A QUANTITATIVE ANALYSIS OF THE EXTRINSIC AND INTRINSIC TURNOVER FACTORS OF RELATIONAL DATABASE SUPPORT PROFESSIONALS

by

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ABSTRACT

This quantitative analysis explored the intrinsic and extrinsic turnover factors of relational database support specialists. Two hundred and nine relational database support specialists were surveyed for this research. The research was conducted based on Hackman and Oldham's (1980) Job Diagnostic Survey. Regression analysis and a univariate ANOVA where the independent variable has six levels were used to analyze the data. The results revealed that there was a correlation between the intrinsic and extrinsic job factors and turnover intentions of database support specialists. The results also showed no correlation between database support specialty and turnover intentions. This study is the first of its kind to explore the extrinsic and intrinsic job factors as they relate to the support of relational database management support professionals in the United States.

DEDICATION

This is dedicated to the loving memory of my parents Tene Joseph and Benedette Makouny. I have neither words nor expressions to thank them but I know they are well rewarded in paradise or wherever they may be for their love, righteousness, dedication and inspiration to the right causes and an exemplary life at all times on planet earth.

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CHAPTER 1: INTRODUCTION

Technology knowledge workers continue to be the major players in information processing and implementation of contemporary technology ensuring that organizations accomplish their primary objectives and achieve objectives defined by their core values and core purposes as well (Regan & O'Connor, 2002). Information technology (IT) professionals specialize in the management, maintenance, design, and performance tuning of computer information systems including complex databases (Professionals, 2008). IT professionals such as database management systems (DBMS) support specialists continue to have significant impact and are in relatively higher demand compared to other IT specialists despite the worldwide economic downturn (Hoffman, 2005). The difficulties to fill DBMS and other IT positions are compounded by IT professionals who are in constant quest for work-life balance and growth opportunities that are more pronounced than ever before (Perelman, 2007). Database administrators (DBAs), programmers, developers, and other support specialists are more inclined to change jobs, quit, and seek other more rewarding opportunities, and retrain for better opportunities as shown by studies on IT employee-initiated job walkouts (Perelman, 2007).

Turnover of IT workers, including database support specialists, remains a significant challenge faced by today's private and public sector organizations. IT turnover currently ranges from 15 to 33 percent in the United States (Moore & Burke, 2002; Waag, Reland, & Sein, 2005). This information raises employee retention concerns among IT executives, practitioners, and scholars. Despite the recent trend of outsourcing IT jobs offshore, IT turnover remains a critical and chronic problem for employers (Moore & Burke, 2002). Every contemporary organization uses some form of database management system and these organizations need to reduce the

attrition and turnover problems through careful analysis and implementing research recommendations. These corporations must implement efficient programs and competencies designed to motivate and empower their technical workforces to meet the competitive demands of globalization. Turnover problems are exacerbated as the labor market tightens because of a shortage of IT graduates, high retirement rates from the workforce, and most of all because of the continuous exponential technological growth of database management applications requiring high availability and high maintenance along with new demands for high-tech skills (Rouse, 2002; Slaughter & Ang, 2004).

Chapter One addresses technology turnover problems in the United States with statistical information, the various relational database technology, and careers that experience different types of turnover. The chapter also presents an overview of the issues of job satisfaction and dissatisfaction particular to IT. Turnover theoretical frameworks which form the basis of most organizational researches, including the current study, are reviewed in this chapter. These include Herzberg's (1959) two factor theory, the Met Expectations Theory (Porter & Steers, 1973), Linkage Model Theory (Mobley, 1977), The Unfolding Model of Turnover Theory (Lee & Mitchell, 1994), and Job Embeddedness Theory (Lee et al., 2004).

Organizational studies, including job satisfaction and turnover, rely on foundational theories which form the basis for understanding employee or organizational characteristics. Herzberg's (1959) theory addresses the success of organizations as a function of employee motivational factors, which can be classified as intrinsic or extrinsic (Honore, 2009; Undechuku, 2009). Extrinsic factors, also referred to as hygiene factors, are external to the actual work itself (Poulston, 2009). Motivators, or intrinsic factors such as achievement and recognition, lead to

job satisfaction, while extrinsic factors such as compensation, wages, or any financial remuneration may result in employee dissatisfaction (Honore, 2009). These extrinsic factors refer to the extent to which employees value the material aspects of their jobs, which include compensation and other benefits (Poulston, 2009). These factors are referred to as dis-satisfiers because their absence, insufficiency, or unavailability leads to employee dissatisfaction (Honore, 2009; Poulston, 2009). The current study will be based on Herzberg's (1959) theory that organizational attitudes and needs influence perceived employee motivation and the resulting turnover behavior (Schroder, 2008; Udechuku, 2009). These needs can be addressed intrinsically or extrinsically, and analyzed in terms of relational database management support specialties.

Background of the Problem

Prior studies on turnover rates in technical careers have focused on the problem in general terms across IT spectrums. Recent turnover studies (Perelman, 2007; Rouse, 2002; Slaughter & Ang, 2004; Trimble, 2006) generally addressed the turnover issues through the dimensions of IT fields such as engineering, networking, and computer science, but did not focus on turnover problems relating to database management support specialties which are common functionalities across all contemporary organizations. Studies directed exclusively to the turnover of DBMS support, which differs significantly from data processing, are rare. Data processing is the beginning point of database management with functions such data entry, validation, and computer room data operations involving storage and data equipment handling.

IT, particularly database management support, is an indispensable function because every organization has a need to manage some organizational data. Despite the high demands for

highly qualified IT and database professionals, organizations continue to face shortages in the hiring of database and other IT personnel. The problem is even compounded by database specialists who constantly change jobs, resign, or move on to other organizations despite the competitive IT wages paid to these specialists (Root Cause, 2006). The problem of acquiring IT personnel is compounded by the fact that finding these database and other IT specialists with the appropriate skill mix is quite difficult. New technology demands and the introduction of new paradigms in the dimensions of employer-employee knowledge, skill, and abilities, including shifting paradigms, may all influence turnover or retention depending on the management of changing organizational events (Bailey & Stefaniak, 2000). High-tech firms such as IBM, Bechtel, Microsoft, Sun Systems, and Oracle continue to face critical shortages in the acquisition of qualified IT personnel, and even in the situation where such personnel are hired; no guarantees can be made that these personnel will remain within the same organization for an extended employment period (Bailey & Stefaniak, 2000). The critical shortages in IT personnel are also compounded with the whole issue of globalization, which increases competition among high-tech corporations globally (Moore & Burke, 2002). Acquiring and retaining skilled personnel to manage the retrieval of information from large data repositories with minimum delays using complicated DBMS from very large databases is crucial for these organizations to remain successful.

The Nature of Turnover in the United States

Early available data in America in the 1910s showed a steady increase in turnover rates, a steady decline in turnover rates in the manufacturing sectors in the 2nd decade of the century, and another significant increase in the 1930s (Labor Turnover, 2009). The data indicate fluctuations

in turnover during these decades of economic crisis and the post World War II era boom (Labor Turnover, 2009). Contemporary organizations garnered the benefits of retaining and sustaining a high caliber technical workforce. Especially with the current globalization, a critical need to maintain a solid technical professional workforce and leadership growth exists, which helps elevate these high-tech corporations to the top of the competition. Building a loyal technical workforce is not an easy proposition. It requires more than a financial resource, particularly among generation X and Y technical employees in the United States and the remainder of the developed world (Bland, 2005). Generation X represents people in the workforce born between 1965 and 1980, and Generation Y represents those in the workforce born after 1980 (Stanna, 2009).

The annual voluntary employee turnover rate in the United States of America in the year 2003 was 19% and increased to 23% in the year 2005 (Voluntary Turnover, 2006). IT specialists' and general workers' job satisfaction in the developed world, including the United States, saw a steady decline from 60% in 2003 to 9% in 2006 among workers (Root Cause, 2006). The United States Department of Commerce put the 2005 estimates of technology worker turnover to be over a million IT workers (Bailey & Stefaniak, 2000). IT as an industry continues to grow at an increasing rate in America and the lack of quality and qualified workers in this area with its high turnover rate is becoming a major challenge to executives. The trend indicates a turnover rate of 1 to 10% among the top 100 Fortune 500 companies (Best Companies, 2007). The first 15 of these companies have single digit turnover rates. The shortage of highly qualified IT workers implies increased costs to IT organizations. Such costs include a reduction of planned initiatives, new business ventures, loses in revenue, and the lack of technological growth (Bailey

& Stefaniak, 2000). According to Bailey and Stefaniak (2000), IT organizations, scholars, universities, and labor institutions must research and provide solutions to this obvious critical problem of turnover if they are to compete in a global economy that demands effective, qualified, and loyal technical workforce to compete. All indicators in the IT field indicate that retention, employee satisfaction, and the rates of turnover can be accurately used to measure organizational commitment, mission accomplishment, return on investments, and the realization of the organizational core values and core purpose, including critical mission (Trimble, 2006).

The Demand for Database Management Technology

According to annual reports by the International Datacasting Corporation, Oracle Corporation now ranks first among suppliers of relational DBMS to organizations worldwide, with a market share of 47.9% and with a 14% increase in revenue (Oracle Relational, 2007). Oracle Government is a division of Oracle Corporation that produces customized database management software for federal government agencies. Oracle ranks ahead of other major database development corporations such as Sybase, IBM, and Microsoft. Oracle takes the lead as well in the development of over 100 enterprise-integrated tools for database, middleware, and developer support (Oracle Products, 2006). Therefore, a majority of agencies employ Oracle relational DBMS along with other DBMS forms such as MS Access, MIS, SQL server, DB2, and MySQL. Oracle E-business suite ranks highest among global financial management products requiring very specialized technical skills to implement its complicated application object libraries (Oracle Applications, 2004). IBM's DB2 is essentially suited for mainframe environments. Oracle's E-business suite provides the most integrated business database

management intelligence tools and the most customer-focused application strategy (Oracle E-business, 2005). Organizations face serious challenges to acquire personnel with the right skill sets to support these Relational Database Management Systems (RDBMS) technologies. Organizations implementing E-business, as well as any other related and integrated RDBMS technologies, face retention challenges of support personnel who are in high demands and often with high mobility and less loyalty (Seibert & James, 1999). According to Fogel (2008), RDBMS support personnel typically function as:

1. DBAs – support the management, installation, design, security, backup, and disaster recovery of databases.
2. Developers – build and design applications that process stored data.
3. Web developer – build applications to managed web-based data processing.
4. Financials administrators – manage data relating to financial systems for organizations.
5. Application server administrators – manage back-end programs that handle web-based requests for all users.
6. Data modelers – manage unstructured data according to specific rules for easy handling by all professionals.
7. Warehouse administrators – manage data stored in organizations' data warehouses.

Job Satisfaction and Dissatisfaction

Contemporary organizations are open, natural, rational, and human systems (Scott, 2002; Scott & Davis 2007). This implies that their leaders are generally interested in beneficial relationships, which include sharing and exchanging useful knowledge with their employees. These leaders are also concerned about the issues of employee retention. Employees are the greatest organizational assets and are the heart of the enterprise. Employers still have enormous difficulties retaining highly skilled technical specialists despite tremendous efforts to retain these employees by implementing better management strategies, better training, Total Quality Management, High Performance Work Systems, and other competencies (Arasli, 2008; Jun, Cai & Peterson, 2004). In a 2006 general population survey of 27,000 people in the United States about job satisfaction and happiness, 47% across all occupations reported general satisfaction, but only 33% reported being very happy (Bryner, 2007). The conference board reports that job satisfaction has decreased from 50% among those who responded they were satisfied in 1995, to about 14% of those who responded they were very satisfied (Bryner, 2007).

Studies and theories on general employee satisfaction or dissatisfaction are voluminous and sometimes contradictory, but little research exists that is devoted exclusively to DBMS support personnel (Lee, 1999). The few available studies have one common element in that employee satisfaction and dissatisfaction are attributed to multiple dimensions of the work environment in a cause-and-effect-relationship (Trimble, 2006). Herzberg et al.'s (1959) theory identifies two dimensional properties of satisfaction. Extrinsic properties deal with salary and supervision, and tend to decrease employee dissatisfaction with the work environment. Motivator properties deal with recognition and achievement, and tend to make employees more productive

(Syptak & Marsland, 2005). A research study on the attrition rates of the implementers of DBMS technology has the added value of determining if elements of Herzberg's theory are adaptable to the turnover of database management support specialists.

Statement of the Problem

Traditional models of the turnover of IT professionals showed a positive correlation between compensation and voluntary turnover, but factors such as the work environment, management style, and job tasks may influence the decision of IT professionals to switch jobs (Rouse, 2002). Turnover rates in high-tech corporations in 2005 were greater than the hiring rates, creating a general reduction in employment levels of quality high-tech professionals (Employment, 2005). The United States Bureau of Labor Statistics reported a hire rate of 2.9% to be at its lowest point for professional businesses including IT (Labor Turnover, 2009). Job figures also show a decline in the job opening rate by 2.2 million, or 45% from 2007 to 2009 while the total turnover rates for professional businesses including IT was 4.3% (Labor Turnover, 2009).

Turnover rates by industry type show medium size companies between 1000-1999 employees to be 18.4%, 2000-4999 employees to be 12.3% and less than 500 employees to be 14.4% (Turnover Rates, 2006). The involuntary turnover rates by some regions in the United States showed the East to have a rate of 3.1%, compared to a high 6.9% for the Southeast (Turnover Rates, 2006). Involuntary turnover rates represent the numerical value of turnover frequency initiated by the organization, over a time period. Voluntary turnover occurs when employees decide to resign from their jobs. The employment data also showed that 31.9% of all separations were involuntary (Turnover Rates, 2006). Separations refer to turnover resulting

from all voluntary and involuntary employment termination (Labor Turnover, 2006). These figures represent voluntary and involuntary turnover data collected by the United States Bureau of Labor Statistics from 2007 to 2009. Hiring and retaining IT specialists is always a challenge to high-tech corporations, and to some extent, to non-high-tech organizations. The turnover of IT specialists is a major setback to these organizations in terms of financial costs required to hire and retrain new technology specialists. Research data in the year 2001 from the IT Association of America shows a turnover rate of 15% for high-tech organizations and 4% for non-high-tech organizations (ITAA, 2002).

The general problem is that turnover among database management support specialists and other high-tech employees continues to rise despite competitive compensation packages to most IT specialists (Employment, 2005; Rouse, 2002). Significant gaps still exist in the understanding of employee turnover within IT environments despite the amount of research on IT turnover (Carayon, Schoepke, Hoonakker, & Brunette, 2006). Compensational factors alone cannot explain the turnover of qualified high-tech professionals, including database management support specialists who play highly significant roles in the management and support of organizations' information systems (Rouse, 2002).

The specific problem is the influence of the intrinsic and extrinsic factors relating specifically to the turnover of database administrators, developers, and other database management system support specialists. Even with competitive packages and retraining, retention of database management and support specialist is declining. This leads to the suggestion that compensation or extrinsic factors are not the sole determinants of turnover (Liu, Lee, Goodman, Tatcher, & Treadway, 2006).

A quantitative research methodology using, regression analysis, and the analysis of variance (ANOVA) was used to analyze turnover data of database management support specialists of high-tech organizations in the United States. The data to test the hypotheses of the current study was collected through an anonymous online questionnaire. No database support specialists, groups, or organizations were selected separately as recipients of the questionnaire used in the current study. The participants in the survey for the current study were all database support specialists from the United States.

Purpose of the Study

The purpose of this quantitative analysis is a systematic examination on the high turnover of high-tech employees who specifically support or implement DBMS in organizations in the United States. The quantitative research method used a survey questionnaire with a Likert-type scale to collect turnover and job characteristics related data. The design for the study is systemically correlational, which implies an organized logical examination of relationships among research variables (Murray, 2003). Regression was used to test Research Question 1 (RQ1) through Research Question 3 (RQ3). The ANOVA was applied in Research Question 4 (RQ4) to test mean differences in turnover intentions between DBMS job specialty types. Descriptive statistics were used to analyze the data. These are the mean, median, standard deviation, and mode used to provide a summary of the data being analyzed (Raulin & Graziano, 2004). The research design chosen for the current study is appropriate because correlation allows the researcher to use precise and consistent procedures for measuring the researched variables (Raulin & Graziano, 2004). The research design also provides the best means to demonstrate the magnitude of associations between the variables defined for the current study including the

intrinsic and extrinsic job factors that influence the job tasks of DBMS support specialists in the U.S. Knowing the relationship between variables enables researchers to predict the value of one variable from knowing the value of a related variable (Raulin & Graziano, 2004). "What makes a research truly correlational is the inability to manipulate research variables independently" (McBurney & White, 2004, p. 215). The current study used a set of identifiers such as tenure, job satisfaction, and database specialty to determine if they correlate with the intrinsic or extrinsic statistical measures under consideration. Dependent variables for the study are voluntary and involuntary turnover. Independent variables include intrinsic and extrinsic job factors. Intrinsic factors include security, morality, independence, and achievement. Extrinsic factors include pay, benefits, rewards, and appraisals.

The population under study consists of professionals who implement database management technology in various organizations geographically located in the United States. Database support specialists include, but are not limited to, database administrators, database programmers, developers, system administrators, database analysts, data warehouse administrators, and database web implementers. The research design implemented a survey methodology in accordance with Hackman and Oldham's (1980) Job Diagnostic Survey (JDS) using a Likert-type scale which is a numerical rating scale on how strongly research participants agree or disagree with statements in a questionnaire (Cooper & Schindler, 2003).

Significance of the Study

Several studies (Bailey & Stefaniak, 2000; Bland, 2005; Jones, 2007; Lee, 1999; Moore, 2000) have researched the general turnover problems of IT professionals among contemporary organizations. None of the studies researched the subject of turnover exclusively as it relates to

database support specialists. Database support is common to both IT and non-IT organizations, and an understanding of turnover factors of these professionals will provide shared knowledge that organization can have in place to prevent or reduce the phenomenon among all employees.

There are currently no existing quantitative studies that examine the extrinsic and intrinsic turnover factors as these relate to high-level database management support professionals. Major government, quasi-government, and private organizations such as the Census Bureau, Internal Revenue Services, National institute of Health, Social Security Administration Department of Transportation, Northrop Grumman, Lockheed Martin, SAIC, and Computer Science Corporation all rely heavily on the use of relational DBMS including DB2, Oracle, Sybase, and several others. These agencies are constantly seeking DBMS administrators to maintain the very large databases that are constantly growing. A study of the turnover factors can provide the much needed knowledge that can help these organizations and others to implement better retention strategies for their skilled employees. Retention of skilled employees allows the organization to compete better.

The problem of turnover is still a major concern of these organizations and a study such as this would help executives, technical officials, managers, and other leaders to understand the nature of turnover of database professionals, and implement competencies designed to reduce the problem. The current study will also enable implementers of database management technology to institute better hiring policies that maximize the retention of database professionals. An understanding of the causes of turnover among these groups of DBMS support professionals will provide critical solutions to organizations on their ability to retain DBMS specialists and cut costs associated with re-training new database professionals.

This quantitative study focused exclusively on DBMS technology under the assumption that the turnover of DBMS specialists could be understood from the experiences and perspectives of all agencies that implement database management system technology. An important insight can be gained by organizational executives toward reducing the problem following the conclusions drawn from the findings of this study. A comprehension of employee turnover is also critical to organizations in planning project implementation and growth. A study of the intrinsic and extrinsic turnover factors will provide useful knowledge to organizations that mediates the relationships between job satisfaction, voluntary, and involuntary turnover from a database management and support perspective (Hegney & Plank, 2008).

The relationship between employees' voluntary turnover or turnover intentions and job dissatisfaction was examined in this quantitative analysis. The solution to this problem can only be obtained through research that addresses the problem as it relates exclusively to the database management profession where high technical skills are required to support the application of advanced database management technology. The problem of DBMS and IT personnel retention causes today's organizations to delay new business initiatives, in addition to the problem of employee replacement costs incurred by organizations (Bailey & Stefaniak, 2000; Moore & Burke, 2002). A significant need for this type of study exists to answer the important questions from both the database management professionals, as well as the employers' perspectives.

The current study can inform organizations that continue to experience negative turnover cycles among their database support professionals that lead to decrease in growth, decrease in revenue, decrease return on investments, decrease in competitive potentials, and the inability to acquire and plan new business opportunities (Bailey & Stefaniak, 2000; Jones, 2005). The

current study, therefore, sought to explain the problem of "low-row" employee management (Capelli & Hamori, 2007). Low-row employee management is characterized by deskilling of workers, low employee training investment, low employee involvement, lack of empowerment, and, ultimately, turnover (Capelli & Hamori, 2007). These are diminishing returns to contemporary organizations; especially those that implement the complicated database management technology that organizations of today need to withstand pressures from competitors.

The findings are consistent with existing research on turnover and, added to the existing body of knowledge, can lead to a better understanding of the work attitude of technical employees regarding tasks. Finally, this study is unique because it explores the extrinsic and intrinsic factors as these related to relational database support specialists in the United States, since no study has previously addressed the problem to these groups of support specialists. Future studies could examine this phenomenon, to include non-relational database support specialists and specialists of transnational corporations in the United States for foreign and domestic turnover comparisons, or Fortune 1000 corporations. Future studies in this area can also explore extrinsic and intrinsic factors as they pertain to specialists who support large data warehouses, or specialists managing large databases that are several terabytes, across organizations in the United States.

Significance of the Study to Leadership

Retention of IT workers can present a challenge to leadership of an organization because of the competition from other organizations for the skills possessed by these employees (Thatcher et al., 2006). The findings from this study will provide leadership with answers

pertaining to the issue of voluntary and involuntary turnovers, and retention as these relate to not only database support specialists, but employees of other organizational units. The findings on the retention of support specialists will be important to any organizational leadership since database management is a common business function among all contemporary organizations.

Turnover propensities of employees and associated costs can also be due to ineffective leadership (Bush, 2009). Leadership and stake holders can use the knowledge from this study to explore better management strategies that bridge the gaps created when skilled employees resign. Management theorists posit that while turnover of IT employees correlate inversely with pay, compensation, and other hygiene factors, there is a lack of a full understanding by leadership of the influence exerted by intrinsic factors due to lack of information and research in this area (Thatcher et al., 2006).

This study will therefore present leadership of organizations with the knowledge to further understand the role of intrinsic job factors on turnover and how a redesign of employee job tasks relative to intrinsic and extrinsic factors can positively influence employee attitudes toward their jobs, leading to a decrease in turnover. This study will help transformational leadership to understand the influence of intrinsic motivators relative to extrinsic or hygiene factors since these types of leaders influence their employees through a process of internalization, empowerment, and motivation (Morhart, Herzog, & Tomczak, 2009). These are considered to be intrinsic characteristics which tend to foster positive behavior, which can in turn help leadership prevent or decrease the turnover intentions of skilled employees (Morhart, Herzog, & Tomczak, 2009). An example of positive behavior is when employees perform in

accordance with organizationally stated goals and objectives leading to the success of the employees and the organization (Morhart et al., 2009).

Les and Trinka (2009) posit that leadership engagement improves employee focus by 20% and reduces employees' turnover propensities. This study will further provide leadership with additional engaging knowledge that mediates the relationships between job satisfaction, dissatisfaction, voluntary, and involuntary turnover. A motivational and communicative leadership strategy leads to employees' positive outlook on job tasks, which can positively influence productivity and organizational performance (Les & Trinka, 2009). A high return on investments is a function of organizational performance and skilled leadership.

According to Lamb and Herman (2008), strategic, assertive, engaging, and informed leadership reduces turnover. The current study's findings on intrinsic and extrinsic factors will provide additional information to leadership that can help in the identification, understanding, and management using strategic and assertive qualities. This can in turn lead to the understanding of organizational attitudes that may lead to employee turnover, as in the case of database management support specialists. In the current climate of globalization, strategic alliances, and competition, a study such as this will provide leadership with additional leverage in the retention of employees who can aptly manage the complications of database management technologies. This in turn helps in meeting the challenges of domestic, foreign, and even global competition.

Nature of the Study

This study is designed to measure turnover intentions based on the relative job satisfaction of database management system support specialists in major areas of database

support specialties including: database administrators, database programmers, database developers, and database managers. The database management technologies in this study include, but are not limited to, Oracle, Sybase, DB2, Microsoft Access, MySQL, and SQL server. Database support specialists can support one or more of these DBMS technologies.

The JDS developed by Hackman & Oldham (1980) was the chosen instrument used to measure five job characteristics that include:

1. Task identity
2. Skill variety
3. Autonomy
4. Job feedback
5. Task significance

The JDS instrument was chosen because its easy adaptation to the measurement of the job characteristics of any job type (Hackman & Oldham, 1980). Therefore, the JDS is also suitable to measure the job characteristics of database management support specialists in the current study. Another important reason for the choice of this measuring instrument was that an underlying theory is associated with the instrument developed by Hackman and Oldham (1980) which states that positive work outcomes are functions of three crucial psychological conditions which include meaning, responsibility of work, and the results of work activity. All the critical psychological states are precursors of positive outcomes of work (Hackman & Oldham, 1980).

A quantitative correlational study was chosen because it represents a systematic approach to gather facts for testing the research questions and hypotheses using a population sample in a study (Raulin & Graziano, 2004). A correlation study allows predictions to be made on

correlated research variables (Raulin & Graziano, 2004). Correlation also best explains the numerical relationships among variables defined, and between dependent and independent variables (Creswell, 2002; Murray, 2003). The use of correlation in this study is expected to indicate the positive and negative relationships that exist among demographic, dependent and independent variables concerning the turnover of the population that is being investigated. Correlational studies concentrate on the magnitude of the strength of relationships among given variables and quantify their strength non-manipulatively (Raulin & Graziano, 2004). Correlation was used to investigate turnover intention among database management support specialists because it can be used to predict future events and provide relevant information or data that are consistent or inconsistent with existing theories (Raulin & Graziano, 2004; Thomas, 2003).

A quantitative approach was considered because of the need to seek solutions and explanations that will be generalized to other variables (Thomas, 2003). A qualitative approach was not selected because this type of analysis involves a naturalistic and interpretative approach to the subject under study, which would be unsuitable to the variables defined in the turnover study of DBMS support specialists. The introspective, observational, and interactive approach common with qualitative analysis (Murray, 2003) is therefore, unsuitable for this analysis.

The relationship among job satisfaction variables, which include recognition, autonomy, fairness, communication, compensation, job type, benefits, education, and their significant differences can be measured using the ANOVA.This is ideal in accessing the relationships of multiple dependent variables of the turnover intentions of DBMS support specialists. ANOVA is very suitable in organizational research in testing the differences among sample of employees, customers, and job satisfaction variables (Cooper & Schindler, 2003). Multivariate analysis of

variance is less preferable than ANOVA because while it can correct the errors of using a set of multiple dependent variables, ANOVA is more appropriate in testing the mean differences among more than two groups (Cooper & Schindler, 2003; Raulin & Graziano, 2004).

Research Questions

This study investigated the relationships that may exist between DBMS support specialists' turnover intentions, job satisfaction, and job characteristics. The research questions are designated Research Question 1 (RQ1) through Research Question 4 (RQ4). The research questions for this study appear below:

RQ1: What is the statistically significant relationship between general job satisfaction as assessed by the JDS inventory and turnover intentions of DBMS support specialists?

1. Predictor: general job satisfaction subscale of the JDS
2. Criterion: turnover intentions of DBMS support specialists
3. Statistical technique: multivariate regression (internal work, and specific)
4. Instrument: Hackman and Oldham's (1980) JDS instruments
5. Population sample in the current study: DBMS support Specialists
6. Sample size as assessed by power analysis; N= 55

RQ2: What is the statistically significant correlation between the five job characteristics of JDS which are defined as autonomy, task identity, task significance, feedback, and variety assessed by the JDS instrument and turnover intentions of DBMS support specialists:

1. Predictor: job variety subscale of the JDS
2. Criterion: turnover intentions
3. Statistical technique: multivariate regression

4. Instrument: Hackman and Oldham's (1980) JDS
5. Population sample in the current study: DBMS support specialists
6. Sample size as assessed by power analysis; N= 92

RQ3: What is the statistically significant correlation between job tenure and turnover intentions?

1. Predictor: tenure in months on the job
2. Criterion: turnover intentions
3. Statistical technique: bivariate regression
4. Instrument: Hackman and Oldham's (1980) JDS
5. Population sample in the current study: DBMS support specialists
6. Sample size as assessed by power analysis; N= 64

RQ4: What is the statistically significant correlation between DBMS job specialty (DBA, developer, programmer, and system administrator) and turnover intentions?

1. Independent variable: job specialty (DBA, developer, programmer, system administrator)
2. Dependent variable: turnover intentions
3. Statistical technique: univariate ANOVA where the independent variable has six levels with a post hoc if necessary
4. Instrument: turnover intentions
5. Population sample in the current study: DBMS support specialists
6. Sample size as assessed by power analysis; N= 159 or 52 per group

Research Hypotheses

Two types of variables are defined for this study: the dependent and independent variables. Identifiers of personal characteristics, which include age, years of employment in current position, tenure, gender, educational level, and database management types are defined. The criterion/dependent variable defined for this study is the likelihood of leaving one's current organization. The independent variables defined for this study consist of the following: job satisfaction as defined by the JDS inventory, JDS constructs (skill variety, task identity, task significance, autonomy, and feedback); DBMS support specialty (DBA, developer, programmer, and system administrator); and job tenure in months.

A number of null and alternative hypotheses were developed as follows: $H1_0$ through $H4_0$, and $H1_A$ through $H4_A$ represent the null and alternative hypotheses respectively.

$H1_0$: There is no statistically significant positive correlation between job satisfaction as assessed by the JDS inventory and turnover intentions of DBMS support specialists.

$H1_A$: There is a statistically significant positive correlation between job satisfaction as assessed by the JDS inventory and turnover intentions of DBMS support specialists.

$H2_0$: There is no statistically significant positive correlation between the five dimensions (skill variety, task identity, task significance, autonomy, and feedback) of the JDS construct (as assessed by the JDS instrument) and turnover intentions of DBMS support specialists.

$H2_A$: There is a statistically significant positive correlation between the five dimensions (skill variety, task identity, task significance, autonomy, and feedback) of the JDS construct (as assessed by the JDS instrument) and turnover intentions of DBMS support specialists.

$H3_0$: There is no statistically significant positive correlation between job tenure and turnover intentions.

$H3_A$: There is a statistically significant positive correlation between job tenure and turnover intentions.

$H4_0$: There is no statistically significant positive correlation between DBMS job specialty (DBA, developer, programmer, and system administrator) and turnover intentions.

$H4_A$: There is a statistically significant positive correlation between DBMS job specialty (DBA, developer, programmer, and system administrator) and turnover intentions.

Theoretical Framework

An exploration of the theories that have been developed in the past years on the subject can lead to an understanding of the current organizational problems of turnover. Many turnover theories that have evolved over time can be traced to March and Simon's (1958) theory of organizational equilibrium (Perelman, 2007). Other turnover theorists extend the organizational theory of March and Simon by highlighting the intricate relationship that exists between turnover intention and turnover behavior (Mitchell et al., 2009). These theories have common turnover conclusions, which are that no definite reasons exist why employees decide to leave employment, and that not all employees leave because they are dissatisfied. Turnover can be due

to impulses precipitated by related and unrelated work events including embeddedness, peer influence, shocks, and job market status (Mitchell, Brooks, Lee, & Eberly, 2008; Mitchell et al., 2009; Perelman, 2007). No single theory can explain all organizational or employee behavior, but most empirical researches on organizational and employee turnover are based on antecedent theoretical frameworks (Mitchell, Brooks, Lee, & Inderrienden, 2005; Mitchell et al., 2009).

This quantitative study employed a theoretical framework based on a model developed by Herzberg et al. (1959) known as the Two-factor or Dual-factor theory. The Two-factor theory attempts to explain the important differences that exist between motivational and hygiene factors (Anubha & Dash, 2008). In other words, the Two-factor theory clarifies the relationship between motivational or intrinsic job factors and extrinsic or hygiene factors. Herzberg theorized that two compelling factors influence employees in every organization: motivational and hygiene factors. Based on this theory, employee job satisfaction was attributed to intrinsic or motivational factors, whereas job dissatisfaction was attributed to extrinsic or hygiene factors (Sharp, 2008). Job satisfaction as a predictor of employee turnover is based on a theoretical framework that is a function of satisfiers known as motivators or dissatisfiers, which are extrinsic factors (Buhler, 2003; Lian & Baum, 2007).

According to Schroder (2008), the Dual-factor theory accomplishes two objectives within the context of contemporary organizations. First, it shows that motivational factors drive employees to better performance and increased efficiency, which leads to a decrease in turnover propensity. Secondly, it identifies inhibitors of job dissatisfaction resulting in work environments in which employees are motivated to perform in accordance with organizational objectives. The Two-factor theory motivators are known as job content factors and extrinsic factors are classified

as job context factors (LaBelle, 2005). Job content factors include growth, recognition, advancement possibilities, job task, and responsibility while job context factors include organizational policies, supervision, compensation, peer relationships, relationship with supervisors, personal life, and security considerations (Anubha, 2008; Lian & Baum, 2007). Job content factors define the responsibilities of the employees in their work environments while the job context factors represent extrinsic factors such as pay, rewards, and other compensation packages.

Motivational and hygiene factors that influence the work outcomes of database support specialists based on the Two-factor theory were identified for the current study. Motivational factors under consideration include growth, job tasks recognition, and achievement. The context factors that were considered in the current study based on the Two-factor factors theory include compensation, interpersonal relationships with management and peers, and job security. The dual factor theory becomes very important because it provides the necessary employee job satisfaction and dissatisfaction correlations that are indispensible in understanding how intrinsic and extrinsic factors influence, retention, or the turnover intentions of database support specialists.

Definition of Terms

Affective Commitment: Refers to the employees' emotional identity and attachment to their organizations (Mowday, Porter & Steers, 1982).

Balanced Scorecard: An organizational tool used to measure performance (Park & Gagnon, 2006).

Continuance Commitment: Pertains to the employees' willingness to retain or continue employment (Ugboro, 2006; Mowday, Porter & Steers, 1982).

Database Administrator: A person who installs maintains, manages, supports, and ensures the overall security of databases (Wells, 2005).

Database Management Systems: Software tools used to manage and maintain any database stored in any given computer system (Rich, 2002)

Relational Database Management Systems: Software used to manage and maintain the integrity of any relational databases such as Oracle, Sybase, and DB2 (Rich, 2002).

Hygienic Job Factors: Refer to those factors likely to influence employee retention, and include pay, compensation, management style, management quality, interpersonal relationships, working conditions, and company policies (Thatcher et al., 2006). Hygiene factors can contribute to work satisfaction and dissatisfaction and often include opportunity for advancement (Herzberg, 1999).

Intrinsic Job Factors: Pertains to self-influence or self-satisfaction and include job security, social status, achievement, independence, quality of management and creativity (Leigh, 2005).

Involuntary Turnover: Usually layoff, firing or acquisitions resulting to a reduction of the workforce.

Normative Commitment: Refers to employees having beliefs about their commitments to their organizations (Ugboro, 2006).

Organizational Citizen Behavior: Refers to employees striving to meet and exceed formal task and job requirements (Ang, Dyne, & Begley, 2008). Also pertains to employees'

indirect contribution to the organization's social structure (Erez, Lepine, & Johnson, 2002; Tan & Li, 2008).

Organizational Commitment: Defined by Diefendorff and Greguras (2009) as multidimensional characteristics that include the employees' organizational loyalty, the willingness to perform diligently according to the stated goals of the organization, and having a wish to maintain continuous membership status within the organization.

Organizational Equilibrium: The practice of providing inducements to employees in the form of competitive pay with the objective of improving employees' participation in activities which lead to increased labor productivity (Subramony, Mahesh, Krause, Norton, & Burns, 2008).

Voluntary Turnover: Defined as employees leaving, resigning or quitting their employment, probably as a result of better compensation elsewhere, and relocation to other regions due to family situations. According to Hong and Chao (2007), voluntary turnover is "movement across organizational boundaries in which the employee is heavily affected" (p. 1).

Research Assumptions

In conducting the current study, a basic assumption is made that all participants in the study were database management support specialists in the United States. This assumption was made because the participants in the survey provided their two letter state postal code. It was therefore assumed that online participants who provided their state code were U.S. residents. The introductory page of the online survey clearly stated that only respondents who met the criteria defined for U.S. database support specialists were considered eligible participants.

A second assumption made was that all participants would respond honestly to the online survey questionnaire. This assumption is made giving consideration to the fact that any respondent who chooses to participate in an online anonymous survey with no pressure will provide honest responses to the questionnaire. A third assumption made is that all respondents of the online survey were database support specialists in charge of supporting known DBMS such as Oracle, Sybase, DB2, or were support specialists of lesser known DBMS. This assumption is made because while a number of well known DBMS exist, respondents who supported less known systems as support specialists in the U.S. were considered as eligible respondents to the online survey for the current study.

Limitations of the Study

The survey used an online questionnaire to investigate the problem of turnover intentions among DBMS support specialists in the U.S. There was no way of knowing why some specialists responded to the survey and why others chose not to respond. Incomplete or partially answered questionnaires were rejected since they might indicate a form of bias by the respondents. There is also the possibility that the respondents of online surveys can be biased in answering certain questions and there is no way of preventing this in any type of survey.

The survey was limited only to database management support specialists who require high technical skills to perform database tasks, and was not intended for other specialists at the lower end of data processing, such as data entry clerks, data operators and computer operation specialists. The current study was therefore limited only to the turnover problems among DBMS support specialists and not the support specialists of other IT disciplines. Questions on the turnover intentions of DBMS support specialists were addressed by examining the roles played

by intrinsic and extrinsic turnover factors (Houkes, Janson Jan, & Bakker, 2003). The job-related questions were based on the attributes of the JDS, job type, and design relative to the turnover intentions, and were answered through the examination of intrinsic and extrinsic factors of database support specialists in the U.S. as defined by Herzberg et al.'s (1959) Two-factor theory.

Delimitations of the Study

This study of the turnover of database management support specialists was carried out using an online survey of U.S. respondents. Since the study was limited to U.S. respondents, all non-U.S. respondents in the online survey were rejected. The noninclusion of database support specialists outside the United States implies that the results of the current study cannot be generalized to database support specialists outside the geographical boundary of the United States. The survey focused only on database management support specialists, and not specialists of other IT disciplines. This implies that other IT specialists of non-DBMS who responded to the survey were rejected. Only completed questionnaires were accepted for the current study. All partially completed questionnaires were rejected. The online access to the survey page was deactivated after the final download of the survey data.

Chapter Summary

The multidimensional nature of turnover problems within contemporary organizations in the United States was reviewed in Chapter 1. The problem of the turnover of IT specialists that continues to be a major issue among major corporations in the United States with the increasing demands for highly skilled personnel (Moore & Burke, 2002) was reviewed. Job satisfaction in the United States showed a decline from 60% in 2003 to only 9% in 2006 (Root Cause, 2006). The yearly turnover data showed a rate of 15% for high-tech compared to 4% for non-high-tech

employees (ITAA, 2002). The theoretical frameworks upon which several organizational performance studies (Bailey & Stefaniak, 2000; Bland, 2005; Moore & Burke, 2002) are based were reviewed. The Job Diagnostic tool (Hackman & Oldham, 1980) used to measure job characteristics that influence turnover was reviewed in Chapter 1. The turnover statistics of IT professionals in the United States were reviewed. The research hypotheses and study questions were stated to investigate the correlation between the five job characteristics of autonomy, task identity, task significance, feedback, and turnover intentions. The purpose of this quantitative analysis was to examine the problems of turnover intentions among high-tech employees who implement database management support in organizations only in the U.S.

Chapter 2 presents a review of the literature. Intrinsic and extrinsic factors that may influence the turnover of IT employees including database management support specialists in the United States will be reviewed in Chapter 2. The literature review also examines employee, executive and top management team turnover and how these influence organizational performance. Organizational characteristics that influence turnover including perceived organizational support, organizational citizen behavior, and job embeddedness are reviewed. Other factors influencing turnover and organizational performance including employee satisfaction, dissatisfaction, commitment, and motivation are reviewed in Chapter 2. An in-depth discussion of organizational practices using various management techniques and tools to improve performance including Total Quality Management, Top Management Team, High Performance Work Systems, and the Balanced Score Card are reviewed in Chapter 2.

CHAPTER 2: REVIEW OF THE LITERATURE

Technology knowledge workers continue to be the strongest unifying support factor of contemporary organizations. IT enterprises, especially those implementing large database management systems (DBMS) in government agencies, have a critical need to retain highly skilled DBMS support specialists in order to accomplish their missions. One primary mission is to maintain core values and core purposes in an era of increasing competition among organizations. However, this is especially challenging in a highly competitive technological market dynamics trending toward globalization (Regan & O'Connor, 2002).

IT professionals as well as DBMS support specialists continue to have a meaningful impact in their ability to comprehend the complexities of contemporary technologies in DBMS support roles. Labor changes, technology innovation, organizational cultures outsourcing, and even globalization all have important influences on current job attitudes and retention of skilled workers, including IT specialists (Harris, Klaus, Blanton, & Wingreen, 2009). The difficulties of filling DBMS and other IT positions are compounded by IT professionals themselves who are in constant quest for balance and growth opportunities that are more pronounced than ever before (Perelman, 2007). Despite the tough economic times, labor market reports show that IT knowledge workers, more than any groups of professionals, are more than willing to change jobs, quit, and seek other more rewarding employment and better opportunities (Clark, 2004).

Turnover of IT workers remains one of the most important challenges facing today's high-tech organizations and government agencies. Turnover ranges from 15% to 33% percent in the United States (Moore & Burke, 2002; Waag, Reland, & Sein, 2005). This raises serious employee retention concerns among IT executives, practitioners, and scholars. Despite the recent

trend of outsourcing IT jobs offshore, IT turnover remains a critical and chronic problem for employers in the 21st century, especially in IT corporations that face the heavy task of maintaining large databases, whether they are private, governmental, or quasi-governmental agencies (Moore & Burke, 2002). Contemporary organizations that implement very large databases have a need to abate the attrition and turnover problems through careful analysis and implementation of research recommendations. The aim of the current study is to identify turnover problems relating to the support database management in the U.S. Transformational leadership plays a key role in employees' turnover intentions, retention, job satisfaction, and employee dissatisfaction (Herman, 2008). The current study also explores the influence of management, leadership style, and employee behavior on turnover intentions as these relate to database management support specialists in the U.S.

To keep up with highly competitive high-tech markets, both public and private corporations must implement efficient programs and competencies designed to motivate, retain, and empower their technical workforces. Additionally, they must meet the competitive demands of IT employee loyalty amid the emerging challenges of globalization (Hecker, 2005). Turnover problems are exacerbated as the labor market tightens due to shortage of IT graduates. Continuous technological growth of IT applications, including new DBMS and new demand for high-tech skills necessitates continuous research and understanding on the issue of turnover (Hecker, 2005). Database management support is critical within contemporary organizations where reliable information processing from large databases continues to be the strongest support factor whether the organizations have a technical, non-technical, or commercial business interest.

Documentation

The research material for the current study was obtained mostly from peer review articles, online libraries and databases, books, and internet articles. Over 85 peer review articles, 12 books, and 11 internet articles were used. An extensive literary search was done using resources from the University of Phoenix Library. These resources include online databases such as EBSCOhost, ProQuest, and the ACM Digital Library. A number of public and private libraries were used as sources for some of the articles obtained for the current study. Most of the research articles used were published in the last decade, except where seminal works from other decades are referenced. A number of studies that reflected classical theories such as March and Simon's (1958) work and Herzberg, Mausner, and Snyderman's (1959) Two-factor theory, including employee's freedom of movement, were used to reflect the evolution of turnover research from the early decades of the century to the present era. A summary of the documentation is shown in Table 1 below:

Table 1

Literature Reviewed in Developing the Research

Heading	Peer Review Articles	Books	Popular Press or Internet Articles
Introduction	18	0	0
Organizational Commitment	15	0	1
Job Satisfaction	19	2	0
Turnover Factors	48	7	9
Organizational Performance and Turnover	25	2	2

Historical Overview

Labor turnover data in the United States showed high rates in the earlier part of the twentieth century and substantial rate decrease in the post-war era mainly from the manufacturing sectors (Owen, 2004). Current trends on IT turnover in the present era show an exponential increase on employee turnover (Rouse, 2002). The availability of multitudes of research over time on employee turnover in the present era is due to the desire of contemporary organizations to curb the debilitating influence of the turnover on organizational performance (McElroy & Morrow, 2007). Earlier theories on the causes of turnover in the United States focused mostly on the financial factors, but recent studies show multi-factor explanations for

various types of employee turnover (Iverson & Douglass, 2003). Many of the earlier turnover theories such as the Organizational Equilibrium theory or the theory of Met Expectations did not fully address the underlying causes of the various types of turnover, and therefore failed to adequately address its complexity among modern day businesses (Iverson, 1999). This failure to adequately address the complexities of turnover was due mostly to research bias or inadequate research methodologies (Iverson, 1999). The Organizational Equilibrium theory viewed employees' decisions to leave as mainly influenced by ease of movement (Iverson & Douglass, 2003). While studies historically showed compensation to play a role in employees' decisions to leave, other factors including job security, employee well-being, motivation, and market conditions are shown to be important determinants of employees' decision to leave or stay (Burchell, 1999).

Contemporary DBMS in the present era are a complex conglomeration of centralized, distributed, replicated, and even wireless structures spanning the globe (Hedden, 2006). Data management in this era is performed through a collection of large mainframes, minicomputers, microcomputers, palmtops, laptops, and wireless handheld devices that become increasingly complex with time. Today's database management requires the specialized skills of database administrators, programmers, developers, and support specialists who are needed to understand, maintain, and integrate various management functionalities across varying contemporary systems. The introduction of internet technology has further complicated database management with the globalization ventures of IT corporations. DBMS support specialists in both government and private agencies are charged with maintaining very large databases required by these agencies to compete in the complex contemporary data processing environments. The task of

these agencies is to implement competencies aimed at retaining these skilled database management support specialists, or face the negative effects of turnover and disloyalty often associated with employee dissatisfaction including database management support specialists.

Nature of Turnover Theories

An understanding of the problems of turnover in general can be made by association with and exploration of many of the organizational theories that have been developed in the past. Among these are the theory of Organizational Equilibrium (March & Simon, 1958), the Met Expectations Model (Porter & Steers, 1973), the Linkage Model (Mobley, 1977), the Unfolding Model of Turnover (Lee & Mitchell, 1994), and the Job Embeddedness Theory of Turnover (Lee & Mitchell, 1994). A brief overview of each of these theories follows:

Organizational Equilibrium

Organizational equilibrium pertains to the maintenance of balance or fit between organizational factors such as the individual and general interest (Joseph, Ang, Kok-Yee, & Koh, 2007). According to Joseph et al. (2007), Organizational Equilibrium theory is likely the most influential of turnover theories because it is often referenced, researched, and cited in organizational studies. According to this theory, organizational investments on employees yield positive outcomes and when individuals recognize that their input to the organization is greater than the benefits returned by those organizations, they will resign from the organizations (Subramony, Mahesh, Kraus, Norton, & Burns, 2008). Benefits or inducements obtained from the organization are due to two main factors: (a) a desire to move due to one's work satisfaction with the environment, and (b) the ease of movement which is influenced by employability (Joseph et al., 2007).

Met Expectations Theory

Irving and Montes (2005) argued that met expectation relate to organizations meeting employees' pre-employment expectations will have a positive influence on their attitudes, intentions, and decisions to leave or stay. Organizational scientists built the Met Expectations theory from the Organizational Equilibrium theory. According to Irving and Montes (2005), when organizations deliver inducements which meet employees' expectations, positive organizational outcomes are achieved. These inducements are usually delivered in the form of competitive pay, bonuses, and other rewards (Irving & Montes, 2005). Positive organizational outcomes have positive influences on employee behavior and this leads to a decrease in turnover intentions.

Linkage Model Theory

Mobley's (1977) Linkage Model theory proposes a correlation or link between job dissatisfaction and turnover. According to Mobley, job dissatisfaction initiates the process of job search, quitting, resignations, and job search intentions. When a better alternative is found in the process, the individual resigns from his or her position.

The Unfolding Model of Turnover

Lee and Mitchell (1994) developed the Unfolding model theory, which provides a naturalistic approach to making turnover decisions. This theory states that shock usually drives the individuals to make decisions about their current employment. According to Holtom and Inderrieden (2006), shocks can be internal or external to the organizations and can include a company takeover, being passed over for promotion, a poor performance review, and even a family tragedy. This shock is then interpreted and integrated into the individual's wish to depart

or continue employment with the organization. According to Lee and Mitchell, turnover is due to given job related factors such as an unexpected job-related event, or some other unexpected event that triggers a turnover. It is considered in this theory that satisfaction with a given job influences turnover intentions, but there are other important factors that contribute to the turnover decisions for individual employees.

Job Embeddedness Theory

This is also known as the how and why theory (Lee & Mitchell, 1994) because it addresses how and why individuals arrive and depart from organizations. However, Lee and Mitchell (1994) do not address the individual's decisions to stay with the organization. It can be seen from the Job Embeddedness theory that individuals who decide to stay with a particular organization are being embedded into a non-quitting web. Strong ties with their communities and strong personal support systems constitute such a non-quitting web (Mitchell et al., 2001).

Discussion

Turnover theories that have evolved in the last 50 years can be traced to March and Simon's (1958) original theory of Organizational Equilibrium (Perelman, 2007). Other turnover theorists such as Mobley (1977) extended the Organizational Equilibrium theory of March and Simon by highlighting the intricate relationships that exist between turnover intention and turnover behavior. These theories do share common conclusions about turnover that no clear reasons exist why employees decide to leave a job, and that not all employees leave because they are dissatisfied. Turnover can be as a result of impulses precipitated by unrelated work events (Mitchell et al., 2001; Perelman, 2007).

Corporate Governance and Turnover

Organizations exist for the specific objectives that must be accomplished through various organizational factors including people, group, leadership, and strategy. How these elements fit together ultimately determines the level of organizational performance (Erbschloe, 2009). In other words, effective organizational leadership style and the resulting performance are contingent upon internal and external factors (Subramony et al., 2008). This perspective, known among organizational scientists as contingency theory, views leadership success and organizational performance as contingent upon several factors including style, resources, followers, and other situational factors (Subramony et al., 2008). Organizations exist from the performance perspective to accomplish organizational objectives by getting the work done, execute strategies, and promote values that are beneficial to a client base or customers, stakeholders, shareholders, and the society at large. Essentially, these organizations are basic economic structures designed with the sole objective of the satisfaction of the needs, desires, demands and aspirations of various stakeholders within and outside the organization through the free expressions of individual and collective values (Wilson, 2000).

Erbschloe (2009) postulated that organizations must meet designed objectives by constantly evaluating performance factors which include (1) goal attainment of met expectations, (2) resource and technology innovation, and (3) strategy and adaptability which involve placing the organization in a favorable position with respect to a changing environment. Organizational scientists (Burnes & Patrick, 2008; Harris, Klaus, Blanton, & Wingreen, 2009; Wilson, 2000) continue to identify and look for congruency between organization components. Congruency reflects the manner in which goals, organizational structure, and components are

consistent, aligned, and fit with each other within given organizational contexts (Jones & Schillings, 2000). Organizational competencies tend to be directed toward maintaining balance between employees' personal interests and those of the organizations (Irving & Montes, 2005).

Lawler, Chen, and Bae (2005) recognized that organizational competencies affecting employee turnover behavior and performance include the incorporation of effective governance strategies which are Top Management Teams (TMTs), self directed work teams, High Performance Work Systems (HPWSs), and executive teams. The absence of these competencies may adversely affect objectives and lead to negative influences on organizational performance, including dissatisfaction and turnover of highly skilled technical personnel (Thatcher et al., 2006). In other words, organizations employing HPWSs and any of these competencies have the potential of influencing employee job satisfaction, positive attitudes towards work, and employee retention (Healy & Martin, 2009).

Rui, Fung, and Firth (2006) argued that the level of organizational governance, including performance, is a function of several factors including political climate, strategies, and legal environment. These factors might have either adverse or positive influence on turnover. For example, in unstable political organizational environments, high executive involuntary turnover tends to be correlated to the organizations' low profit margins and low returns on investments. Low returns on investments are indicative of poorly performing organizations and can lead to voluntary and even involuntary organizational changes designed to reduce costs (Rui et al., 2006).

According to Wilson (2000), the newest organizational paradigm seems to be the establishment of TMTs at the top levels of leadership. A key issue about TMTs is how well they influence

organizational adaptability to changing environments through heterogeneous or homogenous compositions (Jones & Schillings, 2000). Organizational governance also includes the use of Total Quality Management (TQM), HPWSs, and TMTs to determine organizational strategic directions by implementing competencies aimed at developing sustained competitive advantages over competitors (Brammer & McDonald, 2002). Sustained competitive advantages are maintained through continuous retentions of skilled employees and competent leadership (Wilson, 2000).

Lin's (2007) study examined the relationship between the influence of stakeholders, excessive Chief Executive Officer (CEO) compensation, governance, and CEO involuntary turnover. A regression model analysis of research variables showed no statistically significant correlation between CEO compensation package and involuntary turnover. The findings from the study showed that CEO compensation packages tended to be higher when the organization maintained well designed and efficient structures. However, the results of the study showed that governance structures had no statistically significant correlation with CEO involuntary turnover for small businesses. Organizations with greater governance problems had higher CEO compensation packages determined largely by the board structure. These findings are inconsistent with turnover research and theories that show statistically significant correlations between compensation and employee turnover (Ross & Weill, 2004; Thatcher et al., 2006).

Leng (2004) studied the effects of corporate governance of financial organizations and turnover using stock data from 77 stock listed financial corporations for 4 years. Using a combination of cross-sectional and time series regression techniques, the researcher analyzed fixed models using equity as a dependent variable. The research findings showed significant

statistical correlation between financial organizational performance and turnover. Poor governance negatively correlated with performance and turnover. The size of organization correlated positively with organizational performance up to a certain maximum organizational size and negatively beyond this point. Organizations with effective corporate governance experienced a high return on investments (ROIs), and higher rates of returns on equity. It was also concluded from findings that a proportion of non-executive leadership did not have a major influence on the financial standings of financial organizations.

Top Management Team and Executive Turnover

Harris and Khumalo's (2008) study formulated the emerging strategies for succession planning in the case of CEO and TMT turnover. The study had the additional objective of offering transformative change recommendation to organizations' boards of directors, CEO, and TMT. Harris and Khumalo (2008) hypothesized that corporations with an effective succession plan experienced smooth and more efficient leadership transitions than organizations that did not have an effective succession plan. CEO and executive turnover create a leadership gap that has the potential of translating to employee turnover, which will ultimately negatively impact organizational performance (Krishnan, 2009). Recommendations from this study include creating and implementing a succession plan that calls for the allowance of enough overlap time for departing executive and successor. This enables the TMT to play a leading role in guiding the successor in the complex but evolving stages of organizational processes (Santorin, 2004). This has the added benefit of maintaining stability and reducing further turnover in other organizational subunits. This study has important implications for organizations because the succession plans recommended can help bridge that gap caused by executive and top

management turnover that can in turn lead to employee turnover intentions and voluntary turnover (Santorin, 2004).

Messersmith, Guthrie, and Yong (2007) evaluated the relationship between variation in pay and executive turnover. A large multi-industry database was used by Messersmith et al. (2007) to explore the relationship between pay dispersion and employee turnover, including TMT in publicly-held firms. Messersmith et al. defined pay dispersion as the variations in compensation among individuals within the same organization. According to Messersmith et al., (2007), the pay dispersion study is based on two theoretical frameworks that analyzed variations in pay dispersion within organizations. The first is the Tournament theory which is used to rationalize high pay among executives as a necessary motivator for better performance (Messersmith et al., 2007). This aspect of the Tournament theory recognizes motivation as correlating inversely with turnover intentions and positively with organizational performance (Honore, 2009). The second is the equity theory which views wide pay dispersion by individuals within the same organization as leading to unfair outcomes (Honore, 2009). An example of unfair outcomes is a pay structure perceived by employees as being unfair (Messersmith et al., 2007). Unfair outcomes lead to dissatisfaction and initiate turnover propensities. The results showed that pay dispersion was an important predictor of turnover at the top management level. The results also showed that pay dispersion is inversely related to executive turnover (Messersmith et al., 2007). These results are not only important in the United States but in other developed nations where CEO and executive compensation are constantly debated and under continuous public scrutiny (Messersmith et al., 2007).

Cho and Shen (2007) evaluated the variations and changes in executive compensation as a result of environmental shifts. Environmental shifts are defined by enforcement of oversights or deregulation. Studies on executive compensations within contemporary organizations tend to focus mostly on organizational differences in executive compensation, but Cho and Shen's (2007) study is unique in addressing the issues of executive and TMT compensation relative to environmental shifts or deregulation. TMT defined within the study represents executives at or above the vice president level. A generalized least square regression used to analyze the influence of environmental shift on TMT compensation showed a positive correlation between TMT turnover and compensation. The results are important in understanding the role of the TMT on turnover following organizational shifts or deregulation because these changes influence organizational performance. According to Cho and Shen (2007), these findings are consistent with other top management studies, but a rise in performance-based compensation at the top management was unique only in the airline industry.

Krug (2003) measured varying turnover characteristics including, timing, patterns, and rates among executives of acquired and target companies. Given major changes within the organizations after acquisition, Krug (2003) argued that acquisition resulted in longer term turnover effects than had previously been expected, and that the departure of top executives following acquisition had the most severe impact on organizational performance. According to Krug (2003), an acquisition refers to a legal takeover of a company by another. A longitudinal analysis of 12,000 executives from 473 target and non-acquired companies for a period of 15 years showed that acquisitions positively correlated with top management team turnover and that the quit rates were higher than normal following acquisitions. Non-acquired companies represent

organizations that have not merged with or taken over by other corporations (krug, 2003). The results of the study also showed that the turnover rates had no major differences between domestic and foreign acquisitions. The results correlate with the major premise of the resource-base theory that organizational performance is a function of the availability of its resources, which include knowledge, structural, and human resources (Herpen, Praag, & Cools, 2005; West & Terry, 2009).

Turnover and Organizational Performance

Organizational theorists see organizations as a medium of interaction among people and groups under well defined organizational structures (Cole & Bruch, 2006). Organizational theories focus on organizational environments, interactions, and performance using specific systems and structures to achieve critical organizational objectives, critical mission as well as core values and core purposes (Cole & Bruch, 2006). Leadership sees organizational performance as a means of measuring work and the results obtained from the work done. Many organizational scientists see performance measurement as systematic approach to quantify work done by members of the organization. Performance, therefore, is a manifestation of the attainment of organizational shared objectives (Cole, Armenakis, Harris, Fillmer, & Self, 2007).

Carton and Hofer (2007) stated that organizational performance consists of multiple dimensions and can be negative or positive. These dimensions can be a result of various employee attitudes towards work. This recognition of the dimensions of organizational performance is further explained from Carton and Hoffer's (2007) research when they stated that:

> There are many dimensions of performance and positive performance in one dimension may simultaneously result in negative performance in another dimension. For instance if resource accumulation and profitability are hypothesized as separate dimensions in the same model, adding resources in the form of equity may result in a lower-risk adjusted return on investments. (p. 6)

Several works (Coles, McWilliams, & Sen, 2001; Leng, 2004; Ross & Weill, 2004; Sloan, 2001; Watkins, 2008) see effective organizational performance as an important requirement for the organizational achievement of core values including high ROIs, high returns on equity, and high returns on assets. When these requirements are not met, employee dissatisfaction results, including a decline in performance. As a result, organizations experience the negative impacts of turnover, which adversely affect organizational performance (Watkins, 2008).

Northhouse (2004) recognized that organizational leadership must play the leading role in the furtherance of organizational objectives and the attainment of overall critical mission objectives. Furtherance of organizational objectives necessitates a practical leadership and management philosophy. Northhouse (2004) identified five unique characteristics that improve organizational performance as the ability to be decisive, wisdom possession, manifestation of honesty, confident management, and keen awareness of the current organizational environment. These leadership qualities can effectively determine the level of organizational performance, effectiveness, employee attitudes including satisfaction and overall turnover (Wilson, 2000).

Drucker (2004) recognized the role of leadership in determining organizational performance by pointing out that leadership, while an important requirement, should not be

limited only to the top organizational echelon. Leadership attributes could be found among every individual, groups or members of organizations all involved in the furtherance of organizational objectives. The fostering of organizational goals and objectives directly influence organizational performance. Drucker (2004) further stated that tagging individuals as non-leaders reduced their capacities to make important contribution in the furtherance and achievement of organizational objectives.

Organizational theories such as Scientific Management, Bureaucratic Management, and Contingency theory classify organizations as structures that essentially provide the medium of interaction among individuals, groups and leadership (Coles et al., 2001). Leadership has the responsibility to establish some form of congruency or fit among these disparate elements in the contemporary organizational context (Carton & Hofer, 2007). This is accomplished through building positive relationships and associations among all groups involved in and helping to achieve common organizational goals and objectives.

Brammer and McDonald (2002) viewed the associations and relationship among groups and individuals in the organizational environment as having a major influence in determining the dimensions of organizational performance. Therefore, positive participation and positive interpersonal interaction directly relate to positive organizational performance. Employees with strong positive feelings about their organizations show a strong willingness to participate positively in the accomplishments of organizational objectives. Those groups showing positive feelings about the organizations generally maintained a low employee turnover propensity.

Brammer and McDonald's (2002) hypothesis also corroborate conclusions held by Carton and Hofer (2007) that associations and relationships in the organizational environment

have important influences on organizational performance. Brammer and McDonald (2002) recognized participation and positive interpersonal relationships as having a positive effect on organizational work accomplishment. Members of organizations who have positive feelings showed a willingness to continue employment and generally had low turnover intentions.

Wu's (2002) findings supported those of Brammer and McDonald (2002) by recognizing that individuals with faith in their organizations showed firm adherence to responsibilities and duties. These groups generally participated in organizational activities with a strong determination to succeed, obligations to the organizations, and a need to foster and attain organizational objectives. Their collective attachments to the organization positively impacted performance.

According to Karim (2008), national and transnational corporations have a desire to improve organizational performance through the incorporation of various practices and competencies including TMT, TQM, and HPWSs. Most researches on HPWSs so far have been in the United States, but global interest on this competency is increasing as demonstrated through studies by Lawler, Chen, and Yalabik (2008). HPWSs, TMTs and TQM are organizational competencies that are designed to improve productivity and organizational performance (Karim, 2008).

Lawler et al. (2008) studied the impact of HPWSs on voluntary and involuntary turnover in corporations other than those in the United States. The study focused on turnover rates of employees of local and transnational corporations of East Asia countries. This study was based on the HPWS theory which includes the organizations' ability to hire quality employees, institute effective training, performance-based pay, employee empowerment, trust, and information

sharing with employees. Using a generalized logistic regression analysis with independent variables of voluntary and involuntary turnover, organizational turnover data from four Asian countries were analyzed. Despite the huge cultural differences between Asian countries and Western societies, the findings were in agreement with United States-based findings (Khatri, 2000). High performance work systems effectively reduced both voluntary and involuntary turnover rates for more locally-based organizations than the subsidiaries of many Asian transnational corporations. These findings are consistent with turnover's theoretical expectations in foreign and domestic corporations (Lawler et al., 2008).

McElroy and Morrow (2005) measured the mediating influence of efficiency on turnover and organizational performance using cross-sectional and longitudinal analysis. A cross-sectional analysis is a study done on a subset of a population while a longitudinal analysis involves repeated observations of a population over a specific time period (McElroy & Morrow, 2007). The role of efficiency as a mediator in the study had the objective of further clarification of the impact of turnover and performance. Levels of efficiency and organizational performance were analyzed, including a cost-per-loan efficiency which was found to mediate turnover, and two organizational performance outcomes of profit and customer satisfaction. The finding showed consistent inverse correlations between high level of turnover in the organization and performance. This implies that organizational efficiency is used to explain the higher turnover rate and the lower organizational performance. These results are corroborated by similar findings by Jones and Schillings (2000) that efficiency mediated the relationship between employee decision to leave and organizational performance.

Park and Gagnon (2006) investigated the relationships between organizational performance and the implementation of the Balanced Scorecard (BSC) competency. This comparative analysis investigated how certain service industries plan and evaluate performance through the use of such BSC frameworks. This study used content analysis and structural equation modeling by applying the standards developed by Nunnally & Bernstein (1978). The BSC is used by contemporary organization to measure performance. The finding showed the relevance of BSC performance management tools and their significance in measuring and monitoring strategic performance. Park and Gagnon (2006) recommends that while BSC might be an important performance measuring tool, each organization needed to modify the basic BSC framework to meet the contextual nuances of the particular organization while adopting realistic goals in the process. While the BSC is an important performance measuring tool, organizations must modify its basic frame according to the organizational model.

Job Satisfaction

An employee's job satisfaction is a positive feeling due to a positive assessment of one's employment status (Udechukwu, Harrington, Manyak, Segal, & Graham, 2007). Employees' job satisfaction is recognized as an important determinant of the magnitude of employees' job appreciation within any given organization. Job satisfaction and employee performance are positively correlated, which implies that leadership of organizations must examine the conditions that may lead to employee dissatisfaction and improve on these with the intention on motivating employees (Sakires, Doherty, & Misener, 2009). The organization must improve employees' intrinsic job characteristics which include achievement, creativity, independence, variety, and social status (Udechukwu et al., 2007). Extrinsic job characteristics that must be considered by

the organization to impact job employees' job satisfaction include pay, benefits, rewards, and other compensation including bonuses (Guthrie, 2000).

Positive job attitudes of the employee populations are based on positive attitudes found within the organization. Organizations are by their nature open, rational, natural, and human systems which imply that these organizations must have positive exchanges with the environment in which they operate (Scott, 2002). The human aspect of the organization implies that the attainment of the organizational goals depends on the cooperative efforts of its employee population. This implies that for the organization to achieve its core values and core purposes, positive job attitudes of employee population must be closely related to the positive organizational attitudes as well (Udechuckwu, 2009). Job satisfaction is related to how well an organization meets or exceeds the expectations of its employees and strives to meet these expectations through the introduction of competencies that facilitate the attainment of employee's goals and career objectives (Jegadeesan, 2007).

Guthrie, (2000) related job satisfaction to multiple dimensions of the employees' work characteristics including absenteeism, employee performance, and turnover. Job satisfaction must be achieved through the utilization of organizational resources at the optimum to ensure that satisfaction is continuous and not a momentary activity to stimulate employees' interests (Guthrie, 2000). According to Jegadeesan (2007), organizational competencies designed to reduce dissatisfaction and increase job satisfaction include:

1. Maintain open lines of communication.
2. Create a clean, healthy, and safe work environment.
3. Strive to change dissatisfied employees' organizational perception.

4. Give ample unconditional recognition to employees.
5. Institute morale building programs.
6. Allow a participative work environment and management.

Madlock (2008) examined the effect of management style and employees' job satisfaction. Madlock indicated that supervisors' communication and resultant management style greatly influenced employees' job satisfaction and the resulting turnover. Madlock (2008) showed that several elements of the work environment can influence job satisfaction other than compensation. Leadership behavior in the workplace was highly relevant in shaping employees' job perception, including satisfaction. The findings from Madlock's study indicate a positive correlation between the communication skills of management and employees' job satisfaction, including turnover intentions. These results also show strong relationships or links between effective communication, employees' attitude, and organizational commitment (Madlock, 2008; Rad & Ailson, 2009; Smithers, 2006).

Organizational Identity

Researchers (Cole & Bruch, 2006; Ricketta, 2005) recognized that within contemporary organizations, the relationships between individuals and their organizations do affect behavior, attitudes, and the psychological state of the individuals within the organizations. In an effort to explicate, predict, and ascertain the impact of employee behavior, these researchers used two often researched constructs named organizational identity and organizational commitment. Cole and Bruch (2006) viewed organizational identity as the ways in which individuals' identity correlates with the organizational identity. Organizational identifications specifically related to the ways employees of any given organization view membership within the organization (Elstak,

2008). This focus on membership in the organization according to Cole and Bruch's study purports to benefits employees, organizations, and other affiliated members of the organization (Haslam, Postmers, & Ellemers, 2003; Ricketta, 2005; Van Dick, 2004).

Organizational Commitment

Within the context of contemporary organizations, commitment refers to the level of employees' activities and involvement with their organization. Some organizational researchers (Meyer, Becker & Van Dick, 2006; Ugboro & Kofi, 2003) have identified three classes of organizational commitment known as affective, continuance, and normative. According to Diefendorff and Greguras (2009), affectively committed employees manifest emotional ties to the organization. Continuance is when the employee considers the cost of quitting against maintaining employment with the organization. Normative commitment deals with the feelings of obligation by the employee towards the organization and has an important role in the employees' wish to continue or discontinue employment. The organizational commitment construct, similar to organizational identity, is often misunderstood and even more difficult to analyze or measure (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002). Organizational commitment deals with employees' emotional ties to their organizations and can be used to predict certain organizational attributes such as job satisfaction, voluntary turnover, turnover intention, and even organizational citizen behaviors (Cooper-Harkin & Viswesvaran, 2005; Ugboro & Kofi, 2003).

The common element in the three types of commitment is that an organizational commitment is a manifestation of the conditions of the state of an employee's mind in that it (a) defines the employee's relationship to his organization and (b) determines if the member of the

organization stays or leaves (Ugboro & Kofi, 2003). These studies (Meyer et al., 2006; Meyer et al., 2007; Ugboro & Koffi, 2003; Ugboro, 2006) showed the existence of relationships between affective and normative commitment, but both commitments were separate and independent of the continuance commitment. Strong affectively committed employees choose to stay with their organizations because they have to, while strong normatively committed employees feel they ought to (Ugboro, 2006).

Employees exhibiting affective commitment tend to have a feeling of belonging and maintain a participatory outlook in the organizational activities and therefore, tend to stay with the organization (Diefendorff & Greguras, 2009; Rhoades, Eisenberger, & Armeli, 2002). Employees who show strong affective commitments perform their assigned tasks according to organizationally stated objectives (Diefendorff & Greguras, 2009). According to Hammer & Avgar, 2005), organizational commitment is different from tenure, and is an important predictor of voluntary turnover. Organizational commitment correlates negatively with turnover intentions and positively with job satisfaction. Therefore, organizational commitment further clarifies the relationship between organizational performance and employee turnover (Ugboro, 2006). Whereas little attention and limited research exist on organizational identity, organizational commitment has received more attention and research using meta-analysis (Cetin, 2006; Ugboro, 2006; Ricketta, 2005; Van Dick 2004).

Turnover Intention

Turnover intention is an employee's consideration, desire, or wish to leave his or her current organization (Lee, 2002; Udechukwuet al., 2007). Organizational commitment also defines the extent of employee and employer association (Keiner & Ashforth, 2004). Meta-

analytic studies show organizational commitment to be a strong predictor of job attitudes, including turnover intentions and organizational citizen behavior (Hammer & Avgar, 2005). Turnover studies indicate that turnover intention does not necessarily lead to actual turnover (Cole & Bruch, 2006). These turnover studies generally tend to reveal that turnover intention might not necessarily lead to actual turnover since employment status might change after an employee initiates the thought of turnover.

Using meta-analytic research approaches, Lee (2002) recognized that positive employment status change reduces actual turnover. The findings from these meta-analytic studies showed that turnover intentions lead to actual turnover of employees within organizations. However, these turnover intentions were often difficult to predict. While turnover intentions show negative correlation with job satisfaction on a continuous basis, it linked job satisfaction through the cognition of organizational commitment (Chiu, Lin, Tsai, & Hsia, 2005).

Lee (2002) found that studies employing actual turnover data are likely to get different results depending on when the studies were conducted. For example, results from actual turnover data from two periods may differ if adverse economic conditions resulting in fewer turnovers in one period influenced the turnover rate of employees. Organizational commitment is one of the leading predictors of turnover intentions because optimistic employees tend to have less desire than their pessimistic counterparts to leave their organizations (Jex, 2002). Meyer et al.'s (2002) meta-analytic study showed that an inverse relationship exists between employees' commitment within their organizations and their turnover intentions. Results from organizational studies (Davis, Schoorman, Mayer, & Tan, 2000; Harter, Schmidt, & Hayes, 2002) also indicate that trust in leadership also leads to organizational loyalty and the reduction of turnover intentions.

Hegney and Plank (2008) researched the intrinsic and extrinsic job characteristics perceived to influence employees' job satisfaction. Their study used a questionnaire to understand the factors of voluntary turnover of population among 2800 enrolled nurses in Queensland, Australia. The study showed that intrinsic and extrinsic job characteristics do influence voluntary turnover. The results also showed that work stress played a role in participants' intention to leave. The findings related only to this group of nurses and may not be generalized to the employees of other organizations, including IT (Hegney & Plank, 2008).

Freund's (2005) dual factor study on employees' obligations to the organization and positive job outlook as determinants of voluntary turnover relating to welfare workers focused on the role of organizational commitment and job involvement. Freund (2005) also examined the role of extrinsic and intrinsic factors on voluntary turnover or intention to leave among employees. The results show a consistent correlation between affective and continuance commitment relative to job satisfaction. This is consistent with the findings from Ugboro's (2006) study that showed employees' commitment and job satisfaction to have a major impact on the voluntary turnover of employees.

Wegge, Van Dick, Wecking, Fisher, and Moltzen's (2006) study combined the role of employees' motivational factors associated with employees' social identity. The objective was to explore employees' motivation, organizational identity, and the working conditions of employees. Two studies with samples of N=211 and N=161 were done to analyze the data. One study analyzed the objective in-bound and out-bound work characteristics, while another study analyzed the subjective work characteristics of motivating work potential and organizational identity. Job satisfaction, turnover intention, and other organizational work characteristics were

measured as indicators of respondents' work motivators and working conditions. The results showed a positive correlation between objective and subjective work characteristics. The results from the studies also showed that employees with highly motivated work potential reported higher Organizational Citizen Behavior (OCB) and job satisfaction. The results also showed that organizational identity was an additional predictor of employees' job satisfaction, intention to leave, and OCB. Employees who were highly identified with their organizations showed higher motivation, well-being, and important interactions with the organizations at several levels. The study also showed work measures that enhanced motivation and working conditions and how these improved the ability to motivate and improve employees' organizational commitment.

Bartel (2004) recognized that organizational practices such as training, performance, appraisal, compensation, and other incentives do have relationships with employee behavior and performance. Schnake, Williams, and Frendenberger's (2007) study in a Southern government's departments of auditing, revenue, and education measured employees' usage frequencies of career management practices and employee attitude. Using a single factor test and factor analysis of management practices, Schnake et al. (2007) showed that career management practices were positively correlated to employees' organizational commitment and job satisfaction but inversely correlated to perceived job stress and job insecurity. In addition, career management frequency of use was inversely associated with the turnover intention of employees.

Voluntary Turnover

Turnover is the unlinking of the ties between organization and employees (Udechuku, Harrington, Manyak, Segal, & Graham, 2007). Turnover is voluntary if initiated by the employee and involuntary if initiated by the organization (Davis et al., 2002). Contemporary researches on

turnover are based on March and Simon's (1958) seminal work on ease and desirability of movement. The ease and desirability of movement is a major precursor of employee turnover (Crossley, Bennet, Jex, & Burnfield, 2007). Voluntary turnover is a volitional process with the employee as the initiator. Voluntary turnover is organizationally unavoidable as it is unpredictable and not always predicated on employee job dissatisfaction but a host of situational factors such as relocation, family issues, and even disguised employees' dispositions (Barrick & Zimmerman, 2005). Voluntary turnover always pertains to displacements across organizational boundaries that highly affect the employee (Hong & Chao, 2007).

The particular characteristics of voluntary turnover, including its varying withdrawal forms, mode of departure, and timing, makes its prediction an uncertain organizational activity amid the leadership's crucial need to comprehend the effects of high or low performers' departures (Barrick & Zimmerman, 2005). Voluntary turnover of high performers implies a negative impact on productivity, resulting in a decrease in organizational performance. Voluntary turnover or any other form of employees' departure has a negative impact on organizational performance because the organization must spend considerate time to bridge turnover gaps created when highly skilled employees leave voluntarily and suddenly (Hong & Chao, 2007). There is also a need by organizations to bridge the gaps created when even low performers leave suddenly without notice.

Lee, Sablynski, Burton, and Holtom (2004) stated that turnover is a participative decision in the organizational process. This participative turnover decision is viewed as different from a participative decision to engage employees in organizational performance activities. Turnover constructs propagate the idea that employees leave because they are generally dissatisfied, poorly

committed organizationally, and have alternative availability; but it can be quick and spontaneous or it can be a deliberate process arising out of a series of factors including task assignment, attitudes, inadequacy, under appreciation, or interpersonal relationships (Lee, Sablinski, Burton, & Holtom., 2004).

Mitchell et al. (2001) measured the influence of job embeddedness on voluntary turnover using off-the-job factors. On-the-job factors include teams, groups, and links to other organizational subunits, while off-the-job factors include community associations, church activities, family, and friends (Mitchell et al., 2001). The job embeddedness construct is defined as a key moderating concept between specific on or off-the-job factors and employee retention (Mitchell et al., 2001), or the sum total of the forces that prevent employees from quitting (Crossley et al., 2007). Job embeddedness represents a central point on the accumulated non-affective reasons for employee retention, which is a sort of inertia to stay or a status quo bias (Mitchell et al., 2001). Embeddedness can occur in various forms including occupation and personality. The results of the study showed a positive correlation of job embeddedness with turnover intention and voluntary turnover. This implies that embedded employees have lower turnover propensities than non-embedded employees (Crossley et al., 2007). This is important because embeddedness is seen as a predictor of turnover above and beyond the standard boundaries of job satisfaction and organizational commitment (Tomoki, Burton, & Sablynski, 2008).

Trevor (2001) studied the influence of job satisfaction and unemployment rate on voluntary turnover stressing job availability. Longitudinal data of a sample of 5506 employees were analyzed using survival analysis and time-dependent variables including repeating turnover

conditions. Survival analysis represents a time to event data analysis (Trevor, 2001). The results indicated that education, cognition, and occupation-specific training moderated the effects of voluntary turnover. These findings correlate with several other meta-analytic studies that found positive correlations between turnover and job satisfaction (Lee, Mitchell, Holtom, McDaniel, & Hill, 1999; Trevor, Gerhart, & Boudreau, 1997). These studies showed that real ease of movement rather than the imagined movements by members of organizations are important determinants of voluntary turnover.

Involuntary Turnover

Involuntary turnover represents a willful measure of the release of employees by the organization. This type of turnover is always initiated by the organization and always leads to a breakdown of an organizational process and deliberate reduction in human resources that are determinants of the organizations' competitive position (Cooper-Harkin & Viswesvaran, 2005). This is known as job redundancy and is usually initiated by the organization. It includes downsizing, layoffs, acquisitions, and is considered as involuntary turnover because departure is beyond the control of the employee (Waters & Muller, 2004). Involuntary turnover is organizationally initiated when some organizational units are eliminated, contracted, or outsourced to an external organization. This might include such organizational units as payroll, networking technology, and even human resources. The external organization often has the option to bring in their own experts, in which case members of the main organization are terminated. The process of involuntary turnover is not exclusive to the lower levels of the organization, but extends to the top management and executives (Messersmith, Guthrie & Yong, 2007). Involuntary turnover arises out of the need for organizational adaptation to a changing

environment and not just because of age, retirement, cost cutting or health concerns (Cho & Shen, 2007). Organizations are constantly adapting to technological, environmental, and global changes. This can lead to the reorganization and reduction in workforce, which are considered as necessary involuntary turnovers (Santorin, 2004). Downsizing by the organization represents a form of involuntary turnover and is always initiated out of the need by the organization to cut costs, meet competitive challenges, and achieve high returns on investments. An overwhelming number of researches on turnover focus on the causes, but comparatively little research exists on the effects of turnover, particularly the involuntary turnover, because of organizational unwillingness to release information on dismissed employees due to privacy concerns (Asworth, 2006).

Karsan (2007) argued that involuntary turnover has a less severe consequence on organizational performance than voluntary turnover. Voluntary departure in the case of skilled employees creates a void in the performance of job tasks and that may negatively impact performance as a whole. Well-structured organizations have an effective replacement plan in the case of involuntary turnover such that performance is minimally impacted. Voluntary and involuntary turnover due to sudden departures of highly skilled personnel result in greater costs to the organization because rehiring involves training, administrative, medical examination, and advertisement for position costs (Karsan, 2007).

Cho and Shen (2007) studied the effects of organizational context characteristics termed the “latitude of objectives” and “latitude of action” on the involuntary turnover of organizational executives. “Latitude of objectives describes the freedom managers have to pursue personal objectives and latitude of actions describes the range of strategic options available to managers

as they strive to bring about organizational outcomes demanded by stakeholders" (Cho & Shen, 2007, p. 2). According to Cho and Shen (2007), both latitudes interact to influence the causes and performance outcomes of the involuntary turnover of executives. This framework is a major departure from most frameworks that address causes and the organizational implications of involuntary turnover, but focuses on executive latitude of actions (Cho & Shen, 2007). Ample evidence from findings shows that involuntary executive turnover is a function of the relationship between latitude of actions and objectives. According to Chon and Shen (2007), these findings vary among organizations, and largely depend on the level of managerial function. The result of this framework provides an important detail in the role of executive involuntary turnover on organizational performance.

Eby and Dematteo (2000) examined the effects of employees' movement or relocations on turnover. Job relocation defined for this study includes lateral or downward movement within the organization. Based on the social exchange theory that a measure of satisfaction in any undertaking is contingent upon the balance of rewards versus costs (Eby & Dematteo, 2000), a lateral or downward movement is likely to cause an imbalance that reduces employees' interest and psychological investments in the organization, resulting in turnover intentions. All organizational movements require adaptation, but extra-organizational movement, such as relocation is unique because it entails adaptation to new work relationship, new norms, and new environment (Eby & Dematteo, 2000). A correlational analysis of post move attitudes, envisioned organizational support, and turnover intentions showed turnover to correlate with the specific type of move. For example, relocations involving lateral or downward movement that were considered involuntary by employees led to a decrease in perceived organizational support

and stronger turnover intentions. This study presents a strong reminder to organizational leadership of the necessity to understand the pitfalls of a lateral or downward movement because these can be construed as unfair by the employees and lead to turnover. These results are consistent with the postulates of the social exchange theory, met expectations, and the constructs of perceived organizational support (Tekleab, Takeuchi, & Taylor, 2005).

Turnover and Demographic Factors

The background or personal characteristics identifiers for the current study include gender, age, tenure, family status, and education. These represent characteristics of a sample that is representative of the population under study and enable strong comparisons to be made. In correlational analysis, these are usually computed against the dependent variables to give considerable insight on the researched data (Raulin & Graziano, 2004). Demographic information about a population can provide useful information about the composition of a workforce and population distribution. Identifiers of personal characteristics such as gender, age, education, and tenure can help management plan better strategies for work force management (Holtom & Tanova, 2008). Demographic information about the workforce is important in research such as the current study because it provides useful information on the movements, hiring, resignation, dismissal, and promotion of a particular population. The influences of these personal identifiers of characteristics on turnover vary across types of organization, cultural differences, and national boundaries, making it difficult to generalize across organizational, cultural, or even international boundaries (Najera, 2008). For example, a study of job satisfaction and turnover of a population of nurses would yield higher turnover rates among females because more females than males exist in the nursing profession. A turnover analysis of a Mexican

workforce would yield results that skew towards the male gender because the culture has an overwhelming percentage of men in the work force compared to women (Najera, 2008).

Tian and Pu's (2008) study on the turnover of hotel chain workers in the U.S. showed that gender differences had no major impact on job satisfaction. Holtom & Tanova (2008) showed that age generally tended to correlate negatively with turnover and job satisfaction. This implies that an increase in age is related to lower turnover intention and decrease in voluntary turnover. Holtom and Tanova's study also showed an increase in turnover rate among highly educated and highly qualified employees. This is consistent with the findings of Korunka, Hoonakker, and Carayons' (2008) study on the turnover intention of IT workers in the United States.

Randhawa (2007) analyzed the relationship between turnover variables including job satisfaction and turnover intention. Randhawa's (2007) analysis using correlations and multiple regressions showed that age and qualification correlated negatively with turnover. This implies that experience and qualification put employee in a higher standing that reduced their turnover intentions. Age was not a major predictor of the intention to quit or a major predictor of organizational performance. The results correlate with other demographic studies (Holtom & Tanova, 2008; Tian & Pu, 2008) that showed gender and age to have a minimal influence on the level of organizational performance.

Carayon, Marchand, Hooneker, and Schwarz (2003) studied job satisfaction among technology and non-technology workers. Carayon et al. (2003) found that technology workers were generally less satisfied with their jobs compared to non-technology workers. These researchers showed that job satisfaction among women was influenced by pressure and task

significance; however, gender had no effect on the quality of work output. This result is consistent with meta-analytic studies (Joseph, Kok-Yee, Koh, & Ang, 2007; Riketta, 2005) on the turnover of information processing professionals. The results from these meta-analytic studies showed that tenure and gender did not have any great impact on employee turnover intentions. Younger IT professionals had positive correlations with turnover while older IT professionals showed negative correlations with turnover. These findings are consistent with findings from other turnover studies (Holtom & Tanova, 2008; Korunka et al., 2008; Randhawa, 2007; Tian & Pu, 2008).

Motivational Factors of Turnover

Kanwar, Singh, and Kodwani (2009) stated that employee motivation was an important factor that enabled employees to perform conscientiously, diligently, and persistently. Kanwar et al. (2009) showed that contemporary organizations that strive to improve employee satisfaction through motivation experienced low turnover. Organizational studies on individual characteristics typically associate high turnover with the poor motivation of employees (Burnes & Patrick, 2006; Moore, 2000). The motivation of employees ultimately determined the level of their performance within their organizations.

Previous studies on employees' motivation found that employees' negative attitudes or negative affective commitments had an inverse relation with the job satisfaction and general negative attitudes with their organizations (Moore, 2000; Thoresen, Barsky, Warren, & Kaplan, 2004). Other studies on motivational factors of employees have stressed the organizational roles relative to motivation and empowerment. For instance, unmet expectations negatively influenced employees' performance within their organizations, job satisfaction, and turnover intention

(Ashforth & Saks, 2000; Lance, Vandenberg, & Self, 2000; Turnley & Feldman, 2000). The extent to which employees consider their expectations as having been met by their organizations influences their decisions to leave or stay, which in turn determines their turnover propensities (Feij & Taris, 2006).

Job Motivators

Most studies on job motivation are based on Herzberg et al.'s (1959) motivator hygiene theory of work. Herzberg et al.'s two factor theory states that workers' motivation to perform tasks is based on two factors of satisfaction. These are satisfaction due to motivational factors, and dissatisfaction due to hygiene factors. According to Herzberg et al.'s theory, job dissatisfaction and job satisfaction are not exact opposites. Hygiene factors include:

1. Organization
2. Supervision
3. Working condition
4. Salary
5. Interpersonal relationship
6. Job security

Motivational factors include:

1. Achievement
2. Recognition
3. Growth
4. Interest in the job
5. Responsibility

While the two-factor theory has generated a number of controversies on the meaning of job satisfaction and dissatisfaction, most other turnover theories are based on these factors.

Burnes and Patrick (2006) explored the causes of employees' willingness to leave their current employment using a mixed quantitative and qualitative analysis. This study was based on the unfolding model turnover theory, which views employees' decisions to discontinue current employment or their desire to continue with current employment as initiated by the introduction of shocks which represent sudden experiences or changes to employees' work environment. Shock and job embeddedness have an influence on employees' turnover behavior (Holtom & Inderrieden, 2006). By focusing this research on a sample of 52 generation X members, Burnes & Patrick (2006) found that the shocks that made the employees decide to stay or leave the organization were attributed to the unfolding model theory. The findings from the study further showed that the important motivators of turnover were deficiencies in organizational trust in the employee and employees' lack of trust in the organization, new technology challenges, and lack of communication. Burnes and Patrick (2006) demonstrated through this mixed study that the number one shock among a generation of high-tech employees was the lack of trust in leadership. Even when 60% of the respondents showed a desire to continue employment with the same organization, 28% of the respondents were concerned over the loyalty of their organization to employees. Fourteen percent of the non-generation X employees showed concern over employer loyalty while 14% of both groups showed concern over the issues of outsourcing by their current organization. Burnes & Patrick's study showed that winning the trust and loyalty of their employees was a major issue faced by employers in today's contemporary organizations.

Moore (2002) posited that extrinsic factors including pay, salary, and other compensations had direct motivational influences on the employees' job attitude, and even decisions to leave or stay. Extrinsic factors including compensation are important in the determination of the level job satisfaction and magnitude of performance (Herpen, Praag, & Cools, 2007). While extrinsic job characteristics may play a greater role in abating turnover, studies by Thatcher et al. (2006), using a meta-analysis of intrinsic job characteristics, showed that intrinsic motivators exert a greater or more powerful influence on employee turnover. The results of the studies showed that intrinsic motivators did not directly influence employees' job tasks but correlated with employees' positive outlook on the job, and that affective employees' factors are different from job properties (Thatcher et al., 2006).

Influence of Compensation on Turnover

Organizational goals include the ability to hire and retain highly qualified individuals who can help organizations achieve their objectives (Thatcher et al., 2006). Earlier organizational theorists defined several job characteristics that are likely to affect employees' job attitudes, including satisfaction and retention. Thatcher et al. (2006) defined several organizational factors including intrinsic and extrinsic characteristics that influence employees' job satisfaction and turnover. Intrinsic motivators pertain to how the employees feel about the organization and extrinsic factors include pay and compensation, which tend to influence employees' job attitude and turnover intentions. However, based on empirical analysis of intrinsic motivation study (Thatcher et al., 2006), intrinsic motivators were found to be more influential than extrinsic motivators on turnover and employee attitudes.

A number of researchers (Bartol & Locke, 2000, Kochanski & Sorensen, 2000; Tremblay & Chenevert, 2008; Tremblay & Vandenberghe, 2008) recognized monetary pay as a critical factor in employee turnover and a critical motivator in many IT employees. IT organizations strive to maintain a competitive pay scale to prevent turnover of employees; however, studies by Liu, Bartol, and Tekleab (2005) on turnover determinants showed that factors of pay and compensation had an inverse relationship with turnover and turnover intention.The issue of pay or compensation within organizational contexts is complicated and multidimensional since some studies reveal that a higher percentage of employees feel poorly compensated by their organizations (Heneman & Judge, 2000). A further understanding of the compensation and the fairness factors as these apply to turnover and turnover intention is not only necessary, but also critical especially in the area of database management support specialists since database management is common to all organizations.

Work Environments and Turnover

Studies continue to indicate that work environments, employee aspirations, and personality drive the issue of turnover and retention (Moore, 2000; Thatcher, Stepina, & Boyle, 2002; Honore, 2009). With the changing contemporary organizational environment, an important case to investigate turnover exists if turnover factors have remained the same as these studies indicate or change with the new technological innovations of today's global markets, especially in the DBMS environment. IT continues to face critical shortages in acquiring and retaining highly qualified personnel that are needed to maintain the complex and the changing nature of contemporary information systems, especially database management system specialties. Researchers are constantly searching for ways to manage and decrease the high incidence of

employees' turnover behavior and to understand the root of the problem in contemporary organizational terms (Thatcher et al., 2006).

Several researchers (Adhikari, 2009; Korunka et al., 2008; Lee, Mitchell, Holtom, McDaniel, & Hill, 1999; Lemons & Parzinger, 2008) have focused on the problem of turnover as it relates to IT corporations, but studies focusing exclusively on DBMS support specialists' turnover intentions are rare. These studies commonly recognize the mediating influence of work life quality in the relationships between job task, organizational characteristics, and employee turnover. While not specifically addressing the problems or turnover as it pertains to relational database support specialists, these studies also commonly show job satisfaction as a major predictor of employee turnover intentions irrespective of organizational type, culture, or work environment.

Other researchers (Burke et al., 2008; Honore, 2009; Thatcher et al., 2002) have used differing job turnover and satisfaction models to research the problem with the common variables of job workload, task variety, feedback, and fairness. The results from these studies showed major differences from other studies done on the role of compensation as a major predictor of employee turnover intentions (Guthrie, 2000; Thatcher et al., 2002; Lawler, Lei, & Huang, 2007). A number of researchers on turnover and employee satisfaction (Adidan, 2006; Gimbel et al., 2002) used job satisfaction scales that continue to be used today to measure given job satisfaction variables. These variables aid researchers to predict turnover rates and employees' organizational commitments. Trimble (2006) defined job characteristics to include autonomy, feedback, and task identity along with personal outcomes; these include high job satisfaction, work motivation, and work effectiveness. Job characteristics have an influence

employee commitment and personal outcomes, which in turn influence retention and turnover (Burke, Davis, & Flett, 2008; Lemons & Parzinger, 2008).

The Role of Stress on Turnover

Organizational researchers have shown that stress plays a major role in lowering employees' moral, mental, emotional, and psychological health, which in turn leads to turnover intention and voluntary turnover (Raitono & Kleiner, 2007). Stress can play an important role in employees' decision to resign from their jobs. Organizations have the responsibility of understanding stress factors in order to reduce the negative influence of turnover intentions among employees by developing competencies and strategies aimed at reducing the various forms of employee turnover.

While several organizational scientists in North America have focused on the influence of stress and employee health on turnover (Danna & Griffin, 1999; Harris, Harvey & Martinko, 2008; Mulki, Jaramilla, & Locander, 2008; Ongori & Agolla, 2008), other researchers have studied the influence of cultural individualism and work related stress on turnover (Harvey, Harris, & Martinko, 2008; Ongori & Agolla, 2008; Rajeswari & Amantharaman, 2005). A seldom explored area of turnover is the connection between job stress and psychological health on employee turnover (Ongori & Agolla, 2008). Work related stress has a negative influence on employee motivation, which implies that a stressful work environment increases turnover intentions and can ultimately lead to the voluntary turnover of dependable and skillful employees (Harvey, Harris, & Martinko, 2008; Ongori & Agolla, 2008).

Xie, Schaubroeck, and Lam (2008) examined the role of traditional values and job stress on turnover intention. According to Xie et al. (2008), traditional values relate to strong and

cohesive family structure. The result of this study showed that a positive feeling in relationships in the job environment was relatively greater among non-traditional than among traditional employees. Xie et al. (2008) showed that job demands including stress, psychological factors, equity consideration, mental, or psychological health were important mediators for employees who believed in traditional values, whereas perceived personal job factors involving health and job control received greater consideration among employees who relied less on the elements of traditional values. Studies on job management and control (Terry & Jimmieson, 1999; Xie et al., 2008) based on the decision latitude theory showed the moderating influence of job control on job stress. The job latitude theory posits that job control is the key element in moderating the effect of job stress (Xie et al., 2000).

Other studies were used to challenge the assertions of the latitude theory that culture plays an important role in job control (Terry & Jimmieson, 1999; Xie et al., 2000). Terry, Jiemmison and Callan (2004) recognized self-efficacy as a major characteristic responsible for positive or negative reactions to job stress. The decision to discontinue employment, known as voluntary turnover, was due to the negative response to stress in some cultural context attributable to the job environment, colleagues, and the actions of societies as a whole (Lou, Yu, Hsu, & Dai, 2007).

Using a meta-analytic two dimensional stressor framework to explain inconsistencies with previous research on stress and retention-related criteria, Podsakoff, LePine, and LePine (2007) showed that defined hindrance stressors had an overall negative relationship with turnover intentions, actual turnover, and organizational commitment. The results of these studies also showed that challenge stressors generally correlated positively with the intentions to quit

employment and the degree of satisfaction, but showed a negative correlation with turnover intentions, turnover and withdrawal behavior of employees. Factors such as workload stress positively influence turnover intentions through task exhaustion and work dissatisfaction, whereas factors such as work autonomy and involvement negatively relate to turnover intentions through job attitudes of satisfaction of enhanced intrinsic elements including motivation, empowerment, and vision (Joseph, Kok-Yee, Koh, & Ang, 2007).

Studies in occupational stress and career development have progressed in different directions with little in common, but many researchers have shown little interest in examining the relationship between job stress and longevity (Graham, 2007). Graham's research on longevity and tenure as stress moderators was used to explore the propositions of job stressor-strain and job tenure using Karasek's (1979) control support model.This model shows that job strain is a combination of three job elements, which include high job searches, limited job controls, and lack of strong support systems. Despite their influence on employees' strain, job control and general support appear to lower stress that is due to work requirements and demands. No prior studies on Karasek's theory provided an in depth investigation on the moderating influences of permanent employment on stressor-strain relationships (Graham, 2007). However, Graham's (2007) idea of job permanence as having a moderating influence on stress focused on the job environment of new employees being significantly different from employees with higher tenure. Graham (2007) concluded from his study that the relationship between job factors and strain differ significantly and the job stressors on strain appear to change with workers' job duration.

Conclusion

Many facets of turnover were analyzed in this review of literature. IT turnover within contemporary organizations was shown to have a negative influence on organizational performance (Moore, 2000). Job stressors had a negative influence on employee turnover, and organizational performance is a function of employee motivation, commitment, overall job satisfaction, and other attributes including task design and organizational structure (Meyer, Allen, & Smith, 2003). Three types commitment identified in the literature review: affective, continuance, and normative, are important predictors of the turnover behavior of employees. Organizational commitment constructs identified were shown to be difficult to analyze and measure but committed employees were seen from the literature reviewed to be those with positive experiences on the job.

Herzberg's (1959) two factor theory defines the basis for every employee's motivation to perform given job tasks. Extrinsic and intrinsic job factors reviewed were shown to have varying influences on employee turnover. Extrinsic factors pertain to compensation, while intrinsic factors relate to growth and recognition (Hegney & Plank, 2008). These factors can be analyzed using various diagnostic tools including the Job Diagnostic Survey by Hackman & Oldham (1980) upon which the current study is based. Both extrinsic and intrinsic factors have important influences on turnover, but intrinsic factors exert a more powerful influence on the turnover behavior (Thatcher et al., 2006).

Voluntary and involuntary turnover is not exclusive to lower ranked employees, but can extend to executive and TMTs (Cho & Shen, 2007; Harris & Khumalo, 2008). Inadequate succession planning in the case of executive and TMT may create additional gaps which may

lead to turnover intentions and actual turnover of employees (Santorin, 2004). Executive and top management team turnover including the lack of oversight translate to employee turnover which leads to poor organizational performance (Santorin, 2004).

Chapter Summary

This review of literature examined several turnover studies and literature on the subject of turnover, and included several aspects of turnover predictors. Major predictors of turnover, including compensation, stress, work characteristics, job embeddedness were reviewed. Job embeddedness was seen to correlate positively with turnover intentions and voluntary turnover, which impacts organizational performance (Crossley, Bennet, Jex, & Burnfield, 2007; Mitchell et al., 2001). Major organizational characteristics that influence turnover, such as organizational citizen behavior, perceived organizational support, and organizational commitments were discussed in the review, including their influences on voluntary and involuntary turnover. Affective, normative, and continuance commitments of employees that influence employee turnover were reviewed and were shown to have varying effects on employee turnover behavior (Diefendorff & Greguras, 2009; Hammer & Avgar, 2005; Rhoades et al., 2002; Ugboro, 2006).

The literature review also included a number of early organizational theories on which many contemporary works on turnover are based. Earlier theories were reviewed to reflect the evolution of the research on the subject of employee turnover and to elucidate important developments on the research in this area. Many of the studies presented in the review were done using several methods of analysis in different organizational settings, including meta-analytic methods of research that involved the use and the integration of the findings from several studies for better understanding, accuracy, and interpretation (Neumann, 2003).

Chapter 3 of the current study will address the research methodology. The specific research design including the hypotheses and research questions which shape the focus of the current study are analyzed. The Job Diagnostic Survey instrument used to measure the correlation between the job characteristics and turnover intentions of DBMS support specialists is also reviewed. The significance of Power Analysis, which is a scientific method of sample size estimation, is reviewed in Chapter 3. Power Analysis is used for the approximation of the sample size population based on the number of research questions and stated hypotheses (Bowen & Roderrick, 2009) is reviewed in Chapter 3.

CHAPTER 3: METHODOLOGY

Turnover of technical employees may create a myriad of potential problems for organizations because they may not be able to maintain or implement technical projects. A systemic loss of highly skilled technical employees leads to losses of business opportunities. There is the real possibility that an affected organization could succumb to organizational performance degradation, disorder among organizational units, and negative influences on partnerships and strategic alliances (Moore, 2002).

Retention of employees is the goal of every organization, and the retention of technical professionals, including database management support specialists, is critical in the application of contemporary technology toward the realization of organizations' core objectives. Turnover of database management professionals or any professionals within any organization is a function of job satisfaction. Job satisfaction is an expression of a general positive attitude about one's job, tasks, peer relationships, and positive feelings about one's relationship with management and leadership (Madlock, 2008). The main focus of the current research was to understand the impact of the turnover of database management support specialists and seek ways to reduce the effect of turnover intentions of these specialists in various IT organizations in the United States.The current quantitative study was used to measure the influence of the intrinsic and extrinsic job characteristics on the turnover intentions of database management support specialists at the higher technical levels of database management. The groups of database management professionals in this study are those that perform highly skilled tasks and these include database administrators, developers, database programmers, and database managers. Database systems under consideration in the

current study include but are not limited to Oracle, Sybase MySQL, Microsoft Access, DB2, and SQL server. These are the most common DBMS used by contemporary organizations.

The instrument that was used to conduct this study is the JDS instrument developed by Hackman and Oldham (1980). This diagnostic survey essentially measures various aspects of job characteristics on employees of organizations under study. The JDS measures given elements of job dimensions that include intrinsic and extrinsic job factors such as growth, compensation, advancement, recognition, and interpersonal relationships in the work place (Freund, 2005; Hegney & Plank, 2008). The JDS provided subscales to measure the intrinsic and extrinsic job characteristics defined for this study. The JDS covers areas of job satisfaction such as growth, pay, security, peer relationships, and supervision. The JDS used in the current study uses a Likert-type scale that falls within the given range of "Extremely dissatisfied" to "Extremely satisfied" and a global satisfaction subscale that falls within the range of "Strongly agree" to "Strongly disagree."

The Research Design

The research methodology chosen for the current study was a regression analysis. Regression analysis was chosen because it provides the means to demonstrate the nature or magnitude of associations that exist between criterion and predictor variables and the magnitude of associations among dependent and independent variables (Murray, 2003; Raulin & Graziano, 2004). A regression analysis also shows the strength in relationships among defined research variables (Murray, 2003; Raulin & Graziano, 2004). Dependent and independent variables were defined for the current study. The dependent variable was turnover intentions. The independent variables are the intrinsic and extrinsic job factors that influence the job tasks of database

management support specialists. Specifically, the intrinsic variables are security, recognition, independence, and advancement. Extrinsic variables considered which can influence the turnover behavior database support specialists include pay, bonuses, benefits, and other compensation.

The use of regression analysis in the current study served two purposes. Firstly, regression is used as a predictor of future turnover events, and secondly it is used in association with or provides results that are considered consistent or inconsistent with some existing scientific theory (Raulin & Graziano, 2004). Correlational studies are used to answer questions in generalities, and while it cannot prove or disprove a theory, it can negate a theory (Murray, 2003). Regression analysis was chosen because it answers questions relating to defined variables such as: what happens to a given turnover variable with a change in another, or to what extent does a change in one variable affect the other variables? Relationships between correlated variables can vary between general verbal observations to specific statistical measurements such as the Pearson's correlation coefficient, which is used to show how given variables co-vary (Murray, 2003; Neuman, 2003). Regression analysis also provides the best method of measuring relationship among multiple predictor and criterion variables (Cooper & Schindler, 2003).

A quantitative approach using regression analysis was selected for the current study because of the need to show the existence or non-existence of relationships between the criterion variables of turnover intention, actual turnover, and independent variables such as the intrinsic and extrinsic job characteristics of growth, job security, pay, compensation, and demographic variables. Quantitative research was also chosen because of the desire to measure specific aspects of phenomena using numerical quantities on the turnover data of database management specialists (Neuman, 2003). A qualitative research was not chosen because it involves an

interpretive approach to subject matter phenomena in terms of meaning, the collection of empirical material, experience, history, observation, and interaction (Murray, 2003).

Design Appropriateness

The quantitative research methodology chosen for the current study measured the turnover intentions of database management support specialists by asking a number of database management job-related questions. The advantage of a quantitative analysis with respect to the current study is that it provides the researcher the ability to test job satisfaction theories, identify database support specialists' job-related variables by asking questions and forming hypotheses (Neuman, 2003), uses standards of reliability and validity, and measures information in unbiased statistical procedures. Therefore, quantitative analysis is appropriate and effectives in measuring the relationships that exist between dependent and independent job satisfaction variables of the various groups of database management support professionals. A preference for quantitative analysis over a qualitative approach is based on Murray's (2003) definition that:

> Quantitative research uses numbers and methods. It tends to be based on numerical measurements of specific aspects of phenomena; it abstracts from particular instances to seek general description or to test causal hypothesis; it seeks measurements and analysis that are easily replicable by other researches. Quantitative researchers seek explanation and predictions that will generalize to other persons and places. Careful sampling strategies and experimental designs are aspects of quantitative methods aimed at producing generalizable results. In quantitative research, the researcher's role is to observe and measure, and care is

> taken to keep the researchers from "contaminating" the data through personal involvement with the research subjects. (p. 2)

The definition above ideally fits the objective of the current study, which is to measure turnover intentions of database support professionals. The quantitative analysis method was also chosen because it ideally suits the hypotheses being tested and type of data being collected. A qualitative study would be unsuitable for this type of study because it lends itself to constructivist participatory knowledge claims and phenomenology, grounded theory, narrative, and observation (Creswell, 2002; Neuman, 2003).

Research Questions

In a given quantitative study, a number of research questions and hypothesis are used to shape and establish the focus of the study (Creswell, 2002). The hypotheses represent predictions the researcher holds about variables' relationship and typically used in comparative studies (Cooper & Schindler, 2003; Creswell, 2002). The research questions (RQ) designed for the current study are as follows:

1. RQ1: What is the significant statistical correlation between general job satisfaction as assessed by the JDS Inventory and the turnover intentions of DBMS support specialists?
2. RQ2: What is the significant statistical correlation among the five dimensions (Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback) of the JDS Construct (as assessed by the JDS instrument) and turnover intentions of DBMS support specialists?

3. RQ3: What is the significant statistical correlation between job tenure and turnover intentions?
4. RQ4: What is the significant statistical correlation between DBMS job specialty (database administrator (DBA), developer, programmer, and system administrator) and turnover intentions?

Research Hypotheses

The background information or personal characteristic identifiers, including dependent and independent variables, were defined for this study. The personal characteristic identifiers defined include age, years of employment in current position, tenure, gender, educational level, and DBMS type are considered as identifiers of personal characteristics. The criterion/dependent variable defined for the current study is turnover intention, which represents the likelihood of leaving their current organization. The independent variables defined for the current study consist of the following: Job Satisfaction as defined by the JDS inventory (Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback), DBMS support specialty (DBA, developer, programmer, system administrator), and Job Tenure in months. $H1_0$ through $H4_0$ and $H1_A$ through $H4_A$ represent the null and alternative hypotheses respectively.

$H1_0$: There is no statistically significant positive correlation between Job Satisfaction as assessed by the JDS Inventory and turnover intentions of DBMS support specialists.

$H1_A$: There is a statistically significant positive correlation between Job Satisfaction as assessed by the JDS Inventory and turnover intentions of DBMS support specialists.

$H2_0$: There is no statistically significant positive correlation between the five dimensions (Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback) of the JDS and the turnover intentions of DBMS support specialists.

$H2_A$: There is a statistically significant positive correlation between the five dimensions (Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback) and the turnover intentions of DBMS support specialists.

$H3_0$: There is no statistically significant positive correlation between Job Tenure and turnover intentions.

$H3_A$: There is a statistically significant positive correlation between Job Tenure and turnover intentions.

$H4_0$: There is no statistically significant positive correlation between DBMS support specialty (DBA, Developer, Programmer, and System Administrator) and turnover intentions.

$H4_A$: There is a statistically significant positive correlation between DBMS support specialty (DBA, Developer, Programmer, and System Administrator) and turnover intentions.

Sampling Frame

Studies involving the entire study population are almost impossible to implement due to their size and geographic distribution. As a result, researchers often draw a population subset as a sample to represent the general population being studied. Cooper and Schindler (2003) stated that the basic idea of sampling is to select some elements of a population that enable conclusions to be made about the entire population. The current study was done using a sample of database

management support specialist in the U.S. The sample included database management professionals who implement database management functions and have been employed in the field with a minimum of one year experience.

The participants in the current study were all chosen through an online survey of database support specialists who work in the United States. Most population samples are intended to represent the entire population, but sometimes they can also be unrepresentative of the population (Raulin & Graziano, 2003). The sample included only professionals who implement database management support at higher technical and logical ends and excludes database processing personnel, data entry clerks, data entry professionals, data center operators, and coders.

Population Sample

This current study used only a population sample of database professionals in the United States that met research criteria. The sample selected for the current study consisted of participants willing to respond to the online survey who could not be all present in one location. This is referred to as convenience sampling because participants are selected based on their availability. Convenience sampling, also known as non-probability sampling, is used when the researcher selects a population for a study based on their availability rather than a selection from an entire population that would otherwise be impossible (Murray, 2003). An "overwhelming majority of research studies are conducted on convenience or availability samples... Nearly every thesis and dissertation is based on data from an available sample" (Murray, 2003, p. 92). Researchers use convenience samples to select needed groups regularly in exploratory research to collect data that is generally representative of the population being studied (McBurney &

White, 2004). “This method is often used during preliminary research efforts to get a gross estimate of results without incurring the cost and time required to select a random sample” (StatPac, 2007, p. 1).

The sampling method enabled the researcher to act within a certain period and under conditions that facilitated data collection. By its nature, convenience sampling sacrifices generalizability, and therefore may not provide sufficient representation of the target population but best suited for research based on population availability (Murray, 2003). Power Analysis calculations for samples size estimated the minimum sample size of 159 support specialists was required. A value for the population size for this study greater than 159 based on Power Analysis calculations falls within the accepted sample size range. The number N=209 actually obtained through survey represents an upper maximum number that is estimated to be sufficiently inclusive of support specialists for the current study. A value greater than 209 is also still within the accepted population size for this study. A value for population size less than 159 is incorrect because it falls short of the population size estimated through Power Analysis which is a program used to estimated sample size. This means that those selected for the current study truly represent the population being investigated as shown through Power Analysis (Breckenridge, 2000; Pearson & Moonaw, 2006).

Despite its deficiencies, convenience sampling is the best method of obtaining a sample of the population when time and conditions prohibit random sampling (Neuman, 2003). For example, random sampling cannot be used to select participants from a population consisting of male Caucasians in the U.S. over the age of 35 years. One would have to somehow identify and contact all male Caucasians over 35 years in the U.S. fitting the profile and randomly select from

that group, an improbable task. Therefore, convenience sampling is more appropriate in this case because participants are selected based on availability and accessibility. Convenience sampling is appropriate in this case because it enables the researcher to seek an approximation of the truth when obtaining the truth via random sampling is conditionally prohibitive (Murray, 2003).

Convenience sampling does have an impact on study reliability and external validity. Convenience sampling decreases external validity because the ability to generalize the results beyond the research sample is reduced (Murray, 2003). According to Neuman (2003), Stability reliability also known as test-retest reliability relates to the extent to which any measuring procedure gives the same results on repeated trials. The reliability of any given study may be less dependable if a pure random sample was not obtained. That is, exact results obtained from the current study may not be categorically replicated later using a convenience or random sample from the same population since availability of the sample of the population each time would be categorically different.

The external validity of a study may be low because statistical measures of correlation have typical errors that influence conclusions (Neuman, 2003). Conceptually, validity deals with how successful the study is at measuring what needs to be measured using the statistical methods such as regression, and Analysis of Variance (ANOVA) that were used in the current study (Neuman, 2003). Although results of any given study can be valid for any given sample of a population selected, this may not hold true for the entire population. That is, the current study measured the relationships between turnover intentions and factors associated with job satisfaction of DBMS support specialists. Therefore, the current study measured what needed to be measured, but this may not be necessarily generalized to the greater population of database

administrators (DBAs) outside the U.S. Power Analysis was used to estimate a priori sample size for the current study to determine if statistically significant relationships exist among research variables that can provide information that is useful and reliable (Faul, Erdfelder, Lang, & Buchner, 2007; Meade & Bauer, 2008). Therefore, the findings and the conclusions from the current study were based on the statistical methods of regression analysis, univariate ANOVA where the independent variable has six levels, and sample size calculation using Power Analysis.

Power Analysis and Sample Size

G-Power version 3.0.10 (Faul, Erdfelder, Lang, & Buchner, 2007) was used to determine a priori sample size for each testable research question and hypothesis. Inferential statistics requires an accurate determination of sample size which can not be too low nor too high for the results to be meaningful or statistically significant (Faul et al., 2007). A popular method for sample size determination as in the case of the current study involved the use of the magnitude or power of the research hypotheses (Russell, 2001). Accordingly, for RQ1/H1 and RQ2/H2, where regression and multiple regression are used, 77 and 92 participants respectively were needed to achieve an effect size of 0.15 and power of 0.80 ($\alpha = .05$). For RQ3, where regression is used, 64 participants are needed to achieve a medium effect of 0.15, and power 0.80, where $\alpha = .05$. For RQ4/H4, a minimum of 159 participants were needed to obtain 0.80 power and a medium effect size of 0.25. Given the results of the Power Analysis, 200 represented an upper maximum number of participants needed for the current study. That is, a priori sample size for a study is determined by taking the largest sample size required, as derived from the Power Analysis. Therefore, for the current study, the largest sample size required is a minimum of 159 participants. The current study was primarily interested in individuals that have elected to

become database support professionals. This study did not target individuals who did not meet the aforementioned profile.

Informed Consent

This study used an online survey to collect information about database management professionals in the U.S. The research questionnaire was developed and stored on a web page to facilitate data collection. The cover page consisted of a letter to participants explaining the purpose of the research, why this type of research on database management specialists is required, and the significance of the study to organizations and leadership. The participants were informed of voluntary participation and that no personal information, such as names or address, would be collected. The study employed anonymous participation methodology where an incremental number is automatically assigned to keep track of the participants in the study. Additionally, all participants responding to the survey were assigned a unique random number identifier. This had the additional function of protecting the participant's identity. An electronic signature and date stamp was provided for each participant in the study to prevent multiple participations in the study by individual respondents. While privacy of the respondents was guaranteed, the results from the study can be published or used for educational presentations. The data collected will be safely stored for five years, after which it will be destroyed and deleted from online or any electronic media storage.

Confidentiality

Whenever a survey research is conducted, there is the responsibility to ensure that participants' privacy is protected and the respondents' rights safeguarded as well (Cooper & Schindler, 2003). The current study was designed such that the respondents do not suffer any

discomfort, embarrassment, or loss of privacy. This study was conducted with the goal of protecting and safeguarding the identity of participants. To this end, no personal information or other contact information was requested. The study questionnaire did not include any questions pertaining to the name or address of the organization the participant is affiliated with. Participants in the current study were assured of confidentiality in the opening web page preceding the survey questionnaire. Each participant in the study was tagged with a computer generated sequence number identifier to prevent participants from answering the questionnaire more than once. The purpose of this identifier was to keep a sequential count and total of the number of survey respondents.

Geographic Location

The geographic location of the participants sampled for this study is the continental U.S. Since hundreds of organizations exist in the U.S. and since every organization maintains some aspect of a database management system, the population of participants in this geographic location is considered representative. The list of targeted organizations that employed DBAs was obtained from company directories and online company websites. Online database user groups and database user forums were also targeted as recipients of the online survey. All respondents participated through an online questionnaire and there was participation through direct email of the online survey link to administrators of database user groups and forums, and also direct emails to known database support specialists.

Research Instrument

This study used Hackman and Oldham's (1980) job diagnostic survey instrument to measure different job characteristics. The validity of the JDS has been established through

internal consistency reliability measurements (Casey & Robbins, 2008). The JDS has an internal consistency reliability range between .88 and .56 which suggest that the reliability of the items of the JDS is satisfactory (Hackman & Oldham, 1980; Casey and Robbins, 2008). Casey and Robbins (2008) stated that "the substantive validity of the instrument has been established and the job dimensions are intercorrelated as found by Hackman and Oldham" (p.14). The job characteristic model with an accompanying JDS was a revised version of the 1975 model. The JDS is the most widely used job diagnostic tool for addressing employee motivation, demotivation, satisfaction, dissatisfaction, and marginal performance (Ficker, Boonzaier, & Rust, 2008). The JDS is used to:

1. Study jobs needing redesign to determine job satisfaction enhancement parameters.
2. Identify job characteristics that need further improvements.
3. Access employees' responses towards positive job improvements.

The JDS is applicable to a wide variety of jobs and job dimensions including the following dimensions: skill variety, task identity, task significance, autonomy, and feedback. In redesigning the JDS, Hackman & Oldham (1980) recognized that when workers experience the psychological dimensions of conscientiousness, meaningfulness, experience, positive behavior, and the emotional influences of motivation and satisfaction, growth can be the outcome. The JDS uses a Likert-type scale to measure critical variables of job dimensions of psychological states, satisfaction, and growth. Likert-type scales widely use summated scales consisting of statements that express agreement or disagreement, and favorable or unfavorable attitude on the subject under study (Cooper & Schindler, 2003). The format for the JDS ranges from "extremely dissatisfied" to "extremely satisfied" and from "strongly agree" to 'strongly

disagree." The Hackman & Oldham (1980) survey instrument was appropriate because it contains all the dimensions of job satisfaction that are most appropriate in the study of the intrinsic and extrinsic influence factors in turnover of database management support specialists.

Three job diagnostics tools were initially considered for this study. The first was the Job Satisfaction Survey (JSS) (Spector, 1997). The second was the Minnesota Satisfaction Questionnaire (MSQ) (Weis, Dawis, England & Loquist, 1967), and the third was the Job Diagnostic Survey (Hackman & Oldham, 1980). The factors that influence the choice of these instruments were ease of use, reliability coefficients, and the measured job characteristics. The JSS had a reliability coefficient of 0.74 and several subscale facet scorings that did not meet the criteria under investigation for the current study. The Minnesota Satisfaction Questionnaire had a reliability coefficient of 0.77 and had many similarities with the JSS and JDS. A setback on the choice of this tool was that it is copyrighted and researchers are charged for its use. The JDS has a high reliability coefficient of 0.74 (Hackman & Oldham, 1980), and is cited as very comprehensive, widely used, simple available, and free to the public for research, and most influential and foundational in measuring employee and organizational characteristics (Ficker, Boonzaier, & Rust, 2008; Jewell, 2004; Wilson, Cresan, & Brown, 2008). The aspects of the model based on employee job motivation, redesign of existing job environment to improve employee productivity, and satisfaction (Ficker et al., 2008) led to the choice of the JDS model as ideal for studying the intrinsic and extrinsic job factors of database management support specialists.

Data Collection

This study used a quantitative non-experimental correlational research design to test the four research questions. Non-experimental research provided a first step to answer given research questions by empirical methods (McBurney & White, 2004). The survey method of non-experimental study is used to gather scientific information by numerically coding answers from a closed-ended questionnaire using a Likert-type scale. The questionnaire served to determine how job factors influence turnover intentions of database management support specialists in the United States. An advantage of using this type of non-experimental survey method is its simplicity and ease of coding (Neuman, 2003). "The disadvantages of a closed-ended questionnaire is that the issues being studied may be too complex to reduce to a small set of alternatives or the respondent may not agree with any of them, resulting in simplistic answers" (McBurney & White, 2004, p. 240). That is, adding qualitative questions that are open-ended may provide details about the participant that may not otherwise be achieved. Additionally, respondents may not agree with some close-ended questions resulting in spurious or simplistic answers (Murray, 2003).

The disadvantages posed by using non-experimental survey questionnaire to collect data can be resolved, to some extent, using a standardized questionnaire that has been tested and adapted for large populations (McBurney & White, 2004; Neuman, 2003). Accordingly, the standardized survey questionnaire adopted for this study was the well-tested JDS developed by Hackman & Oldham (1980). The use of the JDS by major researchers and ease of use led to its adoption for use in the current study.

Sampling Procedure

An online survey questionnaire for the current study was posted on a website accessible to respondents. The survey was fielded for approximately 150 days and deactivated after the desired number of participants as determined by Power Analysis had responded. The web site address was sent to various organizations and respondents through email and also posted on database user groups and forums. The link to this website was included in a letter to organizations asking for help and participation in the survey of database management support specialists. The survey questionnaire link was also directly and electronically mailed to database management support personnel and associated user groups. The regular post office mailing system was not used to mail the questionnaire because of the difficulties involved in obtaining specific addresses of respondents.

Once the respondent clicked on the link to the survey web site, instructions were then presented on how to do the survey. The opening web page consisted of a letter to participants explaining the purpose of the research, why this type of research on database management specialists is required, and its potential benefits. An accompanying consent option enabled the respondent to accept or decline participation, in which case they were able to continue or exit. If a respondent chose to exit, they were directed to an ancillary web page with a message thanking them for their consideration.

In the instructions, participants were asked to answer each question to the best of their abilities. Each question was on a separate line with the Likert-type scales to the right of the question. After the respondent finished the questionnaire, each respondent's answers were collected and stored in a database when the "Submit" button was pushed. Respondents not

completing the survey for any reason, or if they clicked "Cancel" at the conclusion of the survey, were discarded. Once the desired number of surveys was completed, the data was downloaded to an Excel file and transferred to Statistical Package for the Social Sciences (SPSS) software for evaluation, review, coding, and statistical analysis.

Internal and External Validity

Internal Validity

Internal validity pertains to the manner in which concrete changes in a given variable classified as the dependent variable influence a change in another variable that is given the notation of the independent variable (McBurney & White, 2004; Raulin & Graziano, 2004). Accordingly, there exist eight empirically identified conditions that can threaten confidence in a study. These threats to internal validity include statistical elements such as selection, testing, instrumentation, maturation, history, regression, experimental mortality, and selection interactions (Raulin & Graziano, 2004). A selection threat suggests that participants may not be fully functional at the time of participation (McBurney & White, 2004). In the case of the current study, efforts to mitigate this threat were addressed by using a sample size that is adequate using Power Analysis and a JDS instrument that has been "subjected to several empirical tests" (Casey & Robbins, 2008, p. 14). A testing threat entails testing participants at different times or under different circumstances. Since the survey was online and participants probably took the survey at different time under varying conditions, testing was probably a threat to internal validity of the current study. The website was deactivated as soon as the required number of participants responded. The instrumentation threat occurs when there is a change in the measuring instrument during the course of the study (Neuman, 2003). This was not a factor in the current study.

Maturation threats are due to physical or psychological changes in the research participants in the course of a study (Neuman, 2003). This was not a factor in this study since participants required only a brief time to respond to the survey. History threat occurs when an external event might produce changes in the dependent variable (McBurney & White, 2004). Regression threat is "tendency of participants who are selected because they have extreme scores on a variable to be less extreme in a follow-up testing" (Raulin & Graziano, 2004, p. 186). This was not a factor in the current study since participants were not selected based on any scores. Experimental mortality threat occurs some participants do not continue throughout the experiment (Neuman, 2003). This was not a factor in the current study since only completed surveys were accepted. Selection interactions threat occurs when a selection threat combines with other threats to internal validity (Neuman, 2003).

External Validity

The concept of external validity defines the level at which a given research study can be associated generally to the greater population (Neuman, 2003). Generally, studies that employ randomization to select participants from the study population have more external validity than those that do not (Neuman, 2003). There was no external event that produced any changes in the dependent variables in the current study. Convenience sampling of DBMS professionals was used to sample the study population, which may slightly weaken external validity. Convenience sampling was used since random sampling of the population under study was outside the scope of the researcher's resources. Therefore, results may not necessarily reflect results obtained through a random sample. The JDS instrument has been used by many organizations since its publication and has been subjected to several empirical tests (Casey & Robbins, 2008). "The

substantive validity of the instrument has been established and the job dimensions themselves are intercorrelated as found" (Casey & Robbins, 2008, p. 15). The JDS has an internal reliability consistency range from a high .88 to .56 (Casey & Robbins, 2008).

Instrument Reliability and Validity

Reliability and validity are central issues common to all research. Reliability indicates the point at which the research is bias free and consistent in measurement of all elements of the instrument (Pelosi, Sandifer, & Sekaran, 2001). Reliability ensures that numerical results do not change due the characteristics of the changing instrument or the measuring process (Neuman, 2003). While complete elimination of bias is impossible, care was taken to reduce bias to a minimum in the current study by using a standardized instrument such as Hackman & Oldham's (1980) JDS. The choice to use this instrument was because the JDS is simple, and subjected to several empirical tests, a reliable instrument of choice in many job assessment surveys and has been tested by many experts for reliability and validity since its development over 25 years ago (Casey & Robbins, 2008).

Therefore, scale reliability coefficients (Cronbach alphas) for all measures adopted in the current study were computed by Hackman and Oldham (1980). Nunnally's (1978) findings showed that "reliabilities which are less than 0.6 are considered poor; those in the 0.7 range are acceptable, while those above 0.8 are good" (p. 22). Results reflected that reliability for the job satisfaction scale was 0.72, while reliability for the JDS was 0.74. These results suggest that the JDS provides acceptable reliability based on its coefficient of 0.74 (Schmidt & Hunter, 1998).

Validity

Validity of any study means that the study is true and correct. The concept of validity in measurements is best described by Neuman (2003) when he stated that:

> Validity suggests truthfulness and refers to the match between a construct, or the way a researcher conceptualizes the idea in a conceptual definition, and a measure. It refers to how well and idea about reality fits with actual reality. The absence of validity occurs if there is poor fit between the construct a researcher uses to describe, theorized, or analyzes the social world and what actually occurs in the world. In simple terms, validity addresses the question of how well the social reality being measured through research matches with constructs researches use to understand it. (p. 179)

The aim of every quantitative and qualitative research is to have reliable and valid measurements using instruments that have been subjected to empirical tests such as the JDS. Given this, several methods exist that are used to validate an instrument, including the following three forms: face, concurrent, and construct validity. Face validity implies that the test measurements measure what is intended to measure (Creswell, 2002). Concurrent validity ensures that the results correlate with other results (Creswell, 2002; Neuman, 2003). Construct validity ensures that the items in the study measure hypothetical constructs and that various other indicators operate in a consistent fashion (Creswell, 2002; Neuman, 2003).

For the current study, field research conducted by Hackman and Oldham (1980) offered the original validity reinforcement for the factor theory and any other JDS survey. The

researchers obtained data from 658 varying groups of employees from 62 varying jobs in 7 organizations. Hackman & Oldham's (1974) original work showed that:

> The internal consistency reliabilities range from a high of .88 to a low of .56. The median off-diagonal correlations range from .12 to .28. In general, the results of the study suggest that both the internal consistency reliability of the scales and the validity of the items are satisfactory. (p. 19)

The current study based on the JDS, which is a widely used, reliable, and tested tool for measuring job characteristics of employees, is therefore considered valid.

Data Analysis

The current study used four research questions and three statistical techniques to analyze the data collected. Specifically, Least squares regression was used to analyze RQ1 and RQ3, Multiple regression was used to analyze RQ2, and a univariate ANOVA where the independent variable has six levels was used to analyze RQ4. All data collected was coded and transferred to SPSS 15.1 for analysis.

For RQ1, 2, and 3, regression analysis was used to measure the level of association among variables. The strength of the association or relationship between two or more variables in the study was quantified using least square and multiple regression (Neuman; 2003). Regression analysis is used to predict the values of one variable from the values of another variable. This prediction can be made using an equation that shows the strength of the relationship among variables. Positive and negative regressions among variables were obtained from the equation of straight line that defines regression analysis.

$H4_A$ posits that there is no statistically significant relationship between DBMS Job Specialty (DBA, developer, programmer, and system administrator) and Turnover Intentions. Therefore, a univariate ANOVA where the independent variable has six levels was used to test the mean differences in turnover intentions between DBMS Job Specialty (DBA, developer, programmer, and system administrator). The study included 40 cases per cell for a total of 160 cases. The criterion for significance known as alpha was set at 0.05. The analysis of variance is one-directional and one-tailed, which means that an effect in only one direction will be interpreted.

Descriptive statistics were presented to describe categorical data collected. That is, age, gender, region, and other demographic characteristics were evaluated using SPSS Explore and SPSS Descriptive. Measures of central tendency including mean, median, standard deviation, and mode were used to summarize the information where appropriate. Table 2 below provides a descriptive view of each hypothesis, related independent variables (IV), and dependent variables (DV), level of analysis, statistical technique used, and sample size required to attain .80 power (alpha = .05).

Sample sizes vary for each question as shown on Table 2 because the number of predictive variables for each research question and hypothesis are different. Also a different statistical methodology was used to analyze each question as shown including Least squares regression for Q1H1 and Q3H3. Multiple regression was used to analyze Q2H2 and ANOVA was used for Q4H4. The minimum sample size calculation for this study based on Power Analysis and univariate ANOVA where the independent variable has six levels is 159.

Table 2

Descriptive Information Relating to each Hypothesis Including Sample Size from Power Analysis.

Hypothesis	IV	DV	Level of Analysis	Statistics	Sample Size
H1	Job Satisfaction	DBMS Turnover Intentions	Interval	Least Squares Regression	77
H2	5 JDS Constructs	DBMS Turnover Intentions	Interval	Multiple Regression	92
H3	Tenure in Months on the Job	DBMS Turnover Intentions	Interval	Least Squares Regression	64
H4	Job Specialty	DBMS Turnover Intentions	Nominal Interval	ANOVA	159

Chapter Summary

This chapter discussed the research methodology using a quantitative approach. The various aspects of the study, such as data collection methods, sampling, research

design, measures, dependent, and independent variables, were discussed. The primary aim of the current quantitative study was to do a correlational analysis of the intrinsic and extrinsic job factors on the turnover intentions of high level database management support professionals in the United States. The sample consisted of database management support professionals who support DBMS in various organizations, businesses, and major corporations in the U.S. The instrument used in this study was Hackman and Oldham's (1980) Job Diagnostic Survey. The Hackman & Oldham (1980) JDS is a reliable instrument that has been used and tested by various experts in the field since its development over 25 years ago. The reliability and validity of this instrument were discussed in this chapter. The data collection method using an online JDS questionnaire where answers where coded and statistically analyzed was also discussed in Chapter 3.

Chapter 4 presents a detailed analysis of the data collected about the job characteristics of database support specialists in the U.S. The purpose of chapter 4 is also to give a detailed report of the analysis of the turnover data of Database support specialists. The detail statistical information obtained from the analysis of the data is presented for review in chapter 4.

CHAPTER 4: DATA ANALYSIS AND PRESENTATION

The purpose of this quantitative analysis was to conduct a systematic examination on the turnover intentions of high-tech employees who specifically support or implement database management in organizations in the United States. The quantitative research method used a survey questionnaire with a Likert-type scale to collect turnover and job characteristics-related data. The design for the study is systemically correlational. This means that various statistical methods are used to measure the strength of relationships among dependent and independent variables (Cooper & Schindler, 2003). Regression was used to test Research Question (RQ) 1 through RQ3. Analysis of variance (ANOVA) was applied in RQ4 to test mean differences in the turnover intentions between DBMS job specialty types.

Inferential statistics were used to draw conclusions from the sample of the population tested. Inferential statistics are "Statistical procedures that compute the probability of obtaining the pattern of data if all the participants were actually drawn from the same sample" (Raulin & Grazianno, 2004, p. 417). The Statistical Package for the Social Sciences (SPSS) was used to code and tabulate scores collected from the survey and provide summarized values where applicable including the median, mean, variance, and standard deviation. In addition, demographic data was processed using frequency statistics. Frequency statistics is always used to measure the number of occurrences of statistical events (McBurney & White, 2004). Finally, least square regression, multiple regression, and ANOVA were used to detect the amount of shared variance and strength of the relationships among the variables of interest. Regression is used to predict the values of the dependent variable in any statistical analysis (Raulin & Graziano, 2004).

Presentation of Results

Prior to analyzing the four hypotheses, data hygiene, and data screening were undertaken to ensure the variables of interest met appropriate statistical assumptions. Data hygiene refers to the removal of errors from collected data (Raulin & Graziano, 2004). Therefore, the following analyses followed a similar analytic strategy in that the criterion/dependent and predictor/independent variables were first evaluated for missing data, outliers, normality, linearity, and homoscedasticity. Normality refers to how the data is distributed around the mean (McBurney & White, 2004). Homoscedasticity implies that the statistical variance around the regression line is equal for all independent variables (Hellevick, 2009). Subsequently, least square regression, multiple regression, and ANOVA analyses were run to determine if any relationships existed between variables.

Hypotheses Testing

A summary of results from testing the four hypotheses is presented in Table 3. Specifically, for Hypothesis 1, a significant difference between turnover intentions and Job satisfaction was found as shown from the statistical significance obtained for each research hypothesis ($r = .474, p < .001$). Hypothesis 2 resulted in a significant difference between turnover intentions and a model containing five JDS sub-constructs: Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback; ($r = 0.336, p < .001$). Hypothesis 3 resulted in a significant difference between turnover intentions and Job experience or tenure; ($r = 0.481, p < .001$). Hypothesis 4 resulted in no significant difference between Turnover Intentions and Job Specialty; (*eta-squared* $= 0.020, p = .548$). See Table 3 for details.

Table 3

Results Table Indicating Four Hypotheses and Statistical Significant Differences

Hypothesis	Analysis	Criterion Variable	Predictor Variable	Sig.
Hypothesis 1	Least Squares Regression	Turnover Intentions	Job Satisfaction Composite	.000
Hypothesis 2	Multiple Regression	Turnover Intentions	SV, TI, TS, AT, FB	.000
Hypothesis 3	Least Squares Regression	Turnover Intentions	Tenure	.000
Hypothesis 4	ANOVA	Turnover Intentions	Job Specialty	.548

Reliability Analyses of Five Predictor Variables

Thirty five questions from the JDS Inventory were used to capture information about the participant's overall opinion pertaining to their jobs. The 35 questions represent six constructs including Skill Variety (4), Task Identity (5), Task Significance (4), Autonomy (4), Feedback (4), and Job Satisfaction (14). To partially determine if these JDS sub-constructs were reliable, a Cronbach alpha reliability analysis was run on each construct. Reliability analysis using the

Cronbach alpha allows one to study the properties and reliability of measurement scales and the items that compose the scales (Cooper & Schindler, 2004). Cronbach's alpha reliability analysis procedure calculates a reliability coefficient that ranges between 0 and 1. The reliability coefficient is based on the average inter-item correlation. Scale reliability is assumed if the coefficient is >=.70 (Smith & Hunter, 1998). Accordingly, for the six constructs, final Cronbach's alpha was calculated at .901, .539, .793, .801, .808, and .957 respectively.

In order to obtain sufficient reliability of the scales, i.e., a reliability coefficient greater than .70, the researcher removed several questions from three constructs. Specifically, after removing one question from the Skill Variety construct, Cronbach's alpha was .901. After removing one question from the Task Significance construct, Cronbach's alpha was .793. After removing one question from the Autonomy construct, Cronbach's alpha was .801. And finally, after removing one question from the Feedback construct, Cronbach's alpha was .808. There were no questions from the Task Identity construct that could be removed to increase alpha; therefore, the reliability of the Task Identity scale cannot be assumed.

Hypotheses Testing

Four hypotheses were examined using three testing techniques including least square regression, multiple regression, and analysis of variance. Prior to testing the questions, basic parametric assumptions were evaluated to ensure an honest statistical evaluation of the data. Parametric assumptions are statistical procedures that rely on estimating the mean and variance of a population sample in a study (Raulin & Graziano, 2004). Therefore, for each analysis, these assumptions were reviewed and presented when applicable.

Analysis of Hypothesis 1

Hypothesis 1 ($H1_0$): There is no statistically significant positive correlation between Job Satisfaction as assessed by the JDS Inventory and Turnover Intentions of DBMS support specialists. Hypothesis 1 was analyzed using Least squares regression. The criterion variable was turnover intentions of the participant. The predictor variable for H1 was the general job satisfaction composite that was derived from the 14-item survey. The predictor variable construct consisted of 14 questions designed to capture information relating to participants' overall job satisfaction. The scores of all 14 questions were added, totaled, and divided by the number of items in the construct (14) to produce a composite score.

Univariate Outliers

An outlier represents a valid data point that happens to be unexpected or significantly different from other data points (Coin, 2008). A test for univariate outliers was conducted and none were found to exist within the distributions. Moreover, one response missing some data was found in the data set and was removed; therefore, for H1, 210 responses from participants were received and 209 were entered into the multiple regression model; N = 209.

Tests of Normality

Before the $H1_0$ was analyzed, basic parametric assumptions were assessed. That is, for the predictor and criterion variables Job Satisfaction and turnover intentions respectively, assumptions of normality, linearity, and homoscedasticity of variance were evaluated. A graph was created for each variable to enable the researcher to visually evaluate the aforementioned assumptions. Specifically, the standardized frequency histograms are presented for both variables to provide visual evidence of normality as shown in Figure 1. As evidenced in the graph, vertical

bars represent observed standardized values and the normal curve represents the expected normal distribution. When the bars conform closely to the expected curve, normality is assumed.

Figure 1: Standardized histogram of the Job Satisfaction Composite predictor variable with normal curve superimposed.

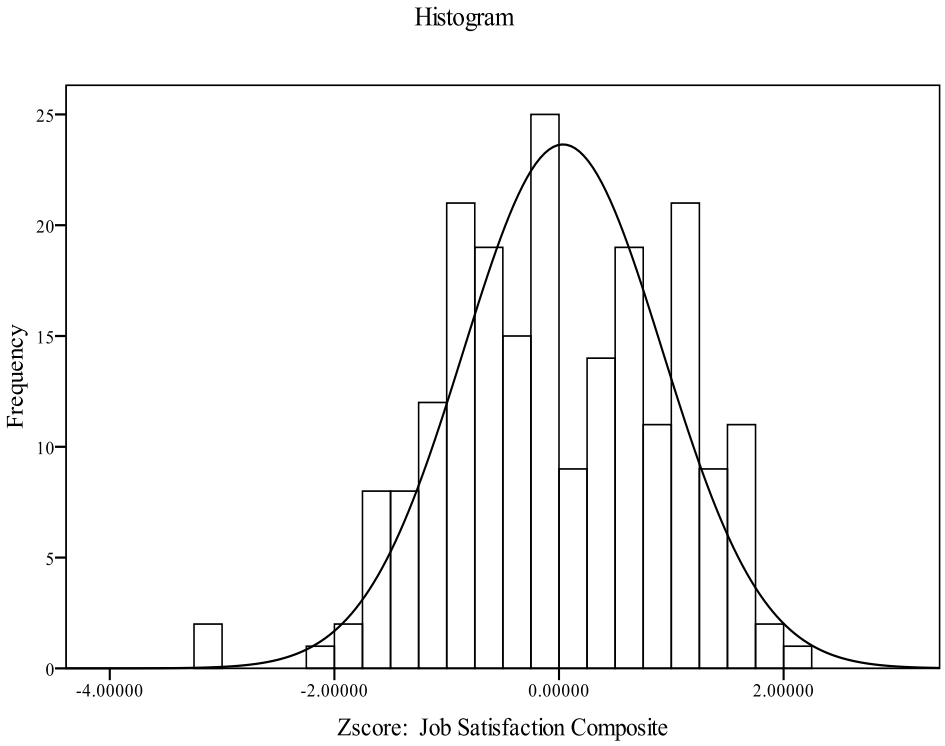
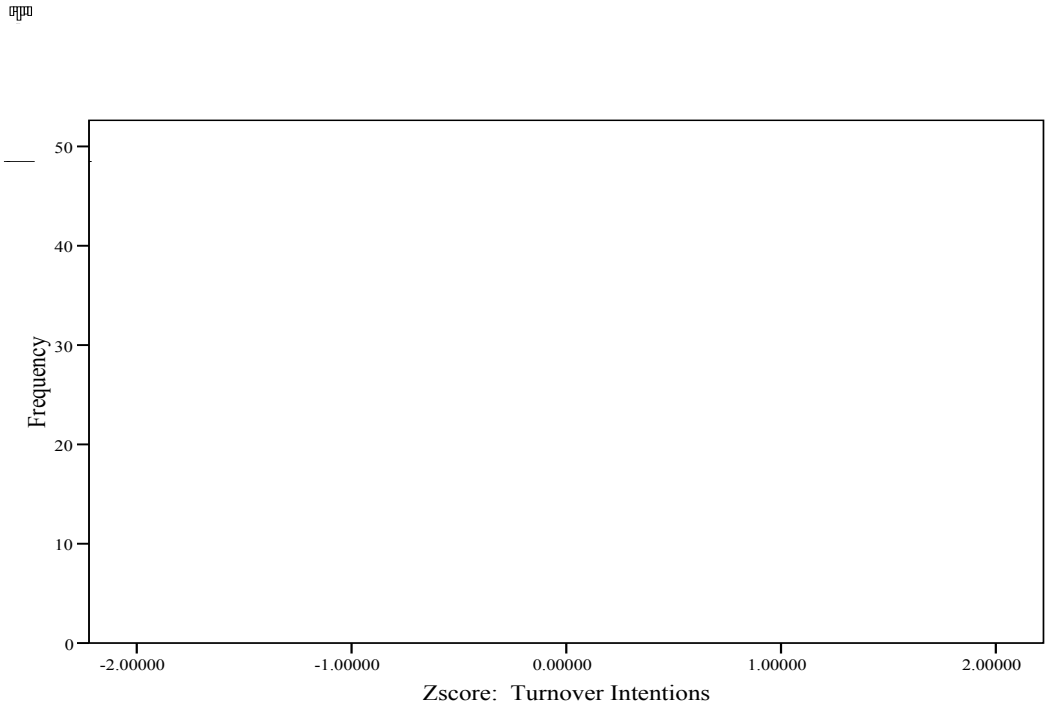


Figure 2: Standardized histogram of the dependent variable Turnover with normal curve superimposed



After examining the normalized histogram and associated descriptive statistics for the predictor and criterion variables, the data suggests a slightly negative skew (-.103) and platykurtic (-1.114) distribution for the Turnover Intentions variable. Data values are platykurtic if they show flatness around a normal distribution (Steel & Chaseling, 2006). Skewed distribution implies that the frequency scores pile up on one side of the normal distribution (Raulin & Graziano, 2004).By dividing the skew or kurtosis term by its error term, a z-score is created. Z-scores that exceed 3.29 suggest non-normality. Thus, as indicated in Table 3, the turnover intentions distribution is significantly platykurtic, or flat, in comparison to the expected normal curve. However, given that the sample size is greater than 200; excessive flatness may not necessarily impact results.

Table 4

Descriptive Statistics for Criterion and Predictor Variables.

Variable	Mean	Standard Deviation	Skewness	Error	z-score	Kurtosis	Error	z-score
Turnover Intentions	4.086	1.944	-0.063	0.168	-1.54	-1.114	0.335	-3.33
JS Composite	4.575	1.186	-0.179	0.168	-1.07	-0.465	0.335	-1.39

Note. N = 209

Regression Analysis of H1

Using SPSS 17.0 Analyze/Regression/Linear, a significant correlation in turnover intentions and Job Satisfaction scores were found; $r = .474$, $R^2 = .224$, $p < .001$ (two-tailed)—see Table 5 for details. Table 5 provides a model summary generated from the regression analysis including standard error (Std. Error), Beta, *t* statistics (t), and the level of statistical significance (sig).

Table 5

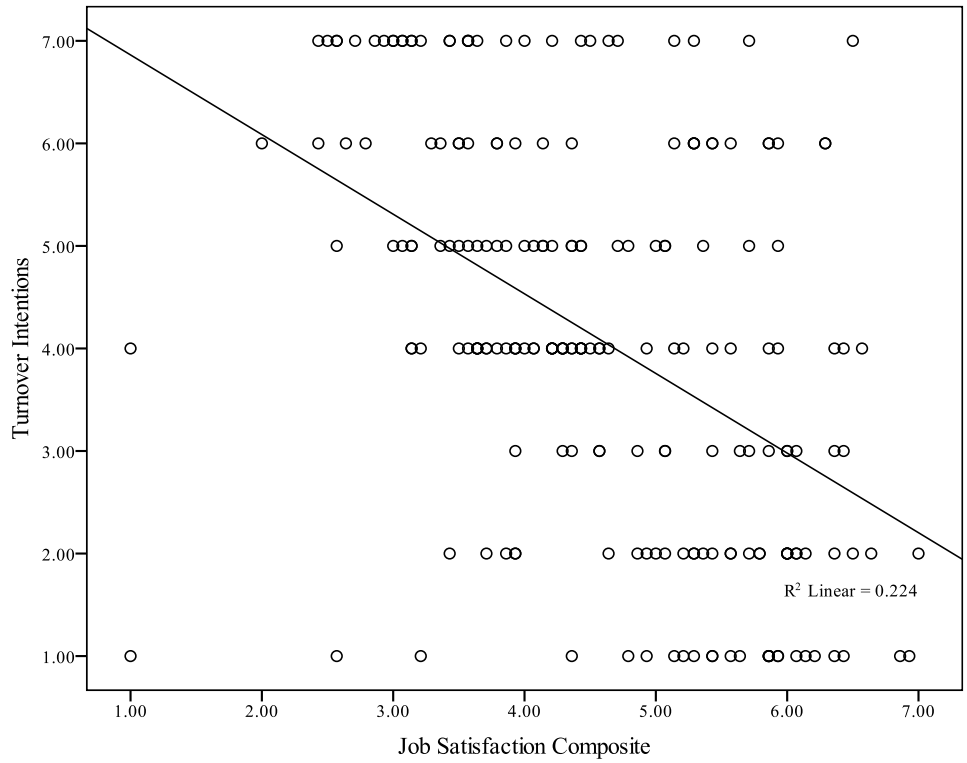
Model Summary Generated from Regression Analysis Indicating a Significant Difference between Turnover and Job Satisfaction

			Unstandardized Coefficients		Standardized Coefficients		
Model	r	R^2	B	Std. Error	Beta	t	Sig.
Model 1	.474	.224					.000
Constant			7.639	0.474		16.107	.000
JS composite			-0.777	.100	-0.474	-7.738	.000

Note: Dependent variable, Turnover Intentions

The scatter plot presented in Figure 3 reflects a significant relationship between the criterion variable and predictor variable. For every one unit increase in the predictor variable (Job Satisfaction), turnover intentions scores decrease by -0.777; R-squared (.224). This suggests that 22.4% of the variance associated with turnover intentions is shared by job satisfaction.

Figure 3: Scatter plot of Job Satisfaction with regression line indicating a significant negative relationship



Analysis of Hypothesis 2

Hypothesis 2 ($H2_0$): There is no statistically significant correlation between the five dimensions (Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback) of the JDS Construct (as assessed by the JDS Instrument) and turnover intentions of DBMS support specialists. Hypothesis 2 was analyzed using multiple regression. The criterion variable was turnover intentions and the predictor variables for H2 were Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback. The parameters for the criterion and predictor variables were measured on the same 1-7 point Likert-type scale as the criterion variable in H1.

Furthermore, composite scores were calculated for the five constructs in the same way as the Job Satisfaction Composite score was calculated.

Univariate Outliers

A test for univariate outliers was conducted and eight were found to exist within the distributions and removed. Multivariate outliers were also assessed using the Mahalanobis distance function in SPSS. Mahalanobis distance represents a useful way of comparing unknown and known sample sets based correlation between variables (Tatti, 2008). After removing the eight cases, no multivariate outliers were found; critical value of *Mahalanobi Distance- χ square* = 20.52. Moreover, one response missing data was found in the data set; thus, for H2, 210 responses from participants were received and 201 were entered into the multiple regression model; N = 201.

Tests of Normality

Before the $H2_0$ was analyzed, basic parametric assumptions were assessed. That is, for the criterion variable turnover intentions, assumptions of normality, linearity, and homoscedasticity of variance were evaluated. A graph was created to enable the researcher to visually evaluate the aforementioned assumptions. Specifically, the standardized turnover intentions frequency histogram is presented in Figure 4 to provide visual evidence of normality. After examining the normalized histogram and associated descriptive statistics for the predictor and criterion variables, the distributions suggests a slight negative skew. However, using z-scores to evaluate normality, test results indicate that the distributions for all variables were normally distributed as shown in Table 6.

Figure 4. *Standardized histogram of the Turnover Intentions criterion variable with normal curve superimposed*

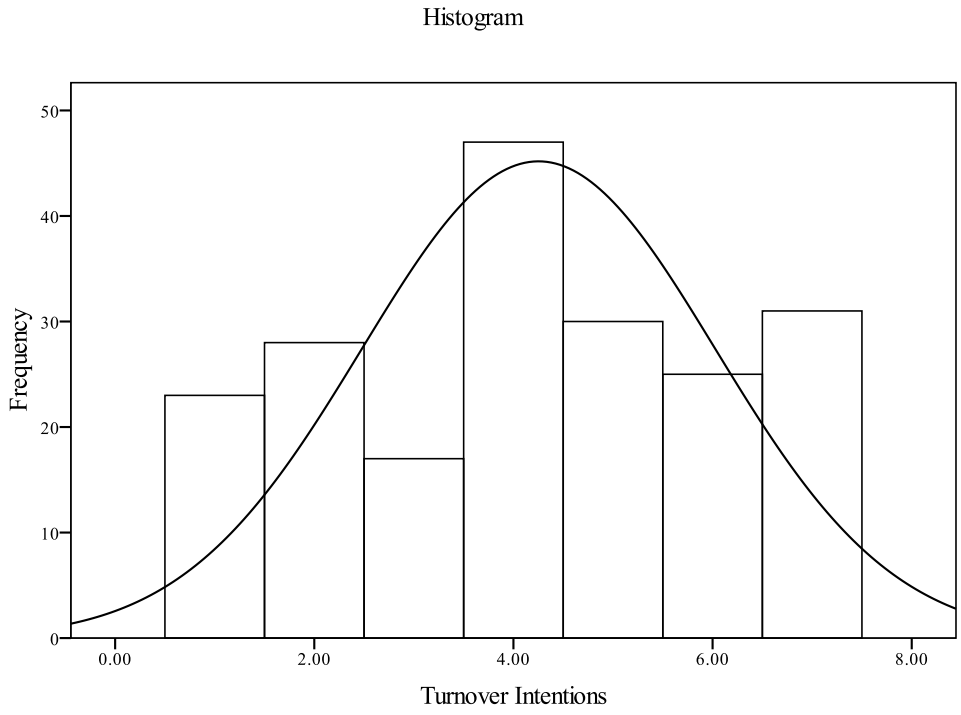


Table 6

Descriptive Statistics for Turnover Criterion and Predictor Variables

Variable	Mean	Std Deviation	Skewness	Kurtosis	Min	Max
Turnover	4.154	1.924	-0.098	-1.071	1	7
Skill Variety	5.602	0.808	-0.488	0.543	3	7
Task Identity	4.565	0.769	0.704	0.808	2.4	7
Task Significance	5.846	0.677	-1.027	2.006	3	7
Autonomy	5.728	0.720	-0.874	0.719	3.33	7
Feedback	5.500	0.790	-0.783	1.183	2.67	7

Multicollinearity

The assumption of multicollinearity was tested by calculating correlations between variables and collinearity statistics. Multicollinearity refers to high degrees of associations or high correlations among given statistical variables (Murray, 2003). Correlations between criterion and predictor variables were not too low and correlations between predictor variables did not exceed .626. Tolerance is calculated using the formula $T = 1 – R^2$ and variance inflation factor (VIF) is the inverse of Tolerance (1 divided by T). Commonly used cut-off points for determining the presence of multicollinearity are $T > .10$ and $VIF < 10$. There were no correlational results violating this assumption; therefore, the presence of multicollinearity is not assumed. Given the preponderance of evidence provided, normality of the criterion and predictor

variables is affirmed. That is, after examining the Normalized Frequency Histograms and multicollinearity diagnostics, the distributions are assumed to meet parametric assumptions.

Multiple Regression Analysis of H2

Using SPSS 17.0 Analyzer/Regression/Linear, a statistically significant relationship in Turnover Intention scores were found between a model containing five predictor variables (SV, TI, TS, AT, and FB); $R = .336$, $R^2 = .113$, $F\ (5, 195) = 4.954$, $p < .001$ (two-tailed). Table 7 presents the results in tabular form, which include standard inferential and statistical data.

Table 7

Model Summary Generated from Multiple Regression Analysis of Hypothesis 2

Model	R	R-Squared	Standard Error	F	Sig		
Omnibus Model	0.336	0.113	1.835	4.954	.000		
			Unstandardized Coefficients		Standardized Coefficients		
			B	Std. Error	Beta	t	Sig.
Constant			9.922	1.313	0.006	7.558	0.000
Skill Variety			-0.214	0.211	-0.090	-1.014	0.312
Task Identity			-0.451	0.195	-0.180	-2.312	0.022
Task Significance			0.017	0.253	0.006	0.068	0.946
Authority			-0.353	0.262	-0.132	-1.350	0.179
Feedback			-0.107	0.219	-0.624	-0.491	0.624

The contribution of each predictor variable, when the other is controlled for, was evaluated using the standardized Beta for each coefficient. Turnover intentions makes the strongest unique contribution in explaining the criterion variable (Beta = -.451). The unique contribution of Skill Variety was -.214, Task Identity was .017, Authority was -.353, and Feedback was -.107. One predictor variable, Task Identity, made a statistically significant and unique contribution to the prediction of Turnover Intention scores; $p = .022$. Furthermore, semi partial or part correlation coefficients values were squared to calculate how much of the total R^2 is uniquely accounted for by each predictor variable. Task Identity (part correlation coefficient = -.156) uniquely contributed 2.43% to the total R^2. Overall, 11.3% of variance in Turnover Intention can be explained by Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback.

Analysis of Hypothesis 3

Hypothesis 3 ($H3_0$): There is no statistically significant positive correlation between Tenure and turnover intentions. Hypothesis 3 was analyzed using Least squares regression. The criterion variable was turnover intentions of the participants and the predictor variable for H3 was Job Tenure. The parameters for the criterion variable were measured on the same 1-7 point Likert-type scale in H1. The parameters for the predictor variable were measured on a 1-6 point Likert-type scale where 1 being *0 -½ years*, 2 being *½ - 1 year*, 3 being *1 -2 years*, 4 being *3 -5 years*, 5 being *5 – 10 years*, and 6 being, *10 or more years*. Both variables were assumed to be interval scaled variables.

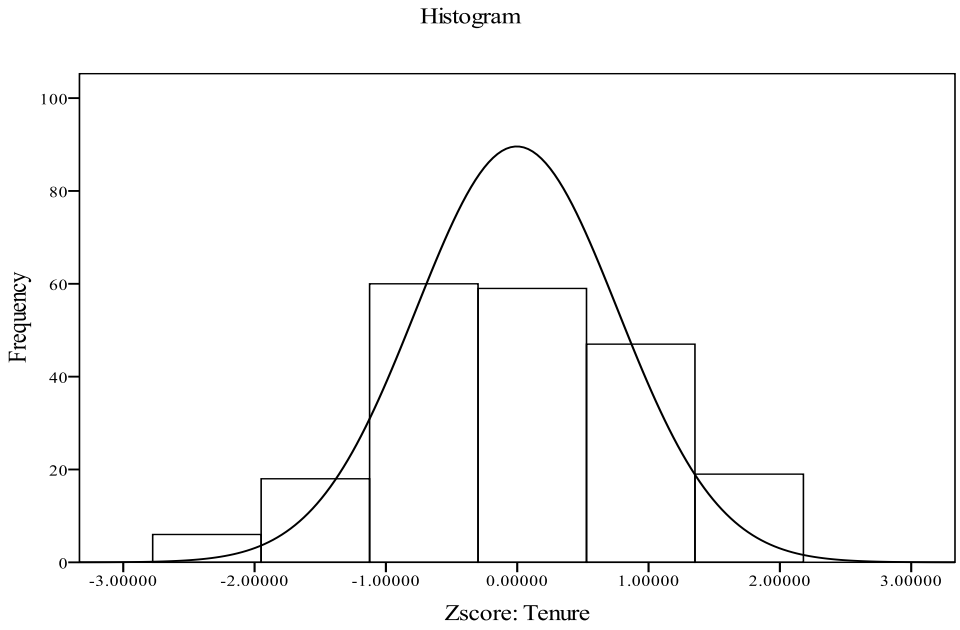
Univariate Outliers

A test for univariate outliers was conducted and none were found to exist within the distributions. Moreover, one response missing data was found in the data set and was removed. Therefore, for H1, 210 responses from participants were received and 209 were entered into the multiple regression model; N = 209.

Tests of Normality

Before the $H3_0$ was analyzed, basic parametric assumptions were assessed. That is, for the predictor variable Tenure, assumptions of normality, linearity, and homoscedasticity of variance were evaluated. Therefore, a graph was created to enable the researcher to visually evaluate the aforementioned assumptions. Specifically, the standardized Tenure frequency histogram is presented to provide visual evidence of normality; see figure 5 below.

Figure 5. *Standardized histogram of the Tenure predictor variable with normal curve superimposed*



To avoid repeated analysis of the criterion variable, refer to $H1_0$ to view assumptions of normality, linearity, and homoscedasticity. After examining the normalized histogram and associated descriptive statistics for the predictor variable, the distribution suggests a slight negative skew and a slight platykurtic shape. However, test results indicate that the distribution was sufficiently normally distributed as shown in Table 8. Given the preponderance of evidence provided, the researcher affirms normality of the criterion and predictor variable.

Table 8

Descriptive Statistics for Criterion and Predictor Variables

Variable	Mean	Std Deviation	Skewness	Kurtosis	Min	Max
Turnover Intentions	4.086	1.944	-0.063	-1.114	1	7
Job Tenure	3.861	1.211	-0.108	-0.448	1	6

Regression Analysis of H3

Using SPSS 17.0 Analyze/Regression/Linear, a statistically significant correlation in turnover intentions and job experience (Tenure) was found among participants; $r = .481$, $R^2 = .231$, $p < .001$ (two-tailed) as shown in Table 9. Table 9 provides a model summary generated from the regression analysis including standard error (Std. Error), Beta, *t* statistics (t), and significant level (sig).

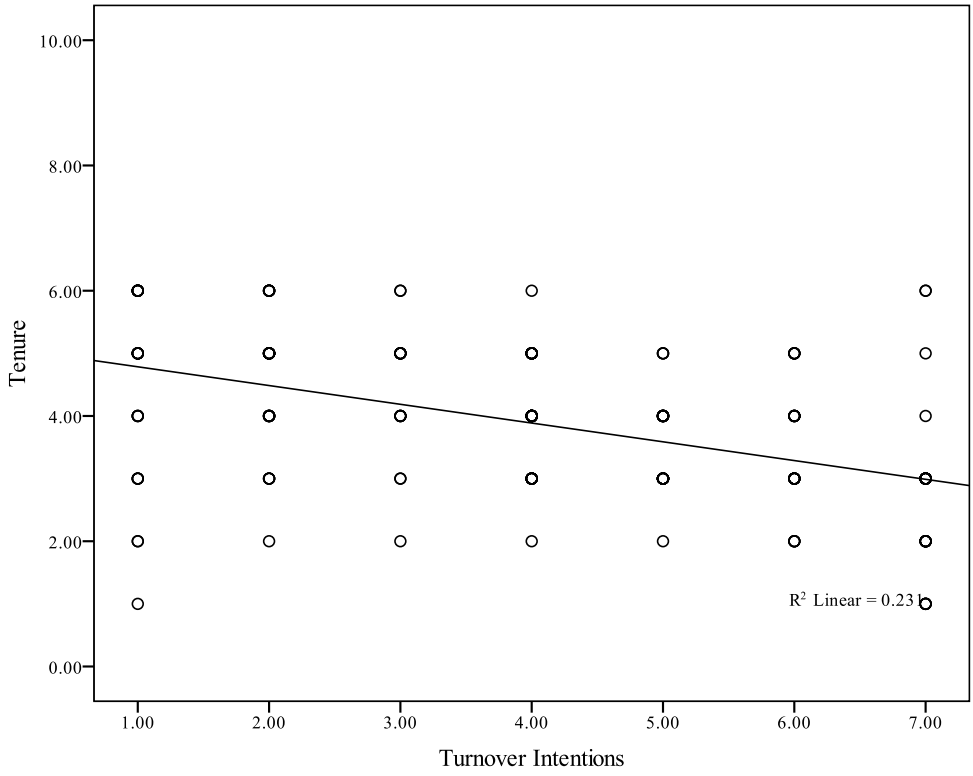
Table 9

Model Summary Generated from Regression Analysis Indicating a Significant Difference between Turnover Intentions and Tenure

			Unstandardized Coefficients		Standardized Coefficients		
Model	R	R^2	B	Std. Error	Beta	t	Sig.
Model 1	.481	.231					.000
Constant			7.068	0.396		17.851	.000
JS Composite			-0.772	.098	-0.481	-7.891	.000

The scatter plot presented in Figure 6 below reflects to a significant negative relationship between the criterion variable and predictor variable. That is, a high tenure is associated with a decrease in turnover intentions. The value R-squared represents the reliability of a relationship between the predictor variable (Tenure) and criterion variable (Regression, 2004). The value 0.772 R-squared (.231) suggests that 23.1% of the change in turnover intentions is due to job experience.

Figure 6: Scatter plot of Tenure with regression line indicating a statistically significant relationship



Analysis of Hypothesis 4

Hypothesis 4 ($H4_0$): There is no statistically significant difference between DBMS Job Specialty (DBA, developer, programmer, and system administrator) and turnover intentions. The participants' turnover intentions serve as the dependent variable for $H4_0$. The parameters for the dependent variable are the same as previously stated in Hypothesis 1. The independent variable for the question was the participant's Job Specialty. The parameters were measured on a 1-6 point nominal scale where 1 was *DBA*, 2 was *developer*, 3 was *programmer*, 4 was *system administrator*, 5 was *analyst*, and 6 was *other*.

Univariate Outliers

A test for univariate outliers was conducted and none were found to exist within the distribution. Moreover, six responses missing data were found and were removed from the distributions. Therefore, for $H4_0$, 210 responses from participants were received and 204 were entered into the ANOVA model. A univariate ANOVA where the independent variable has six levels was done using N = 204.

Tests of Normality

Before the $H4_0$ was analyzed, basic parametric assumptions were assessed. That is, for the dependent variable turnover intentions, assumptions of normality, linearity, and homogeneity of variance were evaluated in Hypothesis 2. After examining the normalized histogram and associated descriptive statistics for the dependent variable, the distribution suggests a slight negative *skew* and significant platykurtic distribution. See Table 10 below for descriptive statistics which include the mean and standard deviation for the turnover variable.

Table 10

Descriptive Statistics for the Dependent Variable, Turnover

Variable	Mean	Standard Deviation	Skewness	Kurtosis	Min	Max
Turnover Intentions	4.093	1.952	-0.060	-1.131	1	7

Note. *N* = 204

Test of Homogeneity

To examine the assumption of homogeneity of variance, Levene's test was run. Levene's test is used to measure the equality of variances in statistical samples (Charway & Bailer, 2007). The homogeneity of variance was evaluated to determine if distributions are equal across the six levels of the independent variables (DBA, developer, programmer, system administrator, analyst, and other). Results from Levene's test found that the distributions were equal across groups, $F(5, 198) = .744$, $p = .592$. These results suggest that the six distributions are equally distributed. Given the preponderance of evidence provided, normality is affirmed. That is, after examining the descriptive statistics, normalized frequency histograms, and Levene's test, the distributions are assumed to meet parametric assumptions.

Analysis of Variance of H4

Using SPSS 17.0 General Linear Model Univariate, no significant difference in Turnover Intention scores were found between participants' job specialties; $F(5, 198) = .803$, eta-squared $= .020$, $p = .548$ as shown in Table 11 and Figure 7. Table 11 provides inferential statistics generated from the ANOVA analysis, including sums of squares, degree of freedom (df), mean square, F statistics (F), significant level (sig), and eta-squared.

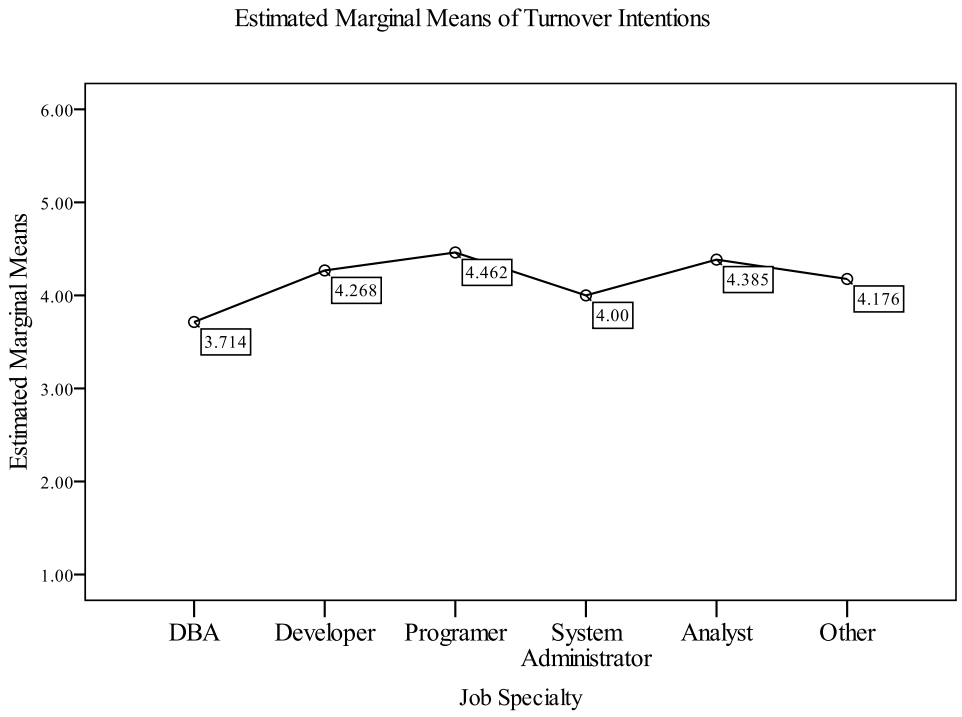
Table 11

Descriptive Statistics Generated from ANOVA Analysis Indicating No Significant Difference between Turnover Intentions and Job Specialty

Source	Sum of squares	df	Mean Square	F	Sig	Eta-Square
Between Groups	15.374	5	3.075	.803	.548	.020
Within Groups	757.856	198	3.828			
Total	4191.000	204				

As indicated by Figure 7, mean scores for Job Specialty groups were DBA (M = 3.714, SD = 1.887), developer (M = 4.268, SD = 2.062), programmer (M = 4.461, SD = 2.064), system administrator (M = 4.000, SD = 1.633), analyst (M = 4.385, SD = 2.219), and other (M = 4.093, SD = 1.884). Based on these results, $H4_0$ is retained. That is, there is no difference in Turnover Intentions between Job Specialty groups (DBA, developer, programmer, system administrator, analyst, and other).

Figure 7. *Estimated marginal means plot indicating no difference in Turnover Intentions across Job Specialty groups.*



Rejection or Acceptance of Hypotheses

Given the values obtained from analysis above, it is evident that the first three alternative hypotheses $H1_{A,}$ $H2_{A,}$ and $H3_A$ were accepted based on the p value of 0.001. Hypothesis $H4_A$ with a significant value of 0.500 could not be accepted. The null Hypotheses $H1_{0,}$ $H2_{0,}$ and $H3_0$ were rejected based on significant values obtained. Hypothesis $H4_0$ failed the statistical significance test and was retained.

Table 12

Summary of Alternative Hypotheses

Alternative Hypothesis	Statistical Significance	Acceptance
$H1_A$: There is a statistically significant correlation between Job Satisfaction as assessed by the JDS Inventory and turnover intentions of DBMS support Specialists.	0.001	YES
$H2_A$: There is a statistically significant correlation between the five dimensions (Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback) of the JDS Construct (as assessed by the JDS instrument) and turnover intentions of DBMS support Specialists	0.001	YES
$H3_A$: There is a statistically significant correlation between job tenure predicts and turnover intentions	0.001	YES
$H4_A$: There is a statistically significant correlation between DBMS Job Specialty (DBA, Developer, Programmer, and System Administrator) and turnover intentions.	0.500	NO

Table 13

A Summary of Null Hypotheses

Null Hypothesis	Reject	Accept
$H1_0$: There is no statistically significant correlation between General Job Satisfaction as assessed by the JDS Inventory and turnover intentions of DBMS support Specialists.	YES	NO
$H2_0$: There is no statistically significant correlation between the five dimensions (Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback) of the JDS Construct (as assessed by the JDS instrument) and turnover intentions of DBMS support Specialist.	YES	NO
$H3_0$: There is no statistically significant correlation between Tenure and turnover intentions.	YES	NO
$H4_0$: There is significant statistical correlation between DBMS Job Specialty (DBA, Developer, Programmer, and System Administrator) and turnover intentions.	NO	YES

Summary of Research Findings

The statistical analysis of the hypotheses and research questions of the current study using regression and ANOVA showed a statistically significant relationship between the turnover intentions of DBMS support specialist and job satisfaction. The results also showed that a statistically significant relationship exists between the five JDS constructs (Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback) and the turnover intentions of DBMS support specialists. There results also showed that a statistically significant relationship exists between job tenure and turnover intentions of DBMS support specialists. Finally, the results from the statistical analysis showed no significant statistical relationship between the job specialty of DBMS support specialists and their turnover intentions.

Chapter Summary

Chapter 4 provided a detailed analysis and the results obtained for the current study. The main focus of the current study was to examine the relationship between certain job characteristics and the turnover intentions of DBMS support specialists in the U.S. Various statistical techniques were used to analyze the data based on the research questions and the stated hypotheses. RQ 1, RQ2, and RQ3 were analyzed using various regression techniques. RQ4 was analyzed using a univariate ANOVA where the independent variable has six levels. The goal of the analysis was to accept or reject the stated hypotheses developed in conjunction with each research question. A summary of the analysis of the alternative hypothesis testing is given in Table 12, and a summary of the null hypotheses testing is provided in Table 13.

Chapter 5 will provide a detailed discussion of the findings, with emphasis on how the results of this study align with and diverge from similar studies on employee turnover intentions.

Inferences made from the results of the analysis of the data are discussed in Chapter 5. Important insights on the results to database management support specialists are addressed. The limitations of the study are also addressed in Chapter 5, as are recommendations and suggestions for future research.

CHAPTER 5: IMPLICATIONS, CONCLUSIONS, AND RECOMMENDATIONS

The current study investigated the turnover intentions of relational database support professionals in the U.S. using a quantitative analysis of the data collected. The scope of the study was limited to relational database support professionals in the United States of America. An online survey of the job characteristics of 209 relational database professionals in the United States provided the data that was analyzed using various statistical techniques which included the least square regression, multiple regression, and a univariate ANOVA where the independent variable has six levels. Detailed analysis of the data was presented in Chapter 4. The interpretation of the results obtained from analysis, including conclusions and recommendations for future research is provided in Chapter 5.

A review of related literature showed a consistent pattern of organizational performance being influenced by employee turnover across the IT industry. The reviewed literature showed that turnover was a major challenge for IT corporations in the United States, with turnover rates ranging from 15% to 33% (Moore & Burke, 2002; Waag, Reland, & Sein, 2005). The literature also highlighted the importance of organizational performance as a major requirement for high returns on investments. An important conclusion made from the literature review is that organizational performance can be threatened by various forms of turnover if IT employees and other employees' expectations are unmet (Leng, 2004; Ross & Weill, 2004; Watkins, 2008). Extrinsic and intrinsic job factors tended to have a deterministic influence on employees' job satisfaction, dissatisfaction, and turnover intentions (Udechuku, 2009). The extrinsic and intrinsic turnover factors of relational database support professionals were analyzed through the

provisions of the research questions that are an integral part of the JDS by Hickman and Oldham (1980) on which the current study is based.

Problem Statement

The purpose of the current study was to investigate the high turnover of high-tech employees who specifically support or implement DBMS in the United States. The goal of the study was to provide insight to IT leaders about factors that influence retention in this unique subpopulation of IT professionals. Such insights have the potential to increase workplace satisfaction and efficiency, as well as retention. The general problem is that turnover among database management support specialists and other high-tech employees continue to rise despite competitive compensation packages offered by major corporations in the United States (Employment, 2005; Rouse, 2002).

The specific problem addressed in the current study was the influence of intrinsic and extrinsic turnover factors relating specifically to the turnover of relational database administrators, developers, and other relational database management system support specialists. Intrinsic factors included the constructs of the JDS by Hackman and Oldham (1980), which includes Skill Variety, Task Significance, Task Identity, Autonomy, and Feedback. Extrinsic factors addressed within the construct of the JDS include Salary, Supervision, Security, Relationship, and the Job itself. The challenges presented by the turnover of IT specialists in U.S. corporations were addressed by measuring turnover intentions based on Job Satisfaction as defined by the JDS by Hackman and Oldham (1980).

Purpose Statement

The purpose of this quantitative analysis was to conduct a systematic examination of the high turnover of high-tech employees who specifically support or implement DBMS in organizations in the United States. The current study was designed to identify the relationship between the intrinsic and extrinsic job characteristics and turnover intentions of relational database management professionals in the U.S. as defined by the JDS (Hackman & Oldham, 1980). The quantitative research method used a survey questionnaire on a Likert-type scale to collect turnover and job characteristics data of these relational database professionals in the U.S.

Research Questions

The current study was used to investigate the relationships that may exist between database management support specialists' turnover intentions, job satisfaction, and job characteristics which include Task Significance, Task Identity, Skill Variety, Autonomy, and Feedback. The research questions are designated RQ1 (Research Question 1) through RQ4 (Research Question 4). The research questions for the current study appear below as follows:

RQ 1: What is the statistically significant relationship or correlation between Job Satisfaction as assessed by the JDS Inventory and turnover intentions of DBMS support specialists?

RQ 2: What is the statistically significant correlation between the five job characteristics of the JDS which are defined as Task Significance, Task Identity, Skill Variety, Autonomy and Feedback assessed by the JDS Instrument and turnover intentions of DBMS support specialists?

RQ 3: What is the statistically significant correlation between Job Tenure and turnover intentions?

RQ 4: What is the statistically significant correlation between DBMS Job Specialty (database administrators (DBA), developer, programmer, and system administrator) and turnover intentions? These questions were answered through a quantitative correlational study. The relationship among Job Satisfaction variables which include recognition, autonomy, fairness, communication, compensation, job type, benefits, education, and their significant differences were measured using regression and the analysis of variance ANOVA.

Research Hypotheses

Alternative and null hypotheses were developed for the current study. These hypotheses provided the basis for establishing statistical relationship between predictor and criterion variables. There were 4 alternative and 4 null hypotheses developed as follows: $H1_0$ through $H4_0$ and $H1_A$ through $H4_A$ represent the null and alternative hypotheses, respectively, as shown below:

$H1_0$: There is no statistically significant positive correlation between job satisfaction as assessed by the JDS Inventory and turnover intentions of DBMS support specialists.

$H1_A$: There is a statistically significant positive correlation between Job Satisfaction as assessed by the JDS Inventory and turnover intentions of DBMS support specialists.

$H2_0$: There is no statistically significant positive correlation between the five dimensions (Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback) of the JDS Construct (as assessed by the JDS instrument) and turnover intentions of DBMS support specialists.

$H2_A$: There is a statistically significant positive correlation between the five dimensions (Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback) of the JDS Construct (as assessed by the JDS instrument) and turnover intentions of DBMS support specialists.

$H3_0$: There is no statistically significant positive correlation between Job Tenure and turnover intentions.

$H3_A$: There is a statistically significant positive correlation between Job Tenure and turnover intentions.

$H4_0$: There is no statistically significant positive correlation between DBMS Job Specialty (DBA, developer, programmer, and system administrator) and turnover intentions.

$H4_A$: There is a statistically significant positive correlation between DBMS Job Specialty (DBA, developer, programmer, and system administrator) and turnover intentions.

Methodology

Regression analysis was used to analyze the data relative to the research questions and stated hypotheses. The current study used the Hackman and Oldham's (1980) job diagnostic survey to measure different job characteristics of DBA support specialists. A Likert-type scale was used to measure the critical variables of job dimensions. The parameters for the criteria variable were measured on a 1-7 point Likert-type scale with 1 being *Very Unlikely*, 2 being *Unlikely*, 3 being *Slightly Unlikely*, 4 being *Equal Chance*, 5 being *Slightly Likely*, 6 being, *Likely*, and 7 being *Very Likely*. The parameters for the predictor variable were measured on a 1-7 point Likert-type scale with 1 being *Extremely Dissatisfied*, 2 being *Dissatisfied*, 3 being

Slightly Dissatisfied, 4 being *Neutral*, 5 being *Slightly Satisfied*, 6 being, *Satisfied*, and 7 being *Extremely Satisfied*. The sample comprised of (N = 209) database support specialists from the United States who completed the JDS. The results of the survey were examined through multiple regression and bivariate regression analysis. This methodology was chosen because it provided the best means to demonstrate the nature, impact or the magnitude of associations that exist between criterion and predictor variable or the dependent and independent variables (Murray, 2003; Raulin & Graziano, 2004). Regression analysis also provided the means to examine the relationships among the variables defined for the current study.

Various statistical techniques were used to analyze each research questions (RQ1, RQ2, RQ3, and RQ4). Bivariate regression was used to analyze RQ1 and RQ3. Multivariate regression was used for RQ2 and univariate ANOVA where the independent variable has six levels was used to for RQ4. The results of the analysis were examined for any relationships that existed among the criterion and predictor variables defined and appropriate inferences and conclusions were drawn.

Limitations

The survey data was collected via an online questionnaire to investigate the issues of turnover intentions among DBMS support specialists. There is no way of knowing why some specialists chose to respond to the survey and why others chose not to respond. Incomplete or partially answered questionnaires were rejected because they might indicate a form of bias by the respondents. There is also the possibility that the respondents of online surveys can be biased in answering certain questions and there is no way of preventing this in any type of survey.

This study also deals exclusively with highly skilled database management specialists, while non-technically skilled data processing personnel such as data operators, coders, and data entry clerks are not included. This study was limited to relational database support professionals, and professionals from other areas of the IT spectrum were not included. The DBMS support specialty claimed by a respondent of the survey cannot be verified by the researcher, and therefore is assumed to be true.

Interpretation of Findings

The study was based on four research questions. Corresponding alternative and null hypotheses were developed and tested to answer each question. Each research question was tested using the statistical technique most appropriate to the hypothesis. The research questions RQ1 through RQ3 were analyzed using regression and RQ4 was analyzed using ANOVA. Basic parametric assumptions were assessed for linearity, normality, and homoscedasticity. The normal curves obtained provided evidence of normal distribution based on the statistical assumptions made. Hypothesis 1 predicted a statistically significant correlation between the respondents' job satisfaction as accessed by the JDS inventory and their turnover intentions. Regression analysis of the alternative and null hypothesis 1 provided the statistical means to reject the hypotheses. This is known as the level of statistical significance or p-value of the statistical test. Basing this from the two-tailed test score, a statistically significant correlation was found between turnover intention and job satisfaction. The p-value provided the weight or the statistical level of significance, for accepting the alternative hypothesis and rejecting the null hypothesis 1 (Cooper & Schindler, 2003; Raulin & Graziano, 2004). A scatter plot of the composite values of job satisfaction against turnover intentions gave a negative gradient as the value of turnover

intentions decreased consistently with job satisfaction. The value R2 = 0.224 from regression analysis showed that job satisfaction accounted for a 22.4% decrease in the Turnover Intention of DBMS support specialists.

Hypothesis 2 established a statistically significant correlation between the five job dimensions which include Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback of the JDS Construct and turnover intentions of DBMS support specialists. Given the multiple predictor variables of the five job dimensions, the level of statistical significance for each predictor variable relative to turnover intentions was measured using regression analysis. The composite level of statistical significance test or p-values from the five predictor variables for a two-tailed test is seen from the omnibus model as shown in Table 7. Individual measures of the level of statistical significance for the five predictor variables of Job Satisfaction range from 0.312 for Skill Variety to 0.634 for Feedback. However, the predictor variable of Task Identity had a value of p which suggests a statistically more significant relationship between Task Identity and Turnover Intention. This level of statistical significance for Task Identity (TI) from the two-tailed test provides statistical evidence that the Task Identity of database support specialists correlates with turnover intentions. The composite level of statistical significance still produced a p-value which gives a statistical probability of a correlational relationship between turnover intentions and the five job characteristics defined by the JDS developed by Hackman and Oldham (1980). This weight of the level of statistical significance in terms of probability provided enough evidence to reject the null hypothesis 2 in favor of the alternative.

Hypothesis 3 predicted a correlation between Turnover Intention and the Tenure of support specialists. A bivariate regression analysis of hypothesis 3 produced values which

showed a statistical significance level from a two-tailed test which falls at the region of rejection on a normal distribution for the null hypothesis 3. The graph of Tenure and Turnover Intention shows a negative gradient demonstrating an inverse relationship between Tenure and turnover intention. It was discerned from the results that turnover intentions decreased with increase in Tenure for database support specialists. The impact of the level of statistical significance or p-value in a two-tailed test falls within the region of rejection of the null hypothesis in a normal distribution. The value R-squared of 0.231 is indicative of the fact that 23.1% of the changes in turnover intentions are associated with job experience of a support specialists.

Hypothesis 4 stipulated the statistical correlations between DBMS job specialty and turnover intentions. The job specialties include DBA, developer, programmer, system administrator, analyst, and other. A univariate ANOVA where the independent variable has six levels was used to analyze hypothesis 4. The dependent variable considered was the Turnover Intention while the DBMS Job Specialty was the predictor variable. Given the results of the mean score of the standard deviation for each group, no significant different was seen to exist between Turnover Intention and the Job Specialty of the DBMS support specialists. A level of statistical significance obtained from ANOVA led to the acceptance of the null hypothesis. The ANOVA test therefore failed to reject the null hypothesis 4. No statistically significant relationship was therefore found to exist between the Job Specialty of the database support specialists and their turnover intentions.

Discussion and Conclusions

The focus of the current study was the influence of the intrinsic and extrinsic job factors on turnover. Herzberg et al. (1959) recognized that employees' motivation to perform on the job

was based on two factors of job satisfaction. These include satisfaction due to motivational factors, and dissatisfaction due to hygiene factors. Herzberg et al.'s (1959) two-factor theory defined extrinsic job factors to include supervision, job security, salary, benefits, and interpersonal relationship. Thirty-five questions from the job diagnostic survey (Hackman & Oldham, 1980) represented six constructs, one of which was the job satisfaction construct. The job satisfaction construct consisted of 14 questions which the respondents were required to provide answers pertaining to extrinsic job factors. Analysis of Hypothesis 1 using least square regression showed a positive correlation between job satisfaction and turnover intention as seen from Turnover Intention and Job Satisfaction scores. This result is consistent with the results of other turnover and job satisfaction studies (Jegadeesan, 2007; Moore, 2002; Thatcher et al., 2006). Moore's (2002) study concluded that extrinsic factors including pay, salary and other compensation had direct motivational influence on employees' turnover. Moore's conclusion is consistent with the results obtained from the analysis of Hypothesis 1 of the current study.

Five constructs of the JDS had a total of 21 questions. These constructs had questions that related to the intrinsic job factors including Skill Variety, Task Identity, Task Significance, Autonomy, and Feedback. A multivariate regression analysis showed a significant correlation between the five job characteristics and Turnover Intention. This assessment was made from the Turnover Intention scores of the five predictor variables (TI, TS, AT, and FB). However, the predictor of Task Identity provided the strongest possible contribution to the prediction of Turnover Intention. This result is also consistent with finding from other studies (Freund, 2005; Hegney & Plank, 2008; Thatcher et al., 2006). Studies by Thatcher et al. (2006) recognized intrinsic factors to exert a more powerful influence on turnover. The level of significance

suggests that database support professional tend to exhibit turnover intentions if their tasks are not well defined in the domain of database management and support functions.

The analysis of Hypothesis 3 showed an inverse correlation between Tenure and Turnover Intentions. As Tenure increases, the turnover intentions of database workers decreased. In other words, database support professionals who had higher longevity had a lower turnover propensity. The influence of Tenure on the turnover intentions of this group of support specialists can be explained in terms of experience and knowledge acquired on the job which led to employees with a higher tenure to have a lower turnover propensity. These findings correlate with other studies (Graham, 2007; Holtom & Tanova, 2008; Tian & Pu, 2008).

The analysis of Hypothesis 4 showed no correlation between Turnover Intention and the Job Specialty. The descriptive statistics from the univariate ANOVA where the independent variable has six levels showed no significant correlation between turnover intentions and Job Specialty. The values obtained from the standard deviations for the Job Specialties did not show any significant correlation between Job Specialty and Turnover Intention. This can also be seen from the plot of estimated marginal means against Job Specialty. The finding from the analysis of Hypothesis 4 is unique since no comparable studies or literature was found to corroborate or refute the result of the analysis of Hypothesis 4.

Inferences from Findings

Important inferences from this research centered on the extrinsic and intrinsic job factors that correlate with turnover intentions of database support professionals. Regression analysis provided the means to examine the influence of several independent variables on turnover intentions. It is inferred from the analysis of the null Hypothesis 1 and 2 that an understanding of

the employees' Turnover Intention can lead to a better prediction of the actual turnover phenomenon. This is especially important to management because such an understanding can lead to better management strategies and competencies that deter database management support specialists from developing turnover intentions. This has important advantages:

First, identifying specific subgroups of DBMS specialists who are most likely to develop the intent to leave can lead to preventive measures of retention of these highly skilled professionals whose actual turnover might create skill gaps that might negatively impact organizational performance. Second, the identification of a group of specialists with the obvious propensities to quit lead to better forecasting of actual turnover behavior by management, and the promotion of retention measures instituted and highly recommended among the various organizations' units. The identification of the intent to quit is the first step towards prevention and better management of the problem of turnover.

The presence of a significant relationship between job satisfaction, including extrinsic and intrinsic job factors, and turnover intentions among DBMS support specialists suggest the existence of a complex relationship due to several variables that need to be further explored. The roles played by these independent variables relative to turnover intentions vary and demonstrate the complexity of the relationship and the need for further exploration also. However, the correlative relationships between job satisfaction and turnover intention as seen from the current study also confirm the positive relationship between organizational commitment and job satisfaction (Diefendorff & Gregurias, 2009; Meyer, Stanley, Herscovith, & Topolnytsky, 2002; Smithers, 2006). This suggests that database management support specialists who are generally

satisfied with their jobs tend to have strong organizational commitments (Cole & Bruch, 2006; Keiner & Ashforth, 2004).

Just as the findings show a relationship between job satisfaction and turnover intentions, job experience seems to have an inverse relationship with turnover intentions. This implies that database support specialists with longer tenure tend to have less turnover intentions. The data demonstrate strong retention tendencies for this group of support specialists and this positive news can lead organizational leadership to strive to retain more experienced employees with longer tenure. This is consistent with other tenure and turnover literature reviewed (Buhler, 2003; Cho & Shen, 2007; Liu et al., 2006; Rouse, 2002).

The absence of a relationship between job specialty and turnover intentions indicates that some other factors and not the particular job specialty were responsible for turnover intentions and the actual turnover. This needs to be further explored. The finding that the Task Identity seems to play a strong role in the turnover of database support specialists should lead management to review specific elements of the task that influence turnover intentions. Identifying these and taking appropriate measures to reduce turnover intentions will lead to better job satisfaction of database support professionals and a reduction of actual turnover since the antecedent of actual turnover is turnover intention. Therefore, a prevention of the antecedent of turnover could lead to the prevention of actual turnover by various organizations.

Recommendations for Future Research

The current study was done on the influence of the intrinsic and extrinsic job characteristic on the turnover of database support specialists in the U.S. The study did not seek to explore or analyze the specific roles of demographic factors on the turnover intentions of

database support specialists that can lead to turnover since the goal was to explore the intrinsic and extrinsic influences only. Additional research in the varied facets of employee turnover is warranted, both with emphasis on relational database professionals and non-database IT support professionals. A number of recommendations for future research are therefore made as follows:

The first recommendation for future study is to research the influence of demographic variables on turnover intentions such as education, age, sex, family status, and regions by state. Developing a better understanding of how demographic differences influence turnover intentions could provide crucial retention information to leadership in various regions of the U.S. The second recommendation for future researchers is to explore turnover intentions and actual turnover of database support specialists relative to organizational commitments. This recommendation is made because a study based on one dependent and independent variables can provide additional details that can be overlooked in a study using multiple independent and dependent variables. A third recommendation for future study is the examination of the influence of only one predictor variable such as Task Identity on one criterion variable such as Turnover Intention. This will provide a more in-depth analysis on the influence of the task identity on turnover. A future study based on one independent and dependent variable such as the task identity can provide greater details and insights on the influence of the task identify on the turnover of not only DBMS specialists, but other IT specialists as well. A fourth recommendation for future research is the comparative analysis of the effects or the influence of turnover on each relational database technology application (Sybase, Oracle, Access, and DB2). This would yield important information to researchers and those in leadership position on the turnover influence relative to the choice and the applications of technologies such as Oracle,

Sybase, DB2, MySQL, and other relational database types. The knowledge gained from such a study can lead to better implementation strategies for each relational database technology. This can lead to the understanding, better management, and the adoption of a specific database technology for any given organization in the U.S.

A final recommendation would be for organizational leadership to incorporate data support strategies and competencies including training, teamwork among support professionals, and total quality management of tasks designed to reduce the turnover propensities of skilled specialists who manage critical data on which the organizations rely for business and knowledge management. A team work competency builds cohesion and congruity among groups. This can be a very important step in the reduction of turnover intention and the actual turnover among highly skilled employees.

Summary

The current study is the first of its kind in the exploration of the turnover of relational database support professionals in the United States. There are no previous studies that explored the intricate relationship between five job dimensions of the JDS and the turnover intentions of database support professionals in the U. S. While the current study corroborated several findings from the turnover research of other IT specialists, the findings on task identity playing a major role in the determination of turnover intention provides an important addition to existing research on the influence of intrinsic factors on the turnover phenomenon. This is especially critical to management and leadership in the definition, allocation, and execution of tasks with the obvious goal toward improving retention. The findings from the current study also corroborate the results of other studies in that financial compensation was shown not to be the sole determinant of

employee turnover, but in the case of database support professionals, extrinsic and intrinsic factors such as the task identity exert equally or more powerful influences. Organizational leadership must constantly explore the domain of IT turnover relative to factors other than compensation. This can be achieved through the process of continuous research, well-defined competencies, reorganizational cultures, effective hiring practices, and effective leadership.

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APPENDIX A: AUTHORIZATION TO USE VALIDATED INSTRUMENT

Thank you for your interest in the Job Diagnostic Survey (JDS). The instrument, along with a scoring key, is published as an appendix to the book "Work Redesign" by J. R. Hackman and G. R. Oldham (Addison-Wesley, 1980). Also appended are answers to frequently asked questions about the instrument. The JDS is not copyrighted and may be used without permission, although we would appreciate acknowledgment of our authorship of the instrument in any publication reporting findings from its use.

We do not have more recent information about findings from the JDS because we moved on to other research topics after publication of the book in 1980. There are, however, a number of meta-analyses of research on the JDS and job characteristics theory, which can be readily located in electronic databases of research publications.

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APPENDIX B: INFORMED CONSENT DOCUMENT

Dear Participant:

I am currently a doctoral student working on a degree of Doctoral Management in Information Systems Technology at the University of Phoenix. I am doing a research entitled; "A quantitative analysis of the Intrinsic and Extrinsic Turnover factors of Relational Database Support Specialists" The purpose of this study is to investigate the causes of the high turnover rates among database support specialists and their influence on the organizations' ability to retain their database support professionals.

Your participation involves completing an online survey consisting of about 25 questions in approximately 25 minutes. If you decide to decline to participate in the study please just click on the *Decline* button on the opening page in which case you would be exited from the survey otherwise click *Accept* to proceed whereupon you would begin the survey. There is no penalty if you choose to decline. Participants in the survey are completely anonymous and names of participants are not requested even when the results of the study are published, no names of participants are ever requested, and participation in the study will always be kept confidential.

This study poses no foreseeable risks to the participant now and the future. The researcher doesn't seek participants' contact information in the survey process. Participants are guaranteed continuous anonymity during survey and in the future.

All organizations maintain an aspect of database and have a need to find solutions to the problem of the turnover pertaining to their database support professionals. Although direct benefits to you is not obvious, your participation will greatly benefit various organizations in understanding the issues of turnover and possibly addressing measures to solve these high turnover problem of relational database support specialists.

Yours Truly

Gabriel Takusi

APPENDIX C: HACKMAN AND OLDHAM'S JOB DIAGNOSTIC SURVERY

This appendix reproduces the Job Diagnostic Survey (JDS), an instrument designed to measure the key elements of the job characteristics theory. The survey measures several job characteristics, employees' experienced psychological states, employees' satisfaction with their jobs and work context, and the growth need strength of respondents. For a complete description of the job characteristics theory and the variables measured by the JDS, see Chapter 4 of this volume.

The JDS was designed to be completed by the incumbents of the job or jobs in question—not by individuals outside the job. An instrument designed for the latter purpose is entitled the Job Rating Form (JRF) and is reproduced in Appendix B. Instructions for scoring the JDS and JRF may be found in Appendix C. JDS norms for several job families are provided in Appendix E and may be used for comparison purposes with JDS data collected from many jobs.

The JDS is not copyrighted and therefore may be used without the authors' permission. However, prior to using the JDS, one should carefully read the users' guide for administering and interpreting the instrument (see Appendix D).

A short form of the JDS has also been developed. It excludes measures of the experienced psychological states and uses fewer items to measure other key variables in the job characteristics theory. The JDS short form and its scoring key may be found in Hackman and Oldham (1974).

SECTION ONE

This part of the questionnaire asks you to describe your job, as objectively as you can.

Please do not use this part of the questionnaire to show how much you like or dislike your job. Questions about that will come later. Instead, try to make your descriptions as accurate and as objective as you possibly can.

A sample question is given below.

A. To what extent does your job require you to work with mechanical equipment?

1----------2----------3----------4----------5----------(6)----------7

Very little; the job requires almost no contact with mechanical equipment of any kind.

Moderately

Very much; the job requires almost constant work with mechanical equipment.

You are to circle the number which is the most accurate description of your job.

If, for example, your job requires you to work with mechanical equipment a good deal of the time--but also requires some paperwork--you might circle the number six, as was done in the example above.

If you do not understand these instructions, please ask for assistance. If you do understand them, turn the page and begin.

1. To what extent does your job require you to work closely with other people (either "clients," or people in related jobs in your own organization)?

1----------2----------3----------4----------5----------6----------7

Very little; dealing with other people is not at all necessary in doing the job.	Moderately; some dealing with others is necessary.	Very much; dealing with other people is an absolutely essential and crucial part of doing the job.

2. How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work?

1----------2----------3----------4----------5----------6----------7

Very little; the job gives me almost no personal "say" about how and when the work is done.	Moderate autonomy; many things are standardized and not under my control, but I can make some decisions about the work.	Very much; the job gives me almost complete responsibility for deciding how and when the work is done.

3. To what extent does your job involve doing a "whole" and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work, which is finished by other people or by automatic machines?

1----------2----------3----------4----------5----------6----------7

My job is only a tiny part of the overall piece of work; the results of my activities cannot be seen in the final product or service.	My job is a moderate-sized "chunk" of the overall piece of work; my own contribution can be seen in the final outcome.	My job involves doing the whole piece of work, from start to finish; the results of my activities are easily seen in the final product or service.

4. How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?

1----------2----------3----------4----------5----------6----------7

Very little; the job requires me to do the same routine things over and over again.	Moderate variety	Very much; the job requires me to do many different things, using a number of different skills and talents.

5. In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?

1----------2----------3----------4----------5----------6----------7

Not very significant; the outcomes of my work are not likely to have important effects on other people.	Moderately significant.	Highly significant; the outcomes of my work can affect other people in very important ways.

6. To what extent do managers or co-workers let you know how well you are doing on your job?

1----------2----------3----------4----------5----------6----------7

Very little; people almost never let me know how well I am doing.	Moderately; sometimes people may give me "feedback;" other times they may not.	Very much; managers or co-workers provide me with almost constant "feedback" about how well I am doing.

7. To what extent does doing the job itself provide you with information about your work performance? That is, does the actual work itself provide clues about how well you are doing--aside from any "feedback" co-workers or supervisors may provide?

1----------2----------3----------4----------5----------6----------7

Very little; the job itself is set up so I could work forever without finding out how well I am doing.	Moderately; sometimes doing the job provides "feedback" to me; sometimes it does not.	Very much; the job is set up so that I get almost constant "feedback" as I work about how well I am doing.

SECTION TWO

Listed below are a number of statements which could be used to describe a job.

You are to indicate whether each statement is an accurate or an inaccurate description of your job.

Once again, please try to be as objective as you can in deciding how accurately each statement describes your job--regardless of whether you like or dislike your job.

Write a number in the blank beside each statement, based on the following scale:

How accurate is the statement in describing your job?

1	2	3	4	5	6	7
Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate

_____1. The job requires me to use a number of complex or high-level skills.

_____2. The job requires a lot of cooperative work with other people.

_____3. The job is arranged so that I do not have the chance to do an entire piece of work from beginning to end.

_____4. Just doing the work required by the job provides many chances for me to figure out how well I am doing.

_____5. The job is quite simple and repetitive.

_____6. The job can be done adequately by a person working alone--without talking or checking with other people.

_____7. The supervisors and co-workers on this job almost never give me any "feedback" about how well I am doing in my work.

_____8. This job is one where a lot of other people can be affected by how well the work gets done.

_____9. The job denies me any chance to use my personal initiative or judgment in carrying out the work.

____10. Supervisors often let me know how well they think I am performing the job.

____11. The job provides me the chance to completely finish the pieces of work I begin

____12. The job itself provides very few clues about whether or not I am performing well.

____13. The job gives me considerable opportunity for independence and freedom in how I do the work.

____14. The job itself is not very significant or important in the broader scheme of things.

SECTION THREE

Now please indicate how you personally feel about your job.

Each of the statements below is something that a person might say about his or her job. You are to indicate your own, personal feelings about your job by marking how much you agree with each of the statements.

Write a number in the blank for each statement, based on this scale:

How much do you agree with the statement?

1	2	3	4	5	6	7
Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly

_____1. It's hard, on this job, for me to care very much about whether or not the work gets done right.

_____2. My opinion of myself goes up when I do this job well.

_____3. Generally speaking, I am very satisfied with this job.

_____4. Most of the things I have to do on this job seem useless or trivial.

_____5. I usually know whether or not my work is satisfactory on this job.

_____6. I feel a great sense of personal satisfaction when I do this job well.

_____7. The work I do on this job is very meaningful to me.

_____8. I feel a very high degree of personal responsibility for the work I do on this job.

_____9. I frequently think of quitting this job.

_____10. I feel bad and unhappy when I discover that I have performed poorly on this job.

_____11. I often have trouble figuring out whether I'm doing well or poorly on this job.

_____12. I feel I should personally take the credit or blame for the results of my work on this job.

_____13. I am generally satisfied with the kind of work I do in this job.

_____14. My own feelings generally are not affected much one way or the other by how well I do on this job.

_____15. Whether or not this job gets done right is clearly my responsibility.

SECTION FOUR

Now please indicate how satisfied you are with each aspect of your job listed below. Once again, write the appropriate number in the blank beside each statement.

How satisfied are you with this aspect of your job?

1	2	3	4	5	6	7
Extremely Dissatisfied	Dissatisfied	Slightly Dissatisfied	Neutral	Slightly Satisfied	Satisfied	Extremely Satisfied

_____1. The amount of job security I have.

_____2. The amount of pay and fringe benefits I receive.

_____3. The amount of personal growth and development I get in doing my job.

_____4. The people I talk to and work with on my job.

_____5. The degree of respect and fair treatment I receive from my boss.

_____6. The feeling of worthwhile accomplishment I get from doing my job.

_____7. The chance to get to know other people while on the job.

_____8. The amount of support and guidance I receive from my supervisor.

_____9. The degree to which I am fairly paid for what I contribute to this organization

____10. The amount of independent thought and action I can exercise in my job.

____11. How secure things look for me in the future in this organization.

____12. The chance to help other people while at work.

____13. The amount of challenge in my job.

____14. The overall quality of the supervision I receive in my work.

SECTION FIVE

Now please think of the other people in your organization who hold the same job you do. If no one has exactly the same job as you, think of the job which is most similar to yours.

Please think about how accurately each of the statements describes the feelings of those people about the job.

It is quite all right if your answers here are different from when you described your own reactions to the job. Often different people feel quite differently about the same job.

Once again, write a number in the blank for each statement, based on this scale:

How much do you agree with the statement?

1	2	3	4	5	6	7
Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly

_____1. Most people on this job feel a great sense of personal satisfaction when they do the job well.

_____2. Most people on this job are very satisfied with the job.

_____3. Most people on this job feel that the work is useless or trivial.

_____4. Most people on this job feel a great deal of personal responsibility for the work they do.

_____5. Most people on this job have a pretty good idea of how well they are performing their work.

_____6. Most people on this job find the work very meaningful.

_____7. Most people on this job feel that whether or not the job gets done right is clearly their own responsibility.

_____8. People on this job often think of quitting.

_____9. Most people on this job feel bad or unhappy when they find that they have performed the work poorly.

____10. Most people on this job have trouble figuring out whether they are doing a good or a bad job.

SECTION SIX

Listed below are a number of characteristics which could be present on any job. People differ about how much they would like to have each one present in their own jobs. We are interested in learning how much you personally would like to have each one present in your job.

Using the scale below, please indicate the degree to which you would like to have each characteristic present in your job.

NOTE: The numbers on this scale are different from those used in previous scales.

4	5	6	7	8	9	10
Would like having this only a moderate amount (or less)			Would like having this very much			Would like having this extremely much

____1. High respect and fair treatment from my supervisor.

____2. Stimulating and challenging work.

____3. Chances to exercise independent thought and action in my job.

____4. Great job security.

____5. Very friendly co-workers.

____6. Opportunities to learn new things from my work.

____7. High salary and good fringe benefits.

____8. Opportunities to be creative and imaginative in my work.

____9. Quick promotions.

___10. Opportunities for personal growth and development in my job.

___11. A sense of worthwhile accomplishment in my work.

SECTION SEVEN

People differ in the kinds of jobs they would most like to hold. The questions in this section give you a chance to say just what it is about a job that is most important to you.

For each question, two different kinds of jobs are briefly described. You are to indicate which of the jobs you personally would prefer--if you had to make a choice between them.

In answering each question, assume that everything else about the jobs is the same. Pay attention only to the characteristics actually listed.

Two examples are given below.

JOB A				JOB B
A job requiring work with mechanical equipment most of the day				A job requiring work with other people most of the day
1	2	(3)	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

If you like working with people and working with equipment equally well, you would circle the number 3, as has been done in the example.

* * * *

Here is another example. This one asks for a harder choice--between two jobs which both have some undesirable features.

JOB A				JOB B
A job requiring you to expose yourself to considerable physical danger.				A job located 200 miles from your home and family.
1	(2)	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

If you would slightly prefer risking physical danger to working far from your home, you would circle number 2, as has been done in the example.

Please ask for assistance if you do not understand exactly how to do these questions.

	JOB A				JOB B
1.	A job where the pay is very good.				A job where there is considerable opportunity to be creative and innovative.
	1 Strongly Prefer A	2 Slightly Prefer A	3 Neutral	4 Slightly Prefer B	5 Strongly Prefer B
2.	A job where you are often required to make important decisions.				A job with many pleasant people to work with.
	1 Strongly Prefer A	2 Slightly Prefer A	3 Neutral	4 Slightly Prefer B	5 Strongly Prefer B
3.	A job in which greater responsibility is given to those who do the best work.				A job in which greater responsibility is given to loyal employees who have the most seniority.
	1 Strongly Prefer A	2 Slightly Prefer A	3 Neutral	4 Slightly Prefer B	5 Strongly Prefer B
4.	A job in an organization which is in financial trouble--and might have to close down within the year.				A job in which you are not allowed to have any say whatever in how your work is scheduled, or in the procedures to be used in carrying it out.
	1 Strongly Prefer A	2 Slightly Prefer A	3 Neutral	4 Slightly Prefer B	5 Strongly Prefer B
5.	A very routine job.				A job where your co-workers are not very friendly.
	1 Strongly Prefer A	2 Slightly Prefer A	3 Neutral	4 Slightly Prefer B	5 Strongly Prefer B
6.	A job with a supervisor who is often very critical of you and your work in front of other people.				A job which prevents you from using a number of skills that you worked hard to develop.
	1 Strongly Prefer A	2 Slightly Prefer A	3 Neutral	4 Slightly Prefer B	5 Strongly Prefer B

JOB A				JOB B
7. A job with a supervisor who respects you and treats you fairly.				A job which provides constant opportunities for you to learn new and interesting things.
1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B
8. A job where there is a real chance you could be laid off.				A job with very little chance to do challenging work.
1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B
9. A job in which there is a real chance for you to develop new skills and advance in the organization.				A job which provides lots of vacation time and an excellent fringe benefit package.
1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B
10. A job with little freedom and independence to do your work in the way you think best.				A job where the working conditions are poor.
1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B
11. A job with very satisfying team-work.				A job which allows you to use your skills and abilities to the fullest extent.
1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B
12. A job which offers little or no challenge.				A job which requires you to be completely isolated from co-workers.
1	2	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B