Spring 2014

IT Staff Turnover Intentions, Job Modification, and the Effects of Work Recognition at Large Public Higher Education Institutions

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IT STAFF TURNOVER INTENTIONS, JOB MODIFICATION, AND THE EFFECTS OF WORK RECOGNITION AT LARGE PUBLIC HIGHER EDUCATION INSTITUTIONS

by

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(Under the Direction of Jason LaFrance)

ABSTRACT

Information Technology (IT) leaders in public higher education are under increased pressures to leverage innovations in technology to address their institution's strategic imperatives. CIOs modify jobs by increasing responsibilities or changing the tasks that IT workers perform. IT staff who experience job modification are susceptible to lower job satisfaction and increased turnover intentions. IT leaders in other industries have successfully used work recognition to improve job satisfaction but there is limited research pertaining to these conditions among higher education institutions. This study sought to determine the perceptions and effects of work recognition and job modification on the turnover intentions of IT workers employed at 71 large, publicly controlled, higher education institutions. The researcher conducted a quantitative study using structured equation modeling to measure the potential moderating effects of recognition on job satisfaction, affective commitment, and perceived organizational support as predictors of turnover intention. The researcher found that work recognition was effective at moderating the effects of responsibility increase and task replacement on job satisfaction for IT workers with respect to their preferences of work

recognition types. IT workers perceptions of the relative strength and duration of various work recognitions was also determined. The findings contribute to the study of turnover antecedents by providing new information on the relationship between extrinsic and intrinsic motivations and turnover intentions of IT workers at the institutions studied. The conclusions have implications for practice among CIOs in large public institutions regarding the importance and characteristics of work recognition as a tool for retaining IT staff.

INDEX WORDS: Job Satisfaction, Job Modification, Work Recognition, Turnover Intention, Organizational Commitment, Perceived Organizational Support, Higher Education, IT Workers.

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A Dissertation Submitted to the Graduate Faculty of Georgia Southern University in

Partial Fulfillment of the Requirements for the Degree

DOCTOR OF EDUCATION

STATESBORO, GEORGIA

2014

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Electronic Version Approved:
May, 2014

DEDICATION

"Life's battles don't always go to the stronger or faster man.

But sooner or later, the man who wins is the man who believes he can."

~ Vince Lombardi

This work is dedicated to:

My mother, Sherry A. Burrell who I can attribute my passion for servant leadership through her thoughtful teachings of patience and compassion and to always "do your best at doing the right thing";

My father, Rodney E. Burrell who instilled in me a curiosity for science, a passion for learning the unimaginable, a determination to discover truth in the unknown, and the rewards of hard work;

My children, Kathryn and Steven who were born to the digital age. May you always remember that the most powerful technology of all is "the question", to speak with your heart and listen with your eyes, and to bloom where you grow;

My girlfriend Abby - thanks for all the nudges and hugs, and the gentle reminders to get out of my computer chair and just be a dog for a while;

And most of all, to my wife and soul mate Carolyn, who lovingly raised our children and my heart, and selflessly supported me through these many years of trials, tribulations, and finally triumph. I love you. More.

Finally, the following prayer is dedicated to my grandparents who guided me on this journey:

Looking behind, I am filled with gratitude,

looking forward, I am filled with vision,

looking upwards I am filled with strength,

looking within, I discover peace.

~ Quero Apache Prayer

ACKNOWLEDGMENTS

I would like to first acknowledge the support and guidance of my dissertation committee, Dr. Jason LaFrance, Dr. Jordan Shropshire, and Dr. Lucinda Chance. Thank you for your wisdom, critical guidance, and unwavering support. In addition, I would also like to acknowledge the expert guidance and teaching of Dr. James Green, Dr. Sonya Shepard, Dr. Russell Mays, and Dr. Mohomodou Boncana. I am most grateful for your collegial approach to education, and inspired by your passion for higher learning.

Secondly, I would like to thank my fellow candidates in the education leadership cohort. I can't begin to tell you how much I learned from you over the past few years. You are all amazing professionals with marvelous talents, who possess a powerful passion for leading learning communities. Thanks for making it real and fun. I wish you all the very best and know that you will make a difference in the lives of people in ways you never imagined possible.

To my administrative assistants who helped through three graduate degrees: April Burke and Becky Kerby for your sensitivity to the demands of my position and keeping it "real", "on-time", and "on-budget"; to Theresa Kluender who mentored me to overcome myself; and Sally Hinz for knowing what's important and laughing at the rest of it. You all played an extraordinary role in helping me achieve professionally so that I could pursue a personal educational dream. Thank you.

Finally, I would like to acknowledge the support I have received from colleagues and fellow CIO's in higher education throughout the United States and Canada. There are many people I could recognize, but it is ultimately unfair to most if I attempted to list them. You know who you are. Please realize that that your encouragements were inspirational, and that your collegiality transformed temporary hardships into enduring friendships.

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CHAPTER 1

INTRODUCTION

Information technology (IT) workers are increasingly important as technology is introduced into nearly every functional aspect of organizations (Weil & Ross, 2012; Ballenstendt, 2010). U.S. News and World Report ranked four information technology jobs among the top 10 occupations for 2013 (Graves, 2012). However, compared with other professions, IT jobs are not stable or predictable (Brand, 2000; Goodwin, 2013). When asked to describe their chosen vocation, many IT professionals use phrases such as "rapidly evolving," "constantly changing," and "in permanent flux" (Fu, 2011; Gupta & Houtz, 2000; Turner,Bernt & Pecora, 2002). This instability of the IT work environment makes workers susceptible to frequent job modifications that increase their responsibilities and require new tasks that they were not originally hired to perform (Schraub, Stegmaier, & Sonntag,2011; Marks, 2007; Lee, Trasuth, & Farwell,1995). IT managers responsible for these workers find it difficult to motivate and retain IT employees amidst the pace of rapid change and heightened expectations (Smits, McLean & Tanner, 1993). Moreover, IT professionals seem quicker to change jobs than other employees when they are dissatisfied, causing further stresses on organizations (Hacker, 2003). When IT professionals do leave their jobs, their employers incur costly re-hiring expenses and substantial disruption to operations and strategic objectives (Mosley & Hurley, 1999).

Hiring and retaining IT workers is a chronic challenge for Chief Information Officers (CIOs) in higher education institutions (HEIs) (Ford & Burley, 2012). For years, CIOs have depended on quality of life factors associated with academe to offset salary differentials with the private sector (Latimer, 2002). The importance of quality of life factors among higher education IT professionals was recently confirmed by Bischel (2014) who found such factors to be more

important than compensation for retaining staff. However, other researchers have suggested that the impact of the great recession and heightened expectations of IT workers has contributed to the deterioration of work-life quality, job satisfaction, and organizational commitment signaling a looming turnover crisis for higher education IT leaders (Armstrong & Riemenschneider, 2011; Reid & Riemenschneider, 2008).

A recent study of IT staff in higher education institutions found that nearly one-fifth (18%) of IT professionals are at high risk for leaving their current positions (Bichsel, 2014). Moreover, CIO's at state public institutions may be further limited in their ability to adequately address job hygiene factors due to strict state regulations and policies that severely restrict uses of funding sources and methods in which workers can be compensated, recognized and rewarded (Rocheleu & Wu, 2002).

Despite these limitations, some CIOs in the private sector have had success in activating intrinsic motivational factors, particularly through low-cost recognition programs, to keep morale high and articulate the critical role IT plays in pulling companies out of the economic slump (Stedman, 2009). Although researchers have established that the lack of perceived recognition is a significant predictor of turnover intentions, Brun and Dugas' (2008) review of the research on recognition reveals that limited investigations have studied employee recognition as an intrinsic job satisfaction factor.

Statement of the Problem

Public higher education institutions are under increased pressures to create new efficiencies through the application of technology. These heightened expectations and limited financial resources are causing institutions to place greater responsibilities and tasks on IT workers. These conditions may lead to decreases in perceived organizational support and job

satisfaction that subsequently increase turnover intention.

The turnover of IT employees is costly and disruptive to public higher education institutions. IT leaders seeking to retain employees can make best use of their resources by applying them to retention efforts, rather than the costly process of mounting new searches to replace departed employees. While business and industry has paid additional attention to retention strategies and the quality of life in the workplace, this level of attention is relatively rare for higher education institutions. This may be due to the notion that IT leaders of public higher education institutions are constrained by limited resources and policies that inhibit their abilities to avoid job modification and address job satisfaction factors (Bichsel, 2014).

Nevertheless, higher education IT leaders need to address IT worker retention as a strategy for institutional success by managing employees' perceptions of job satisfaction that serve to mitigate turnover intentions. If CIO's respond to changing expectations and technological conditions by imposing job modifications on IT workers, they must address perceptions of organizational support to avoid job burnout among their employees. A possible solution for addressing perceptions of organizational support and improving intrinsic motivation and job satisfaction among IT workers is through the application of work recognition programs.

Purpose of the Study

The purpose of this study was to examine dominate antecedents of turnover intention, job modification, and the mediating effects of work recognition on IT staff in public higher education institutions located in the United States. A better understanding of factors contributing to turnover intentions of IT staff and the effects of recognition will inform CIOs of public HEIs how best to focus their limited resources and subsequently avoid costly disruptions to strategic agendas in their institution. Future researchers will benefit from the findings on the relationship

between recognition, job satisfaction, and turnover intentions in the population studied.

Theoretical Framework

This research proposed that in a theoretical model of job modification, job satisfaction, affective commitment, perceived organizational support, and turnover intention, recognition would mediate job modification influence on IT workers intentions to leave a job. This model was based on prior research by Shropshire and Kadlec (2011) and Shropshire, Burrell, and Kadlec (2012).

Perceived recognition in the proposed theoretical model is the degree to which the organization acknowledges the employee's efforts. Recognition can take many forms, but all forms together are believed to moderate the impact of responsibility increase and task replacement on job satisfaction, and subsequently on turnover intention.

The frequent changes that are inherent to information technology naturally drive changes in the job responsibilities or tasks performed by IT workers. These changes could come from the technologies for which they have been responsible, or from outside of the original set of technologies. Hence, job modification includes two attitudinal constructs: perceived responsibility increase, and perceived task replacement.

Perceived responsibility increase is the degree to which additional responsibilities are added to the existing workload. The changes that impact the responsibilities of an IT worker can also change the tasks that the IT worker has to perform. Perceived task replacement is the degree to which the tasks originally associated with a job are replaced with different tasks. It is theorized that an organization can possibly decrease any negative impact of responsibility increases or task replacements by recognizing the efforts of the worker.

Job modification is believed to be inversely related to job satisfaction (Shropshire, et al., 2011). This relationship is expected to be moderated by the degree of perceived recognition, the degree to which an employee feels that his or her work is acknowledged by the organization (Shropshire, et al., 2011). Low job satisfaction and low organizational commitment are included as determinants of turnover intention among IT workers. These constructs and relationships, starting with the components of job modification, are described in more detail in Figure 1.

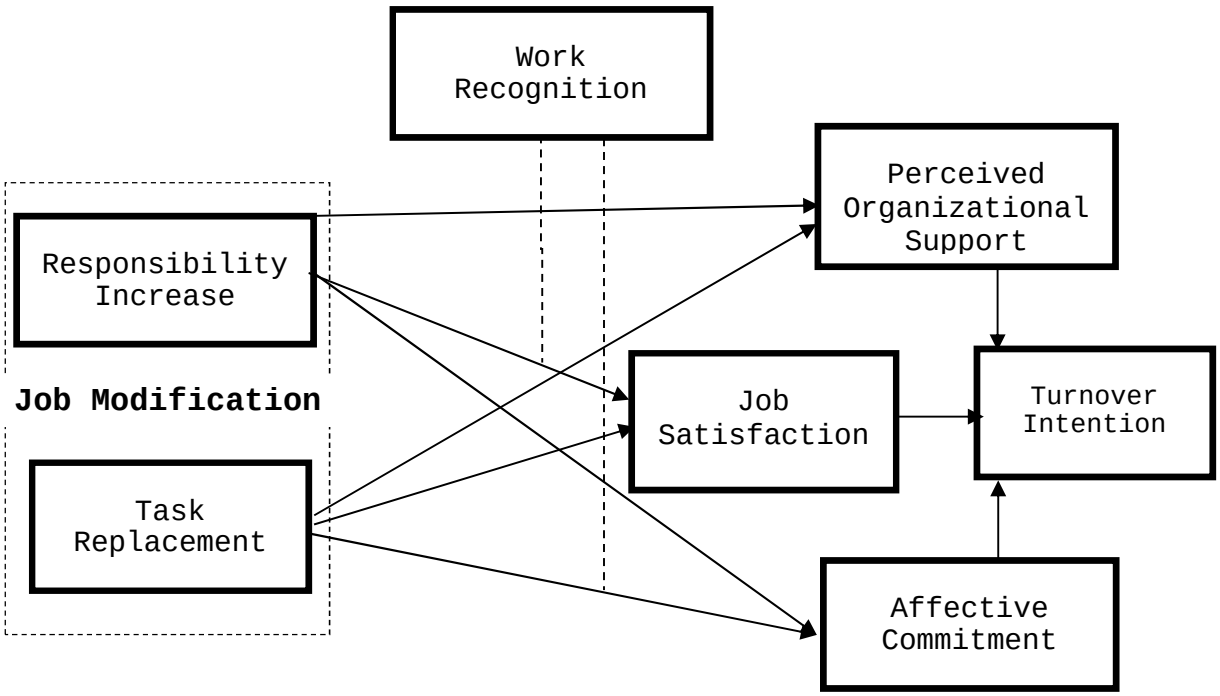

Figure 1. Theoretical Model of Job Modification, Work Recognition and Turnover Intention. This figure illustrates the relationship of exogenous and endogenous variables and the associated hypotheses and relationships among the variables in the proposed study.

Perceived organization support, affective commitment, and job satisfaction are frequently studied antecedents of turnover intention that have exhibited strong negative correlations with turnover intuition (Joseph, Ng, Koh, & Ang,2007). Empirical results from turnover studies have

shown that turnover intention is a stronger predictor of actual turnover compared to other antecedents like job satisfaction (Joseph & Ang, 2003)

Research Questions

The central question of this study is: Can public higher education CIOs use work recognition as a tool to retain IT workers who experience low job satisfaction in an environment of job modification? This broad-based question has several important components. First, do IT workers who experience job modification, perceive lower job satisfaction, lower perceived organizational support, or lower affective commitment in their current job? What forms of work recognition are perceived by IT workers to be most effective towards increasing their job satisfaction? What is the perceived duration of the benefits of work recognition among those who experience recognition? An underlying research question is whether work recognition has a negative moderating effect on job modification in a model of affective commitment, perceived organizational support, job satisfaction and turnover intentions among public higher education IT workers. An understanding of the potential moderating effects of work recognition helps answer the central question.

Significance of the Study

The research literature suggests that recognition is an understudied but important factor in the retention of IT workers in public HEIs. A better understanding of the relationships between job modifications, perceived organizational support, affective commitment, job satisfaction and turnover intentions will serve to clarify if recognition is effective towards retaining IT workers. CIOs of public HEIs will gain a better understanding of the effects of job modification and work recognition and how best to manage limited resources to avoid costly disruptions to strategic agendas in their institution. Future researchers will benefit from the findings on the relationship

between work recognition, perceived organizational support, job satisfaction, and turnover intentions in the population studied.

Methodology

This study proposed to quantitatively measure the effects of recognition on job satisfaction, affective commitment, and organizational support as predictors of turnover intention. This theoretical approach is supported by Creswell (2009), who suggests that studies that involve the identification of influencing factors, the utility of an intervention, or the understanding of the best predictors of an outcome should follow a quantitative method.

Research design. This study employed an ex post facto survey research design as described by Kerlinger (1973). Ex post facto research is systematic empirical inquiry in which the researcher does not have direct control of variables. Inferences about relationships among variables are made from any determined variations between the studied variables (Kerlinger, 1973). Specifically, this research involved the gathering of information about job modification, recognition, perceived organizational support, affective commitment, job satisfaction and turnover intentions among IT workers employed by different organizations. No manipulation of the variables by the researcher occurred and any determined differences were treated as ex post facto in nature in that they stemmed from differences in results in the measurements according to age, gender, job characteristics, job satisfaction, work recognition, and turnover intention.

Participants. The population of interest in this study consisted of adults currently employed as IT workers at the 71 large, 4-year, publicly controlled higher education institutions classified by the Carnegie foundation. The institutions in the sample appear in Appendix F. This Carnegie classification of institutions was chosen for the potentially large numbers and diversity of IT workers and the variation of IT job responsibilities in these institutions. IT workers

excluded from the study included contractors, outside consultants, and those classified as temporary laborers. These individuals were not included in this study because their employment relationship is contractual with the organization and temporary by nature.

Instrumentation. The constructs used in this study were operationalized using a mix of previously-validated and originally developed measures. Each of the measures consists of multiple items that are evaluated by using 5-point Likert scales to elicit participant perceptions that will allow frequency, central tendency, and correlative measures of the responses.

Job Satisfaction was measured using six items developed by Brayfield and Rothe (1951). Affective Commitment is operationalized using six items from Meyer, Allen and Smith's (1993) study of students and registered nurses. Turnover Intention was operationalized using items previously developed by Pejtersen, Kristensen, Borg, and Bjorner (2010) in the second version of the Copenhagen Psychosocial Questionnaire (COPSOQ II). The measures for responsibility increase, task replacement, and perceived recognition were developed by Shropshire et al. (2010).

The instrument also collected demographic and job characteristics information consisting of age, sex, number of years in current position, highest level of degree attained, and current job role information. Items pertaining to procedural justice, training, and growth opportunity, organizational rewards, perceived supervisor support, community embededness, and job embededness were collected for future research.

Procedures. A project website was developed to describe the research, pilot study Institutional Review Board approvals, benefits, procedures, ethical considerations, and privacy assurances. The email addresses of the CIOs from the institutions in the sample were identified through web-pages, published directories, and other reference materials. These CIO's received

an email describing the research, risks, and procedures. They were invited to visit the project website to register their institution's participation. The participating CIO's provided information on the number of IT workers that were invited to participate from their institution. CIO's were contacted with a second email confirming their participation and were provided additional instructions. A third email was sent to the CIO for the purposes of providing an invitation that was forwarded by the CIO to eligible participants.

Qualtrics™ (Qualtrics Labs Inc., Provo, UT) was used for the online questionnaire. The survey remained open for five weeks. Reminders and response rate updates were sent to CIO's to encourage participation at the end of the second and fourth week, and then 48 hours prior to closing the survey. At the conclusion of the survey period, participating CIOs received an email confirming that the survey is closed and thanking them for their institution's participation.

Ethical Considerations

Since this research utilized human subjects, the researcher recognized the need to proactively address psychological, financial, and social aspects of harm to participants. Ethical considerations involving voluntary participation, informed consent, confidentiality and anonymity, the potential for harm, and communicating results were addressed by the researcher. The risks associated with this research were believed to be minimal and comparable to those experienced in everyday life. Participants could discontinue or drop out of the survey at any time with no penalty. Participants were also notified that their responses are completely confidential. Finally, participants were provided reference information to institutional review board approvals and contact information of the principal investigator to address any concerns or questions about the research.

Data Analysis

A components-based approach for structural equations modeling was employed using the SmartPLS software package (Gefen, Straub, & Boudreau, 2000). Since the independent variables and the dependent variable are derived from the same source of data, a test for common methods variance bias (CMV) was conducted (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). To ensure the validity of the measures factor loadings were used to assess the convergent and discriminant validity of reflective constructs. Construct reliability was assessed by considering the internal consistency measure for each construct (Loch, Straub, & Kamel, 2003).

After confirming the validity of the instrument and constructs of the theoretical model, hypothesized direct effect paths were tested using SmartPLS. Item-construct correlations were computed to determine convergent validity (Loch et al. 2003). A series of regression equations were formed to estimate coefficients and determine significance based on bootstrap samples. Student t-tests were used to determine significance of path coefficients and sample means. The moderating effects of work recognition were examined using methods developed by Chin, Marcolin and Newsted (1996). Results from the PLS model were reported based on recommendations put forth by Chin (2010). SPSS was used to calculate descriptive statistics for participant demographics, job characteristics, and work-recognition and are reported according to APA guidelines.

Delimitations and Limitations

The study was delimited to public higher education institutions because of the impact of the economic recession on IT workers in State-controlled institutions (Keller, 2009). This study proposed a comprehensive sample rather than a random sample and data obtained from the questionnaire were self-reported perceptions. Responses from 256 individuals were obtained

from among 767 eligible IT staff at 10 of the 72 large, 4-year, publicly controlled higher education institutions. The age, education, and gender demographics for these participants is similar to other studies of higher education IT workers (Bischsel, 2014). For these reasons, the results can only be generalized to the population of which the sample is representative.

The potential for biases from the survey results may be present. Although no identifying information was requested, respondents may have been reluctant to answer questions regarding their true feelings or perceptions of the factors associated with their work climate. The IT workers may also have felt their participation in the survey was not ultimately anonymous and that their perceptions may signal messages or unintended actions to the institution's CIO.

There is limited research available on the effectiveness of employee recognition programs, and the procedures for determining the relationship of work recognition to other variables such as job modification, job satisfaction, and turnover intentions, may complicate the exploration of causal relationships among variables.

Definition of Terms

For the purposes of this study, the following terms are defined.

Affective Commitment. This phrase is the degree of psychological attachment to the organization (Meyer et al.,1993)

Endogenous Variables. This phrase is associated with a variable in a structured equation model that regresses on another variable, even if other variables regress on it. In a directed graph of the model, an endogenous variable is recognizable as any variable receiving an arrow.

Exogenous Variables. This phrase describes a variable in a structured equation model that other variables regress on. Exogenous variable is recognized in the model as having arrows

that only emanate from the variable. The emanating arrows denote which variables that exogenous variable predicts

Information Technology Employees. For the purposes of this study, *information technology employees* are the participants and include any employee in a technology services organization other than the top-ranking administrative position within a public higher education institution.

Job Modification. For the purposes of this study, *job modification* includes two attitudinal constructs, perceived responsibility increase and perceived task replacement.

Job Satisfaction. This term is defined as the degree of affective attachment to the job (Tett and Meyer, 1993).

Latent Variable. This term is defined as a variable that is not directly observed but rather inferred through observed variables in a theoretical model**.**

Organizational Commitment. This term is defined as the degree of psychological attachment to the organization (Meyer and Allen, 1991).

Perceived Organizational Support. This phrase is defined as the degree to which employees believe that the organization values their contribution and cares about their well-being (Eisenberger et al.,1986).

Perceived Responsibility Increases. This phrase means the net gains in responsibility over and above the existing workload (Fedor, Caldwell, & Herold, 2006).

Perceived Task Replacement. This phrase is the degree to which the tasks originally associated with a job are replaced with different tasks (Moore, 2000).

Perceived Work Recognition. This term is defined as employees' perceptions of the degree to which their efforts are acknowledged through a constructive reaction stemming from a judgment of the employee's contribution as a matter of work practices, and of personal investment and mobilization (Ajzen & Madden, 2004; Paquet, Gavrancic, Courcy, Gagnon, & Duchene, 2011).

Structured Equation Model (SEM). This phrase describes a statistical technique for testing and estimating causal relations using a combination of statistical data and qualitative causal assumptions. SEM models contain exogenous and endogenous variables.

Turnover Intention. This term is the degree of resolution to leave the organization (Mobley *et al.*, 1978).

Summary

This research addresses the critical need to retain IT workers in public higher education institutions. CIO's of these institutions are under increased pressures to leverage technology in support of institutional strategic objectives. IT workers are subjected to the effects of rapid technological change as well as the modifications of job characteristic which can negatively impact affective commitment and job satisfaction leading to turnover intention. CIO's in public higher education institutions are confronted by increased competition for IT workers, constrained by regulations and policies, confronted with competing strategic priorities, and limited by ongoing financial constraints (Keller, 2009). CIO's may not be getting help from their Human Resources (HR) departments either. Bichsel (2014) determined that support from HR is viewed as crucial in hiring and retaining IT staff, but fewer than half of the CIOs studied felt that HR

was supportive in hiring and retention efforts.

Prior research theories posit that employee turnover intention is influenced by two major factors, perceived desirability of movement caused by job market opportunity and motivations influencing job satisfaction. There is current popular evidence to support that job market opportunities are significantly increasing for skilled technology workers. However, the research suggests that while an understanding of job market influences and workers' perceptions of ease of movement may be useful to managers, it is not reasonable to expect that employers can influence or control the shocks of job-market factors on turnover. It is therefore more pragmatic to focus on addressing factors which affect IT workers desire to leave a job.

Prior research establishes linkages between job characteristics, affective commitment, organizational support, and job satisfaction as antecedents to turnover intention. Job and organizational factors frequently identified in the literature are: job demands, job control, social support, job content, role conflict, role ambiguity, and work exhaustion. In this context job modification and recognition are factors of job characteristics and work exhaustion that are routinely experienced by IT workers. Furthermore, employee recognition is an understudied factor of motivation and affective commitment. For IT professionals, a significant part of their motivation comes from the recognition they get from managers for accomplished work and their perception that they are an important part of the organization.

Given the importance of work recognition as an element of perceived organizational support, and the prevalence of job modification among IT workers, it is important to understand the relationship of these variables with job satisfaction, organizational affective commitment, and turnover intention. Moreover, effective recognition programs may be achieved within the operational constraints imposed on public higher education CIO's. Hence, the central question

of this study was: Can public higher education CIOs use work recognition as a tool to retain IT workers who experience low job satisfaction in an environment of job modification. A theoretical model of job modification and work recognition, job satisfaction, affective commitment was developed to address eight hypothesis related to perceived turnover intention.

A better understanding of the relationships among work recognition, job modification, job satisfaction, and turnover intention will inform CIO's in public HEIs on factors that could potentially reduce turnover of staff and avoid negative impacts to their strategic agendas. Future researchers will benefit from the findings on the relationship between recognition, perceived organizational support, job satisfaction, and turnover intentions in the population studied.

Chapter 1 presented the introduction, statement of the problem, research questions, significance of the study, definition of terms, and limitations of the study. Chapter 2 is a review of literature and research studies related to antecedents of turnover intention, job modification, and work recognition. The methodology and procedures used to gather data for the study are presented in Chapter 3. The results of the analysis related to the validity of the data collected, the theoretical model, and the established hypothesis of the study are presented in Chapter 4. The analysis, conclusions, and implications of the findings are discussed in Chapter 5.

CHAPTER 2

REVIEW OF RELATED LITERATURE AND RESEARCH

Turnover of information technology (IT) workers in public higher education institutions is a costly and disruptive phenomenon. IT managers in these institutions are limited in their ability to adequately address job hygiene factors due to strict state regulations and policies by severely restricting the source funding sources and limiting ways in which workers can be compensated, recognized and rewarded. Human Resource policies and classification systems in these institutions can also restrict managers who seek to reward performance, train employees, or otherwise create programs intended on strengthening employee motivation. The recent financial crisis combined with heightened expectations of IT workers is contributing to reduced job satisfaction and organizational commitment signaling a looming turnover crisis for higher education IT leaders.

Chapter 2 provides an extensive review of the literature and research related to antecedents of turnover intention, job modification, and work recognition among IT workers. This literature review examines the current status of IT workers in higher education and antecedents of turnover intention. It seeks to identify opportunities for exploring useful constructs for moderating turnover intention among public higher education IT workers based on a broad body of known research.

The review begins by broadly examining IT worker conditions and turnover in higher education institutions. The scientific basis for these conditions is explored through the extent research of the occupational characteristics of IT workers. Next, the research on IT worker turnover is reviewed and narrowed to four dominant antecedents. Each of these antecedent factors is examined from a theoretical context and the extant literature is reviewed. Finally,

conclusions are drawn and gaps in the knowledge identified that suggest possibilities for research towards improving IT worker retention.

Literature Search

Searches using keywords “Information Technology Personnel”, “Job Satisfaction”, “Recognition”, “Rewards”, “Turnover”, “Job Modification”, “Responsibility increase”, “Job Replacement”, “Motivation”, “Rewards”, “Higher Education”, “IT”, and “Personnel Retention” were performed against the following sources: Academic Search™ Complete, Computer Science Index, EBSCOhost, ERIC, Information Science & Technology Abstracts™, PsycARTICLES, PsycINFO, Science & Technology Collection, University System of Georgia Galileo, and ProQuest. Similar searches were performed on Google Scholar and a weekly Google Scholar alert was utilized using the key words: "Information Technology", “Personnel”, and “Turnover” to ensure that the latest publications meeting these search criteria were evaluated. Finally, a search of the ProQuest Dissertations and Theses database using keywords “Information Technology”, “Recognition”, “Job Modification” and “Job Satisfaction” produced relevant dissertations. Finally, the Inter-Nomological Network (INN) service http://inn.colorado.edu was used to search for research variables and constructs “turnover”, “recognition”, and “job modification” resulted in six usable research studies. Searches resulted in 408 documents consisting of a mix of popular literature, books, thesis papers, dissertations and refereed journal articles.

IT Worker Turnover in Higher Education IT Organizations

Hiring and retaining IT workers is a chronic challenge for higher education institutions. This stems, in part, from the shortage of qualified IT workers (Ringle, 2000, Eleey & Oppenheim, 1999). Moreover, institutions are increasingly dependent on IT for strategic

initiatives, instructional delivery, research, and administration (McClure, Smith & Sitko, 1997; EDUCAUSE, 2000; Grajek & Pirani, 2012; Ingerman & Yang, 2010; Bichsel, 2014). When experienced IT employees leave, the institution can suffer a significant loss of institutional memory and productivity. As a reflection of its importance, IT staff recruitment and retention has been among the top issues identified by higher education leaders (Latimer, 2002).

Employee retention problems have continued despite the global economic slowdown and poor job market conditions, and IT worker turnover remains a significant problem for higher education institutions (Nyberg & Trevor, 2009). According to Coombs (2009), high turnover may be related to insufficient attention to the job resources and demands that are likely to retain staff rather than salary and flexible work hours. For years, colleges and universities have relied on the quality of work life factors associated with academe to help offset the salary differential between higher education and the private sector offering better employee benefits, job interest, autonomy, and flexibility among job and organizational attributes (Eleey & Oppenheim, 1999). Latimer (2002) suggested that the quality of work life effect is waning as the salary gap widen. The proliferation of new technology and responsibilities, has led generally to a culture of "doing more with less," resulting in the erosion of the value of working in higher education (Bichsel, 2014). Higher education IT leaders are increasingly competing with corporations and private business sectors for top IT workers (ITAA, 2000). CIOs in all industries will find it increasingly difficult to replace retirees and retain younger workers as increased competition for IT skills leads to higher pay and opportunities for advancement for skilled IT workers who are willing to switch companies (Coombs, 2009; Marsan, 2010).

Higher education has historically attracted talented IT people by providing the opportunity to work at the leading edge of technology. With diminished budgets and the advent

of cloud computing, innovation is increasingly external to the institution, and this has an effect of pulling talented IT professionals away from the academy (Eleey & Oppenheim, 1999). IT workers at all levels have an increased likelihood of seeking opportunities outside of their current institution. The implications of these findings are that higher education institutions should pay increasing attention to their retention strategies and factors that affect both the quality of work life and compensation structures.

In order to recruit and retain IT talent, government agencies have attempted to make full use of their assets, including the promotion of job stability and security, flexibility, and social and civic service orientation. Many government IT organizations seek alternative strategies to reduce their employee turnover rates (Allen, Armstrong, Reid, & Riemenschneider, 2008; Kim, 2012). Competitive salaries, expanded professional development opportunities, additional staff positions, and flex time are among the top factors identified by CIOs for maintaining an adequate IT workforce (BichSel, 2014). Surveys of top IT officials in 49 states showed that state governments have made changes in job classification and compensation systems to retain IT employees. Some of the other human resource management changes made in state governments include salary increases, bonus programs, enhanced benefit program, employee development programs, alternative work schedules, telecommuting, and enhanced training (Henryhand, 2010).

Employees desire a compensation system that they perceive as being fair and commensurate with their skills and expectations (Berry, 2010; Howard & Cordes, 2010). Pay therefore is a major consideration in an organization because it provides employees with a tangible reward for their services as well as source of recognition and livelihood (Abdullah, Bilau, Enegbuma, Ajagbe, Ali, & Bustani, 2012; Belcourt & Snell, 2005). However, public higher education institutions are restricted in the kinds of compensation and recognition that can

be given and are prohibited from using tools available to IT leaders in private organizations. Higher education human resources policies often do not allow IT departments to meet salary requirements of existing or potential qualified applicants even when salary differences are minimal. These practices continue, even in the face of substantial costs of replacing an IT worker (Latimer, 2002).

To complicate matters, higher education work environments are characterized by severe budget constraints and reductions that lead to furloughs, pay-cuts, hiring freezes, and layoffs. Bischel (2014) recently found that more than 50% of the higher education CIO's surveyed were unable to create the needed IT positions and 25% had suspended hiring for open IT positions. Training and travel budgets are also on the chopping block because professional development is too often seen as a perk when it should be seen as essential investment in the intellectual capital of the organization. This is true in every professional field, but is perhaps more acute in IT where change is rapid and workers skills can become antiquated quickly (Claffey, 2009).

These conditions are causing IT leaders to modify jobs, asking IT workers to take on new tasks and increased responsibilities. These pressures, coupled with expected enrollment increases, will put additional pressures on IT workers. Moreover, many institutions have reduced IT staff numbers as part of cutting budgets, leaving fewer people to do the same or more work. Higher education CIOs, constrained by limited resources, restricted by policies, and challenged to deliver services that directly support their institutions' strategic priorities must make the most out of the human resources they have (Heller, 2012).

Succinctly stated, IT leaders are being asked to accomplish much more with much less. In light of these challenging conditions, it is prudent to examine the theoretical constructs and extant research of the occupational characteristics and factors leading to IT worker turnover.

Information Technology Job Characteristics

Of particular interest to both IT management and researchers is research on occupational characteristics that describe the field of IT careers as identified in prior studies (Moore, 2000; Rutner, Hardgrave, & McNight, 2008). Compared with other disciplines, the information technology space is not stable, predictable, or reliable (Brand, 2000). When asked to describe their chosen vocation, many IT professionals use phrases such as "rapidly evolving," "constantly changing," and "in permanent flux" (Benamati & Lederer, 2001; Fu, 2011; Gupta & Houtz, 2000; Turner et al., 2002). This is due to the continued reliance on and development of IT innovations and the subsequent rapid obsolescence of platforms and systems (Furneaux & Wade, 2011; Vossen & Westerkamp, 2008). This phenomena of rapid IT innovation has a compounding effect on the pace of change and development of IT capabilities (Moore, 1965; Small & Vorgan, 2008). New microchips are immediately put to use to creating the next generation of more powerful processors. Highly efficient virtualization platforms free up server space for more sophisticated applications. Improved wireless communication protocols stimulate development of advanced cellular handheld devices. Advances in data storage allow for larger, more complex "big data" databases, which drive complex business intelligence applications. This rapid adoption and adaptation of information technology innovation have autocatalytic properties which increase the velocity of development (Kirkpatrick, 2006; Trembly, 2009).

Organizations harness the most promising and innovative technologies in order to build a competitive edge (Ford, 2009; Kirsner, 2002). To remain competitive, enterprises acquire advanced solutions and retire legacy tools on an ongoing basis (Almonaies, Cordy & Dean, 2010; Nah & Delgado, 2006; Brodie & Stonebraker, 1993). Average system lifecycles have shortened considerably in the last decade (Flinders, 2008; Slade, 2007), with many firms

implementing revolutionary changes every three or four years (Zhang, 2011). Alternatively, organizations may be forced to adopt new technologies in order to catch up with their competition, merge with other firms, or interact with partners in their value chain (Couie, 2010).

Businesses select technological advances because they provide advantage (Kolbasuk, 2004). Because these acquisitions are roughly synchronized with the release of new innovations, the rate of technology churn is also increasing (Kirkpatrick, 2008; Wilder & Angus, 1997). The rapid obsolescence of technology quickly turns relatively new platforms into legacy systems. This process of technology transition is expensive in terms of interruptions (Maier, 2005), acquisition costs (Fontana, 2003), organizational changes (Romero, 2009), and integrated systems adjustments (Dudley, 2005).

The ability to effectively implement and manage systems within a business organization is increasingly dependent on IT professionals with the requisite skill-set and the time to commit to new projects (Evans, 2006; Smith et al., 2004). The pressure to meet these expectations and the condition of constant change weigh heavily on human resources. Standley (2006) confirmed that there are extrinsic factors impacting job satisfaction and turnover among IT workers including demands for constant innovation and rapid deployment of new technology and information.

In a perfect world, businesses would augment their IT workforce to match changes in project and system demands. Unfortunately, many firms increase service commitments without making appropriate investments in IT personnel (Bichsel, 2014; Giusti, 2011; Thibedeau, 2011; von Urff Kaufeld & Freeme, 2009). Staff availability is especially important if a firm increases its range of information services without reducing or simplifying its current offerings. Unfortunately, many firms upgrade their systems and platforms without making appropriate

investments in their IT workforce (Gunn, 2011; Maier, 2005). Budget shortfalls (Strohmeyer, 2011), hiring freezes (Rubin, 2011), economic uncertainties (Beach, 2011), and the inability to find and attract new talent can impede the development of human resources (Lang, 2011; Lastres, 2011). As a result, the burden is placed on the shoulders of existing employees.

Moreover, while the expectations of IT workers are rising, companies are cutting IT spending by eliminating merit raises and leaving jobs unfilled while companies continue to press forward high-value technology projects with fewer IT workers (Stedman, 2009). Program elimination, mergers, furloughs, reductions in workforce, spending cuts, outsourcing, and reliance on temporary contractors are among the other conditions that have stressed IT workers (Hoffman, 2003).

These conditions generally mean that existing employees must take on increased responsibilities in addition to their regular duties (Levy, 2006; Petitta & Vecchione, 2011). This adds up to a significant increase in workload (Ballenstedt, 2010; Newton, 2011). Further, those who implement and administer new systems must rapidly transition into new roles and duties (Garretson, 2010; Marsan, 2011). When organizations expand their portfolio of information services without increasing their labor pool, their IT workers are forced to take on new responsibilities in addition to their current duties (Armour 2003; King & Bu 2005). This may be reflected in any number of different scenarios. For example, if an organization decides to integrate smartphone applications into their existing infrastructure, its web developers will take on a significant increase in workload. Many will be forced to work additional hours by staying late, arriving early, or working on weekends until the web presentation is adapted to handheld devices.

A second example of increased responsibility involves organizational growth without parallel increases in IT department headcount. Even though new services aren't necessarily being provisioned, work volume will increase. A proportional increase in service request tickets will find the help desk, extending the current workload of tech support personnel. Finally, structural changes such as layoffs, mergers, contract labor cancellations, and insourcing may also contribute to work increases among IT professionals (Ihlwan & Hall, 2007; King, 1998).

Besides working harder and putting in more hours, IT professionals may find that the tasks they were originally hired to perform have been replaced with alternative assignments (King & Bu, 2005). When new information technologies are installed, an IT worker's original role may be completely reinvented (Raghavan et al., 2008; Shoop, 2010). Rapid changes in hardware and software platforms, adoption of new technology and retirement of legacy systems mean that employees must learn to perform new tasks and discontinue the work they were originally hired to perform or risk being replaced or out-sourced (Krishnan & Singh, 2010). Hence, an IT worker can also be faced with significant changes in assigned job tasks.

Job task replacement can occur when legacy systems are shelved to make room for newer, more innovative technologies (Stark, 2006). For instance, when an organization decides to implement a single, comprehensive enterprise information system, older, disparate tools will be phased out. Those who previously managed isolated databases and applications may find themselves either working on the new system or supporting different information services altogether.

To compensate for these factors, IT workers today must acquire new technical skills while also possessing the ability to understand and solve complex business problems (Maches, 2010; Chang et al., 2011). For example, recent innovations in cloud computing require a shift in

the operational skill sets of IT workers from internally focused system services to more holistic systems responsibilities oriented around delivering business value instead of developing system infrastructure.

Job Characteristics Theory. Job characteristics theory provides a contextual framework for understanding the organizational conditions impacting IT workers. Job characteristics have been identified in the research literature as task conditions that affect the perceived prosperity of individuals in their work (Faturochman, 1997). Faturochman's work built upon the foundational research on job characteristics conducted by Hackman and Oldham (1976) who's widely accepted Job Characteristic Model described five core job characteristics: skill variety, task identity, task significance, autonomy, and feedback which relate to the motivation and satisfaction of personnel (Hackman & Oldham, 1976). Other job characteristic factors frequently identified in the literature are: job demands, job control, social support, job content, role conflict, and role ambiguity (Korunka, Hoonaker, & Carayon, 2008; Carayon et al., 2000; Karasek, 1979; Richter & Hacker, 1998; Theorell & Karasek, 1996). Job characteristics can lead workers to experience the meaningfulness of work, personal responsibility, and knowledge of results which collectively have a positive relationship with job satisfaction (Faturochman, 1997).

We can clearly see from the description of IT workers in modern organizations that they are subject to changing job characteristics relating to skill variety, job demands, job control, and role ambiguity. Hence, the impact of job modification has potential significant relevance for IT workers because of the increased job demands placed upon them and the subsequent potential for work exhaustion.

IT Worker Turnover

Turnover is one of the most researched phenomena in organizational behavior (Price, 2001). Turnover is defined as the individual movement across the membership boundary of an organization (Price, 2001; Thwala et al., 2012). In general, turnover is said to occur when an employee voluntarily leaves an organization.

Although researchers want to ideally understand turnover behavior, in reality, it is difficult to empirically investigate actual turnover. Instead, researchers typically study current employees and ask them about their intentions to quit (Lacity, Iyer, & Rudramuniyaiah, 2008). The notion of focusing on intentions rather than behavior is rooted in Ajzen's Theory of Planned Behavior, one of the best empirically supported theories of motivation (Ajzen, 1991). In short, this theory focuses on behavioral intentions to understand the link between attitudes and behavior. According to this theory, intention is the cognitive representation of a person's readiness to perform a specific behavior, and is considered to be the immediate precursor of behavior (Ajzen, 1991). Empirical results from turnover studies have supported the assertions that turnover intention is a stronger predictor of actual turnover compared to other antecedents like job satisfaction (Joseph & Ang, 2003). Hence, turnover intention refers to employees' deliberate and conscious intention to look for a new job or to voluntarily leave a current job (Mobley, Horner, & Hollingsworth, 1978).

Research on turnover in the IT work force has been conducted since the late 1960's with most studies examining turnover intention as a result of individual factors such as employee demography, job dissatisfaction, or lack of organizational commitment (Ghapanchi & Aurum, 2011). The first review of turnover studies among IT personnel appeared in 1977 (Willoughby, 1977) and the most recent in 2011 (Ghapanchi & Aurum, 2011). Recent studies have begun

focusing on at-risk populations of IT workers such as in government (Diala, 2010; Henryhand, 2010; Kim, 2012), and in countries where IT workforce has grown significantly (Deepa & Stella, 2012; Lubienska & Wozniak, 2012; Abdullah et al., 2012; Dua et al., 2012). This body of research has provided valuable insights into why IT professionals intend to leave their jobs. However, it does not explain actual turnover patterns. Longitudinal studies of turnover in non-IT contexts contradict previous research by asserting that intent to turnover does not always predict actual turnover behavior (Farkas & Tetrick, 1989; Johnston et al., 1993; Kirschenbaum & Weisberg, 1990; Vandenberg & Nelson, 1999).

Perceived ease of leaving a job. Research in psychology and organizational behavior implies that actual turnover is strongly influenced by internal labor market attributes such as promotability, wage levels, skills demand, and external labor market attributes such as mobility, and availability of jobs (Hom & Kinicki, 2001; Trevor, 2001; Kirschenbaum & Mano-Negrin, 1999). The importance of labor market parameters in influencing actual turnover patterns has also been suggested by Cappelli (1995), Steel and Griffeth (1989), and Carsten and Spector (1987) and (Ang & Slaughter, 2004). Trevor (2001) reexamined March and Simon's (1958) seminal studies of job market effects on turnover finding that job satisfaction has a stronger negative correlation with turnover intention when there are greater opportunities to change jobs. Trevor (2001) also concluded that high performing and highly educated employees were more likely to perceive ease of movement. Other studies have found that the effects of job offers and prevalence of opportunity in the marketplace may outweigh job satisfaction in turnover intention models (Lee et.al. 2008).

Recent studies have been based on theories that attempt to integrate labor market attributes with job satisfaction models. These theories posit that employees' decision to resign is

influenced by two factors: their "perceived ease of movement", which refers to the assessment of perceived alternatives or opportunity and "perceived desirability of movement" or motivations influencing job satisfaction (Trevor, 2001; Morrell et al., 2004; Abdullah et al., 2012). While an understanding of job market influences and workers' perceptions of ease of movement may be useful to managers, it is not reasonable to expect that employers can influence or control the shocks of job-market factors on turnover (Holtom, Mitchell, Lee, & Inderrieden, 2005). For instance, shocks of unsolicited offers of pay increase or better job opportunities in a competitive labor market may trigger turnover. Even so, Holtom et al. (2005) found that job satisfaction mediates the effects of such shocks on leaving. These findings suggest that a perception of ease of movement does not replace job satisfaction as a predictor of voluntary turnover, but instead is a complementary construct.

Perceived desire to leave a job. Research interests to provide insights into minimizing turnover have resulted in the proposal of many constructs and models in an effort to better understand the perceived desirability of movement. Numerous studies of job satisfaction and affective commitment have been linked to turnover intention (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Thatcher, Stepina, & Boyle, 2003; Reid, Allen, Armstrong, & Riemenschneider, 2008). These studies have consistently determined that job satisfaction has a significant and positive impact on affective commitment (Tett & Meyer, 1993; Meyer et al., 2002; Patrick & Sonia, 2012). Amongst the components of job satisfaction, the highest correlations with affective commitment were related to salary, benefits, fair treatment, opportunity for advancement and supervision (Patrick & Sonia, 2012). The most important job and organizational factors identified in the literature are: job demands, job control, social support, job content, role conflict, and role ambiguity (Carayon et al., 2000; Karasek, 1979;

Richter & Hacker, 1998; Theorell & Karasek, 1996).

More recently, a meta-analysis of thirty-three studies conducted by Joseph et al. (2007), using methods developed by Hunter and Schmidt (1990), found 15 antecedents with strong negative corrected estimates of the population correlations (ρ) associated with turnover intention among IT workers. Of these, job satisfaction (ρ = -.53, $p < 0.05$), affective commitment (ρ = -0.46, $p < 0.05$), work exhaustion (ρ = 0.45, $p < 0.05$), and fairness of rewards (ρ = -0.38, $p < 0.05$) exhibited the strongest corrected estimates of the population correlations. These four factors reflect similar key attributes of IT job characteristics previously described in this paper and, in particular, lend increased credibility to the statistical strength reported by Joseph et al. (2007). The rest of this chapter will explore these four dominant antecedents of IT turnover intention in more detail.

Job Satisfaction

Based on Joseph et al.'s (2007) findings, job satisfaction exhibited the strongest negative correlation (ρ = -.53, $p < 0.05$) with turnover intention among IT workers. A popular definition of job satisfaction is the degree of affective attachment to the job (Tett and Meyer, 1993). Job satisfaction can also be defined either as the overall or the general job satisfaction of an employee, or the satisfaction with certain facets of the job, such as the work itself, co-workers, supervision, and pay, working conditions, company policies, procedures and opportunities for promotion (Smith et al., 1969). Job satisfaction is an indicator of employees' psychological health and well-being (Haccoun & Jeanrie, 1995).

The frequently cited classic study of worker satisfaction is Herzberg, Mausner and Snyderman's (1959) research entitled, "The motivation to work". This research serves as a basis for understanding that when extrinsic hygiene factors for preventing job dissatisfaction are

combined with intrinsic motivation factors that enhance job satisfaction, employee's motivation, attitudes, and turnover intentions are positively influenced (Herzberg et al., 1959). Research has also closely linked intrinsic motivation factors to the degree to which an employee experiences positive internal feelings when working effectively on the job (Hackman & Oldham, 1975). Further, a meta-analysis of motivation literature by Eby, Freeman, Rush and Lance (1999) found support for intrinsic and extrinsic factors mediating job satisfaction and affective commitment.

Research confirms a relationship in which job satisfaction leads to work-related outcomes (Iaffaldano & Muchinsky, 1985; Judge et al., 2001). In general, early studies have found that a significant portion of variance in turnover behavior is explained by varying levels of satisfaction (Hom & Griffieth, 1991; Lee et al., 1999). Moreover, job satisfaction is a predecessor of organizational outcomes including attendance at work, tardiness, intention to remain in the organization, motivation to transfer learning, turnover intention, and actual turnover (Brown 1996; Egan et al.,2004; Tett & Meyer, 1993).

The importance of job satisfaction as a key attitudinal variable leading to intention to leave a job is well documented in the literature (Abelson, 1987; Arnold & Feldman, 1982; Baroudi, 1985; Bluedorn, 1982; Dougherty, Bluedorn, & Keen, 1985; Michaels & Spector, 1982; Price, 1977). A comprehensive meta-analysis conducted by Griffeth, Hom & Gaertner (2000) confirmed the important role of job satisfaction on turnover intention. Low job satisfaction was found to be a significant predictor of turnover intention and turnover in the widely accepted findings by Mobley, Horner and Hollingsworth (1978) and later confirmed in subsequent studies of job satisfaction (Angle & Perry, 1981; Bedeian & Armenakis, 1982; Bannister & Griffeth, 1986; Hom, Caranikas-Walker, Prussia, & Griffeth, 1992; Egan et al., 2004; Wright & Bonett,

2007). The research supports the conclusion that individuals who become disenchanted with their jobs will eventually leave (Keaveny & Nelson, 1993; Shore & Martin, 1989).

Unfortunately, there is relatively little research specific to IT workers that examine job satisfaction and the relationship between extrinsic hygiene factors and intrinsic motivations (Pinder, 1998; Ambrose & Kulik, 1999). Tan and Igbaria (1994) found that when intrinsic motivation factors such as achievement, recognition, responsibility, advancement and the work itself are high, IT workers were likely to continue in their current job. Another foundational study conducted by Moore (2000) found that poor job hygiene factors coupled with role ambiguity and conflict, lack of autonomy, and lack of rewards all contribute to technology professionals' increased intentions to leave a job. Thatcher, Liu, Stepina, Treadway, and Goodman (2006) studied and validated eleven job constructs among public IT workers including: autonomy, task identity, feedback, task significance, task variety, pay satisfaction, supervisory satisfaction, intrinsic motivation, job satisfaction, affective commitment, and turnover intent. This study emphasized findings that intrinsic motivation positively influences workplace attitudes and has a mediated influence on turnover intent (Thatcher et al., 2006). More recently, a higher education IT staff ranked monetary compensation seventh behind factors such as benefits, quality of life, work hours, and opportunity to build training skills (Bichsel, 2014). These research findings suggest that the management of both extrinsic hygiene and intrinsic motivation factors are important to IT worker job satisfaction and retention.

Affective Commitment

The second dominate antecedent of IT worker turnover intention found by Joseph et al. (2007) was affective commitment (ρ = -0.46, $p < 0.05$). Affective commitment is the degree of psychological attachment to the organization (Meyer et al.,1993). Because of its pervasiveness in

behavioral research, affective commitment has become a relatively mature concept within and outside of the information technology field. The antecedents and consequences of affective commitment have been tested and confirmed in a number of previous studies (Eby & Freeman, 1999; Reid & Allen, 2006; Patrick & Sonia, 2012). The research suggests that an employee commits to the organization because they "want to". Affectively committed employees are characterized as having a sense of belonging and identification which increases their involvement in the organization's activities, their willingness to pursue the organization's goals, and their desire to remain with the organization (Mathieu & Zajac, 1990).

Affective commitment has also been linked to a number of outcomes including employee retention, job performance, work quality, and personal sacrifice on behalf of the organization (London, 1983). The intuitive notion that job satisfaction affects intention to leave primarily through its effect on organizational commitment is contradicted by findings that both job satisfaction and organizational commitment directly contribute to turnover intentions (Dougherty et al., 1985; Michaels & Spector, 1982).

Low affective commitment has been linked with negative outcomes. Research shows that when affective commitment decreases, employee detachment increases (Pepe, 2010). Based on the extent of mental separation, a number of behavioral outcomes may ensue. For instance, affective commitment has consistently been supported as an antecedent of absenteeism and turnover (Meyer & Allen, 1997).

Many studies have reported a significant association between organizational commitment and turnover intention revealing a strong negatively correlated relationship (Ferris & Aranya, 1983; Hom & Griffieth, 1991; Mowday et al.,1979; O'Reilly & Chatman, 1986; Steers, 1977; Stumpf & Hartman, 1984; Weiner & Vardi, 1980). It has also been reported that organizational

commitment is more strongly related to turnover intention than job satisfaction (Baroudi, 1985). More specifically, the relationships between affective commitment and turnover intentions also holds within the IT field (Joseph et al., 2007).

In developing models of affective commitment, Meyer and Allen (1991) drew largely on the conceptualizations of Mowday et al. (1982), which was inspired by seminal research conducted by Kanter (1968). Empirical studies have subsequently confirmed the important role of organizational commitment in the turnover process (Baroudi, 1985; Blau & Boal, 1987; Cotton & Tuttle, 1986; Sjoberg & Sverke, 2000). Some of the determinants of affective organizational commitment include organizational rewards, procedural justice, job satisfaction, and supervisor support (Meyer & Allen, 1997).

Work Exhaustion

The third strongest correlation of IT worker turnover intention found by Joseph et al. (2007) was with work exhaustion (ρ =0.45, $p < 0.05$). Except for the early work of Pines et al. (1981), nearly all work exhaustion research has utilized the Maslach and Jackson conceptualization and has focused on emotional exhaustion in human service work (Shih, Jang, Klein, Wang, 2013). Relatedly, Maslach and Jackson (1981, 1986) define burnout as a response syndrome of emotional exhaustion, depersonalization (negative, callous, or excessively detached behavior toward others), and reduced personal accomplishment. In this context, work exhaustion is often used synonymously with job burnout (Moore, 2000) and the term job burnout in the research literature has come to be associated with the emotional exhaustion experienced by people in human service professions, primarily health care, social services, criminal justice, and education (Kilpatrick 1989).

While Maslach and Jackson's model (Maslach & Jackson,1981) identified three

dimensions of burnout: emotional exhaustion, depersonalization, and reduced personal accomplishment, Cordes and Dougherty (1993) suggested that a two-factor model of burnout utilizing only exhaustion and disengagement might be more appropriate given their conclusion that personal accomplishment is better conceptualized as a personality factor rather than a symptom of burnout. Bakker, Demerouti, and Verbeke (2004) and Schaufeli and Bakker (2004) also found support for the two-dimension burnout construct.

The literature reveals that job burnout and emotional exhaustion are identified as powerful factors that studies have repeatedly identified as significantly correlated with job satisfaction (Burke & Greenglass, 1995; Maslach & Jackson, 1986; Pines, Aronson, & Kafry, 1981; Wolpin, Burke, & Greenglass, 1991); reduced organizational commitment (Jackson, Turner, & Brief, 1986; Leiter & Maslach, 1988; Sethi, Barrier, & King, 2004); and high turnover and turnover intention (Firth & Britton, 2011; Jackson et al., 1987; Pines et al., 1981). Job burnout is linked to ailments including depression, physiological problems and family difficulties (Cropanzano, Rupp, & Byrne, 2003). Burnout may even hamper an employee's capacity to provide contributions that make an impact at work (Schaufeli, Bakker, & Van Rhenen, 2009).

Recent studies have demonstrated that burnout is not limited to just human services occupations and that IT professionals are particularly vulnerable to burnout (Armstrong & Riemenschneider, 2011; Carayon et al., 2006; Gallivan, Truex, & Kvasny, 2004; Kim & Wright, 2007; Moore, 2000; Rigas, 2009; Sethi, Barrier, & King, 2004). Hence, exhaustion has become a recurring theme in the IT literature with research that links exhaustion to turnover intentions and turnover (Kim & Wright, 2007; Moore, 2000; Moore & Burke, 2002; Pawlowski, et al., 2004). IT professionals experiencing exhaustion are expected to report a higher propensity to leave the job (Moore, 2000). It also has been suggested that the first thing most people consider

when they encounter exhaustion is changing jobs (Leatz & Stolar, 1993).

The research literature reveals that there are strong relationships between IT job demands, job satisfaction, emotional exhaustion, and turnover intention (Kalimo & Toppinen, 1995; Maudgalya, Wallace, Daraiseh, & Salem, 2006, Korunka, Hoonakker, & Carayon, 2007). Specifically, Moore (2000) found that work overload is attributed to insufficient staff and resources and constant change as the primary sources of work exhaustion among 270 IT workers in various U.S. industries. Moreover, turnover intentions increase among exhausted IT employees who perceive their exhaustion to be caused by persistent unreasonable workloads (Cherniss, 1993).

Job Modification

The review of job characteristics literature revealed the challenging conditions leading to the modification of job roles afflicting IT workers. This modification of jobs is a dimension related to IT worker exhaustion that is described in the popular literature but understudied in the research. Job modification is the combination of technological and organizational forces on job characteristics that invoke responsibility increases and changes in assigned tasks. Because IT work is characterized by the rapid pace of technological advancement and associated environmental changes, workers are susceptible to job modification. In this context, it is possible that workplace dynamics may force IT workers to take on increased responsibilities and learn new tasks. For instance, a systems administrator may be asked to assist in security administration in addition to their regular work. Not only does the administrator work harder, she/he must learn the new tasks and take on increased responsibility. In such circumstances, the employee is expected to make significant sacrifices for the organization.

Perceived increase in responsibilities. Perceived responsibility increases are net gains

in responsibility over and above the existing workload. Because of the change that is inherent to information technology, there would naturally be changes in the responsibilities of IT workers. Responsibility increases may be manifested in various forms, depending on the nature of an employee's position (Lee et al.,1995; Marks 2007; Schraub et al.,2011). They are the result of mismatches between required labor inputs and available personnel (Fugate et al.,2010; Milliken et al.,1990). These shortages are caused by reductions in force or increases in business volume (Smith, 2009).

Events such as mergers, acquisitions, divestitures, restructuring, and economic slowdowns may lead corporations to reduce their expectations of their labor needs (Ashford, 1986; Rafferty & Restubog, 2009). If available human resources are found to exceed current requirements, organizations may downsize their workforce. In this case, responsibility increases occur if too many employees are dismissed or hiring freezes are imposed. If the severity of the staffing reductions exceeds the reduction in services requirements, remaining employees will be forced to shoulder a larger share of the burden (Armstrong-Stassen & Schlosser, 2008). For instance, following an organizational restructuring, institutional data centers may be combined in order to reduce overhead. Rather than retain duplicate data center managers, technicians, and engineers, a portion the IT staff may be dismissed. This would lead to responsibility increases among the remaining IT professionals. Even if the remaining IT workers still perform the same tasks, each employee's workload would increase because of the expanded operations in the combined data center.

Besides workforce reductions, responsibility increases may be caused by business growth. Organizations expand to take advantage of market opportunities. However, not all facets of the company will grow evenly. For instance, if the service and sales divisions expand

without parallel increases in help desk support, technical support team members will be forced to work longer hours. Even within a department, uneven growth may cause problems. Business processes may exceed personnel capacity. For instance, IT staffing may not keep up with investments in IT infrastructure or increased service commitments.

Task replacement. The changes that impact the responsibilities of an IT worker can also change the tasks that the IT worker has to perform, altering the IT worker's role. Hence, perceived task replacement is the degree to which the tasks originally associated with a job are replaced with different tasks (Moore, 2000). It is rare that an IT worker would perform the same job over the course of his or her organizational tenure (Day & Willmott, 2005). This is especially true in the current business environment. Organizations must adapt in order to remain competitive. They must find a way to deliver the products and services customers want. In doing so, they change their business processes (Ferris, 1982). This simultaneously creates new roles and renders old work functions unnecessary (Benamati & Lederer, 2001; Bettencourt & Gwinner 1996; Holton, 2006). If they wish to remain with the organization, employees must adapt by performing the work which the organization needs (Benamati & Lederer 2001; Jimmieson, Terry, & Callan, 2004; Lee et al.,1995). Hence, the essence of task replacement is a process in which employees must learn new skills in performance of new functions (Rong & Grover, 2009; Rosse, 1988).

Task replacement may be caused by a number of stimuli of organizational and technological origin (Fugate et al., 2003; Griffeth et al.,1999). For instance, administrative factors such as mergers, take-overs, workforce reductions, outsourcing, insourcing, and spinoffs can force the obsolescence of an employee's role within the organization while creating new needs. Likewise, technology can cause changes in job requirements. Task replacement may also

be the result of legacy system retirement (Gentry, 2008), promotion (Mandhanya & Shah, 2010), project completion (Freeman, 2010), reduced headcount or human resources redeployment (Gallagher et al., 2010). For example, an employee who was originally hired to code web applications may have morphed into the role of smart phone applications developer. The change in tasks may be gradual or immediate. Within a few months, the modern IT worker may be expected to transition into a wholly separate function. These changes may be permanent or temporary.

A combination of technological and organizational forces may divert IT workers into roles that are different from those which they were originally hired to perform. The adoption of new information tools and technologies may automate old tasks while freeing employees to perform more important work. These changes benefit the organization because they further its mission. The worker may also benefit if the new tasks are in higher demand and are worth a premium over his or her previous skills.

However, there is a cost associated with task replacement. Learning to perform a new series of tasks may require a significant investment in time and effort on the part of the employee (Chilton, Hardgrave, & Armstrong, 2010). Individuals may be asked to give up routines and tasks in which they have expertise and take on duties in which they are novices (Gallivan, 2004). This is especially prevalent in the IT field (Hayes, 2010). For instance, when a business transitions from a Microsoft to a Linux server environment, administrators with expertise in SQLServer™ will find their Windows™ technical knowledge is of diminished value to the organization. The process can also be stressful, especially if the new tasks differ significantly from existing duties or if the proposed changes must be implemented within a relatively short time period (Rosse & Hulin, 1985).

To summarize, responsibility increase involves a net increase in workload caused by reductions in force or increases in business volume (Fedor, Caldwell, & Herold, 2006; Gattiker, 1988). Under certain circumstances, task replacement may be an uncomfortable change (Reio & Sutton, 2006). In the short run, organizations save money when fewer employees are needed to perform the same or different work. However, job modifications may have a negative impact on employees (Bettencourt & Gwinner, 1996; Holton, 2006).

Increased workloads caused by responsibility increase and the stress of task replacement can be exhausting. Effected employees may not be given advanced warning. They may not be given the training or tools they need to complete the transition. Adequate concessions may not be made, and their families and home life may suffer. These conditions can lead to burnout and disillusionment, and strain the work-life balance (Ferris, 1982; Wilder & Angus, 1997).

Despite the progress that has been made on defining and measuring job burnout, identifying correlates and understanding its development among IT professionals, there has been little systematic research on IT professionals in higher education institutions (Cooper, Dewe, & O'Driscoll, 2001). One recent study by Ford, Swayze, and Burley (2013) found that exhaustion was significantly related to turnover intentions among IT professionals at a higher education institution ($R^2 = .373$, $n = 91$, $p = .000$). They further suggest that these findings are similar to other studies and that IT professionals employed at a university are similar to IT professionals in the public and private sector in regard to the relationship between exhaustion and turnover intention. Although considerable research has been conducted on job burnout in the management literature among human services occupations, the public sector, and in the IT literature across various occupations, we do not have a clear understanding of burnout and its relationship to turnover intentions (Ford & Burley, 2012).

Organizational Fairness of Rewards

The fourth strongest correlation of IT worker turnover intention found by Joseph et al. (2007) was with fairness of rewards (ρ = -0.38, $p < 0.05$). The seminal research on fairness is rooted in Adams' theory of equity (Adams, 1965). Equity theory is based on an exchange relationship where individuals give something and expect something in return. What the individual gives is called inputs. What an individual receives in exchange is known as outcomes. A third variable in equity theory is the reference person or group. This reference group can be a coworker, relative, neighbor, or group of coworkers used as a point of comparison when a worker is forming assessments of equity. Equity theory asserts that job motivation is not solely a function of individual rewards. Instead, motivation is a function of how individuals view their ratio of outcomes to inputs. Hence, perceived inequity exists for person whenever he perceives that the ratio of his outcomes to inputs and the ratio of others outcomes to others inputs are unequal (Adams, 1965). However, it is worth noting that Skiba and Rosenberg (2011) have suggested that the applicability of equity theory is diminished due to underemployment in the labor market as a result of conditions created by economic recession. The long-term effect of such conditions on workers perceptions of equity is not yet known.

Another theory related to fairness of rewards is organizational justice, which is defined as an individual's perceptions and reactions to fairness in an organization (Greenberg 1987). An individual's perceptions of fairness influence his or her attitudes and subsequent actions (Colquitt, 2001). Prior research studies have shown that a lack of equity is reflected in poor perceptions regarding organizational support and organizational justice (Greenberg, 1987). To generalize, previous studies found that employees react to perceived improprieties in an organization by formulating negative attitudes. These perceptions can lead to employee

behavioral or task outcomes such as dissatisfaction, lack of commitment, and poor performance (Cosier & Dalton, 1983; Deluga, 1994; Taris, Kalimo, & Schaufeli, 2002).

Employees who feel that they are being compensated inequitably will also likely perceive non-financial 'recognition' as insincere (Long & Shields, 2010). Relatedly, Stajkovic and Luthans (2003) previously identified that employees value social recognition as an indicator that they are likely to receive financial rewards in the future. Social recognition is valued because of a presumed connection to a valued future reward. Under this construction, social recognition will be valued by employees (and therefore serve as a motivator) to the extent that the organization also has in place mechanisms to provide more tangible rewards, such as cash or promotion, for the desired employee.

Workers can perceive an over-reward or an under-reward, but according to equity theory, the latter inequity certainly would result in workers taking some sort of action to restore equity. One way that workers can restore equity is to reduce the amount of effort they put into their job. The other option is to request greater rewards, such as an increase in pay. If equity cannot be restored by either decreasing inputs or by increasing outcomes, workers ultimately will resolve the imbalance by reducing their efforts or by leaving the organization (Carrell & Dittrich, 1978; Stajkovic & Luthans, 2003) .

Perceived Organizational Support

Perceived organizational support (POS) is related to both equity and organizational justice theory in that it incorporates worker's perceptions of fairness. POS is defined as the degree to which employees believe that the organization values their contribution and cares about their well-being (Eisenberger et al.,1986). Eisneberger et al. (1986) suggested that POS is influenced by a variety of factors, such as organizational rewards in the form of praise, money,

promotions, and influence, all given by the organization to employees as a way of communicating to employees that they are valued. A meta-analysis of research on perceived organizational support conducted by Rhoades and Eisenberger (2002) found three general categories of favorable treatment received by employees: fairness of treatment, supervisors support, and rewards and job conditions. These categories are positively related to perceived organizational support, which, in turn, is associated with outcomes favored by employees (e.g., increased job satisfaction, positive mood, and reduced stress) and the organization (e.g., increased affective commitment and performance and reduced turnover)

Previous studies have identified the causes and consequences of perceived organizational support. One widely supported determinant is procedural justice stated as the employee perceptions of the fairness in the ways used to determine the distribution of resources among employees (Greenberg, 1990). A related factor is perceptions of office politics (Kacmar & Carlson, 1997). Other types of antecedents involving rewards such as recognition (Greenberg 1990), job security (Allen, Shore, & Griffeth, 1999), autonomy (Geller, 1982), role stressors (Lazarus & Folkman, 1984), and training (Wayne et al., 1997).

Previous research has identified several outcomes of perceived organizational support. They include emotional support (George, 1989), mood (George & Brief, 1992), job involvement (Cropanzano & Greenberg, 1997; O'Driscoll & Randell, 1999), and performance (George & Brief,1992). When perceptions of organizational support are negative, the consequences include fatigue (Robblee, 1998), burnout (Cropanzano & Greenberg, 1997), anxiety (Robblee, 1998; Venkatachalam, 1995), withdrawal behavior (Nye & Witt, 1993), turnover intention (Acquino & Griffeth, 1999; Allen et al., 1999), and turnover (Guzzo et al., 1994; Wayne et al., 1997). Employees have less intention to leave the organization when they feel that a fair system is in

place, and that the organization right-fully rewards their efforts (Karunka, et al., 2007).

The extant literature further indicates that the relationship between perceived organizational support and turnover intention extends to the IT field (Joseph et al., 2007). The process in which employees are resolved to decreased levels of perceived organizational support is expected to be most salient within the IT profession. Given the rate at which organizations adopt new information technologies and retire existing systems, modifications to the IT worker's job will be relatively more commonplace and more pronounced, with respect to the degree of change. Further, a general misunderstanding of the nuances of technical services makes it harder for others to recognize IT worker contributions. The resulting injustice diminishes the employee's perceptions of organizational support (Paré, Tremblay, & Lalonde, 2001)

Unless suitable changes are made to account for the increase stress, employees will change their conception of the organization and personify the organization as the source of their frustration. In such cases, employees will reconcile their feelings by lowering their perceptions of organizational support (Rosse & Hulin, 1985; Rosse, 1988; Jimmieson et al., 2004). This will lead to doubts of the organization's concern for their well-being and decreases in perceived organizational support (Howard & Cordes, 2010).

It holds that when supervisors become concerned with their employees' commitment to the organization, employees become focused on the organization's commitment in response. Reciprocity is an important part of perceived organizational support. Employees need an assurance that the organization will provide assistance as required to effectively carry out one's job and to deal with stressful situations (George, Reed, Ballard, Colin, & Fielding, 1993).

Perceived Work Recognition

Work recognition is related to the concept of perceived organizational support in that it is

impossible to perceive organizational support if one's efforts aren't first recognized (Eisenberger et al.,1990; Savery, 1996). Workers may perceive recognition from various sources and may be manifested in the form of new job titles and descriptions, changes in compensation, or concessions which are commensurate with role adaptations (Armeli et al., 1998; Parker & DeCotiis, 1982; Salanova et al., 2005). For example, a help desk worker who is asked to perform network support will feel acknowledged when his or her title is change to network support technician. To the contrary, a network engineer who also assumes the duties of a security analyst may perceive low recognition if his or her manager takes credit.

While other attributes of organizational support have been frequently studied, studies on recognition are limited in comparison. Studies have produced various meanings of recognition, the most straight-forward of which is employees' perceptions of the degree to which their efforts are acknowledged (Ajzen & Madden, 2004). Paquet, Gavrancic, Courcy, Gagnon, and Duchene (2011) clarified that work recognition has two distinct meanings. The first meaning refers to monetary recognition in the form of payment or compensation (Kohn, 1993; Noviello, 2000; Nelson, 2001; Brun & Dugas, 2002). The second meaning defines recognition as a social action in which personal attention is transmitted verbally through expressions of interest, approval, or appreciation for a job well done (Siegrist, 1996, 2002; Stajkovic & Luthans, 2001). This second definition of work recognition builds on the prior research of Brun and Dugas (2002, 2005) and is the basis for this research. The definition of work recognition in this context was offered by Paquet, et al. (2011) and is defined as a constructive reaction, a judgment of the person's contribution, as a matter of work practices, and of personal investment and mobilization.

Researchers have established that employee recognition has a significant positive relationship with commitment, performance, and satisfaction and that the lack of perceived

recognition is a significant predictor of turnover intentions (Dutton, 1998; Saunderson, 2004; Angliss, 2007; Fillion, 2007; Tyler, 2007; Appelbaum & Kamal, 2000; Henryhand, 2010). Rewards and recognition, if properly applied, can enhance employee performance and job satisfaction thereby reducing turnover intentions (Cameron & Pierce, 1997). When IT workers don't feel recognized for their efforts, they will become increasingly dissatisfied with their job and lose their commitment to the organization and will likely consider leaving their current position for a new opportunity (Harris, Klaus, Blanton, & Wingreen, 2009). Contrarily, a recent study by Bichsel (2014) found that staff who have received rewards were more likely to speak positively about their jobs regardless of what form the rewards take: Pay raises, more advanced job titles, or special public recognition were all found to be valued recognition that increased job satisfaction.

These findings are consistent with the foundational theories presented by Herzberg (1968) and motivating factors such as the recognition of achievements that influence job satisfaction. In his examination of the findings resulting from Herzberg's studies, Sachau (2007) found that most concerns about job satisfaction actually involved advancement opportunities, recognition, types of rewards, and nature of the work. A study conducted by Aspinwall and Staudinger (2003) also supported those theories suggested by Herzberg, concluding that motivating factors such as recognition may indeed contribute more to the individual's happiness on the job.

Studies have found that following responsibility increases or task replacement, employees who perceive recognition for their efforts will also feel supported (Amabile et al., 2004; Andrews & Kacmar, 2001). For instance, a system administrator who assumes supervisory duties will perceive increased support if he or she is reclassified as an IT director.

Further, it is expected that when recognition is not forthcoming, the relationship between job changes and perceived organizational support will be lower (Beadry & Pinsonneault, 2005; Vaux & Harrison, 1985). For example, responsibility increases can make a department look more cost-effective. If the manager does not attribute the difference to his or her employees' extra effort, their perceptions of organizational support may diminish.

For IT professionals, a significant part of their motivation comes from the recognition they get from managers for a well job done and the feeling that they are an important part of the organization (Agarwal & Ferratt, 1999; Gomolski, 2000). However, changes in work functions and increases in responsibilities may not be adequately recognized by the organization (Tam, 2007; Thibedeau, 2010). There are a number of reasons for this. Information technology exists to support primary business activities (Couie, 2010). So, by nature IT workers are rarely treated as stars. Key salesmen, engineers, and product developers are more likely to receive recognition for a job well-done. Given the complex nature of modern information services, business executives may not understand the underlying technologies their firm relies on (Liu et al., 2010; Luftman & Ben-Zvi, 2010). Therefore, they would not be able to put into context the meaning of a given IT worker's accomplishments.

Beyond the structural challenges in identifying performance which merit acknowledgement, it can be difficult to convey recognition in an effective manner (Buhler, 2011). Communication preferences, such as channel type and form of recognition, may not be clearly conveyed by IT staff members (Niederman & Tan, 2011). Further, colleagues, supervisors, and senior managers may misinterpret IT worker responses (Zeffane et al., 2011). For instance, shyness or modesty in reaction to a verbal commendation may be misconstrued as lack of interest. In such cases, further attempts at recognition may not be forthcoming. It is also

difficult to formally recognize tasks and roles within the administrative strata. Because firms replace systems and platforms at a rapid pace, it can be difficult ensure that IT workers have appropriate job titles and descriptions (Klyn, 2010; Schneidermeyer, 2011). For instance, a virtualized computing manager who was hired as a systems administrator may carry the title "Data Processor III."

Despite the difficulty in tendering appropriate work recognition, it remains a necessary component for maintaining worker engagement (Mujtaba & Shuaib, 2010). In addition, those who face changes in the scope of their work without appropriate recognition will be negatively affected (Hobman et al.,2011). Moreover, the lack of perceived equity of recognition can be discouraging. Employees who perceive little recognition in response to the changes in their workload and/or tasks will also perceive less commitment on the part of the organization. For instance, a single web developer may work long hours to migrate his or her company's web presence from a native coding environment to a content management system to meet a deadline. If the webmaster does not receive any form of recognition from colleagues or supervisors, he or she will project feelings of inequity onto the company. Specifically, the void will be interpreted as a lack of support on the part of the organization (Mone, Eisinger, Guggenheim, Price, & Stine, 2011).

Conclusion

Turnover has been a major issue pertaining to IT personnel since the very early days of computing and continuing in the present (Niedermann & Sumner, 2003). IT leaders of public higher education institutions are constrained by strict regulations and policies leaving them with few tools to work with in managing IT worker job satisfaction and organizational commitment in efforts to minimize turnover. When turnover does occur, institutions suffer substantial cost and

significant reductions in productivity (Latimer, 2002).

Budget reduction pressures cause fewer IT workers to take on more responsibilities and new tasks. While technology is increasingly looked to create new efficiencies and effectiveness in the academy, fiscal conditions and politics affecting support for public higher education squelch changes to existing personnel policies, salary schedules, or budgets that could allow IT leaders to address these concerns (Zumeta, 2012; Zumeta & Kinne, 2011).

The literature also reveals that motivating and retaining high performing employees has never been an easy task for IT managers (Smits, McLean & Tanner, 1993). IT professionals seem to be quicker to change jobs than other employees when they are dissatisfied with their current employer (Hacker, 2003). Similar findings are reflected in the conclusions drawn by Moore (2000) that dissatisfied IT workers with low affective organizational commitments will eventually decide to leave their jobs.

While business and industry has paid increasing attention to retention strategies and the quality of life in the workplace, this level of attention is relatively rare for higher education institutions. Given these limitations, IT leaders seeking to improve employee retention can make best use of their resources by applying them to retention efforts, rather than the costly process of mounting new searches to replace departed employees. Hence, higher education IT leaders need to address IT worker retention as a strategy for institutional success by managing employees' perceptions of job hygiene and satisfaction factors that serve to minimize turnover.

Stedman (2009) identified that IT executives had difficulty addressing extrinsic hygiene factors among workers. These executives are having success in activating intrinsic motivational factors, in particularly through low-cost recognition programs, to keep moral high and articulate the critical role IT plays in pulling companies out of the economic slump (Stedman, 2009). The

literature suggests that work recognition could also be an important intrinsic motivation factor when considering the management of employee satisfaction and turnover in public higher education institutions.

Brun and Dugas' (2008) review of the research on recognition revealed that there are limited studies on conceptualizing employee recognition as an intrinsic job satisfaction factor. Yet, they also clearly identified the importance of recognition and operationalized their findings into a framework of interaction levels and practices for building recognition strategies (Brun & Dugas, 2008). If the relationships between job satisfaction, affective organizational commitment, perceived organizational support, and turnover intentions could be better understood, IT managers of higher education institutions could apply this knowledge to mitigate turnover of IT staff. To do so would represent substantial cost savings while preserving the effectiveness of technology services in advancing institutional effectiveness.

CHAPTER 3

METHODLOGY

This study proposed to quantitatively measure the effects of recognition on job satisfaction, affective commitment, and organizational support as predictors of turnover intention among information technology (IT) workers. The participants were adult IT workers employed by large public higher education institutions throughout the United States. Prior research asserts that these participants are under considerable pressures in their organizations and thought to be susceptible to job modification and turnover. Furthermore, it is hypothesized that recognition will moderate turnover intentions in a model of job modification, perceived organizational support, affective commitment and job satisfaction for those IT workers who have been assigned additional responsibilities or new tasks. If recognition significantly moderates turnover intention, CIO's can then consider which forms of recognition may be appropriate to their environment towards positively influencing IT worker retention.

Chapter 3 presents the methods through which the research was conducted. The chapter begins by stating the research questions. Next, the research design is described and participants identified. The instrumentation is described and finally, procedures for conducting the research are identified. The following outline articulates the structure of the chapter.

Research Questions

The central question of this study was: Can public higher education CIOs use recognition as a tool to retain IT workers who experience low job satisfaction in an environment of job modification? This broad-based question has several important components. First, do IT workers who experience job modification, perceive lower job satisfaction, lower affective commitment, or lower organizational support in their current job than do IT workers who do not

experience job modification? Second, what forms of work recognition are perceived by IT workers to be most effective towards increasing their job satisfaction? Relatedly, what is the perceived duration of effects among those who experience various forms of work recognition?

Hypotheses

An underlying question is whether work recognition can reduce the effects of job modification in a model of affective commitment, perceived organizational support, job satisfaction, and turnover intentions among public higher education IT workers. Understanding the strength of moderating effects of work recognition on job modification so as to improve job satisfaction can help inform practitioners about practices associated with work recognition programs.

The relationships between job satisfaction, affective commitment and turnover intentions have been studied previously and the linkages well established (Tett & Meyer, 1993). As a foundational basis for the theoretical model, hypotheses H1, H2, and H3 are stated:

- *Hypothesis H1: Job satisfaction is negatively related to turnover intention.*
- *Hypothesis H2: Affective commitment is negatively related to turnover intention.*
- *Hypothesis H3: Perceived Organizational Support is negatively related to turnover intention.*

To understand the fundamental relationship between work recognition and antecedents of jobs satisfaction and turnover intention hypothesis H4 is stated:

- *H4a: Work recognition is positively related to perceived organizational support*
- *H4b: Work recognition is positively related to job satisfaction*
- *H4c: Work recognition is positively related to affective commitment*

To determine if IT workers who experience job modification, perceive lower job satisfaction, lower affective commitment, or lower organizational support in their current job than workers who do not experience job modification, hypothesis H5 and H6 are stated:

- *Hypothesis H5a: IT workers, who take on increased responsibility without corresponding work recognition, will express lower levels of satisfaction with their jobs.*
- *Hypothesis H5b: IT workers, who take on increased responsibility without corresponding work recognition, will express less affective commitment.*
- *Hypothesis H5c: IT workers, who take on increased responsibility without corresponding work recognition, will express less perceived organizational support.*
- *Hypothesis H6a: IT workers, who experience task replacement without corresponding work recognition, will express lower levels of satisfaction with their jobs.*
- *Hypothesis H6b: IT workers, who experience increased task replacement without corresponding work recognition, will express less affective commitment.*
- *Hypothesis H6c: IT workers, who experience increased task replacement without corresponding work recognition, will express less perceived organizational support.*

Hypotheses H7 and H8 are formed to answer an underlying question concerning the moderating effects of recognition in a model of job replacement, job satisfaction, organizational support, and turnover intention:

- *Hypotheses H7a: Perceived work recognition will have a negative moderating effect on responsibility increase in a model of job satisfaction and turnover intention.*
- *Hypotheses H7b: Perceived work recognition will have a negative moderating effect on responsibility increase in a model of affective commitment and turnover intention.*

- *Hypotheses H7c: Perceived work recognition will have a negative moderating effect on responsibility increase in a model of perceived organizational support and turnover intention.*
- *Hypotheses H8a: Perceived work recognition will have a negative moderating effect on task replacement in a model of job satisfaction and turnover intention.*
- *Hypotheses H8b: Perceived work recognition will have a negative moderating effect on task replacement in a model of affective commitment and turnover intention.*
- *Hypotheses H8c: Perceived work recognition will have a negative moderating effect on task replacement in a model of perceived organizational support and turnover intention.*

Research Design

This study proposed to quantitatively measure the effects of recognition on job satisfaction, affective commitment, and perceived organizational support as predictors of turnover intention. This theoretical approach is supported by Creswell (2009), who suggests that studies that involve the identification of influencing factors, the utility of an intervention, or the understanding of the best predictors of an outcome should follow a quantitative method.

The proposed study employs an ex post facto survey research design as described by Kerlinger (1973). Ex post facto research is systematic empirical inquiry in which the researcher does not have direct control of variables. Inferences about relationships among variables are made from any determined variations between the studied variables (Kerlinger, 1973). Specifically, this research involves the gathering of information about job satisfaction and turnover intentions among IT workers employed by different organizations. No manipulation of the variables by the researcher was possible. Instead, any determined differences are ex post

facto in nature in that they stem from differences in results in the measurements according to age, gender, job characteristics, job satisfaction, and turnover intention.

Population and Sample

This research study sought to understand the perceptions of adults currently employed as IT workers at public higher education institutions in the United States. According to the Carnegie Foundation, there are 3,768 higher education institutions in the United States. Among these, 1,161 operate under public control, 649 of which offer 4-year baccalaureate degrees (Carnegie Foundation, 2013). The Carnegie Foundation also designates institutions as large, medium or small. The population of interest in this study consisted of adults currently employed as IT workers at the 72 large, 4-year, publicly controlled higher education institutions classified by the Carnegie foundation. These institutions appear in the appendices. This classification of institutions was chosen for the potentially large numbers and diversity of IT workers and the variety of jobs typically present in these institutions. Moreover, IT staff at public institutions are believed to have experienced job modification since the economic recession (Woodward, 2011).

Eligible IT workers were identified with the help of the participating CIOs at each of these institutions. Because of the size, scope, and broad requirements of the university computing function, the researcher sought to include staff in positions that cross a wide range of IT functions and skills. Therefore, all full-time IT workers who perform technical work or service duties were included in the study. This is generally understood to include IT workers in positions associated with networking and telecommunications, end-user support, technical services, computer center operations, enterprise application development and support, database administration, software development, systems integration, security services, web developers, and systems analysis among technical positions. While IT executives, directors, and managers

may generally exercise various levels of leadership and management skills over technical skills, these IT workers are understood to contribute significantly to the technical work and are subject to the same environmental pressures and conditions of technological change.

IT workers excluded from the study included contractors, outside consultants, and those classified as temporary laborers. These individuals are not included in this study as their employment relationship is contractual with the organization and temporary by nature. Also not included in the study were clerical, administrative supports, and accountants, or other non-technical positions. These positions are generally assumed to be relatively insulated from the effects of job modification and technological changes previously discussed. CIOs were also excluded.

Instrumentation

A questionnaire was used to collect responses for all variables. The complete instrument can be found in Appendix B. The questionnaire constructs used in this study are based on a mix of previously-validated and originally developed measures. Each of the measures consists of multiple items that are evaluated by using 5-point Likert scales. The items were developed and pilot-tested for this research by Shropshire et al. (2011).

The measures for responsibility increase, task replacement, and perceived recognition were originally developed in a pilot study (Shropshire et al., 2011). Their conception and development were the result of a rigorous procedure to ensure content validity and reliability. Content validity and reliability tests followed the method described by Lawshe (1975) in which subject matter experts determine if constructs are fully operationalized. The pilot study tested convergent validity, discriminate validity, and the reliability of reflective construct**s** and results indicated validity of measures (Shropshire, et al., 2011).

Four measures for perceived responsibility increase were identified in the pilot study. These measures include (a) additional responsibilities have been added to my original tasks and responsibilities, (b) over time, additional responsibilities and tasks have been added to my original duties, (c) since I was hired into my current position, I have taken on additional duties, and (d) new responsibilities have been added to my original responsibilities over time.

Four items for perceived task replacement were identified in the pilot study including (a) the duties originally associated with my job have been replaced with different tasks and responsibilities, (b) the original functions associated with my job have been replaced with new ones, (c) over time, the tasks and responsibilities associated with my job have been replaced with different duties, and (d) the tasks and responsibilities associated with my job have changed over time.

Job satisfaction is measured using six items previously developed by Brayfield and Rothe (1951). For example, "I feel fairly well satisfied with my job" and "I would consider taking another job." The Brayfield and Rothe's (1951) study is an established and highly reliable index of job satisfaction constructed with a combination of Thurstone and Likert scaling methods. All six measures supporting job satisfaction are identified in Appendix A.

Perceived organizational support is operationalized using eight items developed by Eisenberger, Huntington, Hutchinson, & Sowa (1986). Representative items include (a) the organization values my contribution to its well-being, (b) the organization appreciates any extra effort from me, and (c) the organization cares about my general satisfaction at work. Eisenberger, et al.'s (1986) study included 361 respondents in nine organizations and the measures produced strong interitem reliability as measured by Cronbach's alpha of .97. The interitem reliability measures were similarly validated for these measures by Eisenberger,

Fasolo, & Davis-LaMastro (1990) producing Chronbach's alpha values ranging from .74 to .95.

Organizational commitment is operationalized using six items previously developed by Meyer, Allen and Smith's (1993) study of students and registered nurses. Their study validated that 3 component measures of occupational commitment were distinguishable from one another and from measures of the three components of organizational commitment. Results of correlation and regression analyses were generally consistent with predictions made on the basis of the 3-component model and demonstrated that occupational and organizational commitment contribute independently to the prediction of professional activity and work behavior.

Turnover intention is operationalized using items previously developed by Pejtersen, Kristensen, Borg, and Bjorner (2010) in the second version of the Copenhagen Psychosocial Questionnaire (COPSOQ II). Pejtersen and Bjorner (2010b) further established construct validity of the COPOQ II by means of tests for Differential Item Functioning (DIF) and Differential Item Effect (DIE). The COPSOQ II research resulted in a questionnaire with 41 scales and 127 items including values at the workplace, variation, work pace, recognition, work-family conflicts, offensive behavior, and health symptoms. Example of questions included are, "How often during the course of the last year have you thought about giving up IT and starting a different kind of job?" and "How often during the course of the last year have you thought about finding an IT position with a different firm?" The full list of questions regarding turnover intention is identified in Appendix A.

Sixteen items for perceived work recognition will be included in this research to provide insights into perceptions of recognition. These items were developed by Paquet, Gavrancic, Courcy, Gagnon and Duchesne (2011) and are based on measures previously developed by Brun and Dugas (2005). The items were validated by Paquet & Gavrancic (2011) and demonstrated

strong internal consistency coefficients ranging from 0.77 to 0.90.

Four items originally developed for this research identify respondents' preferred forms of recognition, recognition received in their current job, and the level of impact received recognitions had on overall job satisfaction. Respondents also indicated their perceptions of the duration of effect associated with received recognition.

Finally, the instrument collected demographic and job characteristics information consisting of gender, age, current job category, years worked in current position, total years worked at current institution, highest level of education attained, current salary, and the time-frame associated with their last salary or hourly wage increase. These measures are based on scales developed by Kim (2012).

Items pertaining to procedural justice, training scale, and growth opportunity, organizational rewards, perceived supervisor support, community embededness, and job embededness were also collected. These constructs and their associated scales are reserved for future study to examine relationships among additional antecedents of job satisfaction and turnover intention.

Ethical Considerations

Ethical considerations involving voluntary participation, informed consent, confidentiality and anonymity, the potential for harm, and communicating results was addressed by the researcher. The researcher conformed to the guidelines established by the National Institute of Health (NIH) concerning research ethics. Since this research uses human subjects, the researcher recognized the need to proactively address psychological, financial, and social aspects of harm to participants.

The risks associated with this research are believed to be minimal and comparable to

those experienced in everyday life. Participants were notified of such risks, consent, and confidentiality prior to collecting any data via the survey instrument. Participation in the research was expressly voluntary, and only those persons 18 years of age and older were allowed to participate. Participants were notified on the first page of the instrument that completion of the questionnaire indicated participant consent. Participants were notified that they could discontinue or drop out of the survey at any time with no penalty.

Participants were also notified that their responses are completely confidential. No personally identifying information was collected. All unique response information associated with the collection of data was purged from the records once the data is collected. Participants will be identified by institution name only. All information will be reported in aggregate, and no individual responses will be identified in the results. Finally, participants were provided reference information to institutional review board approvals and contact information of researcher to address any concerns or questions concerning the research.

Procedures

The administration of the questionnaire was coordinated with CIO's of the 74 publicly controlled institutions classified as large by the Carnegie Foundation. Identified CIO's were invited to participate in the research via email correspondence. This correspondence described the purpose of the research, the benefits, procedures, and the availability of findings. In addition, a web site provided information to prospective CIO's so they can review the instrument, institutional review board documents, the full research proposal, and supporting documentation.

CIOs were given two options for how their institutions could participate in the study. The first option was to provide email addresses of eligible IT workers at their institution. Alternatively, the CIO could choose to forward an invitation letter from the principal investigator

to eligible IT workers at their institution. CIOs were allowed to modify the first three paragraphs of the letter to include messages that were compatible with their interests and the institution's culture. CIOs were not allowed to modify the instructions, informed consent, and other essential mechanics of the remainder of the invitation letter.

All CIOs choosing to participate opted to send the invitation letter themselves. Hence, CIOs initiated contact with eligible IT workers via email to introduce them to the study, invite their participation, and present a web link to the questionnaire. The CIOs also provided the number of eligible IT workers they were contacting so that participation rates could be calculated.

Qualtrics™ was used for the online survey and the questionnaire was configured to allow participants to stop and resume their response as time permitted. The instrument was tested using selected IT staff at non-participating institutions to gauge accuracy of the programmed constructs and the time required to complete the instrument. Eligible participants reviewed the consent form online as the introductory page of the questionnaire. Participants were informed that they may opt-out at any time without penalty. The questionnaire was constructed such that no partial responses could be submitted. Reverse scored items were also programmed in Qualtrics such that these items translated automatically to the appropriate values in the normal scale. Demographics and questions associated with preferred work recognition were structured for logical flow. All other items in the instrument were fully randomized to minimize common methods bias and threats to both discriminate and convergent validity (Cook and Campbell, 1979).

The survey remained open for four weeks. Subjects completing the online survey were asked to identify their employing institution. This data was used to identify institutions that

showed low completion rates and CIOs of these institutions were notified and encouraged to remind eligible participants of the prior invitation. Upon closing of the survey, CIOs were notified about the participation from their institution and thanked for their participation. The researcher offered to provide each CIO with a summary aggregate report of the results and discuss any outstanding questions.

CHAPTER 4

RESULTS

Chapter 4 presents the results obtained from the study. The chapter begins with a review of the research questions and a review of the research design and methods of data analysis. Next, findings are presented using methods and reporting suggested by Chin (2010). The hypotheses in support of the research questions are evaluated and summarized. Finally, an overall summary of the findings is provided. The following outline provides the reader with the overall organization of Chapter 4.

Research Questions

The central question of this study was: Can public higher education CIOs use recognition as a tool to retain IT workers who experience low job satisfaction in an environment of job modification? An underlying question is whether perceived recognition has a moderating effect on job modification in a model of perceived affective organizational commitment, job satisfaction and turnover intentions among public higher education IT workers. Also, do IT workers who experience job modification, perceive low job satisfaction, low affective commitment, or low organizational support in their current job? If recognition does have a moderating effect, what forms of recognition are perceived by IT workers to be most effective towards increasing their job satisfaction? Finally, what is the perceived duration of effects among those who experience recognition?

Research Design

The study utilized an ex post facto survey research design as described by Kerlinger (1973) to study job satisfaction and turnover intentions among IT workers employed by different organizations. The researcher conducted the study using structured equation modeling to

quantitatively measure the effects of recognition on job satisfaction, affective commitment, and perceived organizational support as predictors of turnover intention.

The population of interest consisted of IT staff at large public higher education institutions as classified by the Carnegie Foundation. A questionnaire was developed with 9 demographic items and 4 original items pertaining to work recognition experiences. 94 items from previously validated instruments were associated with 7 latent variables using a 5-point Likert scale. These latent variables included work recognition, task modification, responsibility increase, perceived organizational support, affective commitment, job satisfaction, and turnover intention. An additional 40 items were collected for future research pertaining to procedural justice, training, and growth opportunity, organizational rewards, perceived supervisor support, community embededness, and job embededness.

CIO's at 72 large, publicly controlled, higher education institutions were invited to participate in the study. Participating CIO's e-mailed a template invitation to all of their eligible IT staff. The invitation provided background, statements about informed consent, and the URL to a Qualtrics™ survey. The survey remained open for four weeks. CIO's were notified of participation rates and encouraged to remind eligible IT staff to participate. Seventy-five percent of all surveys were completed within 27 minutes.

The researcher's findings are reported in narrative forms and tables used to report descriptive and inferential statistics appropriate to partial least squares (PLS) analysis (Chin, 2010). Analysis was accomplished using Statistical Package for the Social Sciences (SPSS) version 19 and SmartPLS version 2.0 M3 (SmartPLS) which yielded sample means, standard deviations, path coefficients, correlations, student t-scores, and explained variances for formative, latent, and endogenous variables.

Data Analysis

Because the theoretical model contains formative constructs, a components-based approach for structural equations modeling is appropriate (Gefen, Straub, & Boudreau, 2000). Partial Least Squares (PLS) is a components-based structural equations modeling technique. PLS is similar to regression, but simultaneously models the structural paths (i.e., theoretical relationships among latent variables) and measurement paths (i.e., relationships between a latent variable and its indicators). Rather than assume equal weights for all indicators of a scale, the PLS algorithm allows each indicator to vary in how much it contributes to the composite score of the latent variable. Thus, indicators with weaker relationships to related indicators and the latent construct are given lower weightings. In this sense, PLS is preferable to techniques such as regression which assume error free measurement (Lohmöller 1989; Wold 1982, 1985, 1989).

The partial least squares (PLS) technique for data analysis was conducted using the SmartPLS software (Ringle, Wende, & Will, 2005) to evaluate the strength of the relationship between responsibility increase, task replacement, job satisfaction, affective commitment, perceived organizational support, and turnover intention as mediated by perceived work recognition. Basic descriptive statistics using SPSS were generated for demographic and descriptive items.

Convergent and discriminant validity of constructs were tested using factor loadings (Straub, Boudreau, & Gefen, 2004). Reliability of constructs were confirmed by considering the internal consistency measure for each construct (Barclay, Higgins, & Thompson,1995; Fornell and Bookstein, 1982).

In general terms, an interaction effect involves a moderator variable which can be qualitative (e.g., gender, race, class) or quantitative (e.g., age, income). The moderator, in turn,

affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable. Thus, moderator variables provide information as to the conditions in which we would expect a relationship between two variables to exist. Moderating effects were tested using the procedures suggested by Chin, Marcolin and Newsted (1996).

Findings

The findings section of this chapter is presented in several sections that reflect the analysis of data pertaining to the research questions. The sections discuss response rate, common method variance bias, convergent and discriminate validity of measures, reliability of reflective constructs, respondents, PLS model characteristics, moderating effects of work recognition, and findings associated with each hypothesis.

Response Rate. The researcher anticipated that a sample size of more than 1,000 IT worker participants could be identified from among at least 10 institutions. An overall IT worker participant response rate of 20% was expected based on the pilot study results. Sixteen CIO's from among the 72 institutions identified in the sample indicated an interest to include their institution in the study. Six CIO's did not follow through, and responses were obtained from 10 institutions resulting in a 14% institution participation rate. Some CIO's declined to participate in the research citing concerns related to state employee unions and the potential for the instrument and survey to be misconstrued by employees and the subsequent impact on labor relations issues.

All CIO's chose to forward a personalized invitation letter to their eligible IT staff. A total of 256 valid responses were obtained from among 767 eligible IT workers resulting in an overall 33.4% response rate. While the number of eligible IT workers fell below the researcher's estimate, the response rate exceeded the response rate of the pilot study.

Researchers have suggested that with PLS analysis, the number of cases must be greater than (a) the number of variables in the largest block or latent variable and (b) the number of latent variables in the model (Falk & Miller, 1992). Alternatively, Chin (1998) suggests a sample size that equals or exceeds 10 times the larger of the following: (a) the largest number of formative indicators employed to form a latent variable or (b) the largest number of structural paths leading to a latent variable. Marcoulides and Saunders (2006) calculated required sample sizes to obtain a statistical power value of .80. Based on the model design and results of this study, a sample size of 256 cases exceeds the required sample sizes of all of these tests.

Respondents. Demographic characteristics of respondents are summarized inTable 1. Male respondents significantly outnumbered female respondents, $t(255)= 2.06$, $p< .05$. The mean age of all respondents was between 40-49 years with women slightly older than the men. Most participants had at least a 4-year college degree and have been in their current job role for at least 6 years.

The findings related to job characteristics of respondents are summarized in Table 2. Most respondents indicated their current job role as “System analysis, development & integration“ (29.30%), followed by “technical services and IT operations” (25.78%), and “IT management” (22.66%). Other jobs (8.59%) described by participants included: IT procurement, instructional design, project management, institutional research, web developer, training management, audio-visual integration, IT security, and law enforcement.

The number of years worked at the current institution was evenly distributed with fewer respondents reporting to have worked less than one year at their current institution. In contrast, the number of years worked in current position was skewed with 49.61% of staff having worked less than 5 years. Annual compensation of $60,000 or less was reported by 53.31% and men

earned significantly higher wages, $t(255) = 2.15$, $p < .05$, than women. And 64.98% of respondents indicated they had received an increase in wages or salary within the past 2 years.

Table 1

Demographic Characteristics of Respondents.

Attribute		Male N (%)	Female N (%)	Total N (%)
Gender		182 (71.09)	74 (28.91)	256 (100)
Age	Less than 20	0 (0)	0 (0)	0 (0)
	20-29	17 (9.34)	8 (10.81)	25 (9.77)
	30-39	71 (39.01)	14 (18.92)	85 (33.20)
	40-49	44 (24.18)	22 (29.73)	66 (25.78)
	50-54	21 (11.54)	14 (18.92)	35 (13.67)
	55-59	20 (10.99)	8 (10.81)	28 (10.94)
	60-64	6 (3.30)	7 (9.46)	13 (5.08)
	65 or more	3 (1.65)	1 (1.35)	4 (1.56)
Education	High school diploma/GED	12 (6.59)	5 (6.76)	17 (6.64)
	2-year college	19 (10.44)	11 (14.86)	30 (11.72)
	4-year college	70 (38.46)	26 (35.14)	96 (37.50)
	Some graduate or professional	16 (8.79)	10 (13.51)	26 (10.16)
	Graduate or professional	61 (33.52)	20 (27.03)	81 (31.64)
	Doctoral	4 (2.20)	2 (2.70)	6 (2.34)

Table 3 summarizes the work recognition preferences and experiences of IT workers participating in this study. Participants ranked monetary recognition (*M*-2.25, *SD*-1.91) significantly higher than other forms of work recognition while group celebrations ranked lowest (*M*-8.32, *SD*-2.13). Impact was measured on a scale from -2 (low) to 2 (high) with "Monetary / Cash Bonus / Salary Increase" (*M*=1.46, *SD*=.64) demonstrated the greatest impact and "Group celebrations/party" (*M*-.88, *SD*-.57) had the least amount of impact among work rewards. The duration of work recognition effect was measured using a 4-point Likert scale with "job promotion" having the longest duration. The "Informal thank-you/Note" registered the weakest

work recognition effect (*M*=1.48, *SD*=0.72). There were 26 participants who cited 17 other forms of preferred work recognition with moderate impact but relatively strong duration of effect. These other items will be discussed in Chapter 5.

Table 2

Job Demographics of Higher Education IT Workers

		Male N (%)	Female N (%)	Total N (%)
Job Role	IT management	44 (24.18)	14 (18.92)	58 (22.66)
	Networking / Telecommunications	13 (7.14)	1 (1.35)	14 (5.47)
	System analysis, & development	51 (28.02)	24 (32.43)	75 (29.30)
	Technical service & IT operations	51 (28.02)	15 (20.27)	66 (25.78)
	End-user support	10 (5.49)	11 (14.86)	21 (8.20)
	Other	13 (7.14)	9 (12.16)	22 (8.59)
Years worked in current position	Less than 1 year	20 (10.99)	5 (6.76)	25 (9.77)
	1 to 5 years	72 (39.56)	30 (40.54)	102 (39.84)
	6 to 10 years	37 (20.33)	15 (20.27)	52 (20.31)
	11 to 15 years	29 (15.93)	11 (14.86)	40 (16.53)
	16 years or more	24 (13.19)	13 (17.57)	37 (14.45)
Years worked at current institution	Less than 1 year	14 (7.69)	4 (5.41)	18 (7.03)
	1 to 5 years	46 (25.27)	14 (18.92)	60 (23.44)
	6 to 10 years	44 (24.18)	16 (21.62)	60 (23.44)
	11 to 15 years	39 (21.43)	21 (28.38)	60 (23.44)
	16 years or more	39 (21.43)	19 (25.68)	58 (22.66)
Salary	Under $41,000	17 (9.29)	16 (21.62)	33 (12.84)
	$41,000-$60,000	77 (42.08)	27 (36.49)	104(40.63)
	$61,000-$80,000	49 (26.78)	21 (28.38)	69 (26.95)
	$81,000-$100,000	28 (15.30)	7 (9.46)	35 (13.67)
	$101,000-$130,000	9 (4.92)	3 (4.05)	12 (4.69)
	> $130,000	3 (1.64)	0 (0)	3 (1.17)
Last wage increase	< 1 year	85 (46.45)	29 (39.19)	114 (44.36)
	1-2 years	37 (20.22)	15 (21.62)	53 (20.62)
	3-4 years	32 (17.49)	13 (17.57)	45 (17.51)
	5-6 years	17 (9.29)	7 (9.46)	24 (9.34)
	> 6 years	12 (6.56)	9 (12.16)	21 (8.17)

Table 3

Work Recognition Preferences and Experiences.

	Preferred			Experienced								
	Rank			Impact			Duration of Effect					
Work Recognition	*n*	*M*	*SD*	*n*	*M**	*SD*	Days	Weeks	Months	Years	*M***	*SD*
Monetary /bonus/salary increase	130	2.25	1.91	99	1.46	0.64	8	8	32	51	3.27	0.92
Job promotion	47	3.43	2.51	60	1.55	0.67	0	2	20	38	3.60	0.56
Training / Certification	15	4.68	2.32	92	1.24	0.60	12	19	37	24	2.79	0.98
Time off / Vacation	5	5.01	2.32	67	1.22	0.63	18	25	18	6	2.18	0.94
Informal "Thank you" note	44	5.20	2.96	198	0.91	0.58	126	51	18	3	1.48	0.72
Gifts / Gift certificate	0	5.84	2.18	62	0.94	0.53	36	17	8	1	1.58	0.78
Public recognition	6	6.68	2.76	99	0.97	0.61	43	33	17	6	1.86	0.91
Formal Letter / Certificate	3	6.80	2.49	54	0.98	0.63	23	20	7	4	1.85	0.92
Commemorative item / Plaque	0	7.73	1.89	38	0.89	0.63	15	9	6	8	2.18	1.18
Group celebration / Party	3	8.32	2.13	42	0.88	0.57	27	9	6	0	1.50	0.74
Other 1	12	10.58	1.75	22	0.23	1.13	11	1	1	9	2.36	1.47
Other 2	3	11.73	1.23	2	1.85	0.21	1	0	0	1	2.50	2.12
Other 3	2	12.76	1.23	2	0.50	2.12	0	0	1	1	3.50	0.71

Note: *N*=256; *n*= number IT workers who prefer or experienced a particular work recognition; *M* = mean of rank order position of preferred work recognitions; *M** = mean of the Impact of work recognition experienced based on scale values ranging from -2 to +2; *M*** = mean value of the duration of effect of a particular work recognition based on scale of Days=1, Weeks=2, Months=3, Years=4; Other 1 includes travel to conference, meeting with CIO, client feedback, special parking use, work schedule flexibility, additional staffing, personal private thanks, paid travel/conference. Other 2 includes: technology devices, chosen to serve on committees; other 3 includes: tuition reimbursement, verbal acknowledgement by management.

The research also analyzed male and female responses relative to work recognition preferences and experiences. A summary table of these results, by gender, appears in Appendix L, Table 20. Overall, males and females were similar in their work recognition preferences and experiences. Gender differences are discussed in Chapter 5.

Composite Measures of Latent and Endogenous Variables.

Composite scores were calculated for all of the reflective measures forming latent and endogenous variables as described in **Error! Not a valid bookmark self-reference.**. All items were based on a 5-point Likert scale ranging from 1(low score) to 5(high score). There were no significant differences in composite scores of reflective measures between male and female participants in the study. Table 19 in Appendix J provides a comparison of male and female composite scores.

Table 4

Descriptive Statistics of Reflective Measures

					95% Confidence Interval	
Construct	Items	Median	Mean	*SD*	Lower	Upper
Turnover Intention	5	2.00	2.29	0.98	2.172	2.414
Job Satisfaction	6	3.67	3.52	0.71	3.437	3.6113
Perceived Org. Support	8	3.25	3.18	0.85	3.076	3.2843
Affective Commitment	6	3.33	3.27	0.78	3.178	3.371
Task Replacement	4	3.63	3.53	0.85	3.428	3.637
Responsibility Increase	4	4.00	4.15	0.67	4.071	4.235
Work Recognition	6	3.67	3.60	0.77	3.505	3.694

The researcher performed Pearson correlation calculations to test the relationships

among the latent and endogenous variables of the theoretical model with demographics and job characteristics attributes to test for significant relationships in the data. The results are shown in Table 5 and reveal significant relationships of interest to the researcher. These relationships are discussed in Chapter 5.

Common Method Variance Bias

Common methods variance bias (Cook and Campbell, 1979) is a threat to both discriminant and convergent validity. Although randomizing items may reduce methods bias Campbell and Fiske (1959) suggested that common methods bias can still occur when steps are taken to separate construct-related items randomly. Hence, response validity was checked using a test of common method variance (CMV) bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). A Harman one factor analysis was conducted using SPSS. Twenty six factors accounted for 89.9% of variance. No single general factor accounted for the majority of the variance. Hence, common method variance is unlikely to threaten the validity of the study. Appendix G contains a table of the total variance explained by the reflective measures in the model.

Convergent and Discriminate Validity of Measures

Convergent and discriminate validity of reflective constructs were assessed using factor loadings obtained from SmartPLS and represented in Table 6. Such loadings indicate if items cross-load or fail to significantly load on their respective latent variable. An ideal model would have strong expected loadings and weak cross-loadings (Struab et al., 2004). Specifically, convergent validity is demonstrated when items load above .70 on their respective constructs and when the average variance extracted (AVE) is above .50 for each construct.

Table 5

Correlations of Latent Endogenous, Demographic, and Job Variables

	TI	JS	POS	AC	TR	RI	WR	GEN	AGE	SAL	LI	EDU	YAP	YAI
Turnover Intention	1													
Job Satisfaction	-.636**	1												
Perceived Org. Support	-.525**	.625**	1											
Affective Commitment	-.519**	.610**	.619**	1										
Task Replacement	-.003	-.005	-.160*	-.046	1									
Responsibility Increase	-.014	.055	-.008	.112	.562**	1								
Work Recognition	-.435**	.507**	.713**	.451**	-.037	.090	1							
Gender	-.018	.021	.007	.000	.004	-.027	-.012	1						
Age	-.131*	.139*	-.011	.014	.197**	-.028	-.019	.133*	1					
Salary	-.081	.138*	.195**	.237**	.171**	.190**	.166**	-.130*	.188**	1				
Last Salary Increase	.136*	-.131*	-.251**	-.107	.107	.050	-.206**	.083	.187**	-.093	1			
Education	.071	.028	.087	.124*	-.018	.074	-.008	-.041	.000	.335**	-.116	1		
Years in Position	.066	-.065	-.174**	.002	.262**	.118	-.147*	.056	.499**	.262**	.187**	-.022	1	
Years at Institution	.017	-.028	-.096	.103	.335**	.255**	.006	.096	.461**	.323**	.260**	.038	.605**	1

Note: N=256; *Significant at $p<.05$; ** Significant at $p<.01$

Table 6

Psychometric Properties of Reflective Measures

	AC	JS	POS	RI	TI	TR	WR	AVE
AC1	0.7649	0.5186	0.5251	0.0873	-0.4703	-0.0703	0.3680	
AC2	0.7142	0.3871	0.3779	0.1079	-0.3114	-0.0736	0.2844	
AC3	0.7452	0.4693	0.5524	0.1323	-0.4013	-0.0060	0.4230	0.522
AC4	0.4982	0.2267	0.3142	0.1275	-0.1581	-0.0077	0.2548	
AC5	0.7636	0.6019	0.4102	0.0374	-0.5010	-0.0368	0.2790	
AC6	0.8054	0.5312	0.4921	0.1688	-0.4010	-0.0751	0.3614	
JS1	0.3070	0.6327	0.3275	0.1844	-0.3266	0.1502	0.2916	
JS2	0.5887	0.8574	0.6374	0.0608	-0.5681	-0.0541	0.5169	
JS3	0.5556	0.8610	0.5481	0.0493	-0.5438	-0.0873	0.4383	0.588
JS4	0.5019	0.5762	0.4148	0.0636	-0.5187	0.0804	0.3204	
JS5	0.5587	0.8648	0.5314	0.0155	-0.5228	-0.0511	0.4123	
JS6	0.4258	0.7549	0.4544	0.0405	-0.4964	-0.0739	0.3740	
POS1	0.5605	0.5525	0.8657	0.0248	-0.4487	-0.1640	0.6114	
POS2	0.4871	0.5401	0.8605	-0.0167	-0.4453	-0.1962	0.6331	
POS3	0.4607	0.4321	0.7996	0.0185	-0.3949	-0.0854	0.5774	
POS4	0.4805	0.5635	0.7944	0.0075	-0.4538	-0.1733	0.5235	0.680
POS5	0.6018	0.5989	0.8590	0.0714	-0.5054	-0.1050	0.6454	
POS6	0.4404	0.5315	0.8230	0.0685	-0.3829	-0.1062	0.6226	
POS7	0.5535	0.5517	0.8385	0.0482	-0.4612	-0.1250	0.5929	
POS8	0.5234	0.5010	0.7461	0.0744	-0.3939	-0.1465	0.5560	
RI1	0.1256	0.0770	0.0075	0.9270	-0.0373	0.4743	0.0987	
RI2	0.1547	0.0814	0.0833	0.9543	-0.0409	0.4193	0.1715	0.698
RI3	0.0375	-0.0355	-0.0318	0.7657	0.0599	0.4977	0.0450	
RI4	0.0435	0.0121	-0.0881	0.6608	-0.0245	0.4597	-0.0193	
TI1	-0.5281	-0.5950	-0.4992	0.0462	0.8173	-0.0252	-0.4190	
TI2	-0.5135	-0.5815	-0.5115	0.0149	0.8288	-0.0043	-0.4253	0.756
TI3	-0.4321	-0.5435	-0.4192	-0.1042	0.8958	-0.0096	-0.3537	
TI4	-0.4250	-0.5562	-0.4341	-0.0663	0.8912	0.0413	-0.3696	
TI5	-0.4414	-0.5799	-0.4276	-0.0757	0.9106	-0.0111	-0.3394	
TR1	0.0294	0.0123	-0.1208	0.4167	-0.0404	0.8306	-0.0033	
TR2	-0.0792	-0.0296	-0.1459	0.3968	0.0226	0.9094	-0.0542	0.715
TR3	-0.0998	-0.0194	-0.1792	0.3242	-0.0174	0.9081	-0.0907	
TR4	-0.0081	-0.0378	-0.0926	0.6491	0.0267	0.7197	0.0196	
WR10	0.2681	0.3455	0.4942	0.1242	-0.2929	-0.0868	0.7227	
WR11	0.3498	0.4182	0.5041	0.1344	-0.3527	0.0727	0.8056	
WR12	0.4412	0.4658	0.7150	0.0126	-0.4052	-0.1129	0.6861	0.633
WR2	0.3761	0.4182	0.5800	0.1233	-0.3704	-0.0105	0.8477	
WR3	0.3581	0.4154	0.5795	0.1331	-0.3590	-0.0803	0.8861	
WR9	0.3389	0.3935	0.5060	0.1676	-0.2878	-0.0197	0.8085	

Discriminate validity is identified when item loadings are greater for their respective construct than for other constructs in the model, and when each construct's square root of the average variance extracted (AVE) is greater than its intercorrelation with other constructs. Initial evaluation of the PLS model revealed that work recognition items 1, 4, 5, 6, 7, 8, 13, 14, 15, and 16 loaded more strongly on perceived organizational support than on the latent variable work recognition. Work recognition item 1 measured faculty, staff, and student's contributions to work recognition. Work recognition items 4, 5, 6, and 7 involved questions about peer recognition and support. Work recognition items 8, 13, 14, 15, and 16 measured supervisor support. Hence, the relationship of these questions to perceived organizational support is evidenced at least in terms of face validity. These ten work recognition items were removed from the model to obtain stronger convergent and discriminate validity of the measures, and Cronbach's Alpha scores. Work recognition items 2, 3, 9, 10, 11, and 12 were retained in the model. Implications for researchers regarding the measures of work recognition are discussed in Chapter 5. The resulting model, as indicated in Table 6Table 6 and Table 7 met the conditions for both convergent and discriminate validity.

Reliability of Reflective Constructs

To gauge the reliability of reflective constructs, the internal consistency measure for each construct was examined. Constructs which exceed. 0.70 level of internal consistency were judged to possess sufficient reliability (Barclay et al., 1995; Fornell & Bookstein, 1982). As shown in Table 7, the internal consistency or composite reliability (RELI) for each construct was above 0.86, which exceed the recommend threshold for construct reliability.

Table 7

Reliability and Latent Variable Correlations among PLS Model Factors

Construct	RELI	AC	JS	POS	RI	TR	TI	WR
Affective Commitment	**0.8652**	**0.7223**						
Job Satisfaction	**0.8931**	0.6555	**0.7667**					
Perceived Organizational Support	**0.9442**	0.6248	0.6501	**0.8243**				
Responsibility Increase	**0.9006**	0.1459	0.0797	0.0450	**0.8356**			
Task Replacement	**0.9086**	-0.0645	-0.0230	-0.1675	0.4816	**0.8455**		
Turnover Intention	**0.9393**	0.5421	0.6597	0.5305	-0.0396	-0.0027	**0.8695**	
Work Recognition	**0.9113**	0.4568	0.5228	0.7233	0.1404	-0.0535	-0.4414	**0.7958**

Note. Square root (AVE) on the diagonal. RELI = Composite Reliability.

PLS Model Characteristics

The results of the PLS analysis of data in the theoretical model developed in this study is depicted in Figure 2. The adequacy of the PLS model is assessed by examining the R^2value for the dependent variables in the model. R^2 reflects the level or share of the latent construct's explained variance and therefore measures the regression function's "goodness of fit" against the empirically obtained manifest items (Backhaus, Erichson, Plinke, & Weiber, 2003). Falk and Miller (1992) suggest that adequate PLS models contain dependent variables with at least 10% of their variance explained. Chin (1998) established that an R^2 of 0.67 is substantial, 0.33 is

moderate, and 0.19 is considered weak.

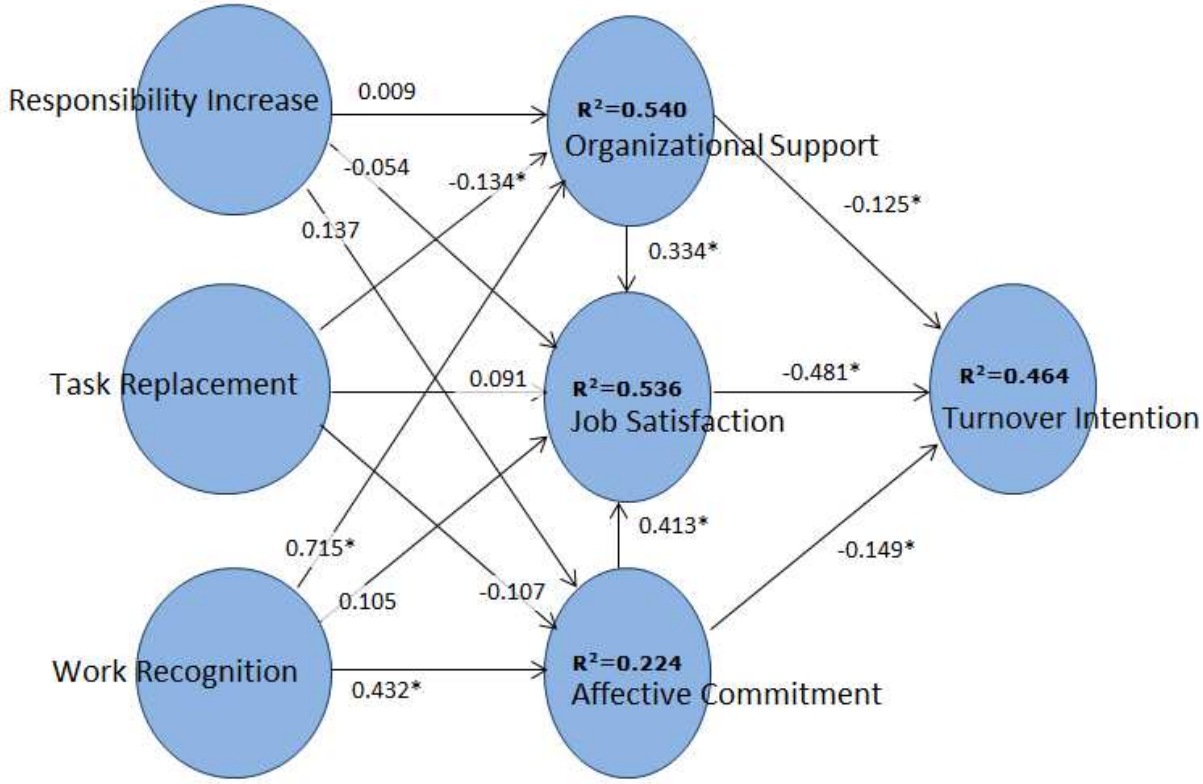

Figure 2. PLS model path coefficients and variance explained. This figure illustrates the computed values of path coefficients and R^2 values in the theoretical model. Statistically significant path coefficients are denoted by asterisks.

The observed R^2 values for job satisfaction (R^2 =.536), perceived organization support (R^2=.540) and turnover intention (R^2 = .464) are considered to be of moderate strength and demonstrate good predictive validity for these constructs. The R^2 value of 0.224 for affective commitment offers weak predictive validity (Chin, 1998).

The PLS structural model's individual path coefficients represent standardized Beta coefficients resulting from the PLS method. The goodness of the estimated path coefficients is tested by means of asymptotic t-statistics because the quotient of a model parameter and its standard deviation is Student t distributed. However, PLS path modeling does not rely on

normal distribution assumptions and direct inference statistical tests of the model fit and the model parameters are not available. To solve this limitation, the bootstrapping technique for estimating standard errors of the model parameters was conducted as recommended by Chin (2010). Hence, the significance of model parameters and the coefficient of the interaction term can be determined from t-score distribution tables (Hensler & Fassot, 2010). Paths that are insignificant, or show signs contrary to the hypothesized direction, do not support related hypotheses, while significant paths showing the hypothesized direction empirically support the proposed causal relationship. Table 8 provides the outcome of SmartPLS bootstrapping analysis for model constructs and the calculated t statistic for each path coefficient.

Table 8

PLS Model Path Coefficients

Construct	Path Coefficient (β)	Sample Mean (M)	Standard Error ($STERR$)	t ($\lvert O/STERR \rvert$)	
Affective Commitment → Job Satisfaction	0.412687	0.416798	0.077230	5.343596	**
Affective Commitment → Turnover Intention	-0.148650	-0.150000	0.068548	2.168483	*
Job Satisfaction → Turnover Intention	-0.481090	-0.481220	0.063857	7.533786	**
Perceived Org Support → Job Satisfaction	0.333777	0.331303	0.088642	3.765452	**
Perceived Org Support → Turnover Intention	-0.124890	-0.123930	0.073583	1.697282	*
Responsibility Increase → Affective Commitment	0.136960	0.12693	0.083410	1.642017	
Responsibility Increase → Job Satisfaction	-0.054300	-0.03757	0.063083	0.860741	

(continued)

Table 8

PLS Model Path Coefficients (continued)

Construct	Path Coefficient (β)	Sample Mean (M)	Standard Error ($STERR$)	t ($\|O/STERR\|$)	
Responsibility Increase → Perceived Org. Support	-0.024000	-0.027450	0.055695	0.430890	
Responsibility Increase → Turnover Intention	-0.024000	-0.027450	0.055695	0.430890	
Responsibility Increase → Perceived Org. Support	0.009004	0.006302	0.051066	0.176320	
Task Replacement → Affective Commitment	-0.107330	-0.097580	0.082317	1.303907	
Task Replacement → Job Satisfaction	0.091302	0.081051	0.062769	1.454560	
Task Replacement → Turnover Intention	0.031478	0.031384	0.049418	0.636972	
Task Replacement → Perceived Org. Support	-0.133600	-0.134150	0.060088	2.223345	*
Work Recognition → Affective Commitment	0.431854	0.433414	0.056680	7.619219	**
Work Recognition → Job Satisfaction	0.105319	0.096458	0.090513	1.163581	
Work Recognition → Perceived Org. Support	0.714875	0.71472	0.031015	23.049340	**
Work Recognition → Turnover Intention	-0.404670	-0.401310	0.050677	7.985330	**

Note: * significant p<.05, ** significant p<.001

Gender differences. The measured differences in perceptions of work recognition between males and females prompted the researcher to test the theoretical model for other gender-based relationships among the latent variables. When controls for gender were applied to the theoretical model differences in the relationships among the latent variables were observed.

Table 9 summarizes the explained variance R^2 in the model. These R^2 values indicate that theoretical model explained more variance and was a better fit for females in the study.

Table 9

PLS Model R^2 Scores of Latent Variables by Gender

	R^2		
Variable	Female	Male	Combined
Affective Commitment	0.418661	0.165273	0.224185
Perceived Org Support	0.518987	0.555420	0.539841
Turnover Intention	0.546284	0.453981	0.464214
Job Satisfaction	0.653586	0.496943	0.536146

Additionally, differences in the model path coefficients between males and females are evidenced in Table 10. There were significant similarities and differences in the relationships among latent variables. Gender differences are discussed in Chapter 5.

Moderating Effects of Work Recognition. To analyze moderating effects the direct relations of the exogenous and the moderator variable as well as the relation of the interaction term with the endogenous variable were examined. The product indicator approach suggested by Chin, Marcolin, and Newstead (1996) was used to measure moderating effects in the PLS model. The hypothesis on the moderating effect is supported if the resulting path coefficient is significant regardless of the values of path coefficient obtained in the direct relationship (Baron and Kenny 1986). Specifically, the method used to measure moderating effects involves standardizing indicator values before multiplication as suggested by Smith and Sasaki (1979) to avoid computational errors by lowering the correlation between the product indicators and their individual components. Product indicators are then developed by creating all possible products from the two sets of standardized indicators of the predictor and moderator variables. These product indicators are used to reflect the latent interaction variable. The PLS procedure is then

used to estimate the latent variables as an exact linear combination of its indicators with the goal of maximizing the explained variance for the indicators and latent variables.

Table 10

PLS Model Path Coefficients by Gender

	Female				Male			
	Path Coefficient (β)	Sample Mean (M)	Standard Error ($STERR$)	t	Path Coefficient (β)	Sample Mean (M)	Standard Error ($STERR$)	t
Job Satisfaction → Turnover Intention	-0.4738	-0.4711	0.1351	3.5065*	-0.5075	-0.5063	0.0746	6.7997*
Work Recognition → Turnover Intention	-0.5099	-0.4952	0.0674	7.5654*	-0.3446	-0.3462	0.0697	4.9411*
Affective Commitment → Turnover Intention	0.0030	0.0101	0.1230	0.0246	-0.2126	-0.2166	0.0779	2.7280*
Perceived Org Support → Turnover Intention	-0.3303	-0.3352	0.1142	2.8931*	-0.0182	-0.0162	0.0892	0.2046
Affective Commitment → Job Satisfaction	0.4987	0.5040	0.1392	3.5824*	0.3730	0.3773	0.0896	4.1620*
Perceived Org Support → Job Satisfaction	0.2838	0.2455	0.1914	1.4823	0.3614	0.3709	0.1009	3.5804*
Responsibility Increase → Affective Commitment	0.3636	0.3301	0.1218	2.9855*	-0.0114	-0.0009	0.0979	0.1164
Responsibility Increase → Perceived Org. Support	-0.0454	-0.0410	0.1092	0.4162	0.0083	0.0243	0.0585	0.1427
Responsibility Increase → Job Satisfaction	-0.0053	0.0201	0.1296	0.0412	-0.0048	-0.0683	0.0950	0.0510
Task Replacement → Affective Commitment	-0.2139	-0.1630	0.1349	1.5856	-0.0320	-0.0395	0.0985	0.3251
Task Replacement → Perceived Org. Support	-0.0344	-0.0314	0.1350	0.2546	-0.1626	-0.1741	0.0689	2.3586*
Task Replacement → Job Satisfaction	0.1292	0.1157	0.1285	1.0051	0.0476	0.0824	0.0764	0.6229
Work Recognition → Affective Commitment	0.4881	0.4967	0.0848	5.7534*	0.4011	0.3964	0.0776	5.1710*
Work Recognition → Perceived Org. Support	0.7289	0.7284	0.0610	11.957*	0.7155	0.7118	0.0364	19.671*
Work Recognition → Job Satisfaction	0.1210	0.1213	0.1388	0.8717	0.0771	0.0738	0.1168	0.6602

Following a series of ordinary least squares analyses, PLS optimally weights the indicators such that a resulting latent variable estimate can be obtained. The weights provide an exact linear combination of the indicators for forming the latent variable score which is not only maximally correlated with its own set of indicators, but also correlated with other latent variables according to the theoretical model. In general, assuming the true average loading is 0.70, sample sizes of approximately 100 are needed in order to detect the interaction effect with six to eight indicators per main effects constructs to yield reasonably consistent estimates. Under smaller sample sizes or number of indicators, the known bias in PLS for overestimating the measurement loading and underestimating the structural paths among constructs may occur unless loadings of .80 are realized (Chin, Marcolin, & Newstead, 1996).

Hypotheses

The findings related to the hypotheses are summarized in Table 1111 through Table 13. The hypotheses were tested by quantifying the structural equation paths' significance and examining all the hypothesized relationships' absolute values as calculated by SmartPLS. Overall, the theoretical model reflected strong support for the relationships among turnover intention and job satisfaction, perceived organizational support, and affective commitment as defined in hypotheses H1, H2, and H3,

Hypothesis H4 posited that work recognition is positively related to perceived organizational support, job satisfaction, and affective commitment. The model demonstrated strong support for H4a, and H4c. However, in the case of H4b, the path coefficient between work recognition and job satisfaction, while positive, was not of sufficient strength to achieve statistical significance, β =-0.105, $t(255)=1.164$. The Pearson correlation of job satisfaction and work recognition did demonstrate statistical significance, $r(255)= .507$, $p<.001$. This finding

suggests that work recognition has limited direct effect on job satisfaction.

Table 11

Summary Results for Hypotheses H1, H2, H3, and H4

Hypotheses	Pearson Correlation r	Path Coefficient β	Sample Mean M	Student t Statistic t	Supported
H1: Job satisfaction is negatively related to turnover intention.	-0.636**	-0.481**	-0.481	7.534	Yes
H2: Affective commitment is negatively related to turnover intention	-0.519**	-0.149*	0.069	2.168	Yes
H3: Perceived organizational support is negatively related to turnover intention.	-0.525**	-0.125*	0.074	1.697	Yes
H4a: Work recognition is positively related to perceived organizational support	0.713**	0.715*	0.031	23.049	Yes
H4b: Work recognition is positively related to job satisfaction	0.507**	0.105	0.091	1.164	Yes
H4c: Work recognition is positively related to affective commitment	0.451**	0.432**	0.057	7.619	Yes

Note: N=256; * significant p<.05, **; significant p < .001

Hypothesis H5 stated that IT staff who experience job modification without work recognition will experience less job satisfaction, affective commitment, and organizational support than other IT staff. Composite scores for each participant were computed to identify participants who indicated they had experienced increased responsibility (mean composite score > 3) and low levels of work recognition (mean composite score < 3). There were 231 respondents who indicated some increase in job responsibilities of which 34 respondents indicated low work recognition. The mean scores for job satisfaction, affective commitment, and organizational support were computed for these participants and compared to the sample means.

Student t scores were computed to test for significance. In all three cases, hypothesis H5 was supported.

Similarly, it was posited in hypothesis H6 that IT workers who experience task replacement without corresponding work recognition, will express lower levels of job satisfaction, affective commitment, and perceived organizational support with their jobs. There were 161 (63%) participants who indicated they experienced some level of task replacement and 26 (10%) of these participants indicated they experienced low levels of work recognition. Student t-tests were performed to determine if antecedents of turnover intention were influenced by job modification. There was sufficient statistical evidence to accept hypotheses H6A, B, and C. The results of these tests appear in Table 12..

The SmartPLS test for moderating effects as described by (Chin, 2010) was used to assess moderating effects of work recognition in the PLS model as described in hypotheses H7 and H8. Table 13 summarizes the results observed from the PLS model output and the determination of support for the hypotheses H7 and H8. Hypotheses H7 and H8 were formed to answer the second research question concerning the moderating effects of recognition in a model of job replacement, job satisfaction, organizational support, and turnover intention. .

Hypothesis H7 posited that work recognition would have a moderating effect on responsibility increase in the theoretical model. Similarly, H8 posited that work recognition would have a moderating effect on task replacement in the theoretical model. There was insufficient support for both hypothesis H7 and H8 and no significant moderating effect of work recognition were obtained when considering all participant cases.

Table 12

Summary Results for Hypotheses H5 and H6

Hypotheses	Sample Mean *M*	Hypothesis Mean *M*	*t*	*DF*	Supported ? *p*
H5a: IT workers, who take on increased responsibility without corresponding work recognition, will express lower levels of job satisfaction with their jobs.	3.5527	3.0833	- 2.9779	33	Yes ($p < .05$)
H5b: IT workers, who take on increased responsibility without corresponding work recognition, will express less affective commitment.	3.2987	2.7745	-3.7584	33	Yes ($p < .001$)
H5c: IT workers, who take on increased responsibility without corresponding work recognition, will express less perceived organizational support.	3.1948	2.2941	-9.5274	33	Yes ($p < .001$)
H6a: IT workers, who experience task replacement without corresponding work recognition, will express lower levels of job satisfaction with their jobs.	3.5424	2.9423	-3.1417	25	Yes ($p < .05$)
H6b: IT workers, who experience task replacement without corresponding work recognition, will express less affective commitment.	3.2795	2.6538	-3.6024	25	Yes ($p < .001$)
H6c: IT workers, who experience task replacement without corresponding work recognition, will express less perceived organizational support.	3.1141	2.2115	-7.5693	25	Yes ($p < .001$)

Table 13

Summary Results for Hypotheses H7 and H8

Hypotheses	Path Coefficient β	Sample Mean M	t	Supported?
H7a: Perceived work recognition will have a moderating effect on responsibility increase in a model of job satisfaction and turnover intention.	-0.1280	-0.0704	0.7751	No
H7b: Perceived work recognition will have a moderating effect on responsibility increase in a model of affective commitment and turnover intention.	-0.1439	-0.1217	1.1101	No
H7c: Perceived work recognition will have a moderating effect on responsibility increase in a model of perceived organizational support and turnover intention.	0.0002	-0.0042	0.0029	No
H8a: Perceived work recognition will have a moderating effect on task replacement in a model of job satisfaction and turnover intention.	-0.0482	-0.0685	0.7187	No
H8b: Perceived work recognition will have a moderating effect on task replacement in a model of affective commitment and turnover intention.	0.0206	0.0519	0.1637	No
H8c: Perceived work recognition will have a moderating effect on task replacement in a model of perceived organizational support and turnover intention.	0.3116	0.3555	1.2171	No

While the hypotheses H7 and H8 associated with the moderation effects of work recognition showed no statistical significance, the correlations among exogenous and endogenous variables, and the apparent weakness in some path coefficients in these measures warranted further analysis to address the research questions. For example, the weak indirect

effect of work recognition on job satisfaction in the model (β =-0.105) juxtaposed against the high correlation between these variables, $r(255)= .507$, $p<.001$, raised questions about the potential influences of specific types of work recognition on job satisfaction. Moreover, might certain types of work recognition moderate the relationship of job modifications with job satisfaction?

To address this question, the researcher measured moderating effects of work recognition on responsibility increase and task replacement in a model of job satisfaction and turnover intention with controls to isolate participants based on responses for preferences and experiences with work recognition. Three scenarios were explored: (1) IT workers who preferred monetary recognition and had received monetary rewards; (2) IT workers who had received recognition, but not monetary recognition; and (3) IT workers had received non-monetary recognition and who did not prefer monetary recognition.

For IT workers who had received monetary recognition, 99 participants were identified, of which 80 participants ranked monetary rewards in the top three preferred forms of work recognition. For these 80 participants, work recognition positively mediated responsibility increase effect on job satisfaction as shown in Table 14. Moderating effects of work recognition on task replacement was not significant.

Secondly, the research sought to measure moderating effects of work recognition on job modification for IT workers who had received recognition, but not monetary recognition. There were 157 participants who had not received a monetary recognition. Among these, 115 had received some other form of recognition. Work recognition did not significantly mediate the relationship between responsibility increase or task replacement and job satisfaction as shown in Table 15.

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Table 14

Moderating Effects of Work Recognition on Job Modifications for IT Staff Who Prefer Monetary Recognition and Received Monetary Recognition

Moderating Effect	Path Coefficient β	Sample Mean *M*	*SD*	Standard Error *STERR*	*t*
Responsibility Increase * Work Recognition -> Job Satisfaction	0.2735	0.2558	0.1309	0.1309	2.0896*
Task Replacement * Work Recognition -> Job Satisfaction	0.2987	0.1921	0.2229	0.2229	1.3399

Note: n=80, * Significant $p < .05$

Table 15

Moderating Effects of Work Recognition on Job Modifications for IT Staff Who Had Received Recognition Other than Monetary Recognition

Moderating Effect	Path Coefficient β	Sample Mean *M*	*SD*	Standard Error *STERR*	*t*
Responsibility Increase * Work Recognition -> Job Satisfaction	0.2766	0.0734	0.2895	0.2895	0.9555
Task Replacement * Work Recognition -> Job Satisfaction	0.2119	0.1900	0.1623	0.1623	1.3057

Note: n = 115

Finally, the researcher sought to measure mediating effects of work recognition on job modification variables for participants who had received non-monetary recognition and who did not prefer monetary recognition. For the 82 participants who met this criteria, work recognition had a significant moderating effect on task replacement in a model of job satisfaction and turnover intention as shown in Table 16..

Table 16

Moderating Effects of Work Recognition on Job Modifications for IT Staff Who do not Prefer and Had Not Received Monetary Rewards

Moderating Effect	Path Coefficient β	Sample Mean *M*	*SD*	Standard Error *STERR*	*t*
Responsibility Increase * Work Recognition -> Job Satisfaction	-0.4038	-0.3001	0.579594	0.5796	0.6966
Task Replacement * Work Recognition -> Job Satisfaction	0.3196	0.3226	0.0870	0.0873	3.6716*

Note: *n*=82, * Significant p<.001

Summary

Valid questionnaire responses were obtained from 256 participants at 10 institutions. Common method bias was not found in the data. The PLS model did not initially show strong psychometric properties for some reflective measures of work recognition due to strong cross loadings on perceived organizational support measures. When work recognition reflective measures were limited to items measuring recognition by supervisors, the model exhibited strong psychometric properties and explained moderate levels of variance among the latent endogenous variables.

The researcher used Pearson correlation analysis to identify relationships among demographic and job characteristic data. Support for hypothesis H1-H6 were found, but support for hypothesis H7 and H8 involving the moderating effects of work recognition on antecedents of turnover intention was not obtained. Based on the correlative analysis, the researcher further explored the moderating effects of work recognition controlling for work recognition preferences regarding monetary and non-monetary preferences. Subsequent support for moderating effects of work recognition was found in two case scenarios.

CHAPTER 5

CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Chapter 5 provides an overview of the research project, conclusions, discussion of findings and implications, and concludes with recommendations for practice and future research. The summary section provides an overview of the methods developed in Chapter 3, and the findings from Chapter 4. Conclusions link the findings to the research questions. The discussion section extrapolates concepts based on the conclusions drawn. Finally, recommendations for practice and future study are suggested. The following outline provides the reader with the organization of Chapter 5.

Job Satisfaction and Turnover Intention of IT Workers

This research project addresses the critical need to retain information technology (IT) workers in public higher education institutions. Turnover of IT workers in public higher education institutions is a costly and disruptive phenomenon. Chief Information Officers (CIO) of these institutions are under increased pressures to leverage technology in support of institutional strategic objectives. IT workers are subjected to the effects of rapid technological change as well as the modifications of job characteristic which can negatively impact affective commitment and job satisfaction leading to turnover intention. CIOs in public higher education institutions (HEI) are confronted by increased competition for IT workers, constrained by regulations and policies, confronted with competing strategic priorities, and limited by ongoing financial constraints (Keller, 2009).

Prior research theories posit that employee turnover intention is influenced by two major factors, perceived desirability of movement caused by job market opportunity and motivations influencing job satisfaction. There is current popular evidence to support that job market opportunities are significantly increasing for skilled technology workers. However, the research

suggests that while an understanding of job market influences and workers' perceptions of ease of movement may be useful to managers, it is not reasonable to expect that employers can influence or control the shocks of job-market factors on turnover. It is therefore more pragmatic to focus on addressing factors which affect IT workers desire to leave a job.

Prior research has established strong linkages between job characteristics, affective commitment, organizational support, and job satisfaction as antecedents to turnover intention. In this context job modification and recognition are factors of job characteristics and work exhaustion that are routinely experienced by IT workers. However, the research literature also suggests that recognition is an understudied but important factor in the retention of IT workers in public HEIs. Furthermore, employee work recognition is an understudied factor of intrinsic motivation. For IT professionals, a significant part of their motivation comes from the recognition they get from managers for accomplished work and their perception that they are an important part of the organization. Work recognition is also an important element of perceived organizational support.

Given the prevalence of job modification among IT workers, it is important to understand the relationship of these variables with job satisfaction, and turnover intention. Moreover, effective recognition programs may be achieved within the operational constraints imposed on public higher education CIO's. A better understanding of the relationships among recognition, job modification, job satisfaction, and turnover intention will inform CIO's in public HEIs on factors that could potentially reduce turnover of staff and avoid negative impacts to their strategic agendas.

Research questions. The central question of this study was: Can public higher education CIOs use recognition as a tool to retain IT workers who experience low job satisfaction in an environment of job modification? An underlying question as to whether IT workers experience

job modification, and if they perceive low job satisfaction, low affective organizational commitment, or low affective commitment in their current job? Additionally, the researcher sought to determine whether perceived work recognitions moderate turnover intentions. Finally, what forms of recognition are perceived by IT workers to be most effective towards increasing their job satisfaction and what is the perceived strength and duration of these effects?

A better understanding of the relationships between job modifications, perceived organizational support, affective commitment, job satisfaction and turnover intentions will serve to clarify if work recognition is effective towards retaining IT workers. CIOs of public HEIs will also gain a better understanding of the effects of job modification and recognition and how best to manage limited resources to avoid costly disruptions to strategic agendas in their institution.

Methods. This study proposed to quantitatively measure the effects of work recognition in a theoretical model of job modification, job satisfaction, affective commitment, perceived organizational support, and turnover intention. The population of interest in this study consisted of adults currently employed as IT workers at the 71 large, 4-year, publicly controlled higher education institutions.

Ethical considerations involving voluntary participation, informed consent, confidentiality and anonymity, the potential for harm, and communicating results was addressed by the researcher. The researcher conformed to the guidelines established by the National Institute of Health (NIH) concerning research ethics.

Because the theoretical model contains formative constructs, a components-based approach for structural equations modeling was utilized. The partial least squares (PLS) technique for data analysis was conducted using SmartPLS incorporating procedures suggested by Chin, Marcolin and Newsted (1996) to test eight hypotheses related to turnover intention.

Findings

A total of 256 valid responses were obtained from among 767 eligible IT staff at 10 institutions resulting in a 33.4% response rate. Response validity was checked using a test of common method variance (CMV) and found that no one factor accounted for the majority of the variance. Therefore, CMV bias is unlikely to threaten the validity of the study.

Convergent and discriminate validity of reflective constructs were assessed using factor loadings obtained from SmartPLS. Items loaded above .70 on their respective constructs and the average variance extracted was above .50 for each construct. Also, item loadings were greater for their respective construct than for other constructs in the model, and each construct's square root of the average variance extracted (AVE) was greater than its intercorrelation with other constructs. Hence, the conditions for both convergent and discriminate validity were met.

To gauge the reliability of reflective constructs, the internal consistency measures for each construct exceed a 0.70 level of internal consistency and were judged to possess sufficient reliability. Composite reliability (RELI) for each construct was above 0.86, which exceeded the recommend threshold for construct reliability.

The adequacy of the PLS model was also assessed by examining the R^2 value for the endogenous variables in the model. The PLS model exhibited moderate strength and good predictive validity for job satisfaction, perceived organization support, and turnover intention, while moderately low predictive validity was associated with the affective commitment.

Demographics. Male respondents in the study outnumbered female respondents and are slightly younger than the women. Annual compensation of $60,000 or less was reported by 53.31% of respondents with men earning significantly higher wages than women. Analysis of preferred and experienced work recognition among the IT workers studied revealed that monetary work recognitions are strongly preferred and that monetary rewards is perceived to

have greatest impact on job satisfaction. Job promotion is perceived to have the longest duration of work recognition.

The results of Pearson correlation analysis among demographic, job characteristics, and composite scores of latent variables revealed several significant relationships of interest to the researcher. Not unexpectedly, turnover intention, job satisfaction, perceived organizational support, affective commitment, and work recognition all exhibited significant and strong relationships to each other. The relationship between turnover intention and age produced a significant negative relationship, $r(255)=-.131$, $p<.05$, suggesting that turnover intention is more prevalent among younger employees. Age also showed a strong positive relationship, $r(255)=.139$, $p<.05$, with job satisfaction, indicating that the older the IT worker, the greater satisfaction they have with their job.

Salary demonstrated significant correlation with 11 other variables. Notably, salary was positively related to job satisfaction , $r(255)=.138$, $p<.05$, perceived organizational support, $r(255)=.195$, $p<.001$, affective commitment, $r(255)=.237$, $p<.001$, and work recognition, $r(255)=.166$, $p<.001$, task replacement, $r(255)=.171$, $p<.001$, and responsibility increase, $r(255)=.190$, $p<.001$. These significant correlations demonstrate the importance of salary's influence on the antecedents of turnover intuition. However, salary failed to offer a statistically significant relationship with turnover intention itself. Not surprisingly, the relationship between "When was your last salary increase" and turnover intention showed a positive and significant relationship, $r(255)=.136$, $p<.05$, which suggests that the longer an IT worker goes without a salary increase, the more likely they are to consider leaving their job. Also last salary increase was negative related to work recognition, $r(255)=-.206$, $p<.001$, further signaling the importance of salary's extrinsic job hygiene influence on intrinsic motivation.

With respect to job modifications, older IT staff are expected to have experienced greater

amounts of task replacements, $r(255)=.197$, $p<.001$, but the relationship between age and responsibility increase lacks statistical support. Task replacement was also positively related to years in position, $r(255)=.262$, $p<.001$, and years at institution, $r(255)=.335$, $p<.001$. Given the pace of change experienced by IT workers, it is not surprising that the longer an IT worker remains in the same position or institution, the more likely they are to experience changes in the tasks they perform. Responsibility increase was only significantly related to "years at institution", $r(255)=.255$, $p<.001$, and suggests that the longer IT workers remain at institutions the more likely they are to be asked to take on additional responsibilities.

These associations described provide additional insights into how demographic and work characteristics can influence the latent variables in the PLS model. Specifically, these relationships prompted the researcher to explore various controls related to gender, salary and preferred forms of recognition with respect to hypotheses related to moderating effects of work recognition. In particular, the differences related to gender are further explored in the results and subsequent discussion.

Support for Hypothesis. The PLS model results and student t-tests were used to assess the eight hypotheses posited by the researcher. The relationships among job satisfaction, affective commitment, perceived organizational support, and turnover intention are well established in the literature and confirmed in hypotheses H1, H2 and H3.

Hypothesis H4 posited that work recognition is positively related to perceived organizational support (H4a), job satisfaction (H4b), and affective commitment (H4c). The path coefficients of the PLS model and Pearson correlations associated with hypotheses H4a, $\beta=.715$, $r(255)=.713$, $p<.001$, and H4c, $\beta=.432$, $r(255)=.451$, $p<.001$, demonstrated a strong positive relationship of work recognition to perceived organizational support and affective commitment. In the case of H4b, the relationship between work recognition and job satisfaction was found to

have a strong and significant correlation, but a weak and insignificant path coefficient, β=.105, r(255)=.507, p<.001. While hypothesis H4a is supported by evidence of a strong and significant correlation, the weak path coefficient suggests that work recognition does not have a significant direct effect on job satisfaction. This finding leads to additional questions about the relationship between work recognition and job satisfaction which are examined further in the discussion.

Support was found for hypotheses H5 and H6 regarding relationships between job modification and work recognition. Specifically, support was established for all components of hypotheses H5 using student t-tests to determine that IT workers who experience increased responsibility without corresponding work recognition expressed lower levels of job satisfaction, t(255)= -2.9779, p<.005 , affective commitment, t(255)= -3.7584, p<.001, and perceived organizational support, t(255)= -9.5274, p<.004. Similarly, for all components of hypothesis H6 support was established for IT workers who experience task replacement without corresponding work recognition expressed lower levels of job satisfaction, t(255)= -3.142, p<.004, affective commitment, t(255)= -3.602, p<.001, and perceived organizational support, t(255)= -7.569, p<.001.

The researcher posited in hypothesis H7 and H8 that work recognition would have a significant moderating effect by reducing the effects of job modification on job satisfaction, perceived organizational support, and affective commitment. No support was found for any elements of hypothesis H7 and H8.

However, subsequent iterations of the model applying controls for expectations of monetary and non-monetary rewards in three scenarios revealed support for two scenarios. First, work recognition significantly moderated responsibility increase in a model of job satisfaction and turnover intention among IT workers who preferred and received monetary recognition, β

=.2735, $t(79)=2.0896$. Secondly, work recognition exhibited significant moderating effects on task replacement for improving job satisfaction for IT staff who did not prefer, nor had received, monetary work recognition. No support was found for any significant moderating effects of work recognition on job modifications towards increased job satisfaction for IT staff who had received work recognition other than monetary, regardless of work recognition preferences.

Conclusions

The population of interest in this study consisted of adults currently employed as IT workers at the 72 large, 4-year, publicly controlled higher education institutions as classified by the Carnegie foundation. The demographic data in Table 1 regarding the participants in the current study are similar to those reported by Bischel (2014) who found that men (60%) outnumbered women (40%), a median age between 45-54 years, and most hold a bachelor's degree (48%) for IT workers at doctoral universities. In the same study, Bischel also found an even distribution of years worked at the current institution that is similar to the current findings presented in Table 2. Salaries were also similar with median ranges intersecting around $60,000 for staff (Bischel, 2014). *Given the similarities of the compared demographics, the researcher concludes that the sample is representative of the population studied.*

The relationships between job satisfaction and turnover intentions have been studied previously and the linkages well established (Tett & Meyer, 1993). Keeping with prior findings, job satisfaction was strongly negatively associated with turnover intention, $\beta=-0.6668$, $t(255)=17.8594$, $p<.05$. The current study also confirms prior research findings linking affective commitment and perceived organizational support to job satisfaction and turnover intention as evidenced by the path coefficients in the PLS model and the Pearson correlation results. *The researcher concludes that the latent endogenous variables of perceived organizational support, affective commitment, and job satisfaction are predictors of turnover intention.*

Work recognition was found to be positively related to perceived organizational support, β=0.715, *t*(255)=23.049, *p*<.001, job satisfaction, β=0.1053, *t(255)*=1.1636, *p*< .001, and affective commitment, β=0.4319, *t*(255)=7.6192, *p*< .001. Work recognition also demonstrated a moderate negative relationship to turnover intention, β=-0.4047, *t*(255)=7.9853, *p<.001*. *The research concludes that work recognition is positively related to job satisfaction, perceived organizational support, and affective commitment. However, there work recognition only has significant direct effect on perceived organizational support and affective commitment.*

There were 231 (90%) IT workers participating in the study who indicated that they had experienced responsibility increase (*M*=3.53), and 161 (63%) experienced task replacement (*M*=4.15). There were 159 (62%) IT workers who experienced both task replacement and responsibility increase. *The researcher concludes that job modification is a common experience among IT Workers.*

IT workers who indicated they had experienced responsibility increase but did not experience work recognition (*N*=34, 13%) perceived significantly less job satisfaction, *M*=3.0833, *t*(33)=-2.9779, *p*<.005, affective commitment, *M*=2.7745, *t*(33)=-3.7584, *p*<.001, and perceived organizational support. Similarly, but to a lesser degree, IT workers who indicated they had experienced task replacement without corresponding work recognition (*n*=26, 10%) had less job satisfaction, *M*=2.9423, *t*(25)=-3.1417, *p*<.004, affective commitment, *M*=2.6538, *t*(25)=-3.6024, *p* <.001, and perceived organizational support, *M*=2.2115, *t*(25)=-7.5693, *p*<.001. These results demonstrated statistical significance requirements for accepting Hypothesis 5 and Hypothesis 6. *The researcher concludes that IT workers who experience responsibility increase, without work recognition perceive lower job satisfaction, lower affective commitment, and lower perceived organizational support in their job. Given the strength of the PLS model item correlations, path coefficients, variance explained by endogenous latent*

variables, and the degree of significance associated with tests in support of Hypotheses H5 and H6 the researcher concludes that work recognition is strongly associated with perceived organizational support.

An underlying research question of this research study is whether work recognition has a negative moderating effect on job modification in a model of affective commitment, perceived organizational support, job satisfaction and turnover intentions among public higher education IT workers. While no statistically significant evidence was found to support work recognitions moderating effects within the entire sample, a different picture emerges when controls for preferences of recognition are considered.

For the participants who ranked monetary/wage increase in the top 3 preferred forms of work recognition (n=80, 31%), work recognition significantly moderated effects of responsibility increase in a model of job satisfaction, β=.2735, $t(79)$=2.0896, p<.05. *The researching concludes that monetary recognition is an expectation among IT workers who experience responsibility increase and such recognition is significant to reducing job turnover intentions.*

For IT workers who do not prefer and had not received monetary rewards (n=82, 32%), a significant moderating effect of non-monetary work recognition was found in a model of task replacement and job satisfaction, β =.3196, $t(81)$=3.6716, p<.05. *The researcher concludes that non-monetary forms of work recognition are effective at decreasing turnover intentions when IT workers experience task replacement and don't expect compensation.*

The researcher sought to answer the question, "What forms of recognition have the strongest impact on job satisfaction?" There were 204 (80%) participants with composite scores for work recognition above 3.0 (M=3.6, SD=.758) indicating overall positive experiences with work recognition in their job. Mean values of work recognition impact ranging from -2 (no impact) to +2 (strong impact) were measured for up to 10 work recognition experiences. The

most frequently identified work recognition was "Information thank-you note" (*f*=198) which ranked 5th (*M*=.91, *SD*=.58) among other forms. Tied for the second most frequent work recognitions received were "Monetary/bonus/salary increase" and "Public recognition" (*f*=99). In terms of impact, "Monetary/bonus/salary increase" ranked 2nd (*M*=1.46, *SD*=.64) while "Public recognition" ranked seventh (*M*=.97, *SD*=.61). The third most experienced work recognition identified by participants (*f*=92) was "Training/certification" which ranked 3rd in terms of impact (*M*=1.24, *SD*=.60). "Time off/vacation" (*f*=67) was identified as having the fourth highest impact (*M*=1.22, *SD*=.*63*). Monetary increases are often associated with job promotions and this notion is supported by the lack of statistically significant, *t*(59)=1.041, *p*=.6976, differences between the means of work recognition impact for "Monetary/bonus/salary increase" (*M*=1.46, *SD*=.64) and "Job promotion" (*M*=1.55, *SD*=.67) in this study. The impact of "Training/Certification" was significantly different from "Monetary/bonus/salary increase", *t*(91)= -3.5169, *p*<.001. The impact of "Informal thank-you note" was significantly different from "Training/Certification", *t*(91)=4.0277, *p*<.001. Notably, two participants were emphatic about the impact of serving on committees and being given technology devices as observed in the "Other 2" category (*M*=-1.85, *SD*=.21). *The frequency and impact measured leads the researcher to conclude that work-recognitions of job promotions, skill development, and quality of life improvements have the strongest impact on IT workers.*

The research sought to answer the question, "What is the perceived duration of the benefits of work recognition among those who experience recognition?" Participants ranked the duration of effects on a four point Likert scale indicating days, weeks, months or years of duration of the effect of experienced work recognition. Longer duration of months or years were associated with Monetary (*M*=3.27, *SD*=.92), job promotion (*M*=3.60, *SD*=.56), and to a lesser degree, training/certification (*M*=2.79, *SD*=.98). "Formal letter/certificate" (*M*=1.85, *SD*=.92)

and “Public recognition” (*M*=1.86, *SD*=*.91*) were significantly different, *t*(53)=-2.6359, *p*<.01, from “Time off/vacation” ” (*M*=2.18, *SD*=.94) and “Commemorative item/plaque” ” (*M*=2.18, *SD*=1.18) and exhibited days or weeks in effect duration. The shortest duration of work recognition effects was measured for “gifts/gift certificates” (*M*=1.58, *SD*=.78), “Group celebration/party” (*M*=1.50, *SD*=.74), and “informal thank you note” (*M*=1.48, *SD*=.72) with effects lasting days. Notably, for other items identified by participants, relatively long-term effects were indicated.

There were 6 participants who indicated a work recognition preference of “none”. The researcher interprets this to indicate no recognition was preferred. The participants indicated that no recognition had years of duration of effect. *The researcher concludes that among the IT workers studied, monetary, job-promotions and training opportunities are preferred among IT workers and have relatively long-term positive effects on job satisfaction. Time-off and commemorative plaques are among other non-monetary-related work recognitions that have an effect lasting weeks or months. Informal thank-you notes are appreciated but have short-term effects on job satisfaction lasting just days or weeks. Similarly, Group celebrations are not popular and have weak effects lasting only days.*

The central question of this study was: Can public higher education CIOs use work recognition as a tool to retain IT workers who experience low job satisfaction in an environment of job modification? *Given the overall validity of the theoretical model as supported by the PLS findings regarding path coefficients, variance explained, and also the comparison of composite mean values, and variable correlations, the researcher concludes that CIOs can effectively use work recognition, to achieve short and long term enhancements to job satisfaction and reduce turnover intention when the work recognition is aligned with personal preferences and with consideration to the effectiveness associated with specific circumstances of job modification.*

Discussion

The response rate approximated the researcher's expectations. It is understandable, but presented somewhat of a surprise, that institutions operating with labor unions chose not to participate. CIOs were also very protective of their staff, choosing to distribute the questionnaire themselves rather than provide emails of staff to the researcher. This is an understandable response given sensitivities to privacy and may also signal strong protectionism of staff resources. Because no CIO chose to provide email address of eligible IT staff comparisons to the CIO direct correspondence method is not possible. However, the researcher surmises that personalized messages from CIOs may have yielded greater response rates, because of the personal nature of the request and their endorsement of the research. Nevertheless, the survey resulted in a sufficient number of responses to provide adequate predictive power for a PLS study given the number of formative indicators and structural paths leading to latent variables.

The reflective constructs associated with the latent variable work recognition were based on the work of Paquet, et al. (2011), and by Brun and Dugas (2005). Among the original 16 constructs 10 items loaded more strongly on perceived organizational support than on work recognition. These items dealt with peer support, a concept that overlaps with organizational support. As a stand-alone instrument, these 16 questions would likely possess strong validity for measuring work recognition and aspects of organizational support. However, to establish sufficient convergent and discriminate validity in the theoretical model the questions relating to supervisor-related recognitions were retained. The sample size, lack of common methods bias in the data, and the strong psychometric properties and composite reliability of the modified model served to establish good reliability and predictive traits of the theoretical model. The subsequent findings and conclusions of this study lend themselves to considerable discussion about the turnover intentions of IT workers, the impact of job modification on job satisfaction, and the

perceptions of IT workers regarding effective work recognition.

IT Workers who Experience Job Modification. The researcher sought to determine if IT workers who experience job modification without requisite work recognition perceive lower job satisfaction, lower perceived organizational support, or lower affective commitment in their current job. The results of the current study clearly indicate that job modification in the form of task replacement and responsibility is a significant issue among IT workers affecting nearly two-thirds of the participants. It is also evidenced that the relatively few IT workers who experienced job modification without corresponding work recognition have significantly less job satisfaction, affective commitment and perceived organizational support. Given the linkages observed in the theoretical model it is clearly important to consider both job modification and work recognition when addressing retention strategies and theories of higher education IT workers. Moreover, the two components of job modification, task modification and responsibility increase were perceived to be distinctly different.

Work Recognition as a Moderator of Job Modification. The central question to this study is: Can public higher education CIOs use work recognition as a tool to retain IT workers who experience low job satisfaction in an environment of job modification? The results and conclusions drawn suggest that work recognition programs can be effective at reducing the negative effects of job modification when those recognitions are aligned with IT worker expectations. Specifically, monetary recognitions were effective at moderating responsibility increase among the 80 IT workers in the current study who preferred monetary compensation. These findings seem to support established linkages between job satisfaction and organizational justice theory in that workers expect to be treated fairly with respect to compensation and will likely perceive non-financial recognition as insincere (Long & Shields, 2010).

Secondly, in the case of 115 participants who preferred non-monetary work recognitions,

such recognitions were effective towards reducing the negative effects of task replacement on job satisfaction. In such circumstances work recognition in the form of additional training was preferred. These conditions reflect the notion explored in the literature review that job satisfaction is a function of both extrinsic job hygiene factors and intrinsic motivations. Work recognition in the form of training rewards for those who have experienced task replacement may also be linked to opportunism for future job promotion which frequently leads to additional compensation.

Monetary recognition. Given that recent research conclusions have downplayed the importance of compensation and monetary recognition (Graham & Unruh, 1990; Nelson, 2001; Bischsel, 2014) it is a somewhat surprising to find that monetary rewards were so strongly preferred by the IT workers participating in the current study. Why is it that "money" may be a more important issue among the IT workers in the study?

One possibility is that wages may indeed be low. According to Timpany (2013), the median salary of managerial and non-managerial IT professionals is $77,500, and according to the United States Bureau of Labor (2012) computer and information research occupations had a median salary of $76,270. Another study of over 17,000 IT professionals recently found an average salary of $87,811 (Dice, 2014). The median salary of IT workers in the current study is in the range of $41,000-60,000.

Bischel's (2014) study of higher education IT staff concluded that while monetary compensation may not a top factor in the retention of IT professionals, the feeling that one is not being compensated fairly is a strong predictor of risk for leaving one's institution. This conclusion substantiates the importance of fairness of rewards as the fourth strongest antecedent of IT turnover intention found in the research literature (Joseph et al., 2007). Similarly, the current study supports the claim that the longer an IT worker goes without a compensation

increase the greater their turnover intentions become, $r(255)=.136$, $p<.05$.

Nelson and Spitzer (2003) suggested that, "in some organizations where people are doing jobs they don't enjoy, while working for managers who never show their appreciation, employees conclude: 'If this is what it's like to work here, at least they had better pay me well.' In the absence of recognition, money becomes a form of psychological reparation for enduring a miserable job" (p 22). They further suggest that in some organizations, managers who regularly use monetary rewards to thank users implicitly send the message to employees that cash is the only medium of gratitude and condition employees to expect such rewards as the only valid form of recognition. However, it is unlikely that regular monetary rewards are prevalent in public higher education institutions given the policy restrictions on CIO's that were identified in the literature review (Zumeta & Kinne, 2011).

Moreover, job satisfaction ($M=3.52$, $SD=0.71$) and affective commitment ($M=3.27$, $SD=0.78$) among IT workers in the current study indicate a significantly positive disposition of higher education IT workers attitudes towards their institutions. These two factors possessed the strongest negative correlations with turnover intentions in the research (Joseph et al., 2007) and are also significant and strong predictors of turnover intention in the current study.

Non-monetary recognition. Nelson (2001) concluded that when it comes to recognizing employees, the simple intangible considerations are the most important to their motivation. For the IT workers who did not place a high value on monetary rewards, other forms of recognition successfully moderated the negative effects of task replacement on job satisfaction. In such circumstances work recognition in the form of additional training is preferred. IT workers seem to be saying, "if you ask me to do perform a different task, provide with training so I can do a good job." These findings seem to parallel a recent study of HE IT workers conducted by Bichsel (2014), who found that only about half of the IT staff surveyed believed they were

allowed to participate in professional development and training opportunities critical to their professional growth. In the current study, only 92 (36%) of the IT workers indicated that have received training /certification as a work recognition. There is clearly an opportunity to leverage work recognition programs that include training /certification to improve long-term employee retention strategy.

Though not experienced by many participants (N=5), time off /vacation was ranked 4th, and just slightly behind training and certification, as a preferred work recognition and impact on job satisfaction. This finding is indicative of the recent findings by Bichsel (2014) that the quality of life is a top factor in keeping IT professionals at their institutions. Work recognition that positively impacts quality of life may be increasingly important given the mounting pressures on IT staff.

The pressures on IT staff and the impact of job modifications on work exhaustion and subsequently job satisfaction are significant. Work exhaustion was identified as the third strongest correlation of IT worker turnover intention in by Joseph et al. (2007). Time off of the job could be an important work-recognition strategy as long as the individual does not perceive the benefit leading to the deferral and build-up of work.

The most frequently experienced and moderately preferred form of recognition was the personal “thank you” note. Although the personal thank-you has relatively short duration of effect, it is by far the simplest and easiest form of recognition that can be successfully applied to recognizing desirable behaviors in IT staff.

The preference of public recognition was ranked seventh overall and was experienced by 99 (39%) respondents. Public recognition was much less preferred, perhaps due to the fact that not everyone is comfortable with public praise. When public praise is received the duration of effect can be profound for those who highly value it, or limited to days for those who do not.

Formal letters/certificates, commemorative items, and group celebrations all exhibited low preference among IT workers in the study. Formal letters, certificates and commemorative items may provide longer term effects due to their ability to remind staff of prior accomplishments, while group celebrations provide little long-term effects. This may be attributable to the ideas that group work recognition such as celebrations or parties may not cause individual employees feel personally recognized. This is because everyone is receiving the recognition, regardless of their individual levels of contribution.

Gender differences. Both male and female turnover intention is significantly and negatively influenced by job satisfaction and work recognition. This finding is not unexpected. However, male turnover intentions are significantly and negatively influenced by their levels of affective commitment (β=-.2126, t=2.7280) whereas females are not (β=.0030, t-.0246). Conversely, female turnover intentions are significantly and negatively influenced by perceived organizational support (β= -.3303, t=2.8931) but males are not (β= -.0182, t-.2046). While the statistically significant findings are not unexpected, the absence of significance is interesting.

The findings suggest that females' turnover intentions may not increase when they perceive low levels of affective commitment. When considering job modifications, female IT worker's affective commitment is significantly and positively influenced by responsibility increase (β=0.3636, t=2.9855). This suggests that as women IT workers are given more responsibility, and perhaps requisite promotions, they become more attached to the institution. According to Bichsel's (2014) recent findings, there are significantly fewer women in IT leadership roles in higher education (Bichsel, 2014). Moreover, the current study supports Bichsel's findings with a significant disproportion of men (n=182) to women (n=74) IT workers. The current study results indicate that female IT workers' turnover intentions increase if they experience low levels of organizational support. The results raise important questions about

work conditions, advancement opportunities, and fairness of compensation for women working in public higher education IT organizations.

On the other hand the results suggest that male IT workers experience greater intentions for turnover in the absence of affective commitment. Unlike their female counterparts, they will not inherently build affective commitment when given increased responsibilities. Male IT workers are also more sensitive to task replacement in their jobs than their female counterparts, and experience decreased perceived organizational support (β= -0.1626, t=2.3586). These male IT workers will subsequently develop increased turnover intentions.

Work recognition's influence on job satisfaction and turnover intention is mediated by perceived organizational support and affective commitment for both male and female IT workers. Work recognition has a substantial positive influence on perceived organizational support for both males (β=.7118, t=19.671) and females (β=.7289, t=11.957). Similarly work recognition has a moderate positive effect on affective commitment for both males (β=.4011, t=5.1710) and females (β=.4881, t=5.7534). This finding underscores the importance of work recognition in mitigating IT workers turnover intentions. However, it is important to also note that no statistically significant moderating effects of work recognition on job modifications and antecedents of turnover intention were observed when the model was controlled for gender.

With respect to work recognition, female respondents placed a slightly higher preference on "Informal thank-you/Note" than did their male counterparts (M=4.8, SD=2.84). Relatedly, females cited greater impact (M=1.02, SD-.55), and duration of effect (M=1.61, SD=.75) of the "Informal thank-you/Note". Females also indicated relatively longer duration of effect for "Job promotion" (M=3.77, SD=.44). This stronger duration of effect may be associated with the previously discussed favorable perceptions of females regarding responsibility increase.

Male respondents placed higher value on work recognition impact (M-.96, SD-.64) and

the duration of effect (*M*=2.35, *SD*=1.20) associated with "Commemorative item / Plaque." Males also indicated relatively longer duration of effect for "Time off / Vacation" (*M*=2.29, *SD*=.92) than did females.

Finally, the findings of this study suggest that recognition is a personal issue. Overall, the impact and length of effects of work recognition are personal judgments that are not necessarily influenced by salary, longevity in job, gender, or age. Instead, judgments regarding work recognition may be determined by the characteristics of the work performed and the sense of appropriateness or value of the recognition in relation to that work. Such is the case with respect to job modifications.

Many IT staff who experienced responsibility increase expected monetary recognitions as a fair response to their work. While other IT staff found additional training and thank-you notes as sufficient recognition for taking on different tasks. These conclusions seem to align with Bichsel's (2014) findings that competitive salaries, expanded professional development opportunities, additional staff positions, and flex time are among the top factors identified by CIOs for maintaining an adequate IT workforce (Bichsel, 2014). Similarly, Dice's (2014) study of more than 17,000 IT workers found that 66% of companies offered incentives in the form of more interesting work (17%), increased compensation (17%), flexible work location (10%), flexible work hours (9%), promotions or title changes (5%), training or certifications (3%), and high level recognition (2%) as a means of retaining staff.

The current study extends prior findings to clarify that compensation is an expectation of responsibility increase, while professional development opportunities are more closely aligned with task replacement. Further, that appropriate work recognition expectations depend on the individual's preferences and while recognitions may not moderate the effects of job modification, they strongly contribute to reducing turnover intentions. Overall effective work

recognition programs can positively contribute to increase affective commitment, perceived organizational support, and job satisfaction, thereby reducing turnover intentions. Hence, work recognition strategies should be part of the CIO's tool box for retaining IT staff. These conclusions lead to observations that have implications for practice among higher education CIO's.

Recommendations for Practice

The results and conclusions of the current study lead the researcher to conclude that work recognition is an important aspect of perceived organizational commitment, and job satisfaction that contributes to the retention of IT workers. As such, there are implications for practice that should be considered for choosing appropriate work recognition or building recognition programs. It is prudent for the CIO to be thoughtful in the choice of recognitions to ensure the effectiveness, duration, and appeal relative to the situation and to the personal preferences of IT staff.

There is significant evidence that job modification is prevalent among IT workers in public higher education institutions. Increases in responsibility and changes in tasks are inevitable given the dynamic nature of technology and the prevailing work environments surrounding IT workers. As such, CIOs must be cognizant of conditions that contribute to job modification, and take steps through work recognition actions to manage negative impacts on job satisfaction. CIOs should keep in mind that responsibility increase and task replacements assigned to IT workers elicit different sets of expectations and perceptions regarding organizational justice and organizational support.

The effects of compensation on antecedents of turnover intention were evident in this study. Prior research has revealed that both extrinsic hygiene factors like compensation must be managed concomitantly with intrinsic motivation. The importance of using monetary work

recognition was most salient when assigning additional responsibilities to IT workers. CIOs should consider monetary recognitions, perhaps in the form of reclassification or promotion of IT workers to new jobs that formally recognize the additional responsibilities. Given the restrictive nature of human resource job classification and compensation policies at public higher education institutions, it may be prudent for CIOs to pursue the implementation of broadbanding. Broadbanding is a simplified and flatter job classification structure that facilitates organizational change, job modification, and employee skill growth that is characteristic of the IT work environment (Boston College, 2014; IPMA-HR, 2007).

The participants in this research study highly valued training and certification opportunities as a form of work compensation. When IT workers are asked to modify their work through task replacement, CIO's should consider offering training and certification opportunities to increase job satisfaction and provide gateways to future promotion. Moreover, it is fundamentally essential for CIOs to facilitate the professional development as they are called upon to utilize technology in support of institutions' strategic objectives. While professional development is essential to successful utilization of IT, the financial pressures being put on higher education CIOs, has forced many institutions to cut back on training and professional development activities. When budgets do not allow for formal technical training, CIO's should consider collaborating with other institutions and sharing in the expense of job training. There are some effective options that present virtually no cost including: job shadowing at among institutions, vendor product road-map sessions, and participation in local professional association meetings.

Work recognition is highly personal. When considering work recognition, CIO's should also keep in mind that recognition is more meaningful when the form it takes is valued highly by the recipient. Personal recognition plans can be built to ensure alignment of recognition with

employee expectations. CIO's should also be cognizant that the setting and context in which recognition is given is important. For example, not all employees want to be recognized publicly, and perhaps some, not at all. Asking IT staff how they would like to be recognized can avoid situations where good intentions back-fire and actually diminish perceptions of organizational support and affective commitment.

When unsure about someone's recognition preferences a personal, sincere, and timely praise for a job well done is almost universally appreciated by IT staff, and has strength of effect that is on par with more formal and public recognition. Albeit short-term in duration, the preference and effects of thank-you notes suggests that they may be used frequently to encourage desired behavior or performance as long as each one is deserved, sincere, and timely in delivery.

A common practice is to celebrate IT project completions. Commemorative plaques and group celebrations have relatively low preferential value. However, plaques and commemorative items have some long-term effects as visual reminders while the effects of group celebrations and parties are pretty short lived. If CIOs are planning a project completion celebration, consider providing a lasting remembrance of the achievement, and if possible augment celebrations with financial bonuses appropriate to the nature, importance, or difficulty of the work performed.

CIOs should not be the sole distributors of work recognition and the importance of immediate supervisors as participants in work-recognition cannot be understated. For example, Graham (1991) found two common characteristics of recognition that resulted in achieving the greatest levels of motivation among employees: manager-initiated recognition rather than organizational initiated, and recognition contingent upon performance, not just on being present. Managers are likely to be among the first to recognize and most qualified individuals to authenticate work recognition opportunities. This implies that CIOs should create work

recognition programs that empower front-line supervisors to initiate work recognition. Such programs must supply the manager and IT worker with specific information about what behaviors or actions are being rewarded and recognized. Precautions should be taken to avoid favoritism or ambiguous recognitions while ensuring personal preferences are considered.

These recommendations for practice inform public higher education leaders about the importance of addressing promotion, compensation, and training when responsibility increases and different tasks are levied on IT workers. CIOs and front-line managers can gain useful information as to the effectiveness and duration of various types of work-recognition as a precursor to developing recognition tactics. Both leadership and management should be cognizant that women may face a variety of gender biases at work, but they are also eager to embrace new responsibilities in the IT organizations. The results of this study are particularly important as many HE institutions are challenged to meet heightened expectations for efficiency and effectiveness and seek to leverage technology as a foundation for launching new strategic initiatives.

Recommendations for Further Study

The findings of this study are limited to the population studied. Since only IT staff at large publicly controlled higher education institutions were included in this study, future research could investigate job modification, work recognition, and turnover intentions in other classifications of education institutions. The study may also be suited to examining similar attributes among other workers in higher education, such as faculty.

There is relatively little research on work recognition in the literature and more research is needed to obtain a deeper understanding of the relationships of work recognition and job modification among other antecedents of turnover intention. The limited amount of research on work recognition may be related to the evidence that recognition is highly personal, context

sensitive, and difficult to measure in complex theoretical models due to its tendency to cross-load on latent variables such as perceived organizational support. Moreover, the reluctant disposition of some CIO's to participate in this study due to political ramifications with labor unions suggests that data collection of work recognition may be problematic in some populations of interest.

Future research could build upon the current research findings and the prior works of Brun and Dugas (2002, 2005) and Paquet, et al. (2011) to refine reflective measures of work recognition in relation to other latent endogenous and exogenous variables towards developing more extensive theoretical models of job satisfaction and turnover intention. Also, given the apparent personal nature of recognition, additional research could be conducted with respect to the effects of specific types and forms of recognition among variables of intrinsic and extrinsic motivations, and with various populations of workers and organizations. Characterizing the relationship of work recognition with other antecedents of job satisfaction could provide additional insights into effective recognition programs. In addition, measuring differences among various populations and gender could yield important insights into key differences that could inform practices effective for retention of workers in various job roles.

REFERENCES

Abdullah, A., Bilau, A. A., Enegbuma, W. I., Ajagbe, A. M., Ali, K. N., & Bustani, S. A. (2012). Small and Medium Sized Construction Firms Job Satisfaction and Evaluation in Nigeria. *International Journal of Social Science and Humanity, 2*(1), 35–40.

Acquino, K., & Griffeth, R. (1999). An exploration of the antecedents and consequences of perceived organizational support. Unpublished manuscript, University of Delaware and Georgia State University, Atlanta, GA.

Adams, J. (1965). Inequity in social exchange. *Advances in Experimental Social Psychology*, *2*, 267–299. Retrieved from http://books.google.com/books?hl=en&lr=&id=wF8-cGQ10J0C&oi=fnd&pg=PA267&dq=Inequity+in+social+exchange&ots=Ek2v9HmPLF&sig=Xt-nDZ6-tYr8ymY-rCF5wk3gDt0

Agarwal, R., Ferratt, T., & De, P. (2007). An experimental investigation of turnover intentions among new entrants in it. *ACM SIGMIS Database*, *38*(1), 8–28. Retrieved from http://dl.acm.org/citation.cfm?id=1216222.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. doi:10.1016/0749-5978(91)90020-T

Ajzen, I., & Madden, T. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology, 22*(5), 453–474.

Allen, D., Shore, L., & Griffeth, R. (1999). A model of perceived organizational support. Unpublished manuscript, University of Memphis and Georgia State University, Atlanta, GA.

Allen, M., & Armstrong, D. (2009). IT employee retention: employee expectations and workplace environments. *Proceedings of the Special Interest Group on Management Information System's 47th Annual Conference on Computer Personnel Research* (pp. 95–100). Retrieved from http://dl.acm.org/citation.cfm?id=1542148

Allen, M. W., Armstrong, D. J., Reid, M. F., & Riemenschneider, C. K. (2008). Factors impacting the perceived organizational support of IT employees. *Information & Management, 45*(8), 556–563. doi:10.1016/j.im.2008.09.003

Almonaies, A., Cordy, J., & Dean, T. (2010). Legacy system evolution towards service-oriented architecture. *International Workshop on SOA Migration and Evolution* (pp. 53–62). Retrieved from http://serviceorientedarchitecturesoa.net/goto/http://research.cs.queensu.ca/home/cordy/Papers/ACD_MigToSOA_SOAME10.pd .

Amabile, T., Schatzel, E., Moneta, G., & Kramer, S. (2004). Leader behaviors and the work environment for creativity: perceived leader support. *The Leadership Quarterly*, *15*(1), 5–32.

Andrews, M., & Kacmar, K. (2001). Discriminating among organizational politics justice and support. *Journal of Organizational Behavior, 22*(4), 347–366.

Ang, S., & Slaughter, S. (2004). Turnover of information technology professionals: the effects of internal labor market strategies. *ACM SIGMIS Database, 35*(3), 11–27. Retrieved from http://dl.acm.org/citation.cfm?id=1017118.

Angliss, C. (2007). Employee recognition programs. *Office Pro, 67*(2), 20–23.

Appelbaum, S. H., & Kamal, R. (2000). An analysis of the utilization and effectiveness of non-financial incentives in small business. *Journal of Management Development, 19*(9), 733–763. Retrieved from http://www.emeraldinsight.com/journals.htm?articleid=880411&show=abstract

Armeli, S., Eisenberger, R., Fasolo, P., & Lynch, P. (1998). Perceived organizational support and police performance: The moderating influence of socioemotional needs. *Journal of Applied Psychology, 83*(2), 288–297. Retrieved from http://www.psychology.uh.edu/faculty/Eisenberger/files/13_Perceived_Organizational_Support_and_Police_Performance.pdf

Armour, S. (2003, December). U.S. workers feel burn of long hours, less leisure. *USA Today.* Retrieved from http://www.usatoday.com/money/workplace/2003-12-16-hours-cover_x.htm

Armstrong, D., & Riemenschneider, C. (2011). The influence of demands and resources on emotional exhaustion with the information systems profession. In *ICIS 2011 Proceedings*. Retrieved from http://aisel.aisnet.org/icis2011/proceedings/humancapital/4

Armstrong-Stassen, M., & Schlosser, F. (2008). Taking a positive approach to organizational downsizing. *Canadian Journal of Administrative Sciences, 25*, 93–106. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/cjas.63/pdf

Ashford, S. (1986). Feedback-seeking in individual adaptation: A resource perspective. *Academy of Management Journal, 29*(3), 465–487.

Aspinwall, L., & Staudinger, U. (2003). A psychology of human strengths: Some central issues of an emerging field. In L. G. Aspinwall & U. M. Staudinger (Eds.), *A Psychology of Human Strengths: Fundamental Questions and Future Directions for a Positive Psychology* (pp. 9–22). Washington, DC: American Psychological Association. Retrieved from http://psycnet.apa.org/index.cfm?fa=main.doiLanding&uid=2003-04757-001

Backhaus, K., Erichson, B., Plinke, W., & Weiber, R. (2003). *Multivariate Analysis Methods: An Application-Oriented Introduction*. (10th ed.). Berlin: Spinger.

Bakker, A., Demerouti, E., & Berbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management, 43*(1), 83–104. doi:10.1002/hrm.20004

Ballenstedt, B. (2010, October). Tough sell. *Government Executive*.

Baotham, S., Hongkhuntod, W., & Rattanajun, S. (2010). The effects of job satisfaction and organizational commitment on voluntary turnover intention of Thai employees in the new university. *Review of Business Research, 10*(1), 73–83. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:THE+EFFECTS+OF+JOB+SATISFACTION+AND+ORGANIZATIONAL+COMMITMENT+ON+Voluntary+Turnover+Intentions+of+Thai+Employees+in+the+New+University#7

Barclay, D., Higgins, D., & Thompson, R. (1995). The partial least squares approach to causal modeling: personal computer adoption and use as an illustration. *Technology Studies*, *2*(2), 285–309.

Barker, A. (2011). *Nonprofit employee recognition: An intrinsically-based program*. *Chemistry & …*. The University of Texas at Arlington. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/cbdv.200490137/abstract

Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in social pscyhological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Baroudi, J. J. (1985). The impact of role variables on IS personnel work attitudes and intentions. *MIS Quarterly*, *9*(4), 341–356.

Beach, G. (2011, June). The dawning of the age of mobility. *CIO, 6*. Retrieved from http://www.cio.com/article/684317/The_Dawning_of_the_Age_of_Mobility

Beadry, A., & Pinsonneault, A. (2005). Understanding user responses to information technology: A coping model of user adaptation. *MIS Quarterly, 29*(3), 493–524.

Belcourt, M., & Snell, S. (2005). *Managing Human Resources*. Ontario, CAN: Thomas Nelson.

Berry, M. (2010). Predicting Turnover Intent: Examining the Effects of Employee Engagement, Compensation Fairness, Job Satisfaction, and Age (Unpublished Doctoral Dissertation). University of Tennessee, Knoxville, TN. Retrieved from http://trace.tennessee.edu/utk_graddiss/678/

Benamati, J., & Lederer, A. (2001). Coping with rapid changes in IT. *Communications of the ACM, 44*(8), 83–88.

Bettencourt, L., & Gwinner, K. (1996). Customization of the service experience: The role of the frontline employee. *International Journal of Service Industry Management, 7*(2), 3–20.

Bichsel, J. (2014). *Today's Higher Education IT Workforce* (p. 45). EDUCAUSE Center for Analysis and Research. Louisville, CO. Retrieved from http://www.educause.edu/ecar

Bjorner, J., & Pejtersen, J. (2010). Evaluating construct validity of the second version of the Copenhagen Psychosocial Questionnaire through analysis of differential item functioning and differential item effect. *Scandinavian Journal Of Public Health*, *38*(3), 90–105. doi:10.1177/1403494809352533

Blau, G., & Boal, K. (1987). Conceptualizing how job involvement and organizational commitment affect turnover and absenteeism. *Academy of Management Review*, *12*(2), 288–300. Retrieved from http://www.jstor.org/stable/10.2307/258536

Bluedorn, A. (1982). A unified model of turnover from organizations. *Human Relations*, *35*(2), 135–153.

Boston College (2014). *Market Pricing Broad Band Compensation System*. Retrieved from https://www.bc.edu/content/bc/offices/compensation/broadband.html

Brand, S. (2000, June). Is technology moving too fast? *Time Magazine*. Retrieved from http://www.time.com/time/magazine/article/0,9171,997268,00.html

Brayfield, A. H., & Rothe, H. F. (1951). An index of job satisfaction. *Journal of Applied Psychology*, *35*(5), 307–311.

Brodie, M., & Stonebraker, M. (1993). Darwin: On the incremental migration of legacy information systems. *Technical Report TR-0222-10-92*. GTE Laboratories Incorporated. Retrieved from http://db.cs.berkeley.edu/papers/S2K-93-25.pdf

Brun, J. P.(2005). Employee recognition: analysis of a meaningful concept. *Gestion*, *30*(2), 79–88.

Brun, J. P., & Dugas, N. (2002). *Employee recognition: a wealth of practical sense* (p. 24). Retrieved from http://www.tresor.gouv.qc.ca/fileadmin/PDF/publications/reconn-trav_02.pdf

Brun, J. P., & Dugas, N. (2005). Recognition at work: Analysis of a rich concept of meaning. *Gestion*, *30*(2), 79–88.

Brun, J. P., & Dugas, N. (2008). An analysis of employee recognition: Perspectives on human resources practices. *The International Journal of Human Resource Management*, *19*(4), 716–730. doi:10.1080/09585190801953723

Buhler, P. (2011). Professional polish: A key to the development of today's workforce. *Supervision, 72*(7), 5. Retrieved from http://connection.ebscohost.com/c/articles/61927814/professional-polish-key-development-todays-workforce

Burke, R., & Greenglass, E. (1995). A longitudinal study of psychological burnout in teachers. *Human Relations, 48*(2), 187–202. Retrieved from http://hum.sagepub.com/content/48/2/187.short

Campbell, D., & Fiske, D. (1959). Convergence and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*, 81–105.

Cappelli, P. (2009). Rethinking employment. *British Journal of Industrial Relations, 33*(4), 563–602. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8543.1995.tb00456.x/abstract

Carayon, P., Hoonakker, P., Haimes, M., & Swanson, N. (2000). Job characteristics and quality of working life in the IT workforce: The role of gender. *SIGMIS CPR '03 Proceedings of the 2003 SIGMIS conference on Computer personnel research: Freedom in Philadelphia--Leveraging Differences and Diversity in the IT Workforce* (pp. 58–63). doi:10.1145/761849.761859

Carnegie Foundation. (2013). Custom listings. *Carnegie Foundation For The Advancement of Teaching*. Retrieved March 09, 2013, from http://classifications.carnegiefoundation.org/lookup_listings/custom.php

Carrell, M., & Dittrich, J. (1978). Equity theory: The recent literature, methodological considerations, and new directions. *Academy of Management Review, 3*(2), 202–210.

Carsten, J., & Spector, P. (1987). Unemployment, job satisfaction, and employee turnover: A meta-analytic test of the Muchinsky model. *Journal of Applied Psychology, 72*(3), 374–381. Retrieved from http://psycnet.apa.org/journals/apl/72/3/374/

Chang, C., Chen, V., Klein, G., & Jiang, J. (2011). Information system personnel career anchor changes leading to career changes. *European Journal of Information Systems, 20*(1), 103–117. doi:10.1057/ejis.2010.54

Cherniss, C. (1993). Role of professional self-efficacy in the etiology and amelioration of burnout. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional Burnout: Recent Developments in Theory and Research* (pp. 135–149). Washington, DC: Taylor & Francis. Retrieved from http://psycnet.apa.org/psycinfo/1993-97794-008

Chilton, M., Hardgrave, B., & Armstrong, D. (2010). Performance and strain levels of it workers engaged in rapidly changing environments: a person-job fit perspective. *ACM SIGMIS Database, 41*(1), 8–35. Retrieved from http://dl.acm.org/citation.cfm?id=1719053

Chin, W. (1998). The partial least squares approach to structural equation modeling. In A. Marcoulides (Ed.), *Modern Methods for Business Research* (pp. 295–336). Mahwah, NJ: Lawrence Erlbaum.

Chin, W. (2010). How to write up and report PLS analyses. In V. Vinzi, J. Henselr, W. Chin, & H. Wang (Eds.), *Springer Handbooks of Computational Statistics Series. Handbook of Partial Least Squares.* (pp. 655–690). New York: Springer. doi:10.1007/978-3-540-32827-8

Chin, W., Marcolin, B., & Newstead, P. (1996). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a monte carlo simulation study and voice mail emotion / adoption study. In J. DeGross, S. Jarvenpaa, & A. Srinivasan (Eds.), *Proceedings of the Seventeenth International Conference on Information Systems* (pp. 21–41). Cleveland, OH. Retrieved from http://disc-nt.cba.uh.edu/chin/icis96.pdf

Claffey, G. (2009). Looking at IT through a new lens: achieving cost savings in a fiscally challenging time. *EDUCAUSE Quarterly*, *32*(2), 1–11. Retrieved from http://www.eric.ed.gov/ERICWebPortal/recordDetail?accno=EJ850632

Colquitt, J. (2001). On the dimensionality of organizational justice: a construct validation of a measure. *Journal of Applied Psychology*, *86*(3), 386–400. Retrieved from http://psycnet.apa.org/journals/apl/86/3/386/

Cook, T., & Campbell, D. (1979). *Quasi-experimentation: Design & analysis issues for field settings* (p. 420). Chicago: Rand McNally.

Coombs, C. R. (2009). Improving retention strategies for IT professionals working in the public sector. *Information & Management*, *46*(4), 233–240. doi:10.1016/j.im.2009.02.004

Cordes, C., & Dougherty, T. (1993). A review and an integration of research on job burnout. *Academy of Management Review*, *18*(4), 621–656. Retrieved from http://amr.aom.org/content/18/4/621.short

Cosier, R., & Dalton, D. R. (1983). Equity theory and time: A reformulation. *The Academy of Management Review*, *8*(2), 311. doi:10.2307/257759

Cotton, J. L., & Tuttle, J. M. (1986). Employee turnover: A meta-analysis and review with implications for research. *Academy of Management Review, 11*(1), 55–70. Retrieved from http://www.jstor.org/stable/10.2307/258331

Couie, W. (2010). *The IT handbook for business: managing information technology support costs.* Baltimore, MD: CreateSpace.

Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches.* (3rd ed.). Los Angeles: Sage Publications, Inc.

Cropanzano, R., & Greenberg, J. (1997). Progress in organizational justice: tunneling through the maze. *International Review of Industrial and Organizational Psychology*, *12*, 317-372.

Cropanzano, R., Rupp, D., & Byrne, Z. (2003). The relationship of emotional exhaustion to work attitudes, job performance, and organizational citizenship behaviors. *Journal of Applied Psychology*, *88*(1), 160–169. doi:10.1037/0021-9010.88.1.160

Day, J., & Willmott, A. (2005). The affect of organisational change upon the motivation of IT professionals. In D. Remenyi (Ed.), *Proceedings of the 12th European Conference on IT Evaluation (ECITE 2005)* (pp. 177–187). Manchestor, UK: Proceedings of the 12th European Conference on IT Evaluation. Retrieved from http://books.google.com/books?id=2dTUA7-YHWQC&lpg=PA117&ots=tk5CSM9n8q&dq=Proceedings of the 12th European Conference on IT Evaluation&pg=PA177#v=onepage&q&f=false

Deepa, M., & Stella, M. . (2012). Employee turnover in IT industry with special reference to chennai city-an exploratory study. *International Journal of Multidisciplinary Research, 2*(7), 160–177. Retrieved from http://www.zenithresearch.org.in/images/stories/pdf/2012/JULY/ZIJMR/12_ZIJMR_JULY12_VOL2_ISSUE7.pdf

Deluga, R. J. (1994). Supervisor trust building, leader-member exchange and organizational citizenship behaviour. *Journal of Occupational and Organizational Psychology, 67*(4), 315–326. doi:10.1111/j.2044-8325.1994.tb00570.x

Dhar, R., & Dhar, M. (2010). Job stress, coping process and intentions to leave: A study of information technology professionals working in India. *Social Science Journal, 47,* 560–577. Retrieved from http://www.sciencedirect.com/science/article/pii/S0362331910000091

Diala, I. S. (2010). *Job satisfaction among information technology professionals in the Washington D.C. area: An analysis based on the Minnesota Satisfaction Questionnaire* (Doctoral Dissertation). Capella University, Minneapolis, MN. Retrieved from http://www.waprogramming.com/papers/vol1-no4/(232-236) Job Satisfaction Management System.pdf

Dice. (2014). *Dice Tech Salary Survey*. New York. Retrieved from http://marketing.dice.com/pdf/Dice_TechSalarySurvey_2014.pdf

Dougherty, T. (1985). Precursors of employee turnover: A multiple sample causal analysis. *Journal of Organizational Behavior, 6*(4), 259–271. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/job.4030060404/abstract

Dua, S., Chahal, R., Singh, N., & Mahey, S. (2012). Study of organizational climatic factor for employee effectiveness: A study of Jalandhar leather factories. *International Journal of Management and Information Technology, 1*(2), 21–30. Retrieved from http://ijssronline.com/cir/index.php/ijmit/article/view/12-MIT-48

Dudley, B. (2005, October). Changes in Tech World Too Fast to Follow. *The Seattle Times*. Seattle, Washington. Retrieved from http://seattletimes.nwsource.com/html/businesstechnology/2002557739_techlandscape13.html

Dutton, G. (1998). The re-enchantment of works. *Management Review, 87*(2), 51–54.

Eby, L., & Freeman, D. (1999). Motivational bases of affective organizational commitment: A partial test of an integrative theoretical model. *Journal of Occupational and Organizational Psychology*, *72*(4), 463–483. Retrieved from http://onlinelibrary.wiley.com/doi/10.1348/096317999166798/abstract

EDUCAUSE. (2000). Recruiting and retaining information technology staff in higher education. *EDUCAUSE Quarterly*, *22*(3), 4. Retrieved from http://net.educause.edu/ir/library/pdf/EQM0036.pdf

Egan, T., Yang, B., & Bartlett, K. (2004). The effects of organizational learning culture and job satisfaction on motivation to transfer learning and turnover intention. *Human Resource Development Quarterly*, *15*(3), 279–301.

Eisenberger, R., Fasolo, P., & Davis-LaMastro, V. (1990). Perceived organizational support and employee diligence, commitment, and innovation. *Journal of Applied Psychology*, *75*(1), 51–59.

Eisenberger, R., Huntington, R., Hutchinson, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*, 500–507.

Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I., & Rhodes, I. (2002). Perceived organizational support: Contributions to perceived organizational support and employee retentions. *Journal of Applied Psychology, 87*(3), 565–573. doi:10.1037//0021-9010.87.3.565

Eleey, M., & Oppenheim, L. (1999). Retaining IT staff through effective institutional planning and management. *CAUSE EFFECT*, *22*(4), 1–10. Retrieved from http://www.cfar.com/Documents/Retaining IT Staff.pdf

Evans, B. (2006, January). Business technology: Industry changes lead to difficult choices. *Information Week*. Retrieved from http://www.informationweek.com/news/177103016

Farkas, A. J., & Tfetrick, L. H. (1989). A three-wave longitudinal analysis of the causal ordering of satisfaction and commitment on turnover decisions. *Journal of Applied Psychology*, 74, 855–868.

Faturochman. (1997). The job characteristics theory: A review. *Bulletin Psikologi*, *5*(2), 1–13.

Faulk, R., & Miller, N. (1992). *A Primer for Soft Modeling*. Akron, OH: University of Akron Press. Retrieved from http://books.google.com/books/about/A_Primer_for_Soft_Modeling.html?id=3CFrQgAACAAJ

Fedor, D., Caldwell, S., & Herold, D. (2006). The effects of organizational changes on employee commitment: A multilevel investigation. *Personnel Psychology*, *59*, 1–29. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1744-6570.2006.00852.x/

Ferratt, T. W., & Agarwal, A. (1999). *Coping with Labor Scarcity in Information Technology: Strategies and Practices for Effective Recruitment and Retention*. Cincinnati, OH: Pinnaflex.

Ferris, K. (1982). Perceived environmental uncertainty, organizational adaptation, and employee performance: A longitudinal study in professional accounting firms. *Accounting, Organizations and Society*, *7*(1), 13–25.

Ferris, K., & Aranya, N. (1983). A comparison of two organizational commitment scales. *Personnel Psychology*, *36*(1), 87–98.

Fillion, K. (2007). Bob Nelson, author of "1001 Ways to Reward Employees" talks to Kate Fillion about why money means less at work than thanks. *Maclean's*, *120*(34), 20–21.

Firth, H., & Britton, P. (2011). "Burnout", absence and turnover amongst British nursing staff. *Journal of Occupational Psychology*, *62*, 55–60. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.2044-8325.1989.tb00477.x/abstract

Flinders, K. (2008, July 22). Downturn could help IT get banks off legacy. *Computer Weekly*, p. 7.

Fontana, R. (2003). Technological disequilibrium: measuring technical change in fast growing industries. *Centro di Ricerca sui Processi di Innovazione e Internazionalizzazione* (p. 44). Milano, Italy. Retrieved from ftp://ftp.unibocconi.it/pub/RePEc/cri/papers/WP145Fontana.pdf

Ford, M. (2009). *The Lights In the Tunnel: Automation, Accelerating Technology and the Economy of the Future* (p. 264). Baltimore, MD: Acculant Publishing.

Ford, V. F., Swayze, S., & Burley, D. L. (2013). An Exploratory Investigation of the Relationship between Disengagement, Exhaustion and Turnover Intention among IT Professionals Employed at a University. *Information Resources Management Journal*, *26*(3), 55–68. doi:10.4018/irmj.2013070104

Fornell, C., & Bookstein, F. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing Research*, *19*(4), 440–452. Retrieved from http://ehis.ebscohost.com.libez.lib.georgiasouthern.edu/ehost/detail?vid=3&sid=ffb473de-e693-4c36-9028-4a12871413e9%40sessionmgr111&hid=2&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=bth&AN=5005298

Freeman, M. (2013, May 14). Study : More companies seeking tech workers. *San Diego Union Tribune*. San Diego, CA. Retrieved from http://www.utsandiego.com/news/2013/May/14/Study-says-Internet-Jobs-in-Demand/

Freeman, R. (2010). Globalization of scientific and engineering talent: International mobility of students, workers, and ideas and the world economy. *Economics of Innovation & New Technology*, *19*(5), 393–406.

Fu, J. (2011). Understanding career commitment of IT professionals: Perspectives of push–pull–mooring framework and investment model. *International Journal of Information Management, 31*(3), 279–293.

Fugate, M., Kinicki, A., & Ashforth, B. (2003). Employability: A psychol-social construct, its dimensions, and applications. *Journal of Vocational Behavior, 65*(1), 14–38.

Fugate, M., Prussia, G., & Kinicki, A. (2010). Managing employee withdrawal during organizational change: The role of threat appraisal. *Journal of Management.* doi:10.1177/0149206309352881

Furneaux, B., & Wade, M. (2011). An exploration of organizational level information systems discontinuance intentions. *MIS Quarterly, 35*(3), 573–598.

Gallagher, K., Kaiser, K., Simon, J., Beath, C., & Goles, T. (2010). The requisite variety of skills for IT professionals. *Communications of the ACM, 53*(6), 144–148.

Gallivan, M. J. (2004). Examining IT professionals; adaptation to technological change: The influence of gender and personal attributes. *ACM SIGMIS Database, 35*(3), 28–49.

Gallivan, M., Truex III, D. & Kvasny, L. (2004). Changing patterns of IT skills sets 1988-2003: A content analysis of classified advertising. *The Data Base for Advances in Information Systems, 35*(3), 64–87.

Garretson, C. (2010, November). How to Add Depth to Your Bench. *Computerworld*. Retrieved from http://www.computerworld.com/s/article/352215/How_to_Add_Depth_to_Your_Bench

Gattiker, U. (1988). Technology adaptation: A typology for strategic human resource management. *Journal Behavior & Information Technology, 7*(4), 345–359.

Gefen, D., Straub, D. W., & Boudreau, M. (2000). Structural equation modeling and regression guidelines for research practice. *Communications of the Association for Information Systems, 4*(7), 1–13. Retrieved from http://aisel.aisnet.org/cais/vol4/iss1/7

Geller, L. (1982). The failure of self-actualization therapy: A critique of Carl Rogers and Abraham Maslow. *Journal of Humanistic Psychology, 22*(2), 58–73.

Gentry, J. (2008, November). Why Working Long Hours Doesn't Guarantee Job Security. *CIO*. Retrieved from http://www.cio.com/article/459792/Why_Working_Long_Hours_Doesn_t_Guarantee_Job_Security

George, J. (1989). Mood and absence. *Journal of Applied Psychology, 74*(2), 317–324.

George, J., & Brief, A. (1992). Feeling good-doing good: a conceptual analysis of the mood at work-organizational spontaneity relationship. *Psychological Bulletin, 112*(2), 310–329.

George, J., Reed, T., Ballard, K., Colin, J., & Fielding, J. (1993). Contact with AIDS patients as a source of work-related distress: effects of organizational and social support. *Academy of Management Journal*, *36*(1), 157–171.

Ghapanchi, A. H., & Aurum, A. (2011). Antecedents to IT personnel's intentions to leave: A systematic literature review. *Journal of Systems and Software, 84*(2), 238–249. doi:10.1016/j.jss.2010.09.022

Gilliam, P. (1994). Tame the restless computer professional. *HR Magazine*, *39*(11), 142–144. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Tame+the+restless+computer+professional#0

Giusti, A. (2011, March). Budget cuts compound tech staffing problems. *American City & County*. Retrieved from http://americancityandcounty.com/technology/government-budget-cuts-compound-201103

Goodwin, B. (2013). IT budgets to rise by 3% in 2014 as companies step up spending on mobile. *Computer Weekly*. Retrieved from http://www.computerweekly.com/news/2240210150/IT-budgets-to-rise-by-3-in-2014-as-companies-step-up-spending-on-mobile

Graham, G. H., & Unruh, J. (1990). The motivational impact of nonfinancial employee appreciation practices on medical technologists. *Health Care Supervisor*, *8*(3), 9–17.

Grajek, S., & Pirani, J. (2012). Top-Ten IT Issues, 2012. *EDUCAUSE Review*, 36–53. Retrieved from http://www.educause.edu/ero/article/top-ten-it-issues-2012

Graves, J. (2012). The best jobs of 2012. *U.S. News and World Report*. Retrieved from http://money.usnews.com/money/careers/articles/2012/02/27/the-best-jobs-of-2012

Greenberg, J. (1987). Taxonomy of Organizational Justice Theories. *Academy of Management Review*, *12*, 9–22. Retrieved from http://ehis.ebscohost.com.libez.lib.georgiasouthern.edu/ehost/pdfviewer/pdfviewer?vid=3&sid=bc2e5055-a7dc-45c2-8f67-3fc05c898ed6%40sessionmgr104&hid=110

Greenberg, J. (1990). Organizational justice: Yesterday, today, and tomorrow. *Journal of Management, 16*(2), 399–432.

Griffeth, R., Gaertner, S., & Sager, J. (1999). Taxonomic model of withdrawal behaviors: The adaptive response model. *Human Resource Management Review, 9*(4), 577–590.

Griffeth, R., Hom, P., & Gaertner, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management, 26*(3), 463–488. Retrieved from http://jom.sagepub.com/content/26/3/463.short

Gunn, M. (2011). Jack Dorsey: Double down. *Bank Systems & Technology*. Retrieved from http://www.banktech.com/top-innovators/2011/Jack-Dorsey

Gupta, U., & Houtz, L. (2000). High school students' perceptions of information technology skills and careers. *Journal of Industrial Technology, 16*(4). Retrieved from http://atmae.org/jit/Articles/gupta090100.pdf

Guzzo, R., Noonan, K., & Elron, E. (1994). Expatriate managers and the psychological contract. *Journal of Applied Psychology, 79*(4), 617–626.

Haccoun, R., & Jeanrie, C. (1995). Self reports of work absence as a function of personal attitudes towards absence, and perceptions of the organization. *Applied Psychology: An International Review*, *44*, 155–170.

Hacker, A. (2003). Turnover: A silent profit killer. *Information Systems Management*, *20*(2), 14–18.

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: test of a theory. *Organizational behavior and human performance*, *16*(2), 250–279.

Hackman, J., & Oldham, G. (1975). Development of the job diagnostic inventory. *Journal of Applied Psychology*, *60*(2), 159–170.

Haenlein, M., & Kaplan, A. M. (2004). A beginner's guide to partial least squares analysis. *Understanding Statistics*, *3*(4), 283–297. doi:10.1207/s15328031us0304_4

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Washington D.C.: Sage Publications, Inc. Retrieved from http://books.google.com/books?id=IFiarYXE1PoC

Harris, M., Klaus, T., Blanton, J., & Wingreen, S. (2009). Job security and other employment considerations as predictors of the organizational attitudes of IT professionals. *International Journal of Global Management Studies*, *1*, 32–45.

Hayes, J. (2010). New purchase on IT careers. *Engineering & Technology*, *5*(15), 52–53.

Heller, M. (2012). Overcoming the talent deficit. (Bill Brown, Usha Nakhasi, & Reed Sheard, Eds.) *CIO*, 93–93. Retrieved from http://council.cio.com/content.html?content_id=24.e7a.25a708b1

Henryhand, C. (2010). *The effect of employee recognition and employee engagement on job satisfaction and intent to leave in the public sector* (Doctoral dissertation). Capella University, Minneapolis, MN. Retrieved from http://gradworks.umi.com/33/69/3369470.html

Henseler, J., & Fassott, G. (2010). Testing moderating effects in PLS path models: An illustration of available procedures. In: Esposito Vinzi, Vincenzo; Chin, Wynne W.; Henseler, Jörg; Wang, Huiwen (Eds.). *Springer Handbooks of Handbook of Partial Least Squares: Concepts, Methods and Applications Computational Statistics Series, vol. II*. Heidelberg, Dordrecht, London, New York: Springer, 713-735.

Herzberg, F. (1968). One more time: How do you motivate employees? *Harvard Business Review*, *46*(1), 53–62.

Hobman, E., Jackson, C., Jimmieson, N., & Martin, R. (2011). The effects of transformational leadership behaviours on follower outcomes: An identity-based analysis. *European Journal of Work & Organizational Psychology*, *20*(4), 553–580.

Hoffman, T. (2003). Fears about war, economy slow IT hiring. *Computerworld*, *37*, p. 9.

Holtom, B. C., Mitchell, T. R., Lee, T. W., & Inderrieden, E. J. (2005). Shocks as causes of turnover: What they are and how organizations can manage them. *Human Resource Management*, *44*(3), 337–352. doi:10.1002/hrm.20074

Holton, E. (2006). New employee development: A review and reconceptualization. *Human Resource Development Quarterly*, *7*(3), 233–252.

Hom, P. W., & Griffeth, R. W. (1994). *Employee turnover*. Cincinnati: South-Western.

Hom, P., & Griffieth, R. (1991). Structural equation modeling test of turnover theory: Cross-sectional and longitudinal analyses. *Journal of Applied Psychology*, *76*(3), 350–366.

Hom, P., & Kinicki, A. (2001). Toward a greater understanding of how dissatisfaction drives employee turnover. *Academy of Management Journal*, *44*(5), 975–987. Retrieved from http://amj.aom.org/content/44/5/975.short

Hoonakker, P., Carayon, P., Schoepke, J., & Marian, A. (2004). Job and organizational factors as predictors of turnover in the IT work force: differences between men and women. *Proceedings of the WWCS 2004 Conference*. Kuala Lumpur, Malaysia. Retrieved from http://www.itwf.engr.wisc.edu/docs/underrep.pdf

Howard, L., & Cordes, C. (2010). Flight from unfairness: Effects of perceived injustice on emotional exhaustion and employee withdrawal. *Journal of Business & Psychology*, *25*(3), 409–428.

Hunter, J., & Schmidt, F. (1990). *Methods of Meta-Analysis: Correcting Error and Bias in Research Findings*. Newbury Park, CA: Sage Publications.

Igbaria, M., & Greenhaus, J. H. (1992). Determinants of MIS Employees' Turnover Intentions: A Structural Equation Model. *Communications of the ACM*, *35*(2), 35–49. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=12572178 &site=ehost-live

Igbaria, M., & Guimaraes, T. (1992). Antecedents and consequences of job satisfaction among information center employees. *Proceedings of the 1992 ACM SIGCPR Conference on Computer Personnel Research* (pp. 352–369). Retrieved from http://dl.acm.org/citation.cfm?id=372749

Igbaria, M., & Siegel, S. R. S. (1992). The reasons for turnover of information systems personnel. *Information & Management*, *23*(6), 321–330. Retrieved from http://www.sciencedirect.com/science/article/pii/0378720692900147

Ihlwan, M., & Hall, K. (2007, March). New tech, old habits. *Business Week*. Retrieved from http://www.businessweek.com/stories/2007-03-25/new-tech-old-habits

Ingerman, B., & Yang, C. (2010). Top 10 IT issues 2010. *EDUCAUSE Review*, 46–60. Retrieved from http://net.educause.edu/ir/library/pdf/ERM1032.pdf

IPMA-HR (2007). *Broadbanding* Alexandria, VA: International Public Management Association for Human Resources. Retrieved from http://ipma-hr.org/sites/default/files/pdf/hrcenter/broadbanding/cpr_bb_Overview.pdf

Jackson, S., Turner, J., & Brief, A. (1987). Correlates of burnout among public service lawyers. *Journal of Organizational Behavior*, *8*(4), 339–349. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/job.4030080406/abstract

Jimmieson, N., Terry, D., & Callan, V. (2004). A longitudinal study of employee adaptation to organizational change: the role of change-related information and change-related self-efficacy. *Journal of Occupational Health Psychology*, *9*(1), 11–27.

Johnston, M., Griffeth, R., Burton, S., & Carson, P. (1993). An exploratory investigation into the relationships between promotion and turnover: A quasi-experimental longitudinal study. *Journal of Management*, *19*(1), 33–49.

Joseph, D., & Ang, S. (2003). Turnover of IT professionals: a quantitative analysis of the literature. *Special Interest Group on Computer Personnel Research Annual Conference - CPR* (pp. 130–132). doi:10.1145/761849.761872

Joseph, D., Ng, K., Koh, C., & Ang, S. (2007). Turnover of information technology professionals: a narrative review, meta-analytic structural equation modeling, and model development. *MIS Quarterly*, *31*(3), 547–577. Retrieved from http://dl.acm.org/citation.cfm?id=2017343

Judge, T., Bono, J., Thoresen, C., & Patton, G. (2001). The job satisfaction-job performance relationship: a qualitative and quantitative review. *Psychological Bulletin*, *127*(3), 376–407.

Kacmar, K., & Carlson, D. (1997). Further validation of the perceptions of politics scale (Pops): A multiple sample investigation. *Journal of Management*, *23*(5), 627–658.

Kalimo, R., & Toppinen, S. (1995). Burnout in computer professionals. In *Work, Stress and Health 1995: Creating Healthier Workplaces*. Washington, DC. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Burnout+in+computer+professionals.#0

Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, *24*(2), 285–308. Retrieved from http://www.jstor.org/stable/10.2307/2392498

Keller, C. M. (2009). *Coping Strategies of Public Universities During The Economic Recession of 2009* (p. 33). Washington, DC. Retrieved from http://www.aplu.org/document.doc?id=1998

Kerlinger, F. N. (1973). *Foundations of Behavioral Research*. New York: Holt, Rinehart, & Winston.

Kim, S. (2012). The impact of human resource management on state government IT employee turnover intentions. *Public Personnel Management*, *41*(2), 257–279.

Kim, S., & Wright, B. E. (2007). IT employee work exhaustion: Toward an integrated model of antecedents and consequences. *Review of Public Personnel Administration*, *27*(2), 147–170. doi:10.1177/0734371X06290775

King, J. (1998). Tech careers mean long hours and cold dinners. *CNN Tech*. Retrieved from http://articles.cnn.com/1998-10-16/tech/9810_16_techslave.idg_1_president-and-chief-technology-work-jeff-scherb?_s=PM:TECH

King, R., & Bu, M. (2005). Perceptions of the mutual obligations between employees and employers: a comparative study of new generation IT professionals in China and the United States. *International Journal of Human Resource Management*, *16*(1), 46–64.

Kirkpatrick, D. (2006, October). A Glimpse into future digital life. *CNN Money*. Retrieved from http://money.cnn.com/2006/02/03/technology/fastforward_fortune/index.htm

Kirkpatrick, D. (2008, August). Farwell to Fastforward. *CNN Money*. Retrieved from http://money.cnn.com/2008/08/01/magazines/fortune/kirkpatrick_farewell.fortune/index.htm

Kirschenbaum, A., & Mano-Negrin, R. (1999). Underlying labor market dimensions of opportunities: The case of employee turnover. *Human Relations*, *52*(10), 1233–1255. Retrieved from http://hum.sagepub.com/content/52/10/1233.short

Kirschenbaum, A., & Weisberg, J. (1990). Predicting worker turnover: An assessment of intent on actual separations. *Human Relations*, *433*(9), 829–847. Retrieved from http://hum.sagepub.com/content/43/9/829.short

Klyn, D. (2010). A posting for a job that does not exist: How we might define information architects in today's "integrated" advertising agency. *Bulletin of the American Society for Information Science & Technology*, *36*(6), 16–18.

Kohn, A. (1993). Why incentive plans cannot work. *Harvard Business Review*, *71*(5), 54–63. Retrieved from http://ehis.ebscohost.com/eds/pdfviewer/pdfviewer?vid=2&sid=35f68aa3-2e7f-402f-9b19-b1845ea6f742%40sessionmgr4&hid=8

Kolbasuk, M. (2004, July). Fast tracking healthcare tech change. *Information Week.* Retrieved from http://www.informationweek.com/news/25600203

Korunka, C., Hoonakker, P., & Carayon, P. (2007). Job and organizational factors as predictors of quality of working life and turnover intention in IT work places. *Work and Health: The Current State of Research and Practice in a Field; Commemorative Festivities for the Retirement of Dr.Peter* (pp. 289). Pabst, UK.

Korunka, C., Hoonakker, P., & Carayon, P. (2008). Quality of working life and turnover intention in information technology work. *Human Factors and Ergonomics in Manufacturing & Service Industries*, *18*(4), 409–423. Retrieved from http://dx.doi.org/10.1002/hfm.20099

Krishnan, S., & Singh, M. (2010). Outcomes of intention to quit of Indian IT professionals. *Human Resource Management*, *49*(3), 421–437. doi:10.1002/hrm.20357

Lacity, M.C., Iyer, V.V. & Rudramuniyaiah, P. (2008). Turnover intentions of Indian IS professionals. *Information Systems Frontiers*, *10*(2), 225–241.

Lang, E. (2011, April). Five IT changes your business should address. *Business Week.* Retrieved from http://www.businessweek.com/managing/content/apr2011/ca20110418_269454.htm

Lastres, S. (2011). Aligning through knowledge management. *Information Outlook*, *15*(4).

Latimer, D. (2002). The cost of IT staff turnover: A quantitative approach. *EDUCAUSE Centre for Applied Research, Research Bulletin, 2002*(4). Retrieved from http://net.educause.edu/ir/library/pdf/ERB0204.pdf

Lawler, E. (1986). *High Involvement Management* (p. 265). San Francisco, CA: Josey Bass. Retrieved from http://eric.ed.gov/?id=ED314989

Lawshe, C. (1975). A quantitative approach to content validity. *Personnel Psychology*, *28*, 563–676.

Lazarus, R., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.

Leatz, C., & Stolar, M. (1993). *Career Stress/Personal Stress: How to Stay Healthy in a High-Stress Environment* (p. 368). New York, NY: McGraw-Hill.

Lee, D., Trauth, E., & Farwell, D. (1995). Critical skills and knowledge requirements of ARE professionals: A joint academic/industry investigation. *MIS Quarterly*, *19*(3).

Lee, K. (2008). Should I stay or should I go? Deciding if it's time for the job hunt. *Certification Magazine*.

Lee, T., Gerhart, B., Weller, I., & Trevor, C. (2008). Understanding voluntary turnover: Path-specific job satisfaction effects and the importance of unsolicited job offers. *Academy of Management Journal*, *51*, 651–671. Retrieved from http://amj.aom.org/content/51/4/651.short

Lee, T., Mitchell, T., Holtom, B., McDaniel, L., & Hill, J. (1999). The unfolding model of voluntary turnover: A replication and extension. *Academy of Management Journal*, *42*(4), 450–462.

Leiter, M., & Maslach, C. (2006). The impact of interpersonal environment on burnout and organizational commitment. *Journal of organizational behavior*, *9*, 297–308. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/job.4030090402/abstract

Levy, C. (2006). Is your IT staff on-Call 24/7? *Credit Union Executive Newsletter*.

Liu, S., Zhong, J., Keil, M., & Chen, T. (2010). Comparing senior executive and project manager perceptions of IT project risk: a Chinese Delphi study. *Information Systems Journal*, *20*(4), 319–355.

Loch, K., Straub, D., & Kamel, S. (2003). Diffusing the Internet in the Arab world: The role of social norms and technological culturation. *IEEE Transactions on Engineering Management*, *50*(1), 45–63. Retrieved from http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=1193767&isnumber=26846

London, M. (1983). Toward a theory of career motivation. *The Academy of Management Review*, *8*(4), 620–630.

Long, R. J., & Shields, J. L. (2010). From pay to praise? Non-cash employee recognition in Canadian and Australian firms. *The International Journal of Human Resource Management*, *21*(8), 1145–1172. doi:10.1080/09585192.2010.483840

Lubienska, K., & Wozniak, J. (2012). Turnover models for IT specialists. *7th International Scientific Conference*. doi:10.3846/bm.2012.111

Luftman, J., & Ben-Zvi, T. (2010). Key issues for IT executives 2009: Difficult economy's impact on IT. *MIS Quarterly Executive*, *9*(1), 49–59.

Luthans, K. (2000). Recognition: A powerful, but often overlooked, leadership tool to improve employee performance. *Journal of Leadership & Organizational Studies*, *7*(1), 31–39. Retrieved from http://jlo.sagepub.com/content/7/1/31.short

Maches, B. (2010). The impact of cloud computing on corporate IT governance. *HPC Wire*. Retrieved from http://www.hpcinthecloud.com/features/The-Impact-of-Cloud-Computing-on-Corporate-IT-Governance-82623252.html

Maier, J. (2005). Importance of technology changes in business computing. *IT Management News*. Retrieved from http://archive.itmanagementnews.com/itmanagementnews-54-20051024ImportanceOfTechnologyChangesInBusinessComputing.html

Mandhanya, Y., & Shah, M. (2010). Employer branding - a tool for talent management. *Global Management Review*, *4*(2), 43.

Marcoulides, G., & Saunders, C. (2006). PLS: A silver bullet? *MIS Quarterly*, *30*(2). Retrieved from http://ehis.ebscohost.com.libez.lib.georgiasouthern.edu/ehost/pdfviewer/pdfviewer?vid=3&sid=6eba0af1-2bd3-4b37-9fef-e358d385840b%40sessionmgr112&hid=104

Marsan, C. (2011). Recruiters: IT job prospects are better than you think. *Network World*. Retrieved from http://www.networkworld.com/news/2011/010311-outlook-careers.html

March, J., & Simon, H. (1958). *Organizations*. New York, NY: Wiley.

Marks, M. (2007). A framework for facilitating adaptation to organizational transition. *Journal of Organizational Change Management*, *20*(5), 721–739. Retrieved from http://www.emeraldinsight.com/journals.htm?articleid=1621583&show=abstract

Marsan, C. (2011). Recruiters: It job prospects are better than you think. *Network World*. Retrieved from http://www.networkworld.com/news/2011/010311-outlook-careers.html

Maslach, C., & Jackson, S. (1981). *Maslach Burnout Inventory: MBI*. (2nd ed.). PaloAlto,CA: Consulting Psychologists Press. Retrieved from http://www.jvrcatalogue.com/wp-content/uploads/2010/04/Maslach-Burnout-Inventory-MBI.pdf

Maslach, C., & Jackson, S. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2*(November 1980), 99–113. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/job.4030020205/abstract

Maslach, C., Jackson, S., & Leiter, M. (1986). *Maslach Burnout Inventory* (2nd ed., p. 34). PaloAlto,CA: Consulting Psychologists Press. Retrieved from http://www.jvrcatalogue.com/wp-content/uploads/2010/04/Maslach-Burnout-Inventory-MBI.pdf

Mathieu, J., & Zajac, D. (1990). A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. *Psychological Bulletin*, *108*(2), 171–194. doi:10.1037/0033-2909.108.2.171

Maudgalya, T., Wallace, S., Daraiseh, N., & Salem, S. (2006). Workplace stress factors and "burnout"among information technology professionals: A systematic review. *Theoretical Issues in Ergonomics Science*, *7*(3). Retrieved from http://www.tandfonline.com/doi/abs/10.1080/14639220500090638

McCartney, L. (2011). IT staffs levels to remain at current levels. *CIOZone*. Retrieved from http://www.ciozone.com/index.php/Management/IT-Staffing-Levels-to-Remain-at-Current-Levels.html

McClure, P. A., Smith, J. W., & Sitko, T. D. (1997). The crisis in information technology support: Has our current model reached its limit? *CAUSE Professional Paper Series*. Boulder. Retrieved from http://net.educause.edu/ir/library/pdf/pub3016.pdf

McKnight, D., Phillips, B., & Hardgrave, B. (2009). Which reduces IT turnover intention the most: Workplace characteristics or job characteristics? *Information & Management*, *46*(3), 167–174. Retrieved from http://www.sciencedirect.com/science/article/pii/S0378720609000159

Meyer, J., & Allen, N. (1997). *Commitment in the Workplace*. Thousand Oaks, CA: Sage Publications.

Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three-component conceptualization. *Journal of Applied Psychology*, *78*(4), 538–551.

Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior*, *61*, 20–52.

Michaels, C. E., & Spector, P. E. (1982). Causes of employee turnover: A test of the Mobley, Griffeth, Hand, and Meglino model. *Journal of Applied Psychology*, *67*, 53–59. Retrieved from http://psycnet.apa.org/journals/apl/67/1/53/

Milliken, F., Dutton, J., & Beyer, J. (1990). Understanding organizational adaptation to change: The Case of work-family issues. *Human Resource Planning*, *13*(2), 91–107.

Mobley, W., Horner, S., & Hollingsworth, T. (1978). An evaluation of precursors of hospital employee turnover. *Journal of Applied Psychology*, *63*(4), 408–414. Retrieved from http://psycnet.apa.org/journals/apl/63/4/408/

Mone, E., Eisinger, C., Guggenheim, K., Price, B., & Stine, C. (2011). Performance Management at the Wheel: Driving Employee Engagement in Organizations. *Journal of Business & Psychology*, *26*(2), 205–212. Retrieved from http://ehis.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=3&sid=8428fe00-85a8-4868-a847-db0ffdcf3d58%40sessionmgr112&hid=109

Moore, G. (1965). Cramming more components onto integrated circuits. *Electronics*, 114–117. Retrieved from http://www.cs.utexas.edu/users/fussell/courses/cs352h/papers/moore.pdf

Moore, J. (2000). One road to turnover: An examination of work exhaustion in technology professionals. *Management Information Systems Quarterly*, *24*(1), 141–168. Retrieved from http://ais.bepress.com/cgi/viewcontent.cgi?article=2363&contex*t*=misq

Moore, J. E., & Burke, L. a. (2002, February 1). How to turn around `turnover culture' in IT. *Communications of the ACM*, *45*(2), 73–78. doi:10.1145/503124.503126

Morrell, K. (2004). The role of shocks in employee turnover. *British Journal of Management*, *15*(4), 335–349. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8551.2004.00423.x/full

Mowday, R., Porter, L., & Steers, R. (1982). *Employee-Organization Linkages: The Psychology of Commitment, Absenteeism, and Turnover*. New York: Academic Press.

Mowday, R., Steers, R., & Porter, L. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior, 14*(2), 224–247. Retrieved from http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=EJ199308&ERICExtSearch_SearchType_0=no&accno=EJ199308

Mujtaba, B., & Shuaib, S. (2010). An equitable total rewards approach to pay for performance management. *Journal of Management Policy & Practice*, *11*(4), 111–121.

Nah, F., & Delgado, S. (2006). Critical success factors for enterprise resource planning implementation and upgrade. *Journal of Computer Information Systems*, *46*(29), 99–113. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=23131348&lang=fr&site=ehost-live

NASCIO. (2011). *State IT workforce: Under pressure*. Retrieved from http://www.nascio.org/publications/documents/NASCIO_ITWorkforce_UnderPressure.pdf

National Association of Workforce Agencies. (2000). ITAA report: Bridging the gap: information technology skills for a new millennium: A study. *2000*, 55. Retrieved from http://www.workforceatm.org/assets/utilities/serve.cfm?path=itaaxsum.htm

Nelson, B., & Spitzer, D. (2003). *The 1001 Rewards and Recognition Fieldbook.* New York: Workman Publishing.

Nelson, R. B. (2001). Factors that encourage or inhibit the use of non-monetary recognition by United States managers. *Dissertation Abstracts International Section A, 62*(5-A), 1885.

Niederman, F., & Sumner, M. (2003). Decision paths affecting turnover among information technology professionals. *Proceedings of the 2003 SIGMIS Conference* (pp. 133–142). Retrieved from http://dl.acm.org/citation.cfm?id=761873

Niederman, F., & Tan, F. (2011). Managing global IT teams: considering cultural dynamics. *Communications of the ACM*, *54*(4), 24–27.

Noviello, R. J. (2001). Productivity and employee recognition programs: A program evaluation in the aerospace manufacturing sector. *Dissertation Abstracts International Section A, 61*(10-A), 4083.

Nyberg, A., & Trevor, C. (2009). After layoffs, help survivors be more effective. *Harvard Business Review*, *87*(6). Retrieved from http://hbr.org/2009/06/after-layoffs-help-survivors-be-more-effective/ar/1

Nye, L., & Witt, L. (1993). Dimensionality and construct validity of the perceptions of organizational politics scale (POPS). *Educational and Psychological Measurement, 53*(3), 821–829.

O'Driscoll, M., & Randell, D. (1999). Perceived organisational support, satisfaction with rewards, and employee job involvement and organisational commitment. *Applied Psychology: An International Review*, *48*(2), 197–209.

O'Reilly, C., & Chatman, J. (1986). Organizational commitment and psychological attachment: The effects of compliance, identification, and internalization on prosocial behavior. *Journal of Applied Psychology*, *71*(3), 492–499.

Paquet, M., Gavrancic, A., Courcy, F., Gagnon, S., & Duchesne, M. A. (2011). Recognition practices at work: A new psychometric measure and implementation guidelines. *The International Journal of Knowledge, Culture and Change Management*, *10*(12), 1–16.

Paquet, M., Gavrancic, A., Gagnon, S., & Duchesne, M. A. (2011). *Essential practices of recognition at work: Nature and measurement* (p. 15). Montreal: Centre for Research and Intervention health organizations McGill University Health Centre. Retrieved from http://scholar.googleusercontent.com/scholar?q=cache:e6Sycb_4wLYJ:scholar.google.com/+Pratiques+essentielles+de+la+reconnaissance+au+travail:+Nature+et+mesure&hl=en&as_sd*t*=0,11

Paré, G., Tremblay, M., & Lalonde, P. (2001). Workforce retention: what do IT employees really want? In *Proceedings of the 2001 ACM SIGCPR* (pp. 1–10). San Diego, CA: Association for Computing Machinery. Retrieved from http://dl.acm.org/citation.cfm?id=371208

Parker, D., & DeCotiis, T. (1982). Organizational determinants of job stress. *Organizational Behavior and Human Performance*, *32*, 160–177. Retrieved from http://deepblue.lib.umich.edu/bitstream/handle/2027.42/25099/0000531.pdf;jsessionid=848EF9C652C8ACFF6D56B16D1B479B2E?sequence=1

Patrick, H. A., & Sonia, J. (2012). Job satisfaction and affective commitment. *The IUP Journal of Organizational Behavior*, *11*(1), 23–37.

Pawlowski, S., Kaganer, E., & Cater III, J. (2004). Mapping perceptions of burnout in the information technology profession: A study using social representations theory. *International Conference on Information Systems*. Retrieved from http://aisel.aisnet.org/icis2004/73/

Pejtersen, J., Kristensen, T., Borg, V., & Bjorner, J. (2010). The second version of the Copenhagen Psychosocial Questionnaire. *Scandinavian Journal Of Public Health*, *38*(3 Suppl), 8–24. doi:10.1177/1403494809349858

Pepe, M. (2010). The impact of extrinsic motivational dissatisfiers on employee level of job satisfaction and commitment resulting in the intent to turnover. *Journal of Business & Economics Research*, *8*(9), 99–108.

Petitta, L., & Vecchione, M. (2011). Job burnout, absenteeism, and extra-role behaviors. *Journal of Workplace Behavioral Health*, *26*(2), 97–121. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/15555240.2011.573752

Pines, A., Aronson, E., & Kafry, D. (1981). *Burnout: From tedium to personal growth*. New York, NY: Free Press. Retrieved from http://www.getcited.org/pub/102054013

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, *88*(5), 879–903.

Price, J. (2001). Reflections on the determinants of voluntary turnover. *International Journal of Manpower*, *22*(7), 600–624. Retrieved from http://www.emeraldinsight.com/journals.htm?articleid=848324&show=abstract

Rafferty, A., & Restubog, S. (2009). The impact of change process and context on change reactions and turnover during a merger. *Journal of Management*, *36*(5), 1309–1338.

Raghavan, V., Sakaguchi, T., & Mahaney, R. (2008). An empirical investigation of stress factors in information technology professionals. *Information Resources Management Journal*, *21*(2), 25.

Reid, M., & Allen, M. (2006). Affective commitment in the public sector: the case of IT employees. In *Proceedings of the SIGMIS-CPR* (pp. 321–332). Claremont, CA: ACM Press. Retrieved from http://dl.acm.org/citation.cfm?id=1125244

Reid, M. F., Allen, M. W., Armstrong, D. J., & Riemenschneider, C. K. (2008). Factors impacting the perceived organizational support of IT employees. *Information & Management*, *45*(8), 556–563. doi:10.1016/j.im.2008.09.003

Reio, T., & Sutton, F. (2006). Employer assessment of work-related competencies and workplace adaptation. *Human Resource Development Quarterly*, *17*(3), 305–324. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/hrdq.1176/abstract

Riaz, A., & Ramay, M. (2010). Antecedents of job satisfaction: A study of telecom sector. *Perspectives of Innovations, Economics and Business*, *4*(1), 66–73. Retrieved from http://www.ceeol.com/aspx/getdocument.aspx?logid=5&id=e06cbab52c8e41969379c0dafa45f22c

Richter, P., & Hacker, W. (1998). *Stress and strain*. Heidelberg: Asanger.

Rigas, P. (2009). A model of turnover intention among technically-oriented information systems professionals. *Information Resources Management Journal*, *22*(1), 1–23.

Ringle, M. (2000). Planning practice: The IT staffing puzzle. In J. V. Boettcher, M. M. Doyle, & R. W. Jensen (Eds.), *Technology-driven planning: Principles to Practice* (pp. 127–128). Ann Arbor, MI: Society for College and University Planning.

Ringle, C., Wende, S., & Will, A. (2005). SmartPLS 2.0 (M3) Beta. Hamburg. Retrieved from http://www.smartpls.de/

Robblee, M. (1998). *Confronting the threat of organizational downsizing: Coping and health*. Carlton University.

Rong, G., & Grover, V. (2009). Keeping up-to-date with information technology: Testing a model of technological knowledge renewal effectiveness for IT professionals. *Information & Management*, *46*(7), 376–387.

Rosse, J. (1988). Relations among lateness absence and turnover: Is there a progression of withdrawal? *Human Relations*, *41*(7), 517–531.

Rosse, J., & Hulin, C. (1985). Adaptation to work: an analysis of employee health, withdrawal and change. *Organizational Behavior and Human Decision Processes*, *36*(3), 324–347.

Rubin, H. (2011, July). IT austerity is a mistake. *Bank Technology News*. Retrieved from http://www.americanbanker.com/btn/24_7/it-austerity-is-a-mistake-1039674-1.html

Sachau, D. A. (2007). Resurrecting the motivation–hygiene theory: Herzberg and the positive psychology movement. *Human Resource Development Review*, *6*(4), 377–393.

Salanova, M., Agut, P., & Peiro, J. (2005). Linking organizational resources and work engagement to employee performance and customer loyalty: the mediation of service climate. *Journal of Applied Psychology*, *90*(6), 1217–1227. Retrieved from http://www.wont.uji.es/wont/downloads/articulos/internacionales/2005SALANOVA06AI.pdf

Saunderson, R. (2004). Survey findings of the effectiveness of employee recognition in the public sector. *Public Personnel Management*, *33*, 255–275.

Savery, L. (1996). The congruence between the importance of job satisfaction and the perceived level of achievement. *Journal of Management Development*, *15*(6), 18–27.

Schaufeli, W., & Bakker, A. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, *25*(3), 293–315. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/job.248/full

Schaufeli, W., Bakker, A., & Van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behavior*, *30*, 893–917. doi:10.1002/job

Schneidermeyer, P. (2011, September). Future-proof your IT team. *CIO*. Retrieved from http://www.cio.com.au/article/400278/future-proof_your_it_team/

Schraub, E., Stagmaier, R., & Sonntag, K. (2011). The effect of change on adaptive performance: Does expressive suppression moderate the indirect effect of strain? *Journal of Change Management*, *11*(1). Retrieved from http://www.tandfonline.com/doi/abs/10.1080/14697017.2010.514002

Sethi, V., Barrier, T., & King, R. (2004). An examination of the correlates of burnout in information systems professionals. *Information Resources Management*, *12*(3), 5–13. Retrieved from http://www.igi-global.com/article/information-resources-management-journal-irmj/51067

Shoop, T. (2010, October). Job one. *Government Executive*. Retrieved from http://www.govexec.com/magazine/magazine-editors-notebook/2010/10/job-one/32468/

Shropshire, J., Burrell, S., & Kadlec, C. (2011). *This is not what I signed up for: Job modification and IT worker turnover.* Manuscript submitted for publication. Georgia Southern University, Statesboro, GA.

Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of occupational health psychology*, *1*(1), 27–41. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/9547031

Siegrist, J. (2002). Effort-reward imbalance at work and health. *Historical and Current Perspectives on Stress and Health*, *2*, 261–291.

Sjöberg, A., & Sverke, M. (2001). The interactive effect of job involvement and organizational commitment on job turnover revisited: A note on the mediating role of turnover intention. *Scandinavian Journal of Psychology*, *41*, 247–252. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/1467-9450.00194/abstract

Skiba, M., & Rosenberg, S. (2011). The disutility of equity theory in contemporary management practice. *Journal of Business & Economic Studies*, *17*(2), 1–20. Retrieved from http://ehis.ebscohost.com/eds/pdfviewer/pdfviewer?vid=5&sid=bd2bad44-693d-4417-ae25-97ee0f6cb3d6%40sessionmgr115&hid=17

Slade, G. (2007). *Made to break: Technology and obsolescence in America*. Cambridge, MA: Harvard University Press.

Small, G., & Vorgan, G. (2008). Your Ibrain: how technology changes the way we think. *Scientific American*. Retrieved November 2, 2013, from http://www.scientificamerican.com/article.cfm?id=your-ibrain

Smith, A. (2009). Change management and outsourcing in information technology intensive organisations. *International Journal of Business Innovation and Research*, *3*(2), 126–150. Retrieved from http://www.inderscience.com/info/inarticle.php?artid=22751

Smits, S., McLean, E., & Tanner, J. (1992). Managing high achieving information systems professionals. *SIGCPR '92 Proceedings of the 1992 ACM SIGCPR Conference on Computer Personnel Research*, *9*, 314–327. Retrieved from http://dl.acm.org/citation.cfm?id=144093

Stajkovic, A., & Luthans, F. (2001). Differential effects of incentive motivators on work performance. *Academy of Management Journal*, *4*(3), 580–590. Retrieved from http://web.ebscohost.com.libez.lib.georgiasouthern.edu/ehost/pdfviewer/pdfviewer?vid=3&sid=3d06ce39-4cc9-4aae-a804-958d76a83b0a%40sessionmgr198&hid=119

Stajkovic, A., & Luthans, F. (2003). Behavioral management and task performance in organizations: Conceptual background, meta-analysis, and test of alternative. *Personnel Psychology*, *56*(1), 155–194. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1744-6570.2003.tb00147.x/abstract

Standley, A. (2006). Set your workers free? *Baylor Business Review*, *25*(1), 18–19.

Stark, B. (2006, November). Extreme jobs: Long hours. *ABC News*. Retrieved from http://abcnews.go.com/Business/CareerManagement/story?id=2682162&page=1

Stedman, C. (2009, March). Economic crisis means hard times, hard decisions for IT. *Computerworld*. Retrieved from http://www.computerworld.com/s/article/335294/Economic_crisis_means_hard_times_hard_decisions_for_IT

Steel, R., & Griffeth, R. (1989). The elusive relationship between perceived employment opportunity and turnover behavior: A methodological or conceptual artifact? *Journal of Applied Psychology*, *74*(6), 846–854. Retrieved from http://psycnet.apa.org/journals/apl/74/6/846/

Steers, R. (1977). Antecedents and outcomes of organizational commitment. *Administrative Science Quarterly*, *22*(1), 46–56.

Steers, R. M., Mowday, R. T., & Shapiro, D. L. (2004). The future of work motivation theory. *Academy of Management Review*, *29*(3), 379–387. doi:10.5465/AMR.2004.13670978

Straub, D., Boudreau, M. C., & Gefen, D. (2004). Validation guidelines for research. *Communications of the Association for Information Systems*, *13*, 380–427.

Strohmeyer, R. (2011, April). Weather technology changes without losing productivity. *PC World*. Retrieved from http://www.pcworld.com/businesscenter/article/224399/weather_technology_changes_without_losing_productivity.html

Stumpf, S., & Hartman, K. (1984). Individual exploration to organizational commitment or withdrawal. *Academy of Management Journal*, *27*(2), 308–329.

Tam, P. (2007, February). CIO jobs morph from tech support into strategy. *The Wall Street Journal*. Retrieved from http://online.wsj.com/article/SB117193647410313201.html

Taris, T. W., Kalimo, R., & Schaufeli, W. B. (2002). Inequity at work: Its measurement and association with worker health. *Work & Stress*, *16*(4), 287–301. doi:10.1080/0267837021000054500

Tett, R. P., & Meyer, J. P. (1993). Job satisfaction, organizational commitment, turnover intention, and turnover: Path analyses based on meta-analytic findings. *Personnel Psychology*, *46*, 259–293.

Thatcher, J. B., Liu, Y., Stepina, L. P., Goodman, J. M., & Treadway, D. C. (2006). IT worker turnover: An empirical examination of intrinsic motivation. *ACM SIGMIS Database*, *37*(2-3), 133–146.

Thatcher, J. B., Srite, M., Stepina, L. P., & Liu, Y. (2003). Culture overload and personal innovativeness with information technology: Extending the nomological net. *Journal of Computer Information Systems*, *44*, 74–81.

Thatcher, J. B., Stepina, & Boyle, R. J. (2003). Turnover of information technology workers: Examining empirically the influence of attitudes, job characteristics, and external markets. *Journal of Management Information Systems*, *19*(3), 231–261.

Theorell, T., & Karasek, R. (1996). Current issues relating to psychosocial job strain and cardiovascular disease research. *Journal of Occupational Health Psychology*, *1*(1), 9–26. Retrieved from http://psycnet.apa.org/journals/ocp/1/1/9/

Thibedeau, P. (2010, June). Jobs morph as agile development methods gain ground. *Computerworld*. Retrieved from http://www.computerworld.com/s/article/9178204/QA_jobs_morph_as_agile_development_methods_gain_ground_

Thibedeau, P. (2011, August). Tech workers, with "pent-up animosity," plan to bolt. *Computerworld*. Retrieved from http://www.computerworld.com/s/article/351166/Many_IT_Staffers_Planning_to_Jump_Ship

Thwala, W. D., Ajagbe, M. A., & Enegbuma, W. I. (2012). Sudanese small and medium sized construction firms: An empirical survey of job turnover. *Journal of Basic, Applied Social Research (JBASR)*, *2*(8), 7414–7420. Retrieved from http://www.textroad.com/pdf/JBASR/J. Basic. Appl. Sci. Res., 2(8)7414-7420, 2012.pdf

Timpany, G. (2013). *2013 IT Skills & Salary Report: A Comprehensive Survey from Global Knowledge & Windows IT Pro* (p. 41). Retrieved from http://www.cisco.com/web/learning/employer_resources/pdfs/2013_GK_salaryrpt.pdf

Trembly, A. (2009). The pace of technology change: How fast is too fast? *Information Management*. Retrieved from http://www.information-management.com/news/insurance_technology-10016312-1.html

Trevor, C. O. (2001). Interactions among actual ease-of-movement determinants and job satisfaction in the prediction of voluntary turnover. *Academy of Management Journal*, *44*(4), 621–638.

Turner, S., Bernt, P., & Pecora, N. (2002). Why women choose information technology careers: Educational, social, and familial influences. *Annual Meeting of the American Educational Research Association*. New Orleans. Retrieved from http://www2.tech.purdue.edu/cpt/courses/CIT581HRI/Announcements/WhyWomenChooseITCareers.pdf

US Department of Labor Bureau of Labor Statistics (2012). Occupational employment and wages, May 2012. Retrieved from http://www.bls.gov/oes/current/oes150000.htm#nat

Vandenberg, R., & Nelson, J. (1999). Disaggregating the motives underlying turnover intentions: When do intentions predict turnover behavior? *Human Relations*, *52*(10), 1313–1336. Retrieved from http://hum.sagepub.com/content/52/10/1313.short

Vaux, A., & Harrison, D. (1985). Support network characteristics associated with support satisfaction and perceived support. *American Journal of Community Psychology*, *13*(3), 245–265.

Venkatachalam, M. (1995). Personal hardiness and perceived organizational support as links in the role stress-outcome relationship: A person-environment fit model. *Dissertation Abstracts International Section A: Humanities and Social Sciences*, *56*(6-A). Retrieved from http://psycnet.apa.org/psycinfo/1995-95024-081

Von Urff Kaufeld, N., C., V., & Freeme, D. (2009). Critical success factors for effective IT leadership. *Electronic Journal of Information Systems Evaluation*, *12*(1), 119–128.

Vossen, G., & Westerkamp, P. (2008). Why service-orientation could make e-learning standards obsolete. *International Journal of Technology Enhanced Learning*, *1*(1-2), 85–97.

Wayne, S., Shore, L., & Liden, R. (1997). Perceived organizational support and leader-member exchange: A social exchange perspective. *Academy of Management Journal*, *40*(1), 82–111.

Weill, P., & Ross, J. (2012, June 18). Four questions every CEO should ask about IT. *The Wall Street Journal*. Retrieved from http://online.wsj.com/article/SB10001424052748704336504576258561056702944.html#printMode

Weiner, Y., & Vardi, Y. (1980). Relationships between job, organization, and career commitments and work outcomes—An integrative approach. *Organizational Behavior and Human Performance*, *26*(1), 81–96.

Wilder, C., & Angus, J. (1997, July). Pace of change: Faster than the speed of data. *Information Week*. Retrieved from http://www.informationweek.com/640/40iupoc.htm

Willoughby, T. C. (1977). Computing personnel turnover: A review of the literature. *Computer Personnel*, *7*(1-2), 259–293.

Wolpin, J., Burke, R., & Greenglass, E. (1991). Is job satisfaction an antecedent or a consequence of psychological burnout? *Human Relations*, *44*(2), 193–209. Retrieved from http://hum.sagepub.com/content/44/2/193.short

Woodard, D. (2011). The changing landscape of higher education. *EDUCAUSE Review*, 16–32. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/ss.921/abstract

Zeffane, R., Tipu, S., & Ryan, J. (2011). Communication, commitment and trust: Exploring the triad. *International Journal of Business & Management*, *6*(6), 77–87. http://dl.acm.org/citation.cfm?id=1952905

Zumeta, W., & Kinne, A. (2011). The Recession Is Not Over for Higher Education. *W.neanh.org*. Retrieved from http://w.neanh.org/assets/docs/HE/D-Zumeta_2011_23Feb11_p29-42.pdf

Zumeta, W. (2012). State support of higher education: The roller coaster plunges downward yet again. *Journal of Collective Bargaining in the Academy, 1*(1), 16. Retrieved from http://thekeep.eiu.edu/cgi/viewcontent.cgi?article=1013&contex*t*=jcba

APPENDIXES

APPENDIX A

VARIABLE AND ASSOCIATED QUESTIONNAIRE MEASURES

Variables	Measures
Responsibility Increase*	1. Additional responsibilities have been added to my original tasks and responsibilities. 2. Over time, additional responsibilities and tasks have been added to my original duties. 3. Since I was hired into my current position, I have taken on additional duties. 4. New responsibilities have been added to my original responsibilities over time.
Task Replacement*	1. The duties originally associated with my job have been replaced with different tasks and responsibilities. 2. The original functions associated with my job have been replaced with new ones. 3. Over time, the tasks and responsibilities associated with my job have been replaced with different duties. 4. The tasks and responsibilities associated with my job have changed over time.
Perceived Work Recognition*****	1. This organization invests in continuing education which ensures my professional development (ex: symposiums, conferences, training seminars). 2. My supervisor regularly gives me spontaneous feedback on the quality of my work. 3. My colleagues regularly give me spontaneous feedback on the quality of my work. 4. The organization provides appropriate tools that allow me to work effectively. 5. My supervisor is considerate of me. 6. My colleagues are considerate of me. 7. There are opportunities for advancement in this organization. 8. I get praise and/or thanks from my supervisor to celebrate my efforts and accomplishments. 9. I receive praise and/or thanks from my colleagues to celebrate my efforts and accomplishments. 10. The management of my organization acknowledges my importance as an employee by communicating their activities and decisions. 11. I get encouragement from my supervisor when I face a difficult situation. 12. My colleagues recognize my contribution to the work and goals

	of our team. 13. It is possible for me to get psychological help (supported financially by the organization) if I need it. 14. My supervisor recognizes my value as an employee by giving me enough autonomy in my work. 15. This organization develops policies and programs that support the importance of employee recognition. 16. Faculty, staff or students regularly express their satisfaction with the quality of my work.
Job Satisfaction**	1. I feel fairly well satisfied with my job. 2. I find enjoyment in my job. 3. Most of the time I have to force myself to go to work. (R) 4. I am seldom bored with my job. 5. I would consider taking another job. (R) 6. Most days, I am enthusiastic about my job.
Affective Commitment***	1. I would be very happy to spend the rest of my life career with this organization. 2. I really feel as if this organization's problems are my own. 3. I do not feel a strong sense of "belonging" to my organization.(R) 4. I do not feel "emotionally attached" to this organization. (R) 5. I do not feel like "a part of the family" at my organization. (R) 6. This organization has a great deal of personal meaning to me.
Turnover Intention****	1. How often during the course of the last year have you thought about giving up IT and starting a different kind of job. 2. How often during the course of the last year have you thought about leaving the IT profession? 3. How often during the course of the last year have you thought about starting a career outside of IT? 4. How often during the course of the last year have you thought about finding an IT job with another company? 5. How often during the course of the last year have you thought about finding an IT position with a different firm?
Organizational Support******	1. The organization values my contribution to its well-being. 2. The organization fails to appreciate any extra effort from me. (R) 3. The organization would ignore any compliant from me. (R) 4. The organization really cares about my well-being. (R) 5. Even if I did the best job possible, the organization would fail to notice. (R) 6. The organization cares about my general satisfaction at work 7. The organization shows little concern for me. (R)

	8. The organization takes pride in my accomplishments at work.
Preferred Recognition*	1. What forms of recognition do you most and least prefer? 2. What forms of recognition have you received while working in your current job role? 3. For the recognition(s) you've received, what level of impact did the recognition(s) have on your overall job satisfaction? 4. For the recognition(s) you've received, how long did the effects of the recognition last?

Note:

***** Measures developed for this research.

** Measures developed by Brayfield and Rothe (1951).

*** Measures developed by Meyer, Allen, and Smith (1993).

**** Measures developed by Pejtersen, Kristensen, Borg, and Bjorner (2010).

***** Measures developed by Brun (2005), Paquet et al. (2011).

****** Measures developed by Eisenberger et al. (1986).

APPENDIX B

INSTRUMENT

INTRODUCTION

IT Staff Turnover Intentions, Job Modification, and the Effects of Recognition at Large Public Higher Education Institutions

Instruction for Participants

You have been selected by your institution's Chief Information Officer to participate in research to examine job modification, recognition and turnover intentions of public higher education IT workers. The study will not benefit you directly, but the findings will be used to inform higher education leaders for the purposes of improving IT worker retention. The benefit to you will be that the conclusions resulting from this research study will be publicly available for utilization by the higher education community.

As a participant, you will be guided through a survey which will take approximately twenty-five minutes.

The risks associated with this survey are minimal and comparable to those experienced in every day life.

During the time the survey is conducted, your responses will remain confidential. Within five days after the survey is completed, a cleanup process will be run which will remove your name and email address from our database and at that point all data you submitted shall be anonymous. Any specific or personal information that is obtained in connection with this study will remain confidential.

By providing responses for the survey, you are agreeing to take part in the research study titled "IT Staff Turnover Intentions, Job Modification, and the Effects of Recognition at Large Public Higher Education Institutions", which is being conducted by Steven C. Burrell. Your participation is completely voluntary and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled.

To contact the Office of Research Compliance for answers to questions about the rights of research participants or for privacy concerns please email IRB@georgiasouthern.edu or call (912) 478-0843. This project has been reviewed and approved by the Georgia Southern University Institutional Review Board under tracking number XXXXXX.

I appreciate your taking the time to complete this assessment. Please email me at sburrell@georgiasouthern.edu or call me at (912) 478-1335 if you have any questions or concerns.

Sincerely,

Steven C. Burrell

Principal Investigator

INST1 At which institution are you currently employed?

- ❍ 197869 Appalachian State University (1)
- ❍ 142115 Boise State University (2)
- ❍ 110422 Cal Polytechnic State University-San Luis Obispo (3)
- ❍ 110529 California State Polytechnic University-Pomona (4)
- ❍ 110538 California State University-Chico (5)
- ❍ 110547 California State University-Dominguez Hills (6)
- ❍ 110574 California State University-East Bay (7)
- ❍ 110556 California State University-Fresno (8)
- ❍ 110565 California State University-Fullerton (9)
- ❍ 110583 California State University-Long Beach (10)
- ❍ 110592 California State University-Los Angeles (11)
- ❍ 110608 California State University-Northridge (12)
- ❍ 110617 California State University-Sacramento (13)
- ❍ 110510 California State University-San Bernardino (14)
- ❍ 169248 Central Michigan University (15)
- ❍ 190512 CUNY Bernard M Baruch College (16)
- ❍ 190549 CUNY Brooklyn College (17)
- ❍ 190567 CUNY City College (18)
- ❍ 190558 CUNY College of Staten Island (19)
- ❍ 190594 CUNY Hunter College (20)
- ❍ 190600 CUNY John Jay College Criminal Justice (21)
- ❍ 190664 CUNY Queens College (22)
- ❍ 198464 East Carolina University (23)
- ❍ 220075 East Tennessee State University (24)
- ❍ 144892 Eastern Illinois University (25)
- ❍ 156620 Eastern Kentucky University (26)
- ❍ 169798 Eastern Michigan University (27)
- ❍ 235097 Eastern Washington University (28)
- ❍ 169910 Ferris State University (29)
- ❍ 133650 Florida Agricultural and Mechanical University (30)
- ❍ 139931 Georgia Southern University (31)
- ❍ 170082 Grand Valley State University (32)
- ❍ 145813 Illinois State University (33)
- ❍ 213020 Indiana University of Pennsylvania-Main Campus (34)
- ❍ 232423 James Madison University (35)
- ❍ 185262 Kean University (36)
- ❍ 140164 Kennesaw State University (37)
- ❍ 237525 Marshall University (38)
- ❍ 220978 Middle Tennessee State University (39)
- ❍ 173920 Minnesota State University-Mankato (40)

- ❍ 179566 Missouri State University (41)
- ❍ 185590 Montclair State University (42)
- ❍ 157447 Northern Kentucky University (43)
- ❍ 171571 Oakland University (44)
- ❍ 174783 Saint Cloud State University (45)
- ❍ 227881 Sam Houston State University (46)
- ❍ 122597 San Francisco State University (47)
- ❍ 122755 San Jose State University (48)
- ❍ 160612 Southeastern Louisiana University (49)
- ❍ 149231 Southern Illinois University Edwardsville (50)
- ❍ 228431 Stephen F Austin State University (51)
- ❍ 196130 SUNY College at Buffalo (52)
- ❍ 228459 Texas State University-San Marcos (53)
- ❍ 227368 The University of Texas-Pan American (54)
- ❍ 164076 Towson University (55)
- ❍ 102368 Troy University (56)
- ❍ 206941 University of Central Oklahoma (57)
- ❍ 163204 University of Maryland-University College (58)
- ❍ 181394 University of Nebraska at Omaha (59)
- ❍ 199139 University of North Carolina at Charlotte (60)
- ❍ 199218 University of North Carolina at Wilmington (61)
- ❍ 136172 University of North Florida (62)
- ❍ 127741 University of Northern Colorado (63)
- ❍ 154095 University of Northern Iowa (64)
- ❍ 243197 University of Puerto Rico-Mayaguez (65)
- ❍ 240365 University of Wisconsin-Oshkosh (66)
- ❍ 141264 Valdosta State University (67)
- ❍ 216764 West Chester University of Pennsylvania (68)
- ❍ 149772 Western Illinois University (69)
- ❍ 157951 Western Kentucky University (70)
- ❍ 237011 Western Washington University (71)
- ❍ 206695 Youngstown State University (72)

BG1 How do you identify yourself?
- ❍ Male (1)
- ❍ Female (2)

BG2 How old are you?

- ❍ Less than 20 (1)
- ❍ 20-29 (2)
- ❍ 30-39 (3)
- ❍ 40-49 (4)
- ❍ 50-54 (5)
- ❍ 55-59 (6)
- ❍ 60-64 (7)
- ❍ 65 or more (8)

BG3 What is the highest level of formal education you have attained?

- ❍ High school diploma or GED plus some college: (1)
- ❍ 2-year college degree (2)
- ❍ 4-year college: (3)
- ❍ Some graduate or professional school: (4)
- ❍ Graduate or professional degree: (5)
- ❍ Doctoral degree (6)

BG4 Which category best fits your current job role?

- ❍ IT management (1)
- ❍ Networking / Telecommunications (2)
- ❍ System analysis, development & integration (3)
- ❍ Technical service & IT operations (4)
- ❍ End-user support (5)
- ❍ Other (6) _____

BG5 What is the total number of years worked in your current position?

- ❍ Less than 1 year (1)
- ❍ 1 to 5 years (2)
- ❍ 6 to 10 years (3)
- ❍ 11 to 15 years (4)
- ❍ 16 years or more (5)

BG6 What is the number of total years you have worked at your current institution?

- ❍ Less than 1 year (1)
- ❍ 1 to 5 years (2)
- ❍ 6 to 10 years (3)
- ❍ 11 to 15 years (4)
- ❍ 16 years or more (5)

BG7 What is your current annual salary?

- ❍ Under $41,000 (1)
- ❍ $41,000-$60,000 (2)
- ❍ $61,000-80,000 (3)
- ❍ $81,000-$100,000 (4)
- ❍ $101,000-$130,000 (5)
- ❍ More than $130,000 (6)

BG8 When was your last salary or hourly wage increase?

- ❍ Within the Last Year (1)
- ❍ Within 1-2 years (2)
- ❍ Within 3-4 years (3)
- ❍ Within 5-6 years (4)
- ❍ Longer than 6 years (5)

FOR1 What forms of recognition do you most and least prefer? Enter descriptions as necessary for Other 1 and Other 2 and rank all recognitions by dragging and dropping in order from most preferred (1) to least preferred (11):

_____ An Informal "Thank you" note (1)
_____ Public recognition (2)
_____ Gifts / Gift certificate (3)
_____ Training / Certification opportunities (4)
_____ Monetary / Cash bonus / Salary increase (5)
_____ Commemorative item / Plaque (6)
_____ Time off from work / Vacation time (7)
_____ Job promotion (8)
_____ Group celebration / Party (9)
_____ Formal Letter / Certificate (10)
_____ Other 1 (11)
_____ Other 2 (12)
_____ Other 3 (13)

FOR2 What forms of recognition have you received while working in your current job role?

- ❑ An informal "Thank you" / Note (1)
- ❑ Public recognition (2)
- ❑ Gifts / Gift Certificate (3)
- ❑ Training / Certification opportunities (4)
- ❑ Monetary / Cash Bonus / Salary Increase (5)
- ❑ Commemorative item / Plaque (6)
- ❑ Time off from work / Vacation time (7)
- ❑ Job Promotion (8)
- ❑ Group Celebration / Party (9)
- ❑ Formal Letter / Certificate (10)
- ❑ Other 1 (11) _____
- ❑ Other 2 (12) _____
- ❑ Other 3 (13) _____

FOR3 For the recognition(s) you've received, what level of impact did the recognition(s) have on your overall job satisfaction?

_____ An informal "Thank you" / Note (1)
_____ Public recognition (2)
_____ Gifts / Gift Certificate (3)
_____ Training / Certification opportunities (4)
_____ Monetary / Cash Bonus / Salary Increase (5)
_____ Commemorative item / Plaque (6)
_____ Time off from work / Vacation time (7)
_____ Job Promotion (8)
_____ Group Celebration / Party (9)
_____ Formal Letter / Certificate (10)
_____ Other 1 (11)
_____ Other 2 (12)
_____ Other 3 (13)

FOR4 For the recognition(s) you've received, how long did the effects of the recognition last?

	Days (1)	Weeks (2)	Months (3)	Years (4)
An informal "Thank you" / Note (x1)	❍	❍	❍	❍
Public recognition (x2)	❍	❍	❍	❍
Gifts / Gift Certificate (x3)	❍	❍	❍	❍
Training / Certification opportunities (x4)	❍	❍	❍	❍
Monetary / Cash Bonus / Salary Increase (x5)	❍	❍	❍	❍
Commemorative item / Plaque (x6)	❍	❍	❍	❍
Time off from work / Vacation time (x7)	❍	❍	❍	❍
Job Promotion (x8)	❍	❍	❍	❍
Group Celebration / Party (x9)	❍	❍	❍	❍
Formal Letter / Certificate (x10)	❍	❍	❍	❍
Other 1 (x11)	❍	❍	❍	❍
Other 2 (x12)	❍	❍	❍	❍
Other 3 (x13)	❍	❍	❍	❍

AC1 I do not feel a strong sense of “belonging” to my organization.

- ❍ Strongly Disagree (5)
- ❍ Disagree (4)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (2)
- ❍ Strongly Agree (1)

AC2 I do not feel emotionally attached to this organization.
- ❍ Strongly Disagree (5)
- ❍ Disagree (4)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (2)
- ❍ Strongly Agree (1)

AC3 I do not feel like "a part of the family" at my organization.
- ❍ Strongly Disagree (5)
- ❍ Disagree (4)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (2)
- ❍ Strongly Agree (1)

AC4 I really feel as if this organization's problems are my own.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

AC5 I would be very happy to spend the rest of my life career with this organization.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

AC6 This organization has a great deal of personal meaning to me.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

CE1 Are you currently married?
- ❍ Yes (1)
- ❍ No (2)

CE2 Do you own the home you live in?
- ❍ Yes (1)
- ❍ No (2)

CE3 Does your spouse work outside the home?
- ❍ Yes (1)
- ❍ No (2)
- ❍ N/A (3)

CE4 How many of your close friends live nearby?
- ❍ None (1)
- ❍ 1 (2)
- ❍ 2-5 (3)
- ❍ 6-10 (4)
- ❍ More than 10 (5)

CE5 How many of your family members live nearby?
- ❍ None (1)
- ❍ 1 (2)
- ❍ 2-5 (3)
- ❍ 6-10 (4)
- ❍ More than 10 (5)

CE6 I really love the place where I live.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

CE7 I think of the community where I live as home.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

CE8 Leaving this community would be very hard.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

CE9 My family roots are in this community.
- ❍ Yes (1)
- ❍ No (2)

CE10 People respect me a lot in my community.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

CE11 The area where I live offers the leisure activities that I like.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

CE12 The neighborhood I live in is safe.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

CE13 The weather where I live is suitable for me.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

CE14 This community is a good match for me.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

GO1 I feel that my present job will lead to future attainment of my career goals.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

GO2 My present job is relevant to growth and development in my career.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

GO3 This organization provides me the opportunity for development and advancement.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

JE1 I am tightly connected to this organization.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

JE2 I am too caught up in this organization to leave.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

JE3 I feel attached to this organization.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

JE4 I feel tied to this organization.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

JE5 I simply could not leave the organization that I work for.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

JE6 It would be difficult for me to leave this organization.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

JE7 It would be easy for me to leave this organization.
- ❍ Strongly Disagree (5)
- ❍ Disagree (4)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (2)
- ❍ Strongly Agree (1)

JS1 I am seldom bored with my job.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

JS2 I feel fairly well satisfied with my job.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

JS3 I find enjoyment in my job.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

JS4 I would consider taking another job.
- ❍ Strongly Disagree (5)
- ❍ Disagree (4)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (3)
- ❍ Strongly Agree (2)

JS5 Most days, I am enthusiastic about my job.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

JS6 Most of the time I have to force myself to go to work.
- ❍ Strongly Disagree (5)
- ❍ Disagree (4)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (2)
- ❍ Strongly Agree (1)

OR1 I am happy with the rewards that I received from the organization.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

OR2 The benefits are very good at this organization.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

OR3 The compensation is very good at this organization.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

OR4 The organization recognizes me for my completion of the job.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

OR5 The organization rewards me very well for what I complete on my job.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

POS1 Even if I did the best job possible, the organization would fail to notice.
- ❍ Strongly Disagree (5)
- ❍ Disagree (4)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (2)
- ❍ Strongly Agree (1)

POS2 The organization cares about my general satisfaction at work.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

POS3 The organization fails to appreciate any extra effort from me.
- ❍ Strongly Disagree (5)
- ❍ Disagree (4)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (2)
- ❍ Strongly Agree (1)

POS4 The organization really cares about my well-being.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

POS5 The organization shows little concern for me.
- ❍ Strongly Disagree (5)
- ❍ Disagree (4)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (2)
- ❍ Strongly Agree (1)

POS6 The organization takes pride in my accomplishments at work.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

POS7 The organization values my contribution to its well-being.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

POS8 The organization would ignore any complaint from me.
- ❍ Strongly Disagree (5)
- ❍ Disagree (4)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (2)
- ❍ Strongly Agree (1)

PSS1 My supervisor is willing to help me if I need a special favor.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

PSS2 My supervisor really cares about my well-being.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

PSS3 My supervisor shows little concern for me.
- ❍ Strongly Disagree (5)
- ❍ Disagree (4)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (2)
- ❍ Strongly Agree (1)

PSS4 My supervisor strongly considers my values and goals.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

PSS5 My supervisor takes pride in my accomplishments at work.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

PSS6 My supervisor values my contributions.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

PJ1 Have decision procedures been applied consistently?
- ❍ Not at all (1)
- ❍ To a small extent (2)
- ❍ To a moderate extent (3)
- ❍ To a great extent (4)
- ❍ To a very great extent (5)

PJ2 Have decision procedures been based on accurate information?
- ❍ Not at all (1)
- ❍ To a small extent (2)
- ❍ To a moderate extent (3)
- ❍ To a great extent (4)
- ❍ To a very great extent (5)

PJ3 Have decision procedures been free of bias?
- ❍ Not at all (1)
- ❍ To a small extent (2)
- ❍ To a moderate extent (3)
- ❍ To a great extent (4)
- ❍ To a very great extent (5)

PJ4 Have decision procedures upheld ethical and moral standards?
- ❍ Not at all (1)
- ❍ To a small extent (2)
- ❍ To a moderate extent (3)
- ❍ To a great extent (4)
- ❍ To a very great extent (5)

PJ5 Have you been able to appeal the decisions arrived at by decision procedures?
- ❍ Not at all (1)
- ❍ To a small extent (2)
- ❍ To a moderate extent (3)
- ❍ To a great extent (4)
- ❍ To a very great extent (5)

PJ6 Have you been able to express your views and feelings during decision procedures?
- ❍ Not at all (1)
- ❍ To a small extent (2)
- ❍ To a moderate extent (3)
- ❍ To a great extent (4)
- ❍ To a very great extent (5)

PJ7 Have you had influence over the decisions arrived at by decision procedures?
- ❍ Not at all (1)
- ❍ To a small extent (2)
- ❍ To a moderate extent (3)
- ❍ To a great extent (4)
- ❍ To a very great extent (5)

RI1 Additional responsibilities have been added to my original tasks and responsibilities.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

RI2 New responsibilities have been added to my original responsibilities over time.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

RI3 Over time, additional responsibilities and tasks have been added to my original duties.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

RI4 Since I was hired into my current position, I have taken on additional duties.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

TR1 Over time, the tasks and responsibilities associated with my job have been replaced with different duties.
- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

TR2 The duties originally associated with my job have been replaced with different tasks and responsibilities.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

TR3 The original functions associated with my job have been replaced with new ones.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

TR4 The tasks and responsibilities associated with my job have changed over time.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

TRAIN1 I obtained great knowledge and skills from training programs provided by the organization.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

TRAIN2 The organization provides excellent training for me to do my current job.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

TRAIN3 The training programs provided by the organization are really useful for me.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

TI1 How often during the course of the last year have you thought about finding an IT job with another company?

- ❍ Every Day (1)
- ❍ Sometimes a Week (2)
- ❍ Sometimes a Month (3)
- ❍ Sometimes a Year (4)
- ❍ Never (5)

TI2 How often during the course of the last year have you thought about finding an IT position outside of higher education?

- ❍ Every Day (1)
- ❍ Sometimes a Week (2)
- ❍ Sometimes a Month (3)
- ❍ Sometimes a Year (4)
- ❍ Never (5)

TI3 How often during the course of the last year have you thought about giving up IT and starting a different kind of job?

- ❍ Every Day (1)
- ❍ Sometimes a Week (2)
- ❍ Sometimes a Month (3)
- ❍ Sometimes a Year (4)
- ❍ Never (5)

TI4 How often during the course of the last year have you thought about leaving the IT profession?

- ❍ Every Day (1)
- ❍ Sometimes a Week (2)
- ❍ Sometimes a Month (3)
- ❍ Sometimes a Year (4)
- ❍ Never (5)

TI5 How often during the course of the last year have you thought about starting a career outside IT?

- ❍ Every Day (1)
- ❍ Sometimes a Week (2)
- ❍ Sometimes a Month (3)
- ❍ Sometimes a Year (4)
- ❍ Never (5)

WR1 Faculty, staff or students regularly express their satisfaction with the quality of my work.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR2 I get encouragement from my supervisor when I face a difficult situation.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR3 I get praise and/or thanks from my supervisor to celebrate my efforts and accomplishments.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR4 I receive praise and/or thanks from my colleagues to celebrate my efforts and accomplishments.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR5 It is possible for me to get psychological help (supported financially by the organization) if I need it.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR6 My colleagues are considerate of me.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR7 My colleagues recognize my contribution to the work and goals of our team.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR8 My colleagues regularly give me spontaneous feedback on the quality of my work.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR9 My supervisor is considerate of me.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR10 My supervisor recognizes my value as an employee by giving me enough autonomy in my work.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR11 My supervisor regularly gives me spontaneous feedback on the quality of my work.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR12 The management of my organization acknowledges my importance as an employee by communicating their activities and decisions.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR13 The organization provides appropriate tools that allow me to work effectively.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR14 There are opportunities for advancement in this organization.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR15 This organization develops policies and programs that support the importance of employee recognition.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

WR16 This organization invests in continuing education which ensures my professional development (ex: symposiums, conferences, training seminars).

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

APPENDIX C

SAMPLE INVITATION LETTER TO CIOS

Dear <*Personalized*>,

Recruitment and retention of IT staff is increasingly competitive and a strategic imperative for public higher education institutions. <*Institution name*> has been selected to participate in a research study of the IT workforce employed at large, 4-year, public higher education institutions. The purpose of this research is to improve retention of IT workers. A website describing the research, IRB approvals, and other information is available at http://bit.ly/1bGkJ1O or https://sites.google.com/a/georgiasouthern.edu/itresearch/

If you elect to have your institution participate, you will receive a confirmation email further describing the research process, eligible staff, IRB statements and other particulars. There will be two options for participation: Option 1 is to send a list of email address for eligible IT worker participants at your institution; Option 2 is to receive a survey invitation email that you will forward to all eligible IT staff. CIOs of participating institutions will receive a comprehensive report of the research findings, conclusions, and related suggestions for improving retention of IT staff. You will also be invited to participate in a webinar with other participating CIOs to discuss the findings and implications.

Eligible participants must be at least 18 years of age or older to participate and be employed full-time in a technical position. Participants will be provided information on the research and asked to complete an online survey regarding their attitudes and perceptions. It is expected that this procedure will take no more than 25 minutes to complete. Participants will not be contacted again for any reason. Participants can drop out at any time with no penalty. Participants will be notified that by filling out the survey, they acknowledge informed consent.

The data collected will be held in strict confidence. Individuals and institutions will not be individually identified in the research results. All responses will be analyzed in the aggregate. The results will help IT researchers better understand the factors that lead to IT worker turnover. This research will be published in a doctoral dissertation at Georgia Southern University, and may be published in academic journals, professional publications, or presented at conferences.

If you wish to participate, please register your institution in this research, please visit http://bit.ly/1bGkJ1O and provide your name and institution then, check "Yes" next to your participation option, and provide the number of estimated participants.

If you have any questions regarding this survey, contact the principal investigator, Steven Burrell at sburrell@georgiasouthern.edu.

Sincerely,

Steven C Burrell, Principal Investigator

APPENDIX D

CIO CONFIRMATION AND INSTRUCTIONS LETTER

Dear <*Personalized*>,

Thank you for enrolling <*institution name*> in the study titled, IT Staff Turnover Intentions, Job Modification, and the Effects of Recognition at Large Public Higher Education Institutions. This research is significant given the importance of IT staff recruitment and retention in an environment of increased financial and strategic pressures on higher education institutions.

You indicated the following participation option:

Option 1: Provide email addresses. Email me a list of email addresses for eligible participants by <DATE>

Option 2: Distribute invitations. On <DATE> you will receive an email inviting participation in the study that should be forwarded to all IT workers at your institution who are 18 years of age or older. Please do not include short-term contract employees, consultants, or temporary labor.

Eligible participants include all full-time IT workers who perform technical work or service duties. This is generally understood to include IT workers in positions associated with networking and telecommunications, end-user support, technical services, computer center operations, enterprise application development and support, database administration, software development, systems integration, security services, web developers, and systems analysis among other technical positions. Also eligible are the CIO, other executives, directors, and managers that exercise various levels of leadership and management over IT workers.

IT workers ineligible and excluded from the study include contractors, outside consultants, and those classified as temporary laborers. Also not included in the study are clerical, administrative support, and accountants, along with other non-technical positions. The CIO is also ineligible.

Should you have any questions or concerns, please contact the principal investigator, Steven Burrell at sburrell@georgiasouthern.edu. Reference IRB approval #######. Additional information about the research project is available on the project website at https://sites.google.com/a/georgiasouthern.edu/itresearch/.

Upon completion of the study, you will receive a comprehensive report of the findings and will be invited to participate in a discussion webinar. Thank you again for participating in this important research.

Sincerely,

Steven Burrell
Principal Investigator

APPENDIX E

SURVEY INVITATION LETTER

Dear <CIO>, Please forward the following invitation to eligible IT workers at <institution>. Participants must be at least 18 years of age or older to participate and not be contract, consultant or temporary laborers.

Dear IT worker,

<*institution name*> is participating in a study of the IT workforce employed at large, 4-year, public higher education institutions. The purpose of this research is to gain insights into improving the retention of IT workers in these institutions. Of particular interest to this study are the effects of job modification and work recognition on job satisfaction and other factors impacting IT worker turnover intention. A website describing the research, IRB approvals, and other information is available at https://sites.google.com/a/georgiasouthern.edu/itresearch/.

The data collected will be held in strict confidence. Individuals and institutions will not be individually identified in the research results. All responses will be analyzed in aggregate. The results will help researchers better understand factors that lead to IT worker turnover. This research will be published in a doctoral dissertation at Georgia Southern University, and may be subsequently published in academic journals, professional publications, or presented at conferences.

I encourage you to participate. Completing the web-based survey should only take about 25 minutes. Your participation in the study is voluntary, and your responses will be completely confidential. You may discontinue or drop out of the survey at any time with no penalty. Completion of the survey indicates that you consent to participate in this research study.

Please point your browser to the following URL to complete the survey: <*restricted link*>

This study has been reviewed and approved by the Georgia Southern University Institutional Review Board under tracking number *XXXXX*.

If you have any questions or problems, contact the principal investigator at sburrell@georgiasouthern.edu.

Thank you very much for your participation!

Sincerely,

Steven C Burrell, Principal Investigator

APPENDIX F

SAMPLE INSTITUTIONS

Carnegie Large public four-year, primarily residential and non-residential institutions.

Unit ID	Institution Name	City	State
197869	Appalachian State University	Boone	NC
142115	Boise State University	Boise	ID
110422	Cal Polytechnic State University-San Luis Obispo	San Luis Obispo	CA
110529	California State Polytechnic University-Pomona	Pomona	CA
110538	California State University-Chico	Chico	CA
110547	California State University-Dominguez Hills	Carson	CA
110574	California State University-East Bay	Hayward	CA
110556	California State University-Fresno	Fresno	CA
110565	California State University-Fullerton	Fullerton	CA
110583	California State University-Long Beach	Long Beach	CA
110592	California State University-Los Angeles	Los Angeles	CA
110608	California State University-Northridge	Northridge	CA
110617	California State University-Sacramento	Sacramento	CA
110510	California State University-San Bernardino	San Bernardino	CA
169248	Central Michigan University	Mount Pleasant	MI
190512	CUNY Bernard M Baruch College	New York	NY
190549	CUNY Brooklyn College	Brooklyn	NY
190567	CUNY City College	New York	NY
190558	CUNY College of Staten Island	Staten Island	NY
190594	CUNY Hunter College	New York	NY
190600	CUNY John Jay College Criminal Justice	New York	NY
190664	CUNY Queens College	Flushing	NY
198464	East Carolina University	Greenville	NC
220075	East Tennessee State University	Johnson City	TN
144892	Eastern Illinois University	Charleston	IL
156620	Eastern Kentucky University	Richmond	KY
169798	Eastern Michigan University	Ypsilanti	MI
235097	Eastern Washington University	Cheney	WA
169910	Ferris State University	Big Rapids	MI
133650	Florida Agricultural and Mechanical University	Tallahassee	FL
139931	Georgia Southern University	Statesboro	GA
170082	Grand Valley State University	Allendale	MI
145813	Illinois State University	Normal	IL
213020	Indiana University of Pennsylvania-Main Campus	Indiana	PA
232423	James Madison University	Harrisonburg	VA
185262	Kean University	Union	NJ
140164	Kennesaw State University	Kennesaw	GA

Carnegie Large public four-year, primarily residential and non-residential institutions. (continued)

Unit ID	Institution Name	City	State
237525	Marshall University	Huntington	WV
220978	Middle Tennessee State University	Murfreesboro	TN
173920	Minnesota State University-Mankato	Mankato	MN
179566	Missouri State University	Springfield	MO
185590	Montclair State University	Montclair	NJ
157447	Northern Kentucky University	Highland Heights	KY
171571	Oakland University	Rochester Hills	MI
174783	Saint Cloud State University	Saint Cloud	MN
227881	Sam Houston State University	Huntsville	TX
122597	San Francisco State University	San Francisco	CA
122755	San Jose State University	San Jose	CA
160612	Southeastern Louisiana University	Hammond	LA
149231	Southern Illinois University Edwardsville	Edwardsville	IL
228431	Stephen F Austin State University	Nacogdoches	TX
196130	SUNY College at Buffalo	Buffalo	NY
228459	Texas State University-San Marcos	San Marcos	TX
227368	The University of Texas-Pan American	Edinburg	TX
164076	Towson University	Towson	MD
102368	Troy University	Troy	AL
206941	University of Central Oklahoma	Edmond	OK
163204	University of Maryland-University College	Adelphi	MD
181394	University of Nebraska at Omaha	Omaha	NE
199139	University of North Carolina at Charlotte	Charlotte	NC
199218	University of North Carolina at Wilmington	Wilmington	NC
136172	University of North Florida	Jacksonville	FL
127741	University of Northern Colorado	Greeley	CO
154095	University of Northern Iowa	Cedar Falls	IA
243197	University of Puerto Rico-Mayaguez	Mayaguez	PR
240365	University of Wisconsin-Oshkosh	Oshkosh	WI
141264	Valdosta State University	Valdosta	GA
216764	West Chester University of Pennsylvania	West Chester	PA
149772	Western Illinois University	Macomb	IL
157951	Western Kentucky University	Bowling Green	KY
237011	Western Washington University	Bellingham	WA
206695	Youngstown State University	Youngstown	OH

APPENDIX G

TOTAL VARIANCE EXPLAINED AS TEST OF CMV BIAS.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15.659	32.623	32.623	15.659	32.623	32.623
2	4.900	10.208	42.831			
3	3.090	6.438	49.269			
4	1.901	3.961	53.230			
5	1.790	3.730	56.960			
6	1.636	3.408	60.368			
7	1.436	2.992	63.360			
8	1.381	2.877	66.237			
9	1.157	2.409	68.647			
10	.930	1.937	70.583			
11	.878	1.829	72.412			
12	.797	1.660	74.072			
13	.733	1.528	75.600			
14	.714	1.487	77.087			
15	.679	1.415	78.502			
16	.656	1.366	79.868			
17	.623	1.299	81.166			
18	.596	1.242	82.408			
19	.546	1.138	83.546			
20	.513	1.069	84.615			
21	.468	.975	85.590			
22	.464	.966	86.556			
23	.435	.907	87.463			
24	.417	.868	88.331			
25	.395	.823	89.155			
26	.372	.775	89.930			
27	.365	.761	90.690			
28	.352	.734	91.424			
29	.331	.689	92.113			
30	.318	.663	92.776			
31	.301	.627	93.403			
32	.280	.583	93.986			

(continued)

Total Variance Explained (continued)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
33	.277	.577	94.563			
34	.256	.534	95.097			
35	.245	.510	95.606			
36	.240	.501	96.107			
37	.223	.465	96.572			
38	.214	.445	97.017			
39	.203	.423	97.440			
40	.192	.399	97.839			
41	.180	.374	98.213			
42	.167	.349	98.562			
43	.145	.302	98.864			
44	.142	.295	99.159			
45	.121	.253	99.412			
46	.117	.244	99.656			
47	.091	.189	99.845			
48	.075	.155	100.000			

Note: Extraction Method: Principal Component Analysis.

APPENDIX H

MODERATING EFFECTS OF WORK RECOGNITION

ON JOB MODIFICATION IN THE THEORETICAL MODEL

Table 17

Moderating Effects of Work Recognition on Job Modifications

	Path Coefficient (β)	Sample Mean (*M*)	Standard Deviation (*STDEV*)	Standard Error (*STERR*)	T Statistics (|*O/STERR*|)
Responsibility Increase * Work Recognition ⇢ Perceived Organizational Support	0.0002	-0.0042	0.0587	0.0587	0.0028
Responsibility Increase * Work Recognition ⇢ Job Satisfaction	-0.1280	-0.0704	0.1651	0.1651	0.7751
Responsibility Increase * Work Recognition ⇢ Affective Commitment	-0.1439	-0.1217	0.1296	0.1296	1.1101
Task Replacement * Work Recognition ⇢ Perceived Organizational Support	0.3116	0.3555	0.2560	0.2560	1.2171
Task Replacement * Work Recognition ⇢ Job Satisfaction	0.0724	0.1025	0.1016	0.1017	0.7123
Task Replacement * Work Recognition ⇢ Affective Commitment	0.0206	0.0519	0.1255	0.1256	0.1637

Note: No moderating effects are considered statistically significant

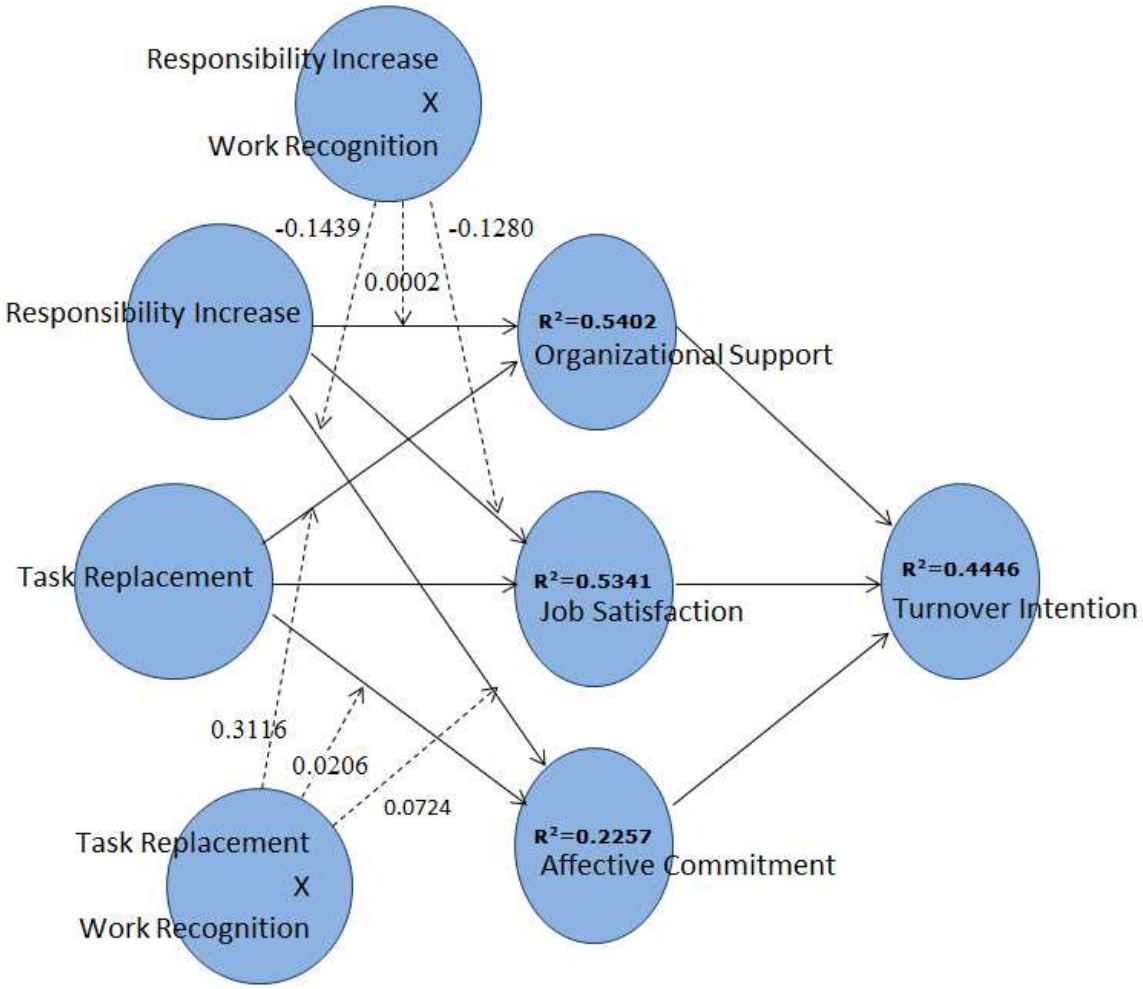

Figure 3. PLS theoretical model path coefficients and variance explained for moderating effects of work recognition on task replacement and responsibility increase in a model of turnover intention. This figure illustrates the computed values of path coefficients and R^2 values in the theoretical model. There were no statistically significant path coefficients in the results.

APPENDIX I

PLS QUALITY SCORES OF VARIABLES

Table 18

PLS Quality Criteria Scores of Exogenous and Endogenous Variables

Variable	Cronbachs Alpha	Communality	Composite Reliability	AVE	R^2
Affective Commitment	.813729	.521750	.865198	.521750	.224185
Perceived Org Support	.932176	.679419	.944187	.679419	.539841
Responsibility Increase	.893198	.698222	.900636	.698224	
Task Replacement	.869930	.714817	.908608	.714817	
Turnover Intention	.918874	.756116	.939291	.756116	.464214
Job Satisfaction	.853475	.587771	.893155	.587771	.536146
Work Recognition	.882551	.633233	.911361	.633233	

APPENDIX J

COMPARISON OF MALE AND FEMALE COMPOSITE MEANS OF REFLECTIVE MEASURES

Table 19

Means of Reflective Measures by Gender

		Female		Male			
Construct	Items	*M*	*SD*	*M*	*SD*	t	Sig
Turnover Intention	5	2.265	1.138	2.304	0.912	-0.54726	No
Job Satisfaction	6	3.547	0.694	3.515	0.715	0.73631	No
Perceived Org. Support	8	3.189	0.863	3.177	0.841	0.22204	No
Affective Commitment	6	3.275	0.823	3.275	0.77	0.00000	No
Task Replacement	4	3.537	0.818	3.53	0.865	0.13665	No
Responsibility Increase	4	4.125	0.656	4.165	0.671	-0.97370	No
Work Recognition	6	3.585	0.839	3.605	0.738	-0.38066	No

APPENDIX K

WORK RECOGNITION PREFERENCES AND EXPERIENCES BY GENDER

Table 20

Work Recognition Preferences and Experiences by Gender.

	Preferences					Impact							Duration				
	Female		Male			Female			Male				Female		Male		
Work Recognition	*M*	*SD*	*M*	*SD*	*t*	*M*	*SD*	*n*	*M*	*SD*	*n*	*t*	*M*	*SD*	*M*	*SD*	*t*
Monetary bonus / increase	2.08	1.78	2.32	1.96	-1.1520	1.37	0.58	26	1.5	0.66	73	-1.143	3.23	1.14	3.29	0.84	-0.263
Job promotion	3.57	2.67	3.37	2.45	0.6400	1.55	0.44	13	1.54	0.73	47	0.082	3.77	0.44	3.55	0.58	1.732*
Informal "Thank you"	4.80	2.84	5.36	3.00	-1.6847*	1.02	0.55	57	0.87	0.58	141	2.059*	1.61	0.75	1.43	0.71	1.796*
Training / Certifications	4.86	2.37	4.61	2.30	0.9013	1.16	0.55	25	1.27	0.62	67	-1.000	2.8	1.08	2.79	0.95	0.045
Time off from work	4.92	2.41	5.05	2.29	-0.4609	1.16	0.51	16	1.24	0.67	51	-0.627	1.81	0.91	2.29	0.92	-2.043*
Gifts / Gift certificate	5.85	2.09	5.83	2.23	0.0818	1.06	0.57	16	0.9	0.51	46	1.123	1.63	0.72	1.57	0.81	0.323
Formal Letter / Certificate	6.66	2.30	6.86	2.56	-0.7430	0.98	0.69	13	0.98	0.62	41	0.000	2	1.08	1.8	0.87	0.642
Public recognition	6.69	2.81	6.67	2.74	0.0608	0.97	0.49	29	0.97	0.65	70	0.000	1.83	0.93	1.87	0.92	-0.228
Commemorative item	7.86	1.90	7.67	1.89	0.8544	0.57	0.43	7	0.96	0.64	31	-2.400*	1.43	0.79	2.35	1.2	-2.853*
Group celebration	8.19	2.06	8.37	2.16	-0.7466	0.86	0.38	14	0.89	0.66	28	-0.295	1.43	0.65	1.54	0.79	-0.610
Other 1	10.84	0.81	10.47	2.00	n/a	-0.25	1.32	4	0.34	1.1	18	n/a	1.75	1.5	2.5	1.47	n/a
Other 2	11.84	0.81	11.69	1.36	n/a	1.70	0	1	2	0	1	n/a	1	0	4	0	n/a
Other 3	12.84	0.81	12.73	1.36	n/a	0	0	-	0.5	2.12	2	n/a	0	0	3.5	0.71	n/a

Note: Female n=74, Male n=182