood that significant differences between and among the study variables will be found increases with larger samples. This dynamic is associated with statistical power or the probability that the null hypothesis will be rejected when it is false. Statistical power is determined by the significance of a) the α criteria or established level of significance, b) the size of the study sample, and c) the effect size (Cohen, 1992). In the present study, reliability analysis revealed the indicator variables for each construct measure were highly consistent with Cronbach's Alpha measures exceeding .70 for each construct (Table 10). Accordingly, large factor loadings between indicator variables and constructs is anticipated and were produced in these regression analyses.

Employment Development

The following survey items were utilized in the formation of the construct

variable, *Employment Development*, with associated loadings and significance measures

by study sample:

- q16 – Work groups or committees are trained to incorporate the opinions of each

  member.

  Standardized correlations:

  2008 sample r=.807/P<.001

  2010 sample r=.766 /P<.001

- q33 – Learning opportunities/training are made available for personal growth and

  development.

  Standardized correlations:

  2008 sample r=.627/P<.001

  2010 sample r=.617/P<.001

- q34 - Learning opportunities/training are made available for professional

  growth/skills development.

  Standardized correlations:

  2008 sample r=.630/P<.001

  2010 sample r=.597/P<.001

- q35 – We have access to information about job opportunities, conferences,

  workshops, and training.

  Standardized correlations:

  2008 sample r=.614/P<.001

2010 sample r=.607/P<.001

- q36 – My supervisor is supportive of my career goals.

  Standardized correlations:

  2008 sample r=.713/P<.001

  2010 sample r=.688 /P<.001

Supervisor Effectiveness

The following survey items were utilized in the formation of the construct

variable, *Supervisor Effectiveness*, with associated loadings and significance measures by

study sample:

- q18 – We have an opportunity to participate in the goal setting process.

  Standardized correlations:

  2008 sample r=.795/P<.001

  2010 sample r=.753/P<.001

- q31 – We are given accurate feedback about our performance.

  Standardized correlations:

  2008 sample r=.794/P<.001

  2010 sample r=.777/P<.001

- q45 – People who challenge the status quo are valued.

  Standardized correlations:

  2008 sample r=.841/P<.001

  2010 sample r=.818/P<.001

- q49 – Favoritism (special treatment) is not an issue in raises or promotions.

  Standardized correlations:

2008 sample r=.774/P<.001

2010 sample r=.729/P<.001

Team Effectiveness

The following survey items were utilized in the formation of the construct

variable, *Team Effectiveness*, with associated loadings and significance measures by

study sample:

- q17 – Work groups or committees receive adequate feedback that helps improve

  performance.

  Standardized correlations:

  2008 sample r=.824/P<.001

  2010 sample r=.789/P<.001

- q19 – Decision making and control are given to employees doing the actual work.

  Standardized correlations:

  2008 sample r=.791/P<.001

  2010 sample r=.761/P<.001

- q21 – There is a sense of trust throughout the organization.

  Standardized correlations:

  2008 sample r=.819/P<.001

  2010 sample r=.810/P<.001

- q25 – We are efficient.

  Standardized correlations:

  2008 sample r=.713/ P<.001

  2010 sample r=.689/P<.001

- q27 – There is a real feeling of teamwork.

  Standardized correlations:

  2008 sample r=.826/P<.001

  2010 sample r=.824/P<.001

- q46 – Work groups or committees are involved in making work processes more

  effective.

  Standardized correlations:

  2008 sample r=.816/P.001

  2010 sample r=.781/P<.001

Job Satisfaction

The following survey items were utilized in the formation of the construct

variable, *Job Satisfaction*, with associated loadings and significance measures by study

sample:

- q22 – We are given the opportunity to do our best work.

  Standardized correlations:

  2008 sample r=.859/P<.001

  2010 sample r=.830/P<.001

- q40 – The environment supports a balance between work and personal life.

  Standardized correlations:

  2008 sample r=.714/P<.001

  2010 sample r=.707/P<.001

- q41 – The pace of the work in this organization enables me to do a good job.

  Standardized correlations:

2008 sample r=.649/P<.001

2010 sample r=.671/P<.001

Limitations of the Study

The data used during this study were generated from small to mid-size, four-year public institutions of higher education in Texas. These institutions are located in rural or small, metropolitan regions of the state. Given this fact, the findings generated by this study may not readily transfer to larger universities located in urban settings.

Implications for Further Research

This study provides a framework for further research associated with job satisfaction and turnover intention among public employees of institutions of higher education in Texas. Future research related to this study should concentrate on the following questions:

- In line with the stated limitation of this study, do the findings presented in this study transfer to larger, urban universities in Texas?

- Do these findings transfer to other public employers in Texas such as state agencies?

- Are there significant differences in item responses between those employees indicating they are staying with their employer and those intending to leave their employment?

- What are the effects of other predictor constructs established by The Institute for Organizational Excellence on workplace satisfaction and turnover intention?

- What is the full extent and significance of Differential Item Functioning inherent to the Survey of Organizational Excellence?

- What is the full extent of factorial validity issues regarding the constructs established for analysis and reporting by The Institute for Organizational Excellence?

- How do these findings compare to results generated by private universities in Texas?

Summary

This study provided important insights into the workplace needs and motivations of employees of four-year, public institutions of higher education in Texas related to career development, supervisor effectiveness, and group interactions and their impact on job employee satisfaction and turnover intention. The findings presented in this study will add important new information to the existing research literature regarding these relationships in the domain of public university employment in Texas. While generally affirming earlier work conducted in the areas of employment development and job satisfaction, as well as the relationship interactions between employment development, supervisor effectiveness, and team effectiveness, the current findings also raise new questions regarding the effects of other workplace factors on turnover intention among employees.

While it may be tempting, public universities experiencing relatively low turnover should not conclude that that the vast majority of their workforce is satisfied with their employment. As indicated by the data generated during this study, while roughly 10% of respondents in both study samples indicated an intention to depart their employment within two years, 25% of respondents indicated they either have a neutral opinion of their employment or expressed some level of job dissatisfaction.

This finding is graphically depicted in the model relationship between the variables Employee Intention to Stay (Work Two Years) and Job Satisfaction. The correlations generated by the 2008 and 2010 study samples were -018 and .026, respectively. Recognizing that both values are exceptionally small and possess no practical significance, neither measure is statistically significant at a .05 level of significance. Such a pronouncement is intriguing given the findings of earlier researchers concerning this association (Brown and Yoshioka, 2003; Moynihan and Pandey, 2007; Rust, Stewart, Miller and Pielack, 1996; Van Dick et al., 2004). These researchers did find a significant and positive relationship exists between level of employee job satisfaction and intention to remain with an employer. Yet, in the present study, it is an impossible task to derive statistical significance between these two variables, even with such large samples, when 90% of the respondents intend to remain with their employer regardless of their attitudes towards job satisfaction or any other factor explored during this study. Clearly, there are other considerations affecting employee attitudes regarding turnover intention.

These findings force us to revisit and reexamine two fundamental questions:

1. What value do employees derive from their employment, and

2. What motivates employees to remain in the workplace?

Earlier research investigating the relationships between employee attitudes towards organizational commitment to employee growth and development, quality of supervision, effectiveness of group interactions, and workplace satisfaction were generally supported by the findings provided by this study (Figure 3). The sole relationship that was not determined to be significant at a .001 level of significance was

the association between Employment Development and Team Effectiveness. While providing very large standardized correlations for both the 2008 (.986) and 2010 (.992) study samples, probability values were poor at .151 and .135, respectively, indicating Employment Development is not significantly associated with employee perceptions of Team Effectiveness at a .05 level of significance.

In sharp contrast, an examination of the findings associated with the relationship between Employee Intention to Stay and each of the other variables employed by the research model was completely unsupported by the existing research literature. All of the variable relationships involving Intention to Stay were determined to be insignificant at a .05 level of significance. This finding indicates that employee turnover intention is not significantly influenced by organizational commitment to employee growth and development, the quality of workplace supervision, the effectiveness of group interactions in the workplace, or degree of workplace satisfaction.

So, if not influenced by Job Satisfaction or any of the other construct variables employed during this study, what factors might serve to motivate an employee to remain in the workplace? Herzberg (1959) provides us with some answers. In his book titled *Motivation to Work*, Herzberg identifies and discusses a variety of factors which he concludes affect the workplace environment and influence employee motivation. According to Herzberg, *job satisfiers* are associated with achievement, recognition, challenging work, higher levels of responsibility, and career advancement. Many of those factors are represented in the research model produced for this study. Their documented association to job satisfaction was generally supported by these findings.

However, Herzburg also mentions a second category of motivating factors which he terms *job dissatifiers*. These factors include work settings, job security, benefits, and pay. They were not explored during this study but remain significant motivating considerations. It is important to note that meeting employee needs in these areas does not, by definition, generate a sense of job satisfaction but merely serves to reduce the level of job dissatisfaction. For example, employee compensation is an important motivating consideration. A perception of inadequate or unfair pay leads to feelings of job dissatisfaction, regardless of other considerations. It is therefore perfectly reasonable for employees to be dissatisfied with their jobs yet remain with their employers as long as other motivating considerations, like compensation, are met.

Much of the research literature and published accounts of studies related to job satisfaction and employee turnover intention involve private sector companies, employees working in highly competitive and lucrative job classifications such as nurses and accountants, or employees working in notoriously high turnover environments such as call centers located in the United States and abroad. Many of these workers are highly sought after and possess the ability to move freely between employers. Retirement vehicles such as 401k investment accounts in the United States are intended to accommodate such transience. In European countries, many employees have strong social programs they can rely on to provide subsistence support during periods of unemployment. Many also have access to early retirement.

None of the research presented in the review of literature for this study explores public sector, university employment. In Texas, such employment provides adequate pay and generous benefits including a defined, retirement pension program. Many of these

employees have no other source of retirement income and are therefore less likely to transition to non-public employment. While some of these employees are clearly dissatisfied with their jobs, they are motivated to remain with their employer because of other considerations they value. So they stay. But while important to the employee, none of these other considerations leads to heightened levels of job satisfaction.

An examination of state agency employees in Texas reveals the majority of those departing state employment are under the age of 30 and possess less than five years of agency service (Texas State Auditor's Office, 2011). Outside of this demographic, involuntary departures unassociated with retirement were significantly curtailed. And interestingly, but not surprisingly, those who did depart their agency for reasons other than retirement based their decisions on workplace dissatisfiers. As reported by the Texas State Auditor's Office,

> according to exit surveys completed during fiscal year 2010, the top three reasons cited for leaving state employment were retirement, better pay/benefits, [and] poor working conditions/environment (Texas State Auditor's Office, 2011, p. ii).

Another consideration affecting the results of this study relates to the participating universities. All of the universities included in the present study are small to mid-size institutions located in rural or small metropolitan areas. It is reasonable to conclude that, for many of these employees, there is simply nowhere else to seek employment, regardless of level of job satisfaction. In their communities, these universities are likely employers of choice. The attraction of competitive wages, regular salary reviews,

generous benefits, and a retirement pension to supplement social security are likely the motivating considerations that anchor these university employees to their employers.

So, of what value are these findings to the lay person? What does it all mean from a practical, managerial, and behaviorist perspective?

1. As long as the needs of university employees are met, particularly those related to workplace dissatisfiers, many employees will choose to remain with their employer whether they are content in their employment or not.

2. To achieve the highest levels of job satisfaction and workplace productivity, managers must focus on addressing those needs associated with workplace satisfiers.

3. Under the present circumstances, unproductive employees will likely require involuntary separation from the workplace. Few will depart on their own accord. This is particularly true of employees with long service tenures.

4. A perceived change in motivating factors, particularly if those factors are dissatisfiers, will likely alter the workplace landscape and lead to greater numbers of voluntary separations. A positive or favorable example might be an option to exercise early retirement. A negative or unfavorable example might be the loss of a state-funded pension in favor of an employee contribution plan such as a 401k.

5. There exists an extremely strong and highly significant relationship between employee development and perceptions of job satisfaction among public higher education employees in Texas. This study produced statistical correlations of .947 and .933 for the 2008 and 2010 samples, respectively. Corresponding r^2 values of .8986 and .8705 indicate 89% and 87% shared variance is indicative of a very

large practical effect. Both measures were statistically significant at less than a .001 level of significance.

In revisiting those indicator variables used in the construction of the factor, Employment Development, efforts in this area do not appear to be an expensive undertaking for employers. Training centered on effective team processes, providing personal and professional development opportunities, access to information about job availability, and engaged supervisors who take an active interest in employee career aspirations strike me as nothing more than sound management practices. It should be noted that these efforts are very effective in encouraging high levels of job satisfaction among employees.

6. The study also revealed some concerns regarding the construction and utilization of the Survey of Organizational Excellence (SOE) instrument related to construct development and differential item functioning. It is highly recommended that The Institute for Organizational Excellence investigate factorial validity concerns associated with the pre-established construct variables utilized in their data analyses. Also, it is recommended that the institute explore gender and other group response differences associated with the SOE to determine whether these differences are truly indicative of inherent bias linked to the construction of instrument items. Finally, I suggest the institute expand upon the single item, turnover intention measure currently in use. Perhaps supplementing this measure by adding other survey items might provide greater insights into the specific reasons surrounding a desire to remain or depart an organization.

Higher Education Excellence Survey

All responses are anonymous.

Available ON-LINE at **www.orgexcel.net/he** using this Access Code:

SERIAL #

Demographic items are used for research purposes. To ensure anonymity, your organization does not receive any information which could identify an individual or any group containing less than 5 people.

ORGANIZATIONAL CODES
To complete the following 3 items refer to the insert that is included.

Code 1 Code 2 Code 3

CODE USED TO INSURE A VALID SURVEY RESPONSE; NOT ASSOCIATED WITH ANY INDIVIDUAL

MARKING INSTRUCTIONS
Use a No. 2 pencil only.
Make no stray marks on this form.

USE A NO. 2 PENCIL ONLY
Make solid marks that fill the response completely.
Erase cleanly any marks you wish to change.

My annual salary (before taxes)
1. Less than $15,000
2. $15,000 - $25,000
3. $25,001 - $35,000
4. $35,001 - $45,000
5. $45,001 - $60,000
6. $60,001 - $75,000
7. $75,001 - $90,000
8. More than $90,000

My highest educational level
1. Did not finish high school
2. High school diploma (or GED)
3. Some college
4. Associate Degree
5. Bachelor's Degree
6. Master's Degree
7. Doctoral Degree

My race/ethnic identification
1. African-American/Black
2. Mexican-American/Hispanic
3. Anglo-American/White
4. Asian American
5. Multiracial/Other

I am primarily
1. Faculty
2. Staff

My age (in years)
1. 16-29
2. 30-39
3. 40-49
4. 50-59
5. 60+

Persons in my household, including myself
1. 1
2. 2
3. 3
4. 4
5. 5 or more

Hours per week employed
1. Less than 20
2. 20 - 39
3. 40 or more

Years of service with this institution
1. Less than 1
2. 1 - 2
3. 3 - 5
4. 6 - 10
5. 11 - 15
6. More than 15

I am
1. Male
2. Female

My home zip code

I am currently in a supervisory role. ..... Yes No N/A
I received a promotion during the last two years. ..... Yes No N/A
I received a merit increase during the last two years. ..... Yes No N/A
I plan to be working for this institution in two years. ..... Yes No N/A
I am the primary wage earner in the household. ..... Yes No N/A
There is more than one wage earner in my household. ..... Yes No N/A

Marking Instructions: From your perspective of your immediate workplace (those individuals or areas that you interact with most often), please indicate how strongly you agree or disagree with the following statements. For items in the "institution wide" section (74-84), choose a response that you think reflects the institution as a whole. If you do not have any information about a particular statement or the statement is not applicable to you, mark (NA).

DON'T KNOW/NOT APPLICABLE
STRONGLY AGREE
AGREE
FEEL NEUTRAL
DISAGREE
STRONGLY DISAGREE

1. We are constantly improving our services.
2. The goals we set are consistently met or exceeded.
3. We produce high quality programs and services.
4. We develop services to match the needs of those we serve.
5. My performance is evaluated fairly.
6. My supervisor is consistent when administering employee policies .
7. Every employee is valued.

Appendix A-Continued

8. We work to attract, develop, and retain people with diverse backgrounds.
9. We have adequate computer resources (hardware and software).
10. Information systems are in place and accessible for me to get my job done.
11. Information is shared as appropriate with other organizations or institutions.
12. The right information gets to the right people at the right time.
13. We integrate information and act intelligently upon that information.
14. The work atmosphere encourages open and honest communication.
15. We feel the channels we must go through at work are reasonable.
16. Work groups or committees are trained to incorporate the opinions of each member.
17. Work groups or committees receive adequate feedback that helps improve performance.
18. We have an opportunity to participate in the goal setting process.
19. Decision making and control are given to employees doing the actual work.
20. We seem to be working toward the same goals.
21. There is a sense of trust throughout the organization.
22. We are given the opportunity to do our best work.
23. I feel a sense of pride when I tell people that I work for this institution.
24. The amount of work that is expected of me is reasonable.
25. We are efficient.
26. Outstanding work is recognized.
27. There is a real feeling of teamwork.
28. We feel our efforts count.
29. We are encouraged to learn from our mistakes.
30. We have adequate resources to do our jobs.

PLEASE CONTINUE ON THE BACK PAGE.

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Marking Instructions: From your perspective of your immediate workplace (those individuals or areas that you interact with most often), please indicate how strongly you agree or disagree with the following statements. For items in the "institution wide" section (74-84), choose a response that you think reflects the institution as a whole. If you do not have any information about a particular statement or the statement is not applicable to you, mark **(NA)**.

DON'T KNOW/NOT APPLICABLE
STRONGLY AGREE
AGREE
FEEL NEUTRAL
DISAGREE
STRONGLY DISAGREE

31. We are given accurate feedback about our performance.
32. When possible, alternative work schedules (flex-time, compressed work weeks, job sharing, telecommuting) are offered to us.
33. Learning opportunities/training are made available for personal growth and development.
34. Learning opportunities/training are made available for professional growth/skills development.
35. We have access to information about job opportunities, conferences, workshops, and training.
36. My supervisor is supportive of my career goals.
37. We have sufficient procedures to ensure the safety of employees in the workplace.
38. Our workplace is well maintained.
39. Within my workplace, there is a feeling of community.
40. The environment supports a balance between work and personal life.
41. The pace of the work in this organization enables me to do a good job.
42. My job meets my expectations.
43. We balance our focus on both the long range and short term goals.
44. My ideas and opinions count at work.
45. People who challenge the status quo are valued.
46. Work groups or committees are involved in making work processes more effective.
47. The people I work with treat each other with respect.
48. The appropriate information is shared with the public.
49. Favoritism (special treatment) is not an issue in raises or promotions.
50. Our employees are generally ethical in the workplace.
51. I am confident that any ethics violation I report will be properly handled.
52. Harassment is not tolerated at my workplace.
53. I am satisfied with the opportunities I have to evaluate my supervisor's performance.
54. When possible, problems are solved before they become a crisis.
55. We use feedback from those we serve to improve our performance.
56. I believe we will use the information from this survey to improve our performance.
57. I have regular involvement (once a month or more) in community activities or groups.

Appendix A-Continued

COMPENSATION

58. People are paid fairly for the work they do.
59. Salaries are competitive with similar positions in the community or comparable institutions.
60. Benefits can be selected to meet individual needs.
61. I understand my benefits plan.
62. Benefits are comparable to those offered in similar jobs.
63. My pay keeps pace with the cost of living.
64. Changes in benefits and compensation packages have been explained during the year.

I am satisfied with my . . . . 65. continuing education/training opportunities.
66. medical insurance.
67. sick leave.
68. vacation.
69. retirement.
70. dental insurance.
71. vision insurance.
72. holiday benefit.
73. Employee Assistance Program (E.A.P.).

INSTITUTION WIDE

74. Information and knowledge are shared openly within this organization.
75. An effort is made to get the opinions of people throughout the organization.
76. We work well with other organizations.
77. We work well with our governing bodies (the legislature, the board of regents, etc.).
78. We work well with the public.
79. We understand the state, local, national, and global issues that impact this institution.
80. We know how our work impacts other employees.
81. Our web site is easy to use and contains helpful information.
82. I have a good understanding of our mission, vision, and strategic plan.
83. I believe we communicate our mission effectively to the public.
84. My institution encourages me to be involved in my community.

ADDITIONAL ITEMS

Your organization may have requested that you answer some additional items. these items would appear on the survey insert you received. Please skip this section if your insert does not include additional items.

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THANK YOU FOR YOUR PARTICIPATION !

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Frequency Responses to Questions Used to Construct "Employment Development"

<div align="right">

2008 Sample   2010 Sample
N = 1004   **N = 1356**

</div>

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q16. Work groups or committees are trained to incorporate the opinions of each member.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	57	5.7	5.7	5.7
	Disagree	185	18.4	18.4	24.1
	Neutral	222	22.1	22.1	46.2
	Agree	421	41.9	41.9	88.1
	Strongly Agree	119	11.9	11.9	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	82	6.0	6.0	6.0
	Disagree	209	15.4	15.4	21.5
	Neutral	362	26.7	26.7	48.2
	Agree	566	41.7	41.7	89.9
	Strongly Agree	137	10.1	10.1	100.0
	Total	1356	100.0	100.0	

q33. Learning opportunities/training are made available for personal growth and development.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	46	4.6	4.6	4.6
	Disagree	123	12.3	12.3	16.8
	Neutral	156	15.5	15.5	32.4
	Agree	476	47.4	47.4	79.8
	Strongly Agree	203	20.2	20.2	100.0
	Total	1004	100.0	100.0	

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<div align="right">(Appendix B continues)</div>

Appendix B-Continued

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Frequency Responses to Questions Used to Construct "Employment Development"

	2008 Sample	2010 Sample
	N = 1004	**N = 1356**

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2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	65	4.8	4.8	4.8
	Disagree	180	13.3	13.3	18.1
	Neutral	227	16.7	16.7	34.8
	Agree	648	47.8	47.8	82.6
	Strongly Agree	236	17.4	17.4	100.0
	Total	1356	100.0	100.0	

q34. Learning opportunities/training are made available for professional growth/skills development.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	46	4.6	4.6	4.6
	Disagree	99	9.9	9.9	14.4
	Neutral	130	12.9	12.9	27.4
	Agree	513	51.1	51.1	78.5
	Strongly Agree	216	21.5	21.5	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	59	4.4	4.4	4.4
	Disagree	149	11.0	11.0	15.3
	Neutral	222	16.4	16.4	31.7
	Agree	666	49.1	49.1	80.8
	Strongly Agree	260	19.2	19.2	100.0
	Total	1356	100.0	100.0	

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Appendix B-Continued

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Frequency Responses to Questions Used to Construct "Employment Development"

<div align="right">

2008 Sample   2010 Sample
N = 1004   N = 1356
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q35. We have access to information about job opportunities, conferences, workshops, and training.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	28	2.8	2.8	2.8
	Disagree	70	7.0	7.0	9.8
	Neutral	147	14.6	14.6	24.4
	Agree	535	53.3	53.3	77.7
	Strongly Agree	224	22.3	22.3	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	38	2.8	2.8	2.8
	Disagree	133	9.8	9.8	12.6
	Neutral	231	17.0	17.0	29.6
	Agree	690	50.9	50.9	80.5
	Strongly Agree	264	19.5	19.5	100.0
	Total	1356	100.0	100.0	

q36. My supervisor is supportive of my career goals.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	52	5.2	5.2	5.2
	Disagree	60	6.0	6.0	11.2
	Neutral	155	15.4	15.4	26.6
	Agree	407	40.5	40.5	67.1
	Strongly Agree	330	32.9	32.9	100.0
	Total	1004	100.0	100.0	

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<div align="right">(Appendix B continues)</div>

Appendix B-Continued

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Frequency Responses to Questions Used to Construct "Employment Development"

	2008 Sample **N = 1004**	2010 Sample **N = 1356**

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2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	59	4.4	4.4	4.4
	Disagree	83	6.1	6.1	10.5
	Neutral	216	15.9	15.9	26.4
	Agree	552	40.7	40.7	67.1
	Strongly Agree	446	32.9	32.9	100.0
	Total	1356	100.0	100.0	

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Frequency Responses to Questions Used to Construct "Supervisor Effectiveness"

	2008 Sample	2010 Sample
	N = 1004	**N = 1356**

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q18. We have an opportunity to participate in the goal setting process.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	65	6.5	6.5	6.5
	Disagree	141	14.0	14.0	20.5
	Neutral	191	19.0	19.0	39.5
	Agree	456	45.4	45.4	85.0
	Strongly Agree	151	15.0	15.0	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	88	6.5	6.5	6.5
	Disagree	191	14.1	14.1	20.6
	Neutral	259	19.1	19.1	39.7
	Agree	614	45.3	45.3	85.0
	Strongly Agree	204	15.0	15.0	100.0
	Total	1356	100.0	100.0	

q31. We are given accurate feedback about our performance.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	42	4.2	4.2	4.2
	Disagree	138	13.7	13.7	17.9
	Neutral	185	18.4	18.4	36.4
	Agree	506	50.4	50.4	86.8
	Strongly Agree	133	13.2	13.2	100.0
	Total	1004	100.0	100.0	

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(Appendix C continues)

Appendix C-Continued

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Frequency Responses to Questions Used to Construct "Supervisor Effectiveness"

	2008 Sample	2010 Sample
	N = 1004	**N = 1356**

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2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	74	5.5	5.5	5.5
	Disagree	192	14.2	14.2	19.6
	Neutral	268	19.8	19.8	39.4
	Agree	632	46.6	46.6	86.0
	Strongly Agree	190	14.0	14.0	100.0
	Total	1356	100.0	100.0	

q45. People who challenge the status quo are valued.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	130	12.9	12.9	12.9
	Disagree	196	19.5	19.5	32.5
	Neutral	232	23.1	23.1	55.6
	Agree	336	33.5	33.5	89.0
	Strongly Agree	110	11.0	11.0	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	150	11.1	11.1	11.1
	Disagree	259	19.1	19.1	30.2
	Neutral	344	25.4	25.4	55.5
	Agree	466	34.4	34.4	89.9
	Strongly Agree	137	10.1	10.1	100.0
	Total	1356	100.0	100.0	

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Appendix C-Continued

Frequency Responses to Questions Used to Construct "Supervisor Effectiveness"

	2008 Sample	2010 Sample
	N = 1004	**N = 1356**

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q49. Favoritism (special treatment) is not an issue in raises or promotions.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	153	15.2	15.2	15.2
	Disagree	136	13.5	13.5	28.8
	Neutral	189	18.8	18.8	47.6
	Agree	342	34.1	34.1	81.7
	Strongly Agree	184	18.3	18.3	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	194	14.3	14.3	14.3
	Disagree	179	13.2	13.2	27.5
	Neutral	268	19.8	19.8	47.3
	Agree	500	36.9	36.9	84.1
	Strongly Agree	215	15.9	15.9	100.0
	Total	1356	100.0	100.0	

Frequency Responses to Questions Used to Construct "Team Effectiveness"

	2008 Sample	2010 Sample
	N = 1004	**N = 1356**

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q17. Work groups or committees receive adequate feedback that helps improve performance.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	53	5.3	5.3	5.3
	Disagree	190	18.9	18.9	24.2
	Neutral	231	23.0	23.0	47.2
	Agree	419	41.7	41.7	88.9
	Strongly Agree	111	11.1	11.1	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	70	5.2	5.2	5.2
	Disagree	236	17.4	17.4	22.6
	Neutral	380	28.0	28.0	50.6
	Agree	549	40.5	40.5	91.1
	Strongly Agree	121	8.9	8.9	100.0
	Total	1356	100.0	100.0	

q19. Decision making and control are given to employees doing the actual work.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	95	9.5	9.5	9.5
	Disagree	189	18.8	18.8	28.3
	Neutral	185	18.4	18.4	46.7
	Agree	398	39.6	39.6	86.4
	Strongly Agree	137	13.6	13.6	100.0
	Total	1004	100.0	100.0	

(Appendix D continues)

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Frequency Responses to Questions Used to Construct "Team Effectiveness"

	2008 Sample N = 1004	2010 Sample N = 1356

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2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	132	9.7	9.7	9.7
	Disagree	243	17.9	17.9	27.7
	Neutral	279	20.6	20.6	48.2
	Agree	535	39.5	39.5	87.76
	Strongly Agree	167	12.3	12.3	100.0
	Total	1356	100.0	100.0	

q21. There is a sense of trust throughout the organization.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	135	13.4	13.4	13.4
	Disagree	219	21.8	21.8	35.3
	Neutral	196	19.5	19.5	54.8
	Agree	338	33.7	33.7	88.4
	Strongly Agree	116	11.6	11.6	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	147	10.8	10.8	10.8
	Disagree	274	20.2	20.2	31.0
	Neutral	283	20.9	20.9	51.9
	Agree	491	36.2	36.2	88.1
	Strongly Agree	161	11.9	11.9	100.0
	Total	1356	100.0	100.0	

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Appendix D-Continued

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Frequency Responses to Questions Used to Construct "Team Effectiveness"

	2008 Sample	2010 Sample
	N = 1004	**N = 1356**

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q25. We are efficient.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	59	5.9	5.9	5.9
	Disagree	149	14.8	14.8	20.7
	Neutral	151	15.0	15.0	35.8
	Agree	477	47.5	47.5	83.3
	Strongly Agree	168	16.7	16.7	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	78	5.8	5.8	5.8
	Disagree	197	14.5	14.5	20.3
	Neutral	220	16.2	16.2	36.5
	Agree	612	45.1	45.1	81.6
	Strongly Agree	249	18.4	18.4	100.0
	Total	1356	100.0	100.0	

q27. There is a real feeling of teamwork.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	97	9.7	9.7	9.7
	Disagree	194	19.3	19.3	29.0
	Neutral	194	19.3	19.3	48.3
	Agree	359	35.8	35.8	84.1
	Strongly Agree	160	15.9	15.9	100.0
	Total	1004	100.0	100.0	

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Appendix D-Continued

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Frequency Responses to Questions Used to Construct "Team Effectiveness"

	2008 Sample	2010 Sample
	N = 1004	**N = 1356**

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2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	115	8.5	8.5	8.5
	Disagree	221	16.3	16.3	24.8
	Neutral	304	22.4	22.4	47.2
	Agree	507	37.4	37.4	84.6
	Strongly Agree	209	15.4	15.4	100.0
	Total	1356	100.0	100.0	

q46. Work groups or committees are involved in making work processes more effective.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	57	5.7	5.7	5.7
	Disagree	150	14.9	14.9	20.6
	Neutral	242	24.1	24.1	44.7
	Agree	450	44.8	44.8	89.5
	Strongly Agree	105	10.5	10.5	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	62	4.6	4.6	4.6
	Disagree	197	14.5	14.5	19.1
	Neutral	324	23.9	23.9	43.0
	Agree	611	45.1	45.1	88.1
	Strongly Agree	162	11.9	11.9	100.0
	Total	1356	100.0	100.0	

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APPENDIX E

Frequency Responses to Questions Used to Construct "Job Satisfaction"

	2008 Sample	2010 Sample
	N = 1004	**N = 1356**

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q22. We are given the opportunity to do our best work.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	56	5.6	5.6	5.6
	Disagree	113	11.3	11.3	16.8
	Neutral	148	14.7	14.7	31.6
	Agree	462	46.0	46.0	77.6
	Strongly Agree	225	22.4	22.4	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	64	4.7	4.7	4.7
	Disagree	139	10.3	10.3	15.0
	Neutral	196	14.5	14.5	29.4
	Agree	670	49.4	49.4	78.8
	Strongly Agree	287	21.2	21.2	100.0
	Total	1356	100.0	100.0	

q41. The pace of the work in this organization enables me to do a good job.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	28	2.8	2.8	2.8
	Disagree	103	10.3	10.3	13.0
	Neutral	165	16.4	16.4	29.5
	Agree	559	55.7	55.7	85.2
	Strongly Agree	149	14.8	14.8	100.0
	Total	1004	100.0	100.0	

(Appendix E continues)

Appendix E-Continued

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Frequency Responses to Questions Used to Construct "Job Satisfaction"

	2008 Sample	2010 Sample
	N = 1004	**N = 1356**

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2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	38	2.8	2.8	2.8
	Disagree	143	10.5	10.5	13.3
	Neutral	226	16.7	16.7	30.0
	Agree	732	54.0	54.0	84.0
	Strongly Agree	217	16.0	16.0	100.0
	Total	1356	100.0	100.0	

q40. The environment supports a balance between work and personal life.

2008 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	62	6.2	6.2	6.2
	Disagree	110	11.0	11.0	17.1
	Neutral	176	17.5	17.5	34.7
	Agree	466	46.4	46.4	81.1
	Strongly Agree	190	18.9	18.9	100.0
	Total	1004	100.0	100.0	

2010 Sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	76	5.6	5.6	5.6
	Disagree	163	12.0	12.0	17.6
	Neutral	253	18.7	18.7	36.3
	Agree	626	46.2	46.2	82.4
	Strongly Agree	238	17.6	17.6	100.0
	Total	1356	100.0	100.0	

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