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Retaining Information Technology Employees in Higher Education

Mary Holmes
Western Michigan University

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Retaining Information Technology Employees in Higher Education

by

Mary Holmes

A Dissertation
Submitted to the
Faculty of The Graduate College
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Retaining Information Technology Employees in Higher Education

Mary Holmes, Ph.D.

Western Michigan University, 2006

The retention of qualified Information Technology (IT) employees is at an all time low within higher education institutions. IT personnel are essential for higher education institutions to effectively integrate technology into their educational programs. These IT employees contribute to their institution's teaching/learning mission, while simultaneously supporting complex and highly visible administrative operations. Yet, all previous research regarding IT employee retention issues had only been conducted within corporate settings.

To examine factors related to IT employees' retention within public higher education, an internet-based study was sent to IT employees in all four-year public universities throughout Michigan. The survey included questions within five overall areas (a) reasons to stay in their current position, (b) reasons to leave their current position, (c) information about former positions, (d) improvement recommendations, and (e) demographic information.

Responses from 183 IT employees revealed such individuals stay in their current position because of flexibility and a combination of variables that include respect, supervisor's skills, department communication, training, and the potential to increase their salary. Key reasons IT employees consider leaving their current employment

include increased stress, and a combination of variables involving a less relaxed work environment, concerns over health care, sick leave, vacation leave benefits, and limited job security. Key reasons IT employees cited for leaving their former positions were to acquire an advanced degree, job promotion, improved health care, vacation and sick leave benefits, positive co-worker relations, and a more relaxed or flexible work environment.

Consistent with research findings within corporate settings, competitive benefits packages are an essential component for the retention of IT employees within higher education. Higher education IT leadership may be able to reduce employee turnover, and increase employee satisfaction and productivity, while reducing retraining expenses by incorporating strategies deemed important via this research.

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CHAPTER I: INTRODUCTION

A stable workforce is a significant competitive advantage for today's higher education institutions. For example, it may take up to $10,000 to fill a single vacant position in a college or university after compiling the costs of hiring, including recruiting, advertising, interviewing, retraining, and loss of productivity (Aschenbrenner, 2002). In addition, a stable employee base is essential to deal with growing quality demands. This is true for all employees, but particularly true regarding Information Technology (IT) employees given higher education's recent emphasis on advanced technologies for instruction and management. Within the context of this dissertation research, an IT employee is defined as a personal computer (pc) technician, network technician, applications programmer, helpdesk technician, web designer, or any individual who works directly on a computer or network system including any person affiliated with IT who is not in a manager's role.

In recent years, the retention of qualified IT employees is at an all time low for higher education institutions (Olson, 2000). Not only does such turnover cost money to fill these vacant positions, but IT personnel are essential for higher education institutions to effectively integrate technology into their educational programs. IT employees within higher education contribute to their institution's teaching/learning mission, while simultaneously supporting complex and highly visible administrative operations (Ramsey, Breeden, Roche, & Evans, 2001).

Many universities are racing to get classes in an online format or to just stay abreast of keeping updated technology in classrooms (National Association of College and University Business Officers, 2003). Faculty are content experts but need IT

employees to integrate the technology into the classroom seamlessly (Salpeter, 2004).

Universities need faculty as well as IT professionals to help build PowerPoint

presentations, web pages, and overall network infrastructure, and support most other

technology-related activities. Indeed, according to the largest ongoing study of

computing and information technology in American higher education, 24.3 percent of

respondents noted the single most important information technology issue confronting

campuses is the need to assist faculty with technology integration (Roach, 2002).

The functions of IT employees, therefore, are needed to help universities remain

competitive. High rates of IT employee turnover may result in reduced knowledge,

productivity, and efficiency within the university system. According to Senge (1990),

"systems thinking is a discipline for seeing wholes" (p. 68). Seamless integration of

technology within a university setting is a critical component essential to the over

synergistic functioning of the system. Therefore, it is in the best interest of both the

university and the employee to prevent or minimize IT employee turnover.

Colleges and universities have historically been unable to compete with the IT

salaries offered by the business industry (Bureau of Labor Statistics, 2004-2005). Higher

education institutions often hire newer graduates, but research indicates such graduates

tend to remain on their first job for only about six months and average less than four

years (Hagevik, 2001). A recent study also estimates individuals who entered the

workforce in the late 1990's will change employers an average of nine times before they

reach the age of 32 (Hagevik, 2001). Turnover of some IT employees within higher

education may therefore be a given, but the question becomes one of how to minimize

this concern.

The uncertainty and instability of the IT workforce is causing many employees to ask questions such as: what does the future hold for me, and why should I stay in my current position? Demanding quality of employees is on the rise in all universities, and when employees are presented with an opportunity for greater benefits elsewhere, the decision to relocate may be pursued. Company loyalty is diminishing and employees are feeling less secure in their jobs than they did in the past (Slack, 1999).

Once employees decide to leave their current place of employment, a downhill spiral begins because remaining employees are often directed to absorb additional responsibilities to compensate for the departing employee (Aschenbrenner, 2002). This creates a morale problem because employees feel overwhelmed due to increased workloads, which lead to more employee turnover and the potential for even greater decreases in customer service. The need to minimize the negative cycle creates a challenge for IT administrators concerned with quality service and cost containment.

It is difficult to replace intellectual capital and business-specific knowledge (Ruch, 2000), and "replacing trained and experienced Information Technology (IT) employees is both costly and time-consuming" (Harris, 2000, p. 17). It must also be remembered that employees are unsecured assets. High turnover rates may be indicative of employees' job dissatisfaction within their current working environment. Employees are the only resource within universities who have the ability to make a conscious decision to return to work the next day (Modic, 2004).

A key concern with high employee turnover is the loss of intellectual capital, time, productivity, efficiency, and potential customer base (Noteboom, 1998). According to statistics from a recent study sponsored by Purdue University's Krannert School of

Management which surveyed nearly 100 U.S. media companies representing 5,000

employees, an employee's intention to stay in his current position is highly correlated

with customer satisfaction (Terzo, 2005). Even employees who do not deal directly with

customers can bolster the bottom line. This suggests there is an indirect link between

attitude and profitability and/or viability.

Research has found several significant components necessary to retain effective

IT employees within private industry. According to a survey by Chain Store Age

magazine, retailers' top-five methods to retain key IT employees are: (1) challenging

work environments; (2) employee capabilities enhancements (training and education); (3)

adequate compensation; (4) availability of state-of-the-art technology and applications;

and (5) work/life balance accommodations (Age, 1999). Brown (2001) found three core

values every company, college, and university need to offer their professional employees:

(1) security (salary); (2) predictability (the emotional feel for a company); and (3)

dignity. Therefore, research suggests several factors impact employee attitudes about the

job and the organization, which, in turn, impact employee retention. These factors

include: job characteristics, compensation and benefits, coworker relations,

organizational communication, and internal job mobility (Moore, 1998). Will these same

or similar methods achieve the same or similar results for IT professionals employed by

colleges and universities?

Within fiscally constrained higher education environments, it would be prudent to

reduce employee turnover in order to reduce costs and inspire efficiency. Retention of

those employees loyal to the university is important because of their intellectual capital,

as well as previous investments in staff development. Universities may not be able to

retain 100% of their IT employees, but all universities must strive to do the best job that they can in retaining IT employees in order to sustain organizational efficiency.

Problem Statement

A problem currently exists within many organizations in their ability to keep Information Technology (IT) positions filled given the high demand for such positions and the rapid changes in technology. Per Catlett and Hadden (2000), a million new IT workers will be needed in the U.S. during the next few years, but less than 25,000 computer science graduates enter the work force each year. According to the Bureau of Labor Statistics in the U.S. Department of Labor, demand for new IT positions is expected to increase 36% or more through the year of 2010. Couple these facts with IT baby boomers retiring, resulting in a major shortfall in the IT workforce. Further link this with increased higher education challenges, limited dollar streams available to universities, faculty competition, and the critical need to incorporate IT into the classroom; the challenge to retain current IT employee demands attention. Approximately 34 percent of Educause representatives recently ranked the challenges of funding IT to be one of the top-ranked issues for higher education for the forth consecutive year (Crawford & Rudy, 2003). Given these statistics, the retention of IT professionals in higher education will continue to be a growing concern.

Many firms use exit or post-exit interviews to examine reasons people leave their positions. While such practices may be of some value, it is too late to retain the current employee. A more positive approach would be to find out why individuals choose to stay in their current position (Sullivan, 1998). Numerous studies on employee turnover exist

(Moore, 1998), but none could be found that looked directly at IT employees or other non-teaching employees within higher education settings.

Therefore, the purpose of this dissertation study is to identify and explore factors that impact retention of Information Technology (IT) professionals in higher education institutions. This study helps identify critical elements to the retention of key IT employees within higher education institutions. The goal is to reduce turnover in IT related positions in higher education through potential implementation of key changes in the workplace at universities.

This study focuses on IT employees in positions across fifteen public higher education institutions in the state of Michigan. Michigan's higher education institutions were chosen because they are far removed from the "dot com" boom of the West and thus have less access to large IT professional employee pools. Public institutions were chosen because both salary and "non-salary" benefits across these institutions are very similar. In addition, the researcher has professional access to a significant respondent pool within Michigan, increasing the likelihood of adequate respondents.

<div align="center">Research Questions</div>

The research questions for this study seek to examine what motivates IT professionals in higher education to stay or to leave their current positions, and how, turnover of IT professionals in higher education might be decreased. Insight is gained by collecting data on both reasons for staying in current IT positions and leaving former ones. The following questions are explored in this dissertation study:

1.   What are some key demographic factors of Information Technology (IT)

        employees which might have an impact on their decisions to stay or leave a

        given position, including:

        (a) the average length of employment;

        (b) type of IT position held;

        (c) size of the institution in which the IT employee is currently employed;

        (d) how many full-time IT positions previously held;

        (e) average annual salary;

        (f) gender; and

        (g) average age?

2.   What are key reasons IT employees stay in their current positions within

        public higher education institutions?

3.   What are key reasons IT employees might leave their current positions within

        public higher education institutions?

4.   What are key reasons IT professionals have left former positions prior to

        coming to work at their current public higher education institutions?

5.   What do IT employees feel are the greatest benefits in working at a public

        higher education institution?

6.   What recommendations are offered by IT employees that might improve

        employee retention within public higher education institutions?

<div align="center">Limitations of the Study</div>

        The results of the study cannot be generalized beyond the specific population

from which the sample is drawn, which includes the public higher education institutions

in the state of Michigan. In addition, there is the possibility that respondents did not answer the questions with complete candor and, therefore, the results might not accurately reflect their perceptions of retention related issues.

Summary

The undersupply of qualified information technology employees and excessive employee turnover are major crises facing higher education institutions (Crawford & Rudy, 2003). Many higher education technology departments have laid off staff members, cut back on services, and have restructured operations in order to meet the tough financial environments faced by colleges and universities (Carnevale, 2004). Cutting IT budgets causes insecurity among IT employees impacting their decisions to remain in higher education institutions. Yet, there is currently a lack of research into what causes IT professionals to stay employed in higher education institutions or to leave. Such research is critical given current higher educational fiscal constraints further stressed by high employee turnover rates and a decreasing pool of qualified replacement candidates.

The purpose of this research study is to explore and examine the retention of Information Technology (IT) employees in higher education institutions in the state of Michigan. Chapter 1 provides an overview of the problem, discusses the need for obtained research, and offers the research questions for the study. Chapter 2 reviews previous literature and various techniques used to assist in retention efforts. Chapter 3 describes the methodology, population sample, instrumentation, and all procedures used to gather data for this study. Chapter 4 presents the results of the data analysis and findings to emerge from the study. It identifies factors relevant to the turnover and the

retention of IT employees and a complete set of findings. Chapter 5 presents a summary

of the findings, future research options, and conclusions.

CHAPTER II: LITERATURE REVIEW

Key Employee Retention Factors

A growing body of research exists regarding employee satisfaction and retention among IT professionals. However, all has been focused on business and industry settings and not on IT professionals found within public entities like higher education institutions. To that end, this chapter summarizes what we currently do know about IT employee satisfaction and retention within those private organizations as a means to set the stage for the research to be conducted within a public higher education setting.

A Variety of Benefits

Preventing turnover in IT positions has been identified as a concern since 1998 (Dobbs, 1999). Some individuals may believe salary is everything and the key to keeping IT positions filled. Yet, according to the Harvard Business Review, research indicates the top reasons why people leave their jobs include job content, level of responsibility, company culture, caliber of colleagues, and salary (Sullivan, 1998).

Retention once thought to be driven by salary has become a complicated mix of non-monetary benefits and other intangibles. Non-monetary benefits do not mean a thing though if the salary is not competitive (Villano, 1999). Compensation always enters into the picture but is seldom the only deciding factor when an employee finally decides to leave his place of employment.

Some companies therefore have come up with a "menu of benefits" plan to keep IT employees. These creative compensation plans consist of incentives, flexible work hours, tuition aids, child-care centers, and work culture (Stokes, 2000). Some have established a retention bonus which could be in the form of cash, new cars, vacations,

etc. (Trembly, 2001). Other innovative perks include employee lounges with big screen TV's, wet bars, and fully stocked kitchens, or permitting IT professionals to choose their work location (Verespej, 1999). Telecommuting is a recent concept identified by IT professionals to expand the workplace environment.

Firms that are surviving the turnover blues tune into their employees' work/life preference and create these "menu of benefits" and extras, which seem to keep turnover rates low (Nash, 2000). Many employers have found they can increase productivity, revenue, or both by 20 percent by implementing a work/life balance program for employees. Experts say it is possible to reduce turnover as much as 50 percent by introducing any of the following: dependent-care leave, child-care subsidies, elder-care programs, counseling and referral, and flexible working hours (Withers, 2001). "Good people will go wherever they can express their talent best" (Fox, 2000, p. 31). "The trick is for Chief Information Officer's (CIO's) to think of their people as customers," states Steve Brazile, CIO at Earthgrains in St. Louis. "Everyone in our organization can get a job somewhere else but we want him or her to stay here, so we treat him or her like our customers" (Nash, 2000, p. 2).

Flexibility is a term that arises again and again in regard to dealing with IT professionals (DeMers, 2002). One option valued when looking at a place of employment is being able to take extended leaves or sabbaticals. Some IT professionals will even trade monetary raises for more time off with family (Melymuka, 2000) and many employment seekers state this option is a key benefit (Withers, 2001). For example, NIIT, a contract software provider based in India with U.S. offices in Atlanta, reimburses workers up to $500 spent for vacation travel (Training, 1999). They feel IT employees

are notorious for sitting in front of their computers and compensating them for vacation

costs is a way to get them out of the house. It is all a dollars and perks game to keep IT

professionals (Zemke, 2000). As another example, International Truck, an $8.6 billion

company, was cited as one of the best corporations at retaining IT people (Nash, 2000).

They believe their low turnover rates are due to flexible work policies and employee

reward plans that allow high-performing non-managers to attain higher salaries than their

managers (Nash, 2000).

Innovation is also the key to retention (Goff, 2000). Projects that include using

innovative new technologies are definitely appealing to IT professionals. "You've got to

foster creativity and give people a chance to run with their ideas," states Bob Taylor, vice

president of the mobile trading project in the Electronic brokerage group at Charles

Schwab & Company in San Francisco (Goff, 2000, p. 1). Employees must be allowed to

identify their own solutions to problems. Such challenges offer the chance for IT

professionals to earn respect, contribute to the organization, work in innovative ways,

and have their contributions recognized (Newell, 2000). Universities may be unable to

offer six figure salaries for IT employees, but they are able to stimulate employee

creativity and motivation through methods that may not involve a lot of money (Villano,

1999).

Coworker Relations including Team Building and Loyalty

Companies with lower turnover rates state the key to keeping IT employees is to

keep them happy (Noteboom, 1998). One CIO called in 410 employees together to offer

examples of how the company failed to make them feel like part of a team. One of the

employees at this meeting stood up and pulled out his business card. This employee

wondered why his business card called him an IS (Information Systems) staffer instead of a member of the IT team. This is a small issue but this employee was an IT professional and felt he deserved to be recognized as one. This is one example of a small fix to make an employee feel like he is a professional and part of the team.

When an employee reaches the point of having an appropriate work/life balance, they will be loyal to their employer (Villano, 1999). People can only achieve their needs for self-actualization and psychological happiness after they have fulfilled their basic survival and security needs, that is, money, food, and shelter. Employers can help to preserve and improve human life by recognition and support of these needs. Once basic needs are met, people may be better prepared to work towards their potential, potentially enhancing employee loyalty. Another loyalty builder mentioned by one company is to allow employees to volunteer in the community on company time or do community service activities. For example, a Fairmont Hotel housekeeper stated that it takes more time to recycle but she feels it is the most important part of her job and makes her feel like she is doing something important for the community (Withers, 2001). Therefore, this Fairmont Hotel employee has higher loyalty to this company because she is able to do something for the community while working at her job.

The impact of the culture is another factor related to preventing turnover in IT positions in higher education. The message from IT employees is simple: "We stay when you treat us as trusted professionals" (Watson, 2000, p. 56). Culture is a big key to employee retention, and breaking down barriers within the culture is important. An environment that supports an employee's sense of belonging to the organization is the ideal environment for IT professionals (Stokes, 2000). Everything from counseling to

games to parties to outings is used to lighten the IT employees' work life and enfold them in the culture of the organization (Zemke, 2000). People in the organization must also pull together as a team to help make the culture at the organization work. People are more apt to pull together as a team if they have "played together" and formed personal bonds. It is like the old family adage that states "a family who plays together will stay together." Colleagues are a main source of satisfaction on the job. The ability of IT team members to work well together clearly affects both retention and productivity (Melymuka, 2000). Building relationships helps to increase motivation, optimism, and loyalty to the company and the work. Job and technology rotation play a key role in creating a satisfying environment as well.

Overall, work should be more than just a job (Villano, 1999). Employees need to experience a sense of joy and satisfaction in their current positions in order to achieve a positive workplace attitude. Employees who have better attitudes, perform better, and take better care of customers when they experience overall job satisfaction.

Training and Career Development

According to an IT employment practices survey conducted by Unifi Network, a subsidiary of PricewaterhouseCoopers, the number one reason employees leave their place of employment is a lack of opportunity for career development (George, 2001). Challenging work assignments and career-development opportunities top virtually every list of what IT people want from an employer (Verespej, 1999). Salary still counts but is not key (Nash, 2000). In a 1998 national study, the entire population of the Information Technology Association of America (ITAA) was surveyed. The ITAA is the leading trade association of America's information technology industry, and the survey

population included 191 companies. Although the response rate was only 15.2 percent, the study concluded salary accounted for only 20 percent of the factors that contribute to work satisfaction (Noteboom, 1998). The other 80 percent comes from the criteria such as training, recognition, flexible benefits, flexible schedules and more than adequate work environments.

IT professionals are not afraid of working hard – very hard – if the project is stimulating and challenging. The advanced world that we live in today is moving from an "economy of goods" to a "knowledge economy" (Melymuka, 2000). The technology worker is really a knowledge worker. Knowledge workers need more training, new pension arrangements, and other kinds of attention to keep current in today's society (Noteboom, 1998). IT professionals must be moving forward though, learning new skills (Melymuka, 2000). Technical people are avid consumers of training who must remain current with the rapid changes occurring in technology in order to maintain marketable skills. Training opportunities in the latest technology can lure IT recruits and retain current IT employees (Noteboom, 1998).

A 1999 Gallup poll named the lack of opportunities to learn and grow as a top reason for employee dissatisfaction (Withers, 2001). The message from the 2000 annual job satisfaction survey which had a total of 575 respondents couldn't be clearer: "Help them grow or watch them go" (Melymuka, 2000, p. 57). A company should plan on any IT professional spending 25 percent of his or her time keeping current (Noteboom, 1998). This means that continued education/training is a must. "If training is only after hours and on weekends, it sends employees a message that they are not important" (Verespej, 1999, p. 3). Companies must realize that the best employees are eager to develop their

careers, and that they see training and education as a vital means to that end (Dobbs,

1999).

NIIT, a contract software provider based in India with U.S. offices in Atlanta,

states the key to their low turnover rate is the fact that they provide their employees with

an average of 11 days of training, both technical and non-technical, each year. They feel

this is more than double the industry average and feels this helps employees feel valued.

"Best practice organizations have learned that investing in training and development pays

off in the form of longer employee tenure, growth of in-house expertise, higher

productivity and reduced turnover" (Cataline, 2000, p. 2).

Supervisor Issues

The supervisor plays a major role in preventing turnover in IT positions. It is often

said that employees leave managers not organizations. Irritants major enough to make

employees leave their place of employment include harsh supervision, no channel to

voice complaints, arbitrary company policy, merit raises unfairly distributed, and job

openings or opportunities to move up or acquire new skills are not made available to all

(Goodfellow, 2000). One common thread in this list is the supervisor. How do

supervisors state priorities? Are there hours that need to be worked at different times of

the day? Are there unrealistic deadlines? Is the office work space not very attractive

looking?

Many employees feel the right environment is created by the supervisor. John P.

Loranger is vice president of information services at Lands' End, Inc. and he says the key

is that you need to listen. You need to make sure that if something is going on in an

employees life – death, divorce, etc – if their performance slacks off a bit, you've got to

give them a little flexibility. When they get through the issue, they're going to work extra hard because they knew you were there for them. He believes that if you treat people right and compensate them fairly, retention will take care of itself (Solomon, 2000). The best IT supervisors provide an abundance of both managerial and training support.

A key to keeping IT professionals also involves guidance from their supervisor (Melymuka, 2000). Communication with employees is the key. One study conducted with Rambo Computer Corporation, considered in the 1990's to be one of the nation's most admired and successful organizations, examined factors which prompted attrition of nine high performing employees from Rambo's IT group (Kreisman, 2002). This study sought to investigate the decision of these individuals to leave the organization. Another objective of this study was to suggest ways in which managers could influence career decisions of employees and minimize future turnover of technical talent. Results of this study indicated that the "primary reason why individuals chose to leave the company was because of lack of respect or poor communication with their respective manager" (Kreisman, 2002, p. viii). Results of the study further revealed that the decision to leave an organization was most often the accumulation of experiences with separation triggered by one or more escalating events.

A supervisor needs to continually update the staff on what is going on in the university and keep and open-door policy for all employees. Supervisors who stay in touch and expect accountability will win in the long run (Melymuka, 2000). Randstad North America, a professional services employment provider in Atlanta. conducted 1500 telephone surveys and came up with ideas on how to improve morale. Randstad's four years of research found that half of the managers polled considered themselves excellent

communicators but less than a third of their employees agreed. Supervisors must realize that "workplace communication is about what you are saying and not about how you are saying it" (Modic, 2004, p.10).

An additional factor of concern cited by IT employees related to workplace aesthetics including ergonomics. Was the supervisor willing to buy new furniture and fix up the office space? Was the supervisor interested in making the office environment ergonomically correct? Employee retention is adversely affected by cluttered and rundown office space. IT professionals value working in an environment that demonstrates concern for employee and customer relations. This promotes a trust level between both the supervisor and the employee. IT professionals prefer a workplace environment that establishes clear goals and milestones, has understandable criteria for evaluating performance, sets definite project review dates, and engages in clear employee performance evaluations (Zemke, 2000). Companies need to create jobs that develop people, both professionally and personally.

Overall, it is important for supervisors to realize that high-tech IT professionals want autonomy. They are achievement-oriented and have a high need for recognition (Verespej, 1999). Recognition and non-monetary reward plans are motivators for IT professionals and supervisors play a key role in this process. "Make people feel important and feel as though their contributions are contributing to the overall success of the company" (Solomon, 2000, p. 54).

<center>Summary</center>

From previous research, we can conclude that if private companies devote more time to developing people, money could be saved instead of being spent on recruiting and

induction programs (Roncoroni, 1998). There is no silver bullet for retaining skilled

employees, but once people reach a balance of money and non-cash benefits, retention is

no longer an issue (Villano, 1999). Retention efforts require a variety of incentives such

as: equitable pay, stock options, rewards and recognition, training and development,

working on a team, cutting edge technology, and interesting projects (Noteboom, 1998).

There should be a focus on each employee as a profit center unto itself (Clarke, 2001).

This substantiates that employee retention is an ongoing process, not an emergency

project (Zemke, 2000). In short there is no easy map and no guarantee that workers will

stay (Watson, 2000). No single approach will meet the needs of all companies or all IT

professionals. With job turnover at record levels, the three T's still top the list of what

keeps IT workers happy and on the job. The three T's are trust, training, and technology

(Watson, 2000).

However, previous research has not focused on public entities like higher

education institutions and how these issues may differ. Private companies have

significant flexibility regarding salary, training, and benefit packages to help retain IT

employees. On the other hand, higher education institutions have much less flexibility to

such salary, training, and benefit packages. The key question, therefore becomes, what

attracts IT employees to come to and stay in higher education institutions?

CHAPTER III: RESEARCH METHODOLOGY

The purpose of this dissertation study is to identify and explore factors that impact retention of Information Technology (IT) professionals in higher education institutions. This study identifies critical elements to the retention of key IT employees within higher education institutions. The ultimate goal is to reduce turnover in IT related positions in higher education through potential implementation of key changes in the work place at universities.

Population and Sample

The focus of this study is on the IT professionals within the fifteen public higher education institutions in the state of Michigan. Michigan's higher education institutions were chosen for this study because they are far removed from the dot com boom of the West and thus have less access to large IT professional employee pools. Only state public institutions were included because both salary and "non-salary" benefits are more likely to be similar across these institutions. In addition, the researcher had professional access to a significant respondent pool within the state, increasing the likelihood of adequate respondents.

The population of this study is comprised of IT employees within public four-year higher education institutions in the state of Michigan. This scope includes the fifteen public state universities and all job titles that would be considered an IT employee working in the following areas: including personal computers, networks, application programmer, helpdesk, and web designer. The resulting sample size was 641 IT professionals from the fifteen public higher education institutions in the state of Michigan.

Instrumentation

A standardized web-based online survey was constructed to gather data respective of the research questions. The survey consists of five overall areas: reasons to stay, reasons to leave, information about former positions, improvement recommendations, and demographic information.

Survey questions were based on information and insight gained from an open-ended field survey and via the literature review. All likert-scaled responses are on a scale of one to four with the following responses of *not at all* to *to a great extent*. The reasons to stay, reasons to leave, and information section about former positions, include a total of 27 items. In the improvement recommendations section, there are two open-ended questions, one asking respondents the greatest benefit they have with their current employer and the other asking if they have any recommendations for improving IT employee retention at their current university. Within the demographic section, there are a total of seven questions regarding average length of employment, how many full-time IT positions held, type of IT position held, average annual salary, average age, gender, and size of the institution in which the IT employee is currently employed. The introduction letter and survey are included as Appendix A. Appendix B includes a follow up email to participants who did not respond within one week of the original email survey. Two subsequent email reminders were also sent as reminders to respond in order to boost the response rate.

To field test this survey instrument a version was sent to five IT departments in a Midwest university with 38 IT employees. Information gathered from participants indicated this online survey allowed individuals to answer the questions more honestly

and openly than using a face-to-face interview approach. IT professionals who received the pilot survey held job titles of system programmer, application project manager, network technician, computer technician, and consortium resource manager.

In addition, the pilot group tested the use of the web-based survey process and the time to complete the survey. There were no reported problems with navigation or use of the web-based survey. Because the majority of questions were developed specifically for this research, there is no pre-established reliability or validity data. Overall, data from the pilot survey and subsequent revisions have ensured the questions are understandable in an IT environment.

Data Collection Methods

Through publicly available organizational charts and web sites, and the researcher's personal contacts at several higher education institutions, 641 IT across fifteen public universities were identified. Their names and addresses were entered into a database for use in distributing the survey and subsequent follow-ups for survey completion. After names and email addresses were entered into the database, email letters were sent to all IT employees requesting their participation to complete the survey. At least two follow-up emails with another link to the web-based survey were sent.

A web-based survey format was chosen for several reasons. The survey sample includes personnel working in the fifteen four-year public higher education institutions in the state of Michigan. These universities are very likely to have some form of high-speed internet access; therefore line speed to access a web-based survey was not an issue. Web-based surveys have the benefits of reduced time to complete, and since our population, who received the survey were all IT professionals, it reduced overall survey costs and

may have led to a greater response rate (Creswell, 2003). The web-based survey also facilitated the confidentiality of the information which allowed IT employees to be honest and open about their situations.

<center>Data Analysis</center>

The survey instrument gathered data on 93 individual variables related to the retention of IT employees. Demographic information of the survey participants such as age, sex, and years in IT profession, title, and how many past full-time IT positions held, salary, and number of students at their higher education institution was collected. The means, standard deviations, and ranges were calculated for every variable and evaluated to see if any correlations exist. This survey gathered information from the IT professionals not only on why they were staying in their current position, but also why they left their last position and came to a public higher education institution. Therefore, this survey obtained dual information from the participants about "leaving" and "staying" in positions.

The data from the survey were analyzed using the software package SPSS. Since data were submitted via the web, the survey software package converted the data to a SPSS dataset. A visual inspection of a sample of surveys was made to ensure the conversion was accurate. Open-ended responses were coded as themes and included in the resulting data analysis.

The data were inspected and reviewed for any abnormalities and none were found. Descriptive statistics were used to analyze the means, standard deviations, and ranges for the various dependent and independent variables. All means fell under the standard bell curve and were normally distributed. An exploratory factor analysis was run

to assess the reliability of the measurement tools. This was used as a data reduction technique to correlate the question responses into groups. Since the variables of staying in a current position, leaving a current position, and why you left your former position were measured on an arbitrary scale, "correlation coefficients are preferred to co-variances as measures of relationship" (Glass & Hopkins, 1996, p. 111). Therefore, correlations were calculated using the Pearson product-moment coefficient to determine the relationship among variables. Correlations were reviewed to determine any relationships between staying in a position, leaving current position, and reasons for leaving former position, and any of the listed reasons. For all tests an alpha of .05 was used.

<div align="center">Summary</div>

To analyze the retention of IT employees in the public higher educations institutions in the state of Michigan, a web-based survey was sent to all IT professionals within each of the fifteen public higher education institutions. The survey contained a variety of open-ended and Likert-scaled questions with the scaled responses of *not at all* to *to a great extent*. A web-based survey was used to reduce time and costs involved with typical mailed instruments. Analysis of the data consisted of descriptive and correlation statistics. Table 1 summarizes the analyses which were conducted with data collected from this survey, as linked to each research question.

Table 1

Summary Data Analysis Chart

Research Questions	Specific Survey Question(s)	Data Analysis
Q1-6: Demographics	Q1-Q6: Demographics Q1: Length of employment Q2: Title Q3: Size of University Q4: Previous IT Position Q5: Salary Q6: Gender Q7: Age	Descriptive statistics of data segmented by group to analyze means, standard deviations, and ranges.
Q8: Staying in position	Q8: Identification of reasons why employee stays in their current position. This will be correlated with Q2.	Descriptive statistics were run to analyze means, standard deviations, and ranges and to see what variance exists. An exploratory factor analysis was run to assess the reliability of the measurement tools. This was used as a data reduction technique. A principal component analysis was then run to correlate the data into groups of factors.
Q9: Leaving position	Q9: Identification of reason why employees would leave current position.	
Q10: Left former position	Q10: Identification of reasons why employee left former position if it was in IT. If Q4 is zero, this question will not appear.	The kaiser criterion was used in grouping the factors.
Q11: Greatest Benefit	Q11: Employee perceptions of greatest benefits of working for current employer.	Coded as themes and included in data analysis.
Q12: Recommendations	Q12: Employee recommendations to improve employee retention.	Coded as themes and included in data analysis.

CHAPTER IV: RESULTS

This chapter presents findings from the employee retention survey posed to

information technology employees in public higher education institutions. General

information on response rates and demographic data are presented first as well as any

necessary data manipulation conducted by the researcher prior to analyses. Following

these introductory sections, the researcher addresses each of the study's research

questions.

Demographic Data

The researcher distributed the survey to all information technology employees

within public higher education institutions in Michigan. An email request with a link to

the survey was sent to 641 participants. Some emails were no longer valid and other

individuals requested to be removed from the list because their job was not clearly

associated with IT, which left a total of 618 potential participants. The overall response

rate after four total email attempts was 30% (N=183). Per one source, the median survey

response rate for online surveys is 26.45% (Hamilton, 2003). Therefore, this survey had a

slightly larger response rate due to the amount of reminder emails, and the fact that the

research was able to make phone calls to some participants to remind them to complete

the survey. The data was inspected and reviewed for any abnormalities and none were

found.

Research question one deals with the demographic information, with such data

summarized in Tables 2-8. Table 2 displays the length of employment statistics, with

respondents' length of employment in their current position ranging from a minimum of

1 year to 35 years of employment. The mean was 10.79 years with a standard deviation

of 8.02 years.

Table 2

Length of Employment

Length of Employment Years	N	Minimum Years	Maximum Years	Mean	Std. Deviation
Years	183	1	35	10.79	8.029

Table 3 displays the results of the frequency and percentages for respondents'

current Information Technology (IT) position title. As displayed in the table, 37.7 % of

the respondents had a title of programmer, 25.7% of the respondents were network

technicians, 18% of the respondents were help desk support technicians, 13.7% were pc

technicians, and 4.9% were web designers.

Table 3

IT Position Title

IT Position Title	Frequency	Valid Percent
Programmer	69	37.7
Network Technician	47	25.7
Help Desk Support Technician	33	18.0
PC Technician	25	13.7
Web Designer	9	4.9
Total	183	100.0

Figure 1 breaks the percentages down to a bar graph so that it is easy to decipher

that the largest percentage of respondents had the programmer title.
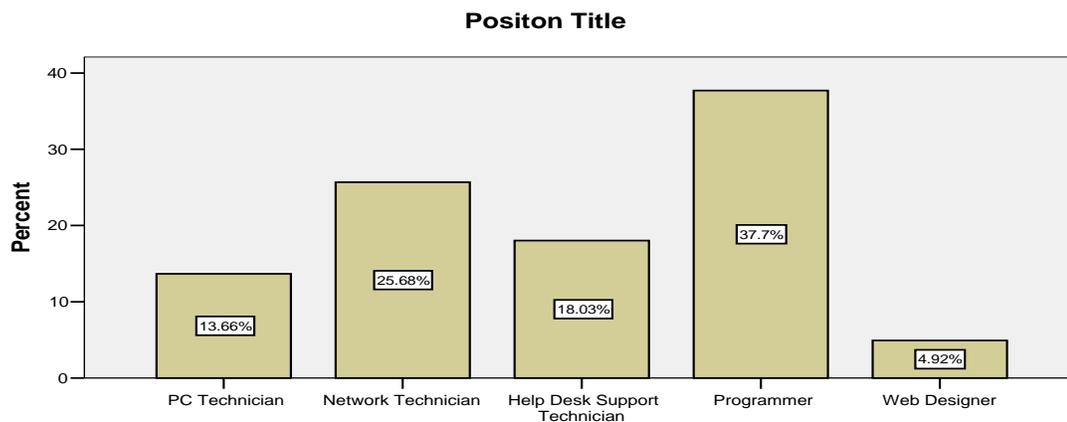
Positon Title

Figure 1. Position Title

Table 4 summarizes how many full-time equivalent students attend the institution

where the respondents currently work. As displayed in the table, 66.1% of the

respondents worked in an institution with greater than 15,000 full-time equivalent

students, 19.1% of the respondents from those with 8,000-12,000 full-time equivalent

students, 8.2% of the respondents from those less than 8,000 full-time equivalent

students, and 6.6% of the respondents from those with 12,001-15,000 full-time equivalent

students.

Table 4

Number Full-Time Equivalent Students

Full-Time Equivalent Students	Frequency	Valid Percent (%)
< 8,000	15	8.2
8,000-12,000	35	19.1
12,001-15,000	12	6.6
>15,000	121	66.1
Total	183	100.0

Figure 2 breaks the percentages down to a bar graph so it is easy to decipher that the largest percentage of respondents were from higher education institutions with greater than 15,000 full-time equivalent students.

Number Full-Time Equivalent Students
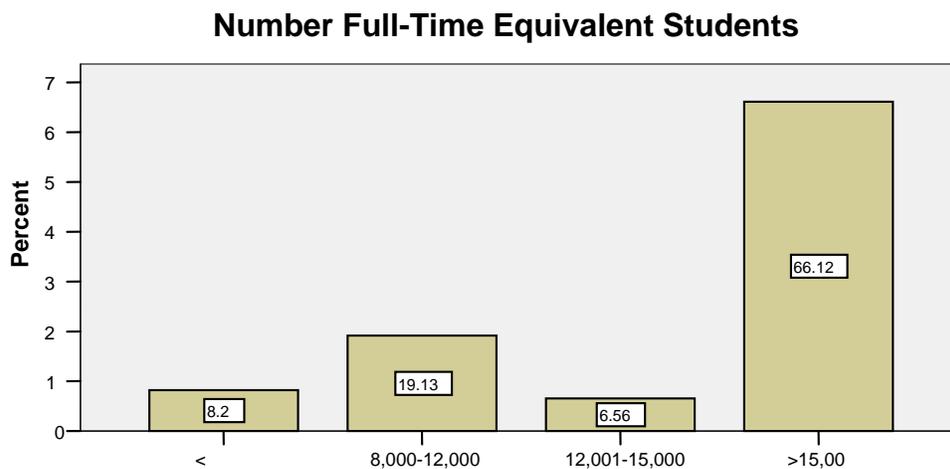
Figure 2. Number Of Full-Time Equivalent Students

Table 5 displays the results of the frequency and percentages for the number of previous IT positions held by the respondents (not including their current position). As displayed in the table, 44.3% of the respondents had one to two other positions in IT, 24.6% of the respondents had 3 to 4 other position in IT, 20.2% of the respondents have never had another IT position, 9.3% of the respondents have had 5 to 6 other IT positions, and 1.6% of the respondents have had 7 or more IT related positions.

Table 5

Number Previous IT Positions Held

# of Previous IT Positions	Frequency	Valid Percent
0	37	20.2
1-2	81	44.3
3-4	45	24.6
5-6	17	9.3
7 or more	3	1.6
Total	183	100.0

Figure 3 breaks the percentages down to a bar graph so it is easy to decipher that the largest percentage of respondents have held 1 to 2 other IT related positions.

Number previous IT positions held
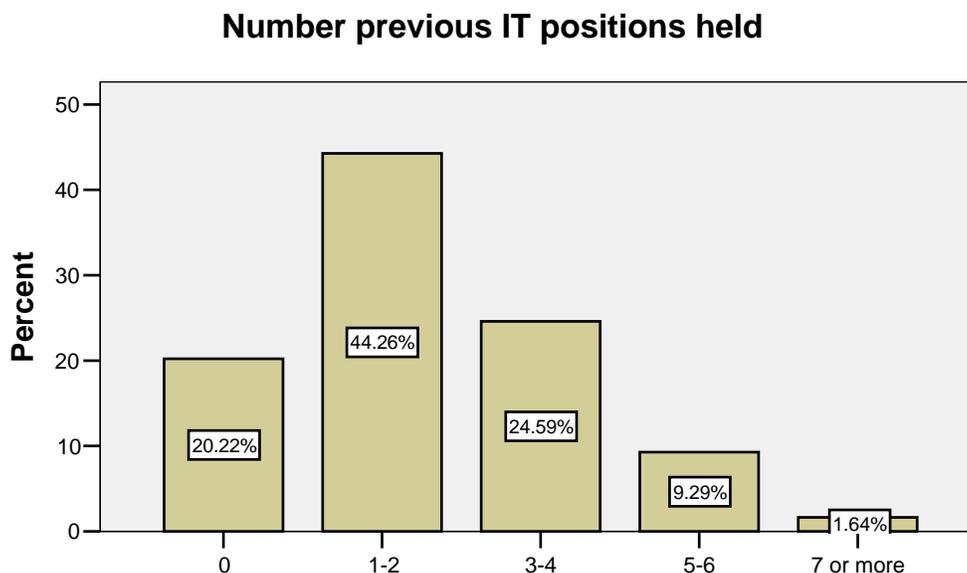
Figure 3. Number Of Previous IT Positions Held

Table 6 displays the results of the frequency and percentages for the current annual salary range held by the respondents of this IT retention survey. As displayed in the table, 27.9% of the respondents have an annual salary of $40,000-$49,000, 21.3% of the respondents have an annual salary of $50,000-$59,000, 19.1% of the respondents have an annual salary of $60,000-$69,000, 11.5% of the respondents have an annual salary of $30,000-$39,000, 8.7% of the respondents have an annual salary of $70,000-$79,000, 5.5% of the respondents have an annual salary of $80,000-$89,000, 3.8% of the respondents have an annual salary of $90,000 or more, and 2.2% of the respondents make less than $30,000.

Table 6

Current Annual Salary Range

Annual Salary	Frequency	Valid Percent
< $30,000	4	2.2
$30,000-$39,999	21	11.5
$40,000-$49,999	51	27.9
$50,000-$59,999	39	21.3
$60,000-$69,999	35	19.1
$70,000-$79,999	16	8.7
$80,000-$89,999	10	5.5
$90,000 or more	7	3.8
Total	183	100.0

Figure 4 breaks the percentages down to a bar graph so it is easy to decipher that the largest percentage of respondents have an annual salary between $40,000-49,000.

Current annual salary range
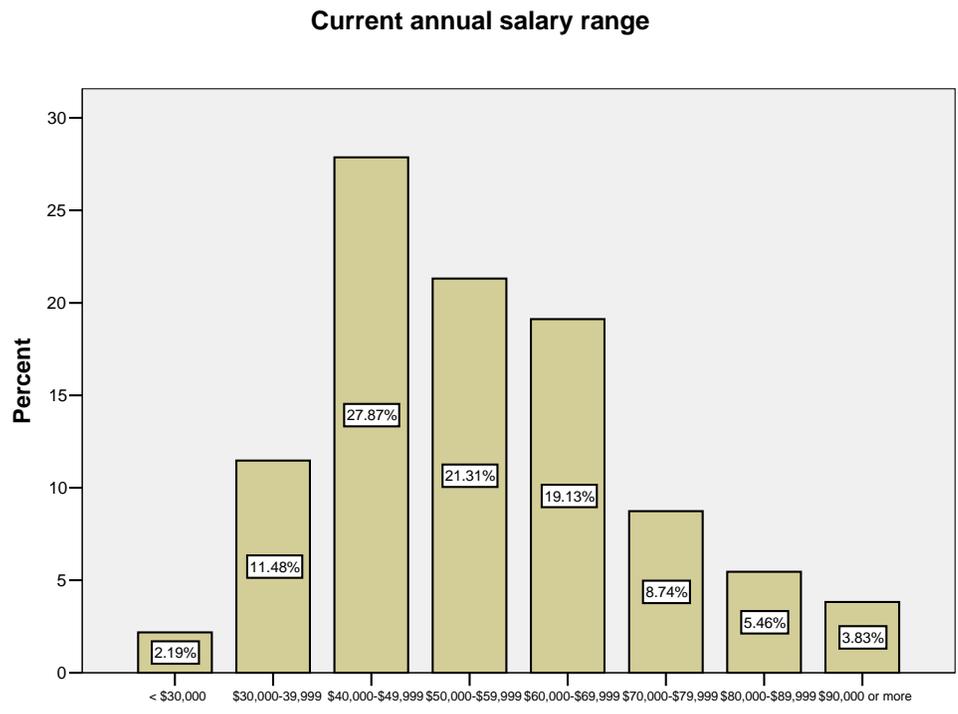
Figure 4. Current Annual Salary Range

Table 7 displays the results of the frequency and percentages for the respondents'

gender. As displayed in the table, 68.3% of the respondents are male, 31.1% of the

respondents were female, and one person did not answer this question.

Table 7

Gender

Gender		Frequency	Valid Percent
	Male	125	68.7
	Female	57	31.3
	Total	182	100.0
Missing		1	
Total		183	

Figure 5 breaks the percentages down to a bar graph so it is easily to decipher that

the largest percentage of respondents were male.

Figure 5. Gender of Respondents

Table 8 displays the results of the frequency and percentages for the age range of

the respondents. As displayed in the table, 35% of the respondents were between the ages

of 45 and 54, 27.3% of the respondents were between the ages of 35 to 44, 23.5% of the

respondents were between the ages of 25 to 34, 13.1% of the respondents were between

the ages of 55 to 64, .5% of the respondents were under 25, and .5% of the respondents

were 65 or older.

Table 8

Age Range

Age		Frequency	Valid Percent
	Under 25	1	.5
	25-34	43	23.5
	35-44	50	27.3
	45-54	64	35.0
	55-64	24	13.1
	65 or older	1	.5
	Total	183	100.0

Figure 6 breaks the percentages down to a bar graph so it is easy to decipher that
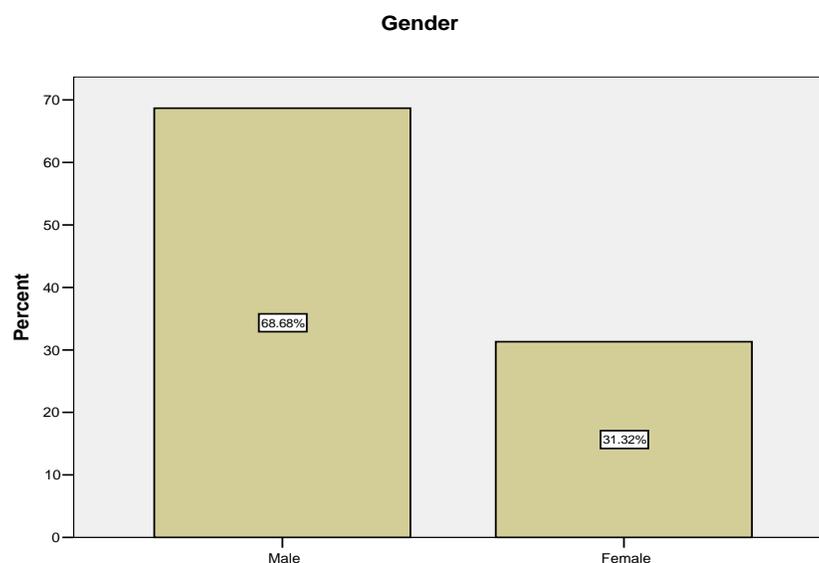
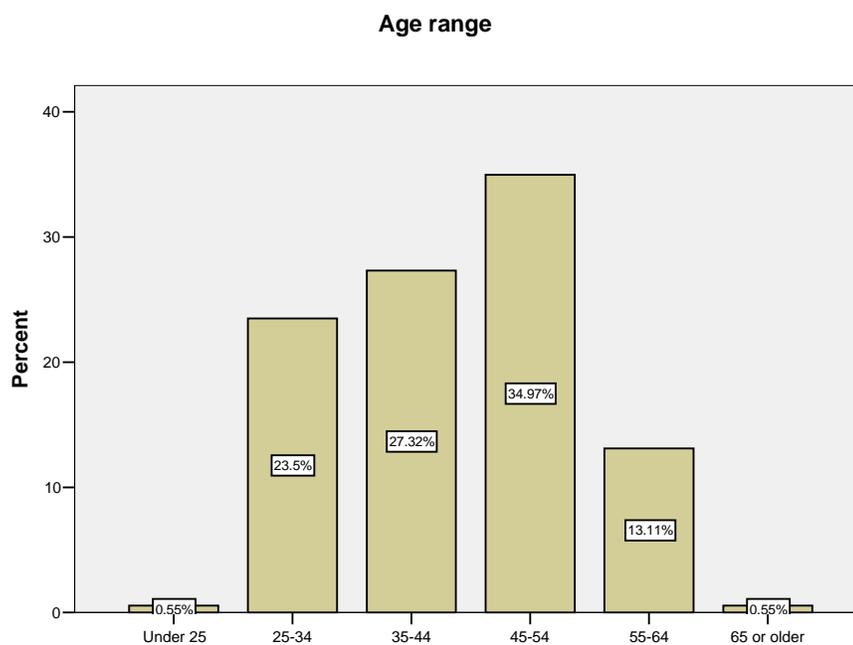the largest percentage of respondents were between the ages of 45 to 54.

Figure 6. Age Range

Key Reasons IT Employees Stay

Research question number two deals with why IT employees stay in their current positions within public higher education institutions. Table 9 provides the means for each of the variables on the survey as to why employees stay in their current place of employment (as rank ordered by highest to lowest mean). According to Table 9, the five highest rated items and their mean (on a 4.0 scale) include flexibility (3.17), vacation provided (3.15), health insurance coverage (3.03), relaxed work environment (3.01), and the quality of life has a mean of (3.0). The five lowest rated factors include risk of downsizing (2.02), risk of reorganization (1.97), advancement opportunities (1.91), lack of degree/training (1.84), and risk of management change (1.74). Note: the likert scale used within this survey was "to a large extent" (4.0), "to a moderate extent" (3.0), "to a limited extent" (2.0), and "not at all" (1.0). These values are consistent for all means shown in this chapter.

To continue to analyze key reasons why employees stay in their current position, an exploratory factor analysis was performed using principal component analysis. The main application for factor analytic techniques is to reduce the number of variables and to detect relationships between variables (Statsoft, 2003). Therefore, the purpose of factor analysis is to discover simple patterns in the relationships among the variables in that the analysis isolates the underlying factors.

Table 9

Reasons Why IT Employees Stay In Current Position: Means

Factors (N=183)	Not at all	To a Limited Extent	To a Moderate Extent	To a Large Extent	
	%	%	%	%	Mean
Flexibility	7.1	12.6	36.1	44.3	3.17
Vacation provided	6.6	7.7	50.3	35.5	3.15
Health insurance provided	8.2	8.7	54.6	28.4	3.03
Relaxed work environment	7.7	15.3	45.4	31.7	3.01
Quality of life	11.5	17.5	30.6	40.4	3.00
Job security	6.6	14.2	53.0	26.2	2.99
Working relationship with coworkers	7.1	21.9	39.9	31.2	2.95
Challenges	15.3	15.9	43.7	25.1	2.79
Sick leave provided	12.0	24.0	43.2	20.8	2.73
Working relationship with supervisor	21.3	18.6	33.9	26.2	2.65
Respect	16.4	23.5	44.3	15.9	2.60
Limited opportunities elsewhere	18.0	23.5	39.9	18.6	2.59
Loyalty	14.8	33.9	35.0	16.4	2.53
Stress	16.9	33.3	36.6	13.1	2.46
Opportunity to work in higher education	27.3	19.7	32.8	20.2	2.46
Supervisor's skills when dealing with people	28.4	21.3	30.6	19.7	2.42
Current salary	22.4	28.4	42.1	7.1	2.34
Supervisor's skills when dealing with tasks	27.9	27.3	30.1	14.8	2.32
Salary increase potential	31.7	23.0	40.4	4.9	2.19
Training	35.5	29.5	27.9	7.1	2.07
Communication in dept	32.2	35.0	27.3	5.5	2.06
Recognition	32.2	35.0	29.0	3.8	2.04
Risk of downsizing	41.0	27.3	20.8	10.9	2.02
Risk of reorganization	37.2	37.2	16.9	8.7	1.97
Advancement	44.3	30.1	16.4	9.3	1.91
Lack of degree/training	39.9	44.3	8.2	7.7	1.84
Risk of management change	48.6	33.3	13.7	4.4	1.74

Principal component analysis, which is a type of factor analysis, is the process of combining two correlated variables into one factor. As we extract consecutive factors, they will account for less and less variability in the combinations of variables. The variances extracted by these components are called eigenvalues and using the Kaiser criterion, we should retain only component factors with eigenvalues greater than 1. In

essence, this is stating that unless a factor extracts at least as much as the equivalent of one original variable, it is dropped (Statsoft, 2003).

Therefore, the ultimate goal of research question two is to study the patterns of relationships among the variables, as in what combinations of factors best answer the research questions. This same type of analysis will be performed for research questions two through four.

Table 10 shows the initial principal component analysis with the combined components listed in column two for why employees stay in their current position. The third column is the eigenvalue which finds the variance on the factors that were successively extracted, with the fourth column being the values expressed as a percent of total variance, and the fifth column being the values expressed as cumulative percentages.

As shown by Table 10, component A (which combines 7 original factors) accounts for 52.9% of the variance and is the most significant combination of variables for why IT employees stay in their current position. These factors include: (1) respect that employees receive, (2) supervisor's management skills when dealing with people, (3) supervisor's management skills when dealing with tasks, (4) working relationship that employees have with their supervisor, (5) the communication that occurs within the department, (6) the level of training provided to assist with job responsibilities, and (7) finally the potential for regular salary increases. All of these variables fall under component A in Table 10, and are more highly correlated with each other than variables within the other components. This is expected because as previously state, these factors are extracted successively and will account for less and less variance overall.

Table 10

Total Variance Explained For Why IT Employees Stay In Their Current Position

	Combined Component	Initial Eigenvalues		
		Total	% of Variance	Cumulative %
A	(1) Respect; (2) supervisor's skills when dealing with people; (3) supervisor's skills when dealing with tasks; (4) working relationship with supervisor; (5) dept. communication; (6) training; (7) salary increase potential	3.706	52.939	52.939
B	(1) Risk of reorg, risk of downsizing; (2) sick leave; (3) vacation leave	1.109	15.849	68.788
C	(1) Risk of reorg; (2) risk of downsizing; (3) risk of management change; (4) sick leave, (5) vacation leave	.698	9.974	78.763
D	(1) Flexible; (2) Relaxed work environment; (3) current salary; (4) limited opportunities	.569	8.125	86.887
E	(1) Loyalty; (2) stress; (3) health insurance	.439	6.278	93.165
F	(1) Working relationship with supervisor; (2) quality of life	.369	5.277	98.442
G	(1) Lack of degree and/or training	.109	1.558	100.000

Extraction Method: Principal Component Analysis.

A second principal analysis was performed using only the seven variables that fell into component A. Once again a combination of these same variables accounted for the most significant variance in that excluding one or more of these individual variables did not further increase the variance accounted for. Therefore, we can conclude that this combination of variables is indeed the strongest combination of variables to answer the research question.

Key Reasons Employees Leave

Research question number three deals with why Information Technology employees might leave their current position within public higher education institutions. Table 11 provides the mean and standard deviation for each of the variables on the survey for why employees would leave their current position. According to Table 11, the means above 2.75 are as follows with increased level of stress having a mean of 2.97, limited challenges having a mean of 2.96, limited job security having a mean of 2.92,

salary concerns having a mean of 2.91, limited salary increase potential and options for

employment elsewhere both having a mean of 2.84, and limited respect with a mean of

2.83.

Table 11

Reasons Why Employees Leave Their Current Position: Means

Factors (N=183)	Not at all %	To a Limited Extent %	To a Moderate Extent %	To a Large Extent %	Mean
Increased stress level	8.7	20.8	35.5	35.0	2.97
Limited challenges	13.1	16.4	31.7	38.8	2.96
Limited job security	14.8	18.6	26.8	39.9	2.92
Salary concerns	5.5	29.0	34.4	31.2	2.91
Limited salary increase potential	7.7	30.6	31.7	30.1	2.84
Options for employment elsewhere	14.8	12.6	46.5	26.2	2.84
Limited respect	9.3	20.8	47.5	22.4	2.83
Health insurance concerns	20.2	18.0	29.5	32.2	2.74
Less relaxed work environment	13.7	23.6	42.3	20.3	2.69
Less flexible work schedule	15.9	27.9	28.4	27.9	2.68
Vacation time concerns	22.4	20.8	25.7	31.2	2.66
Poor relationship with supervisor	19.7	15.9	45.9	18.6	2.63
Poor working relationship with coworkers	19.2	29.1	29.7	22.0	2.54
Decreasing loyalty	21.9	15.9	53.0	9.3	2.50
Sick leave concerns	23.5	29.0	26.2	21.3	2.45
Limited training	16.9	37.2	33.9	12.0	2.41
Changing quality of life offered	23.0	26.8	37.7	12.6	2.40
Poor communication in department	15.3	44.3	29.5	10.9	2.36
Supervisor's poor skills when dealing with people	42.1	12.6	19.1	26.2	2.30
Downsizing occurred	18.0	50.8	14.8	16.4	2.30
Had degrees for job elsewhere	26.8	33.3	23.5	16.4	2.30
Supervisor's poor task skills	42.1	13.1	19.7	25.1	2.28
Limited advancement	36.6	20.2	23.5	19.7	2.26
Reorganization occurred	18.0	53.0	18.0	10.9	2.22
Lost interest working in higher education	27.9	32.8	28.4	10.9	2.22
Limited recognition	42.1	23.0	20.8	14.2	2.07
Management changes occurred	46.5	28.4	16.4	8.7	1.87

To continue to analyze key reasons why employees leave current positions, an

exploratory factor analysis was performed as described previously. As shown in Table

12, component A (which combines 5 original factors) accounts for 75.2% of the variance

and is the most significant combination of variables for why IT employees leave their

current position. These factors include: (1) a less than relaxed work environment, (2)

concerns over the level of health insurance provided, (3) concerns over the level of sick

leave provided, (4) concerns over the level of vacation leave provided, and (5) limited job

security. All of these variables fall under component A in Table 12 and are more highly

correlated with each other than variables within the other components. This is expected

because as previously stated, these factors are extracted successively and will account for

less and less variance overall.

Table 12

Total Variance Explained For Why Employees Leave Current Positions

Combined Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
A (1) Less relaxed work environment; (2) health insurance; (3) sick leave; (4) vacation leave; (5) limited job security	3.765	75.295	75.295
B (1) Limited advancement; (2) limited recognition	.529	10.583	85.877
C (1) Supervisor's poor skills when dealing with people; (2) supervisor's poor skills when dealing with tasks; (3) limited training; (4) degrees for other jobs; (5) salary concerns; (6) limited salary increase potential	.411	8.223	94.100
D (1) Salary concerns	.175	3.496	97.596
E (1) Decreasing loyalty	.120	2.404	100.000

Extraction Method: Principal Component Analysis.

A second principal analysis was performed using only the five variables that fell

into component A. Once again a combination of those same variables accounted for the

most significant variance in that excluding one or more of these individual variables did

not further increase the variance accounted for. Therefore, we can conclude that this

combination of variables is indeed the strongest combination of variables to answer the

research question.

Key Reasons Employees Left Former Positions

Research question number four deals with why Information Technology employees have left former positions prior to coming to work at their current positions within public higher education institutions. Table 13 provides the mean and standard deviation for each of the variables on the survey for why employees have left former positions prior to coming to work at their current position. According to Table 13 the means above 2.75 are as follows with (1) having degrees for job elsewhere having a mean of 2.80 and (2) limited job security with a mean of 2.76.

To continue to analyze key reasons why employees have left former positions an exploratory factor analysis was performed. As shown in Table 14, component A (which combines 5 original factors) accounts for 72.8% of the variance and is the most significant combination of variables for why IT employees have left previous positions. These factors include: (1) less relaxed working environment, (2) poor working relationship with coworkers, (3) level of health insurance provided, (4) the level of vacation time provided, and (5) the level of sick leave provided. All of these variables fall under component A in Table 14, and are more highly correlated with each other than variables within the other components. This is expected because as previously stated, these factors are extracted successively and will account for less and less variance overall.

Table 13

Reasons Why Employees Have Left Former Positions: Means

Factors (N=146)	Not at all %	To a Limited Extent %	To a Moderate Extent %	To a Large Extent %	Mean
Had degrees for job elsewhere	28.8	26.0	25.3	19.9	2.80
Limited job security	30.1	7.5	18.5	43.8	2.76
Salary concerns	19.2	15.8	30.8	34.3	2.66
Options for employment elsewhere	30.3	4.8	33.8	31.0	2.66
Limited respect	27.4	12.3	34.3	26.0	2.59
Sick leave concerns	39.7	24.0	14.4	21.9	2.57
Limited salary increase potential	26.0	17.1	21.9	34.9	2.56
Limited challenges	28.8	13.0	34.9	23.3	2.53
Less flexible work schedule	39.7	5.5	21.2	33.6	2.49
Increased stress level	28.1	24.0	20.6	27.4	2.47
Limited advancement	33.6	16.4	22.6	27.4	2.44
Limited training	34.3	24.0	26.7	15.1	2.36
Less relaxed work environment	39.7	4.8	42.5	13.0	2.29
Limited recognition	39.3	13.1	27.6	20.0	2.28
Decreasing loyalty	34.3	21.9	28.8	15.1	2.25
Changing quality of life offered	44.5	22.6	22.6	10.3	2.23
Health insurance concerns	32.2	11.0	25.3	31.5	2.18
Downsizing occurred	32.9	31.5	23.3	12.3	2.15
Reorganization occurred	31.5	39.0	13.7	15.8	2.14
Vacation time concerns	33.6	14.4	13.7	38.4	2.14
Supervisor's poor people skills	46.6	20.6	6.9	26.0	2.12
Poor relationship with boss	45.2	14.4	24.0	16.4	2.12
Supervisor's poor task skills	45.2	21.2	13.0	20.6	2.09
Poor working relationship with coworkers	44.5	19.9	24.7	11.0	2.02
Poor communication in department	34.9	24.7	32.2	8.2	1.99
Management changes occurred	46.6	21.9	19.9	11.6	1.97
Lost interest working in higher education	49.0	24.1	21.4	5.5	1.83

A second principal analysis was performed using only the five variables that fell into component A. Once again a combination of these same variables accounted for the most significant variance in that excluding one or more of these individual variables did not further increase the variance accounted for. Therefore, we can conclude that this combination of variables is indeed the strongest combination of variables to answer the research question.

Table 14

Total Variance Explained For Why Employees Have Left Former Positions

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
A (1) Less relaxed work environment; (2) poor working relationship with coworkers; (3) level of health insurance; (4) vacation time provided; and (5) sick leave provided	3.643	72.857	72.857
B (1) Limited advancement; (2) limited recognition; (3) supervisor's poor skills when dealing with people; (4) supervisor's poor skills when dealing with tasks; (5) less flexible work schedule; (6) poor communication in department; (7) level of vacation time provided	.693	13.855	86.713
C (1) Limited Advancement; (2) salary concerns; (3) limited salary increase potential	.359	7.176	93.889
D (1) Management changes occurred	.173	3.459	97.348
E (1) Reorganization occurred	.133	2.652	100.000

Extraction Method: Principal Component Analysis.

Key Demographic Factors Impacting Staying/Leaving IT Positions

To further analyze demographic variables impacting why IT employees stay or leave positions, an analysis of variance (ANOVA) was performed to see if there were any statistical significance differences in respondent's responses to various survey questions as broken down by key demographic variables including length of employment, position title, institution size, the number of previously held positions, salary, gender, and age. An ANOVA tests the means of two or more groups for significant differences between these means.

The first analysis looked at the 27 factors (as initially listed in Table 9) offered to participants as to *why they stay* within their current position to determine if any significant differences were found *when broken down by years of employment*. On the survey, participants were allowed to fill in exactly how many years of employment they

had with their current employer. These responses were subsequently categorized into three groups: 1-11 years; 12-23 years, and 24-40 years. Among the 27 factors for staying, only one was found to have significant difference, that of "advancement opportunities" (F=5.575, p<.004). For this factor, those between 1-11 years of experience found this to be more of a factor for staying than for the other two years of experienced groups.

In reference to the 27 factors offered for why IT employees *might leave* their position (with a full listing offered in Table 11), none were found to have significant responses *when broken down by the three groups of years of employment*. Table 15 summarizes only the significant factors relating to reasons for both staying and leaving IT positions as broken down by length of employment.

Table 15

Length Of Employment ANOVA For Staying/Leaving IT Employment

Length of Employment ANOVA						
Why Stay?		N	Significant Factors	Mean	F	Sig
	Groups		Advancement		5.575	0.004
		12				
	1-11 years	3		2.07		
	12-23 years	42		1.57		
	24-40 years	18		1.56		
Why Leave?						
	Groups		None			
	1-11 years					
	12-23 years					
	24-40 years					

In reference to the 27 factors offered for why IT employees *stay in their current position* based on their *position title*, the variables that were found to have significant responses for staying in current position included a working relationship with coworkers (F=2.968, p<.021), limited opportunities elsewhere (F=2.975, p<.021), flexibility

(F=2.774, p<.029), challenges (F=2.652, p<.035), and risk of management change

(F=2.626, p<.036). As indicated earlier, the position titles that were used in this study

were PC technician, network technician, help desk support technician, programmer, and

web designer. Table 16 summarizes only the significant factors related to reasons for

staying in IT positions as broken down by position title.

Table 16

Position Title ANOVA For Staying In Current IT Employment

Position Title ANOVA

Why Stay?	N	Significant Factors	Mean	F	Sig
Groups		Working Relationship with Coworkers		2.968	0.021
PC Technician	25		2.92		
Network Technician	47		2.96		
Help Desk Support Technician	33		3.12		
Programmer	69		3.00		
Web Designer	9		2.00		
		Limited Opportunities Elsewhere		2.975	0.021
PC Technician	25		2.96		
Network Technician	47		2.47		
Help Desk Support Technician	33		2.24		
Programmer	69		2.75		
Web Designer	9		2.22		
		Flexibility		2.774	0.029
PC Technician	25		3.04		
Network Technician	47		2.91		
Help Desk Support Technician	33		3.30		
Programmer	69		3.39		
Web Designer	9		2.78		
		Challenges		2.652	0.035
PC Technician	25		2.40		
Network Technician	47		2.83		
Help Desk Support Technician	33		2.85		
Programmer	69		2.96		
Web Designer	9		2.11		
		Risk of Management Change		2.626	0.036
PC Technician	25		1.68		
Network Technician	47		2.02		
Help Desk Support Technician	33		1.42		
Programmer	69		1.70		
Web Designer	9		1.89		

In reference to the 27 factors offered for why IT employees *leave their current position* based on their *position title*, the variables that were found to be significant for leaving current IT positions based on position title include limited advancement opportunities (F=5.166, p<.001), supervisor's poor skills when dealing with people (F=4.08, p<.003), supervisor's poor skills when dealing with tasks (F=3.655, p<.007), limited respect that the employee receives (F=2.902, p<.023), and poor working relationship with coworkers (F=2.539, p<.042). Table 17 summarizes only the significant factors related to reasons for leaving IT positions based on position title.

Table 17

Position Title ANOVA For Leaving Current IT Employment

Position Title ANOVA

Why Leave?	N	Significant Factor	Mean	F	Sig
Groups		Limited Advancement		5.166	0.001
PC Technician	25		2.72		
Network Technician	47		2.30		
Help Desk Support Technician	33		2.55		
Programmer	69		1.84		
Web Designer	9		3.00		
		Supervisor's poor skills when dealing with people		4.08	0.003
PC Technician	25		2.32		
Network Technician	47		2.51		
Help Desk Support Technician	33		2.58		
Programmer	69		1.88		
Web Designer	9		3.22		
		Supervisor's poor skills when dealing with tasks		3.655	0.007
PC Technician	25		2.40		
Network Technician	47		2.45		
Help Desk Support Technician	33		2.61		
Programmer	69		1.87		
Web Designer	9		3.00		
		Limited Respect		2.902	0.023
PC Technician	25		3.28		
Network Technician	47		2.81		
Help Desk Support Technician	33		2.82		
Programmer	69		2.77		
Web Designer	9		2.22		

Table 17-Continued

		Poor working relationship with coworkers	2.539	0.042
PC Technician	25	2.52		
Network Technician	47	2.26		
Help Desk Support Technician	33	3.00		
Programmer	69	2.54		
Web Designer	9	2.56		

In reference to the 27 factors offered for why IT employees *stay in their current position* based on their *institution size*, the variables that were found to have significant responses when broken down by institution size were limited opportunities elsewhere (F=4.282, p<.006), flexibility (F=4.093, p<.008), and vacation provided (F=3.051, p<.03). The variables that were significant for *leaving current IT positions* based on *institution size* included limited recognition (F=3.663, p<.013), supervisor's poor skills when dealing with tasks (F=2.929, p<.035), supervisor's poor skills when dealing with people (F=2.911, p<.036), and limited advancement opportunities (F=2.686, p<.048). The groups were divided by less than 8,000 full time equivalent students, 8,000-12,000 full time equivalent students, 12,001-15,000 full time equivalent students, and greater than 15,000 full time equivalent students. Table 18 summarizes only the significant factors relating to reasons for both staying and leaving IT positions as broken down by institution size.

In reference to the 27 factors offered for why IT employees *stay in their current position* based on the *number of previously held IT positions*, the variable that was found to be significant was recognition (F=2.527, p<.042).

Table 18

Institution Size ANOVA For Staying/Leaving IT Employment

Institution Size ANOVA

Why Stay?	N	Significant Factors	Mean	F	Sig
Groups		Limited Opportunities Elsewhere		4.282	0.006
< 8000 FTE	15		2.93		
8,000-12,000 FTE	35		3.03		
12,001-15,000 FTE	12		2.58		
> 15,000 FTE	121		2.42		
		Flexibility		4.093	0.008
< 8000 FTE	15		2.67		
8,000-12,000 FTE	35		2.97		
12,001-15,000 FTE	12		2.83		
> 15,000 FTE	121		3.33		
		Vacation Provided		3.051	0.03
< 8000 FTE	15		2.73		
8,000-12,000 FTE	35		3.43		
12,001-15,000 FTE	12		2.92		
> 15,000 FTE	121		3.14		
Why Leave?		Limited Recognition		3.663	0.013
< 8000 FTE	15		1.60		
8,000-12,000 FTE	35		2.54		
12,001-15,000 FTE	12		2.25		
> 15,000 FTE	121		1.98		
		Supervisor's poor skills when dealing with tasks		2.929	0.035
< 8000 FTE	15		2.27		
8,000-12,000 FTE	35		2.80		
12,001-15,000 FTE	12		1.83		
> 15,000 FTE	121		2.17		
		Supervisor's poor skills when dealing with people		2.911	0.036
< 8000 FTE	15		2.20		
8,000-12,000 FTE	35		2.80		
12,001-15,000 FTE	12		1.75		
> 15,000 FTE	121		2.21		
		Limited Advancement		2.686	0.048
< 8000 FTE	15		1.93		
8,000-12,000 FTE	35		2.71		
12,001-15,000 FTE	12		2.42		
> 15,000 FTE	121		2.16		

In reference to the 27 factors offered for why IT employees leave their position based on the number of previously held IT positions, none were found to have significant response. The groups were divided by 0 positions, 1-2 other IT positions, 3-4 other IT positions, 5-6 other IT positions, and 7 or more IT positions. Table 19 summarizes only the significant factors related to reasons for both staying and leaving IT positions as broken down by the number of previously held IT positions.

Table 19

Previously Held IT Positions ANOVA For Staying/Leaving IT Employment

Previously Held IT Positions ANOVA

Why Stay?	N	Significant Factor	Mean	F	Sig
Groups		Recognition		2.527	0.042
0 positions			1.81		
1-2 positions			2.25		
3-4 positions			1.98		
5-6 positions			1.88		
7 or more positions			1.33		
Why Leave?		None			

In reference to the 27 factors offered for why IT employees *stay in their current position* broken down by their *current salary*, the variables that were found to have significant responses were relaxed work environment (F=5.518, p<.000), current salary (F=3.258, p<.013), flexibility (F=3.126, p<.016), and limited opportunities elsewhere (F=2.746, p<.030). The groups were divided by less than $39,000, from $40,000 to $49,999, from $50,000 to $59,999, from $60,000 to $69,999, and $70,000 or more. Table 20 summarizes only the significant factors relating to reasons for staying in IT positions broken down by the salary categories.

Table 20

Salary ANOVA For Staying IT Employment

Why Stay?	N	Salary ANOVA Significant Factor	Mean	F	Sig
Groups		Relaxed work environment		5.518	0
< $39,999	25		2.92		
$40,000-$49,999	51		2.98		
$50,000-$59,999	39		2.90		
$60,000-$69,999	35		3.57		
$70,000 or more	33		2.67		
		Current Salary		3.258	0.013
< $39,999	25		2.24		
$40,000-$49,999	51		2.14		
$50,000-$59,999	39		2.26		
$60,000-$69,999	35		2.34		
$70,000 or more	33		2.82		
		Flexibility		3.126	0.016
< $39,999	25		2.84		
$40,000-$49,999	51		3.08		
$50,000-$59,999	39		3.21		
$60,000-$69,999	35		3.60		
$70,000 or more	33		3.09		
		Limited opportunities elsewhere		2.746	0.03
< $39,999	25		3.16		
$40,000-$49,999	51		2.59		
$50,000-$59,999	39		2.41		
$60,000-$69,999	35		2.43		
$70,000 or more	33		2.55		

In reference to the 27 factors offered for why IT employees might *leave their position*, the variables that were found to be significant broken down by *salary* include limited salary increase potential (F=3.881, p<.005), limited advancement (F=3.701, p<.006), individuals had degrees for job elsewhere (F=3.568. p<008), salary concerns (F=3.105, p<.017), decreasing loyalty (F=3.081, p< .017), supervisor's poor skills when dealing with tasks (F=2.751, p<.030), limited training (F=2.639, p< .036) and

supervisor's poor skills when dealing with people (F=2.618, p< .037). Table 21

summarizes only the significant factors relating to reasons for leaving IT employment

positions as broken down by salary categories.

Table 21

Salary ANOVA For Leaving IT Employment

Why Leave?			Salary ANOVA		
			Significant Factors	Mean	F	Sig
Groups	N	Limited salary increase potential			3.881	0.005
< $39,999	25			3.04		
$40,000-$49,999	51			3.04		
$50,000-$59,999	39			3.03		
$60,000-$69,999	35			2.66		
$70,000 or more	33			2.36		
		Limited Advancement			3.701	0.006
< $39,999	25			2.80		
$40,000-$49,999	51			2.37		
$50,000-$59,999	39			2.41		
$60,000-$69,999	35			2.00		
$70,000 or more	33			1.79		
		Had degrees for job elsewhere			3.568	0.008
< $39,999	25			2.40		
$40,000-$49,999	51			2.55		
$50,000-$59,999	39			2.38		
$60,000-$69,999	35			1.74		
$70,000 or more	33			2.30		
		Salary Concerns			3.105	0.017
< $39,999	25			3.12		
$40,000-$49,999	51			3.02		
$50,000-$59,999	39			3.13		
$60,000-$69,999	35			2.74		
$70,000 or more	33			2.52		
		Decreasing Loyalty			3.081	0.017
< $39,999	25			2.92		
$40,000-$49,999	51			2.29		
$50,000-$59,999	39			2.26		
$60,000-$69,999	35			2.57		
$70,000 or more	33			2.70		
		Supervisor's poor skills when dealing with tasks			2.751	0.03
< $39,999	25			3.00		
$40,000-$49,999	51			2.08		
$50,000-$59,999	39			2.31		
$60,000-$69,999	35			2.20		
$70,000 or more	33			2.09		

Table 21–Continued

Groups	N	Significant Factors	Mean	F	Sig
		Limited Training		2.639	0.036
< $39,999	25		2.28		
$40,000-$49,999	51		2.52		
$50,000-$59,999	39		2.69		
$60,000-$69,999	35		2.41		
$70,000 or more	33		2.14		
		Supervisor's poor skills when dealing with people		2.618	0.037
< $39,999	25		3.00		
$40,000-$49,999	51		2.06		
$50,000-$59,999	39		2.31		
$60,000-$69,999	35		2.26		
$70,000 or more	33		2.15		

In reference to the 27 factors offered for why IT employees *stay in their current position* based on their *gender*, the responses that were found to be significant were working relationship with supervisor (F=8.436, p<.004), lack of degree and/or training (F=6.136, p<.014), and training (F=4.051, P<.046).

In reference to the 27 factors offered for why IT employees *leave their current position* based on their *gender*, the responses that were found to be significant were poor working relationship with coworkers (F=4.819, p<.029) and less relaxed work environment (F=3.977, p<.048). Table 22 summarizes only the significant factors related to reasons for both staying and leaving IT positions based on gender.

Table 22

Gender ANOVA For Staying/Leaving IT Employment

Gender ANOVA

Why Stay?		N	Significant Factor	Mean	F	Sig
	Groups		Working Relationship with Supervisor		8.436	0.004
		12				
	Male	5		2.49		
	Female	57		2.98		
			Lack of degree and/or training		6.136	0.014
		12				
	Male	5		1.73		
	Female	57		2.07		
			Training		4.051	0.046
		12				
	Male	5		1.96		
	Female	57		2.26		
Why Leave?			Poor working relationship with coworkers		4.819	0.029
		12				
	Male	5		2.42		
	Female	57		2.79		
			Less relaxed work environment		3.977	0.048
		12				
	Male	5		2.59		
	Female	57		2.89		

In reference to the 27 factors offered for why IT employees *stay in their current position* based on their *age*, the variables that were found to be significant were advancement opportunities ($F=6.748$, $p<.000$), opportunity to work in higher education ($F=3.607$, $p<.015$), level of stress ($F=3.185$, $p<.025$) and flexibility ($F=2.778$, $p<.043$). Table 23 summarizes only the significant factors relating to staying in IT positions as broken down by age.

Table 23

Age ANOVA For Staying IT Employment

		Age ANOVA			
Why Stay?	N	Significant Factor	Mean	F	Sig
Groups		Advancement		6.748	0.000
Under 34	44		2.45		
35-44	50		1.80		
45-54	64		1.73		
55 or older	25		1.60		
		Opportunity to work in Higher Ed		3.607	0.015
Under 34	44		2.27		
35-44	50		2.16		
45-54	64		2.77		
55 or older	25		2.60		
		Stress		3.185	0.025
Under 34	44		2.73		
35-44	50		2.26		
45-54	64		2.55		
55 or older	25		2.16		
		Flexibility		2.778	0.043
Under 34	44		3.00		
35-44	50		3.26		
45-54	64		3.36		
55 or older	25		2.84		

In reference to the 27 factors for why employees might *leave their position* broken down by *age*, the following were found to have significant responses including poor working relationship with coworkers (F=4.434, p<.005), limited advancement opportunities (F=3.6, p<.015), health insurance concerns (F=3.184, p<.025), increased stress levels (F=3.093, p<.028), and sick leave concerns (F=2.781, p<.042). Table 24 summarizes only the significant factors relating to reasons for leaving IT positions as broken down by age.

Table 24

Age ANOVA For Leaving IT Employment

Why Leave?		N	Significant Factors	Mean	F	Sig
			Age ANOVA			
			Poor working relationship with coworkers		4.434	0.005
Under 34		44		2.07		
35-44		50		2.74		
45-54		64		2.63		
55 or older		25		2.76		
			Limited Advancement		3.600	0.015
Under 34		44		2.68		
35-44		50		2.32		
45-54		64		2.08		
55 or older		25		1.88		
			Health Insurance Concerns		3.184	0.025
Under 34		44		2.39		
35-44		50		2.64		
45-54		64		3.03		
55 or older		25		2.80		
			Increased Stress Level		3.093	0.028
Under 34		44		2.61		
35-44		50		3.18		
45-54		64		3.05		
55 or older		25		2.96		
			Sick leave concerns		2.781	0.042
Under 34		44		2.11		
35-44		50		2.40		
45-54		64		2.70		
55 or older		25		2.52		

Greatest Benefit of Higher Education Employment

Research question number five deals with what IT employees feel are their

greatest benefits in working at a public higher education institution. Data for this issue

were captured via an open-ended question, and many responses regarding the greatest

benefits of working in higher education were offered. These responses were coded as

themes with the main benefits falling into nine categories: benefits, challenges, co-

workers, flexibility, job security, relaxed atmosphere, salary, supervisor, and training

issues. Table 25 summarizes the greatest benefit open-ended responses by categories

including the number of responses received dealing with each category and the percent of

the total of response.

Table 25

Greatest Benefits (offered via open-ended responses)

Greatest Benefits

Categories	# of Responses	%
Benefits	45	33
Flexibility	23	17
Relaxed Atmosphere	15	11
Coworkers	13	10
Job Security	13	10
Salary	8	6
Supervisor	8	6
Challenges	5	4
Training	5	4
Total Responses	135	

According to these open-ended responses, the greatest benefit of being employed

in higher education was the benefits package of health insurance, sick leave, and vacation

leave. The benefit that was next for priority was the flexible schedule.

The survey revealed many benefits for employees working in higher education.

Some of responses listed by the respondents as great benefits include the following

quotes "flexible schedule, retirement and health benefits," "salary and the generous

benefits package," and "flexibility of time and excellent benefits." There were many

specific responses which listed the benefits package of health insurance, sick leave and

vacation leave.

Comments on flexible schedules included "flexible working

schedule/telecommuting" and one employee commented that "flexibility in my schedule

allows me to drop my two youngest children off at school in the morning and be more involved with all of their activities." Comments regarding the relaxed work environment included "low stress and friendly environment" as well as "work environment is not demanding." Other comments about coworkers included "working with great people", "good people to work and do lunch with", "intelligent coworkers", and "I am respected by my peers." Yet other comments about job security included "job stability" and "the security of my job." Comments about salary ranged from "good pay" to "the organization is equitable and generous with salary." Some comments on the supervisor ranged from "great supervisor," "supportive management" to "I have the ability to do my job without interference from supervisors." Quotes that involved challenges included "opportunity for challenges and the higher education environment" and several individuals just stated "many challenging opportunities." Quotes that involved training simple just stated "training opportunities." These quotes point to what is important as the greatest benefit in working in a higher education institution for IT employees.

Other responses that have highlighted the benefits that make employees feel good about the job they do, that was categorized under coworker, included that a great benefit was "working with faculty and watching students grow through their academic pursuits." Responses that fell in the challenges category stated "seeing students succeed in their endeavors after their academic work is completed is the greatest benefit." Yet another respondent that again fell in the coworker category stated that the "collaborative opportunities with other IT pros and the belief that I am making an impact on the institution." Additional responses that fell into both categories of benefits and relaxed

atmosphere category were "health benefits, tuition assistance for me and my children, casual work environment, and beautiful campus environment."

Recommendations Offered by IT Employees

Research question number six deals with recommendations offered by IT employees that might improve employee retention within public higher education institutions. Many open-ended responses were offered, falling into three broad areas: management issues, salary, and communication. According to the survey results the recommendations most listed for providing a better work environment in order to retain IT staff is management. The second item listed most often for retaining IT staff is paying better salary. Table 26 summarizes the recommendations received within the open-ended question by categories including the number of responses received dealing with each category and the percent of the total of response.

Table 26

Recommendations for IT Retention (as offered via open-ended responses)

Recommendations

Categories	# of Responses	%
Management	28	42
Salary	26	39
Communication	13	19
Total Responses	67	

Many of the responses did reveal that IT management was an issue. Comments that fell in the management category ranged from "fire or remove current managers," "senior management should better understand trust and respect," to just "new management is needed." Other comments also included that "senior management should take an inventory to better understand the disparity between what they believe to be their

philosophy of leadership and what their actions might otherwise dictate." Yet other responses stated that better management was needed and to hire "supervisors that will actually listen to his/her employees." Many responses listed that managers just need to respect staff.

There were several responses on the issue of salary. Comments from the survey that fell in the salary category ranged from "pay increases or better salary" to some of the responses just simple stated "increase salary." One response just simple stated "my employer should recognize that you get what you pay for and if your salary structure is considerably lower than your competition's, then your level of employee competence is likely to be lower." Yet another respondent stated that "I make enough, but know that I could make much more elsewhere, and if the positive aspects to my job became less than positive, I would seek more money."

Other responses were about communication. "Communication to employees" was one response that came across loud and clear. Several responses simple stated "communication, communication, communication." Yet another response was that "communication is lacking and bosses make decisions based on personal desire to empires."

Summary

This study revealed some interesting data about why IT employees stay or leave positions in higher education institutions as well as some recommendations for the retention of IT employees. Responses from the 183 IT employees revealed such individuals stay in their current position because of flexibility and a combination of variables that include respect, supervisor's skills, department communication, training,

and the potential to increase their salary. Key reasons for why IT employees leave their current employment include increased stress, and a combination of variables involving a less relaxed environment, concerns over health care, sick leave, and vacation leave benefits, and limited job security. Key reasons IT employees have left former positions include the acquisition of advanced degrees for jobs elsewhere, and a combination of variables involving a less relaxed work environment, poor working relationship with coworkers, and concerns over health care, vacation time, and sick leave benefits.

This study also revealed many recommendations for the retention of IT employees in higher education. The three main themes of recommendations were categorized and included management issues, salary, and communication. The theme most listed for providing a better work environment in order to retain IT employees was management followed by paying a better salary.

This study identified many factors relevant to the turnover and the retention of IT employees in higher education institutions in the state of Michigan. Chapter 5 presents a summary of the findings, future research options, and conclusions.

CHAPTER V: DISCUSSION

The results of this survey paralleled much of that presented within the literature review section focusing on research results regarding IT employee retention within the corporate world. However, these results as drawn from IT employees within higher education institutions do reveal some interesting findings.

Outcomes

The demographic data were very enlightening. Much of the data mirrored the literature review with some slight differences that will be pointed out throughout this chapter. The mean length of employment for the 183 respondents was about 11 years with most of the respondents being titled programmer. The data also revealed that 44% or 81 of the 183 respondents had only one to two previous positions in IT, and 37 or 20% of them had only the current job in IT. These results are different than that from within the corporate sector in that one study listed in the literature review estimated that individuals would change employers an average of nine times before they reach 32 (Hagevik, 2001). Yet, this was not the case with the respondents from this survey in that 157 or 86% of the 183 respondents fell in the age bracket of 25-54 with only 3 of the respondents having 7 or more jobs. This reveals that most of the IT respondents employed by higher education institutions do not leave positions on a regular basis as stated previously in the literature review.

One interesting fact in the demographic survey results was how closely the gender percentages matched what the Information Technology Association of America (ITAA) stated about the decrease in females in information technology. The survey revealed that 69% of the respondents were male with only 31% of the respondents being female. This

information closely mirrors the ITAA results because there has been quite a decline in

women in information technology fields in the last few years according to their recent

research. "The proportion of women in the overall IT workforce dropped 41% to 34.9%

between 1996 and 2002" (D'Agostino, 2003, p. 1). According to the Federal Bureau of

Labor Statistics, females made up 46.6% of the U.S. work force in 2002. Therefore, this

seems to explain the gender gap for the respondent group.

Another interesting fact was the ages of the respondents. Half or 50% of the

respondents were between the ages of 25-44, but 35% of the respondents were between

the ages of 45-54. This seems to reveal that we will again have a high turnover in public

higher education institutions in the state of Michigan in the next 10 years when these

individuals begin to retire.

The key reason outlined from the survey respondents for why individuals stay in

their current position appear to be because of flexibility, but when the variables are

grouped together, the key reasons that bubble to the top are based on issues that the

supervisor controls. This is similar to findings within the corporate world because

flexibility was a term that was important again and again in regard to dealing with IT

professionals in the corporate world (DeMers, 2002). The supervisor also played an

important role in the corporate world because many employees feel the right environment

is created by the supervisor (Solomon, 2000). Specific information found in the responses

included IT employees stayed in public higher education institutions because of the

respect they receive, their supervisor's management skills when dealing with people,

supervisor's management skills when dealing with tasks, the working relationship that

the employee has with their supervisor, department communication, training, and salary

increase potential. This again mirrors what was relevant in the literature review because if employees are content with their supervisor they will tend to stay in their current positions. According to the corporate world communication with employees from their respective supervisors and respect are key reasons for staying (Kreisman, 2002).

In order to understand these findings, it is helpful to look at an employee motivation theory developed by Herzberg (1959), which indicates that certain factors in the workplace cause job satisfaction, while others lead to dissatisfaction. Herzberg's research revealed that two different sets of factors affect motivation at work. He distinguished between *motivators* which include challenging work, recognition, responsibility, sense of achievement, personal growth, and advancement, and *hygiene factors* which when absent cause dissatisfaction, but when present, do not necessarily server as motivators. Such hygiene factors include salary and fringe benefits, job security, status, level and quality of supervision, company policy and administration, relationship with peers, and working conditions.

Herzberg's theory is called the Motivator-Hygiene theory and essentially states that hygiene factors are needed to ensure employees are not dissatisfied while motivation factors are needed in order to motivate an employee to higher performance. Herzberg further classified actions and how and why we do them. For example, if you perform a work related action because you *have* to then it is classified as movement, but if you perform a work related action because you *want* to then it is classified as motivation (Herzberg, 2002). Herzberg argues that both factors are equally important, but that good hygiene will only lead to average performance, preventing dissatisfaction, but not creating a positive attitude or motivation to work. Therefore, the reasons why individuals

stay in their current position relate to hygiene factors. According to the Herzberg theory these factors do not give positive satisfaction, although dissatisfaction results from their absence.

The key reason outlined from the survey respondents for why individuals leave their current positions appear to be because of increased levels of stress but when the variables are grouped together the issues that raise to the top are less relaxed work environment, concerns over the level of heath care insurance provided, concerns over the level of sick leave provided, concerns over the level of vacation time provided, and limited job security. This not only parallels what was found in the corporate world, resulting in many companies offering a "menu of benefits" plan (Stokes, 2000), but again points to Herzberg's hygiene factors whereby the presence of these factors does not result in the motivation of the employee, but dissatisfaction results from their absence. This was interesting data because many survey respondents commented about poor management of IT at their higher education institution, but the data also show that IT employees will not leave because of bad management. IT employees will only leave when they lose benefits.

This finding is contrary to what was found in the literature review because it was stated that employees would leave because of harsh supervision and other issues relating to the supervisor (Goodfellow, 2000). The researcher wonders if this is due to the current state economy and the lack of IT jobs in the state of Michigan, or is having bad management just a hindrance but not enough of an issue to make an IT employee seek different employment, especially given the other non-monetary benefits that higher education environments may offer (e.g., satisfaction of working with students, relaxed work environment, job security, and flexibility).

The key reason outlined from the survey respondents for why individuals have left former positions was because the individual had a degree for a position elsewhere, but when you group the variables together the issues that raise to the top are less relaxed work environment, poor working relationship with coworkers, concerns over the level of heath care insurance provided, concerns over the level of sick leave provided, and concerns over the level of vacation time provided. Because these concerns almost mirrored the reasons why individuals would leave employment, these reasons state loud and clear that the IT employee thinks benefits are very important to their employment package. These again are hygiene factors according to Herzberg. Herzberg reinforces that hygiene factors are needed to ensure an employee is not dissatisfied.

When analyzing the results as broken down by various demographic factors that may have impacted why individuals stay or leave positions based on demographics, some of Herzberg's motivation factors also play a role. For instance if an employee was at their current institution for less than twelve years, advancement opportunities, a motivation factor, showed up as a significance factor for the employee to stay. Other motivational factors that showed up in the demographics for position title were limited advancement and limited respect which were reasons why individuals would leave their current IT position. Yet another motivational factor showed up in the demographic for institutional size which revealed that if they received limited recognition or limited advancement, the IT employee would leave, as well as for previously held positions recognition showed up as significance for staying.

Overall, there are some motivational factors for why individuals leave IT positions in higher education institutions based on this survey, but the majority of the

reasons were based on hygiene factors. When analyzing factors by themselves, the factors that cause employees to stay are flexibility, benefits, relaxed work environment, quality of life, job security, and working relationship with coworkers. All of these factors are hygiene factors. When grouping the factors, the factors that cause employees to stay are respect, supervisor's skills, working relationship with supervisor, department communication, training, and salary increase potential. All of those factors are hygiene factors except for respect and training which are from the motivator category.

When analyzing factors by themselves, the factors that cause employees to leave their current place of employment include increased stress, limited challenges, limited job security, salary concerns, limited salary increase potential, and options for employment elsewhere. Again all of these factors are hygiene factors except for limited challenges, and options for employment elsewhere. When grouping the factors, the factors that cause employees to leave are less relaxed work environment, benefits, and limited job security. Again, all of these factors are hygiene factors.

Table 27 summarizes reasons for both staying and leaving IT positions while also listing whether the factor falls into a hygiene factor or motivational factor.

Table 27

Summary Table For Employees Staying and Leaving as Categorized Using Herzberg's Factors

Factors that Cause IT Employees to Stay within Higher Education Institutions		Factors that Cause IT Employees to Leave Higher Education Institutions	
Individual Variables	*Herzberg's Category*	*Individual Variables*	*Herzberg's Category*
Flexibility	Hygiene Factor	Increased Stress	Hygiene Factor
Benefits	Hygiene Factor	Limited Challenges	Motivator
Relaxed Work Environment	Hygiene Factor	Limited Job Security	Hygiene Factor
Quality of Life	Hygiene Factor	Salary Concerns	Hygiene Factor
Job Security	Hygiene Factor	Limited Salary Increase Potential	Hygiene Factor
Working Relationship with Coworkers	Hygiene Factor	Options for Employment Elsewhere	Motivator
Combinations of Variables		*Combinations of Variables*	
Respect	Motivator	Less Relaxed Work Environment	Hygiene Factor
Supervisor's skills	Hygiene Factor	Benefits	Hygiene Factor
Working Relationship with Supervisor	Hygiene Factor	Limited Job Security	Hygiene Factor
Department Communication	Hygiene Factor		
Training	Motivator		
Salary Increase Potential	Hygiene Factor		

These results are generally consistent with Herzberg's original research. We can conclude as Herzberg argues that both factors are equally important, but that motivators result in positive satisfaction while hygiene factors do not necessarily result in positive satisfaction if present, but if absent, lead to dissatisfaction. Essentially, hygiene factors are needed to ensure an employee is not dissatisfied. Motivation factors are needed in order to motivate an employee to higher performance. As Herzberg concludes, good hygiene will only lead to average performance, preventing dissatisfaction, but not, by itself, creating a positive attitude or motivation to work.

The greatest benefits of public higher education employment to the respondents appear to be the benefits of health care insurance, sick leave, and vacation leave. One

respondent that fell in the benefits category wrote: "there are so many reasons honestly, including vacation, pay, and insurance which are all at career highs for me." This again reveals that benefits are very important to the employment package when being employed by a public higher education institution. This was mirrored in the literature review for industry as well. Firms that have survived the turnover blues tune into their employees' work/life preference and create a "menu of benefits" which seem to keep turnover rates low (Nash, 2000).

Recommendations offered by respondents was another open-ended survey question with responses being categorized. Most of the responses revealed that IT management was an issue along with salary issues. Comments that fell in the management and salary categories respectively ranged from "fire or remove current managers" to simple ones such as "increase salary." Supervisors were the irritants in industry as well. Supervisors play a major role in preventing turnover (Goodfellow, 2000). Another issued highlighted in the literature review was to be careful with salary. Non-monetary benefits do not mean a thing if salary is not competitive (Villano, 1999).

<div align="center">Researcher's Comments and Recommendations</div>

Overall, these results reveal that IT employees are content for the most part in working at public higher education institutions. The data revealed that such IT employees are not leaving higher education institution in masses, despite previous corporate studies and the researcher's own thoughts as to what was happening in Michigan higher education institutions. IT professionals within higher education institutions value their benefit packages, including good health insurance plans and high levels of sick leave and vacation leave benefits. Obviously, IT employees who work for public higher education

feel such benefits compensate for non-corporate level salaries and other concerns within the work environment.

In closing, the retention tips that I would lay out for each higher education institution would include making sure the non-salary benefit packages continue to be at levels better than industry, because that seems to be the reason why employees stay. Another tip would include keeping the salaries as competitive as possible, and conducting a market analysis every few years. Other tips that I would also concentrate on for retaining IT employees in higher education institutions include making sure that managers are being trained to be managers, to make proper decisions, to be quality leaders, and to understand the IT environment, along with training IT employees as well. IT employees need to be kept abreast of all new technologies, and they will need training in order to do that as well. This investment will pay off in the long run. One respondent of the survey in the recommendation section that was in the management category listed "training, training, training" as their recommendation for retaining IT employment.

<div align="center">Future Research</div>

Many interesting factors presented themselves in this research. Although most of the results paralleled previous research from the corporate sector, several areas of future research regarding IT professionals within higher education institutions would be of value.

First, since employees within higher education institutions often receive reduced (or free) tuition for classes and/or degrees they might pursue at that institution, it would be interesting to examine the educational levels of IT employees within higher education institutions and how this may have impacted their decisions regarding their employment.

A second area of interest for future research would be to explore whether the size of the city where the institution was located was an issue. For example, did employees from smaller cities tend to stay in their employment positions longer than individuals from larger cities? Employees within smaller cities may not have many opportunities to go elsewhere as opposed to a larger city where the possibility to move has more potential because of more employers in a certain mile radius.

A third area for future research is to explore the motivational aspects of Herzberg's theory (since this research focused on the satisfiers and dissatisfiers). If we apply Herzberg theories to what we have learned in this study to motivate IT employees, it would appear that IT employees provided with a wider range of tasks and responsibilities would be more motivated (Herzberg, 2002). Future studies could determine to what extent this might be true.

Since supervisor issues were of concern to the IT professionals within this study, further investigation into the leadership styles of IT Managers is warranted. Is there a type of manager that better suits managing IT employees? Do IT employees work better under certain leadership styles versus others?

A final key issue which warrants further exploration is the impact of the current economic issues within Michigan and how this has impacted the turn-over of IT professionals within this state's higher education institutions. Would the results have been the same four years ago when the IT industry was booming? Will the results be the same in four more years? Are the results the same for higher education public institutions in other states? These are just a few of the questions that could be answered through a future research study.

Summary

This study attempted to determine what motivated IT professionals in higher education to stay or to leave their current positions, and how turnover of IT professionals in higher education might be decreased. An online survey was developed and responses were received from 183 IT employees within public higher education across the state of Michigan. Data were collected on both issues of staying in current IT positions and leaving former ones. These data were then analyzed to determine correlations with categories.

Overall, the key findings were that IT individuals stay because of a variety of factors relating to their supervisors and they leave positions because of benefits of health care, sick leave, and vacation. Universities must remember that although they will probably never be able to retain 100% of their IT employees, they can use the results from this study to lessen the issues that encourage employees to leave and enhance the factors that encourage employees to stay.

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Appendix A

Survey

Retention of Information Technology Employees

Western Michigan University, Department of Teaching, Learning, and Leadership

Principal Investigator: Dr. Louann Bierlein Palmer
Student Investigator: Mary Holmes
Title: Retention of Information Technology Employees in Higher Education Institutions in Michigan

Thank you for taking the time to participate in this study. This survey should take approximately 10 minutes to complete. All responses will remain confidential.

You are invited to participate in a research project entitled "Retaining Information Technology Employees in Higher Education" designed to analyze what motivates IT professionals to stay or leave their current positions. The study is being conducted by Dr. Louann Bierlein Palmer and Mary Holmes from Western Michigan University, Department of Teaching Learning and Leadership. This research is being conducted as part of the dissertation requirements for Mary Holmes.

This survey is comprised of 15 questions and will take approximately 10 minutes to complete. Your replies will be confidential, so do not put your name anywhere on the form. You may choose to not answer any question and simply leave it blank. If you choose to not participate in this survey, you may click the "exit" button at the bottom or this page or close out of the program at any time prior to hitting the "submit" button and your answers will not be recorded. Submitting the survey indicates your consent for use of the answers you supply. If you choose not to participate in the survey, you may close out of the program at any time prior to hitting the "submit" button and your answers will not be recorded. Submitting the survey indicates your consent for use of the answers you supply.

If you have any questions, you may contact Mary Holmes at holmesm@ferris.edu or Dr. Louann Bierlein Palmer at (269) 387-3596 or at l.bierleinpalmer@wmich.edu. You may also contact the Human Subjects Institutional Review Board (269-387-8293) or the Vice President for Research (269-387-8298) if questions or problems arise during the course of the study.

This consent document was approved for use for one year by the Human Subjects Institutional Review Board on 4/18/2006. Do not participate after 5/8/2006.

To continue to the survey click the "Continue" button below. If you do not want to participate or to receive e-mail reminders, click the "Exit" button.

Q1   Please indicate your consent to participate in this study.
☐ Continue
☐ Exit

Demographic Information

Q2 Please indicate your length of employment in your current position. **Please round to the nearest half year.**

Number of Years (e.g . 7 or 8.5)..

Q3 Please identify the **ONE TITLE** that most closely describes your current position.
- [ ] PC Technician
- [ ] Network Technician
- [ ] Help Desk Support Technician
- [ ] Programmer
- [ ] Web Designer

Q4 Please indicate how many full-time equivalent students attend your institution.
- [ ] < 8000
- [ ] 8000-12,000
- [ ] 12,001-15,000
- [ ] >15,000

Q5 Please indicate how many previous full-time IT positions you have held (not including your current position).
- [ ] 0
- [ ] 1-2
- [ ] 3-4
- [ ] 5-6
- [ ] 7 or more

Q6 What is your current annual salary range (not including benefits)?
- [ ] < $30,000
- [ ] $30,000-$39,999
- [ ] $40,000-$49,999
- [ ] $50,000-$59,999
- [ ] $60,000-$69,999
- [ ] $70,000-$79,999
- [ ] $80,000-$89,999
- [ ] $90,000 or more

Q7 Please indicate your gender.
- [ ] Male
- [ ] Female

Q8   Please indicate your age range.

☐ Under 25
☐ 25-34
☐ 35-44
☐ 45-54
☐ 55-64
☐ 65 or older

Please indicate the extent to which each of the following reasons plays a role in your decision to stay in your current position.

Q9

	Not at all	To a Limited Extent	To a Moderate Extent	To a Large Extent
A. Advancement opportunities.	☐	☐	☐	☐
B. Challenges of the position.	☐	☐	☐	☐
C. Opportunities for recognition.	☐	☐	☐	☐
D. Respect for you or your position.	☐	☐	☐	☐
E. Supervisor's management skills when dealing with people.	☐	☐	☐	☐
F. Supervisor's management skills when dealing with tasks.	☐	☐	☐	☐
G. Loyalty to your employer.	☐	☐	☐	☐
H. Current working relationship with your supervisor.	☐	☐	☐	☐
I. Overall risk of a reorganization or job shuffle.	☐	☐	☐	☐
J. Overall risk of downsizing.	☐	☐	☐	☐
K. Overall risk of management change.	☐	☐	☐	☐
L. Level of flexibility in work schedule.	☐	☐	☐	☐
M. Extent to which work environment is relaxed.	☐	☐	☐	☐
N. Current working relationship with coworkers.	☐	☐	☐	☐
O. Level of stress.	☐	☐	☐	☐
P. Communication within your department.	☐	☐	☐	☐
Q. Quality of life offered by living in this community.	☐	☐	☐	☐
R. Level of training provided to assist with job responsibilities.	☐	☐	☐	☐
S. Lack of degrees and/or training needed to seek positions elsewhere.	☐	☐	☐	☐
T. My current salary.	☐	☐	☐	☐
U. Potential for regular salary increases.	☐	☐	☐	☐
V. Level of health insurance provided by your employer.	☐	☐	☐	☐
W. Level of sick leave provided by your employer.	☐	☐	☐	☐
X. Level of vacation provided by your employer.	☐	☐	☐	☐
Y. Security of my position.	☐	☐	☐	☐
Z. Opportunity to work within a higher education environment.	☐	☐	☐	☐
AA. Limited opportunities for employment elsewhere in the community.	☐	☐	☐	☐

Q10   **Please indicate any other reasons <u>not mentioned in the items above</u> that play a role in your decision to stay in your current position.**
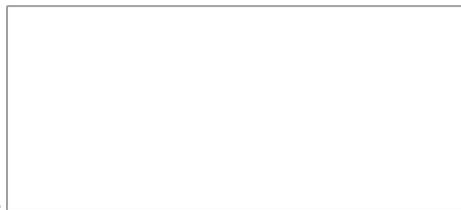
Other Reasons ....

Please indicate the extent to which each of the following reasons would play a role in your decision <u>to leave your current position</u>.

Q11

	Not at all	To a Limited Extent	To a Moderate Extent	To a Large Extent
A. Position offered limited challenges.	☐	☐	☐	☐
B. Limited advancement opportunities.	☐	☐	☐	☐
C. Limited opportunities for recognition.	☐	☐	☐	☐
D. Limited respect for you or your position.	☐	☐	☐	☐
E. Supervisor's poor management skills when dealing with people.	☐	☐	☐	☐
F. Supervisor's poor management skills when dealing with tasks.	☐	☐	☐	☐
G. Decreasing loyalty to your employer.	☐	☐	☐	☐
H. Poor relationship with your supervisor.	☐	☐	☐	☐
I. Reorganization or job shuffling occurred.	☐	☐	☐	☐
J. Downsizing occurred.	☐	☐	☐	☐
K. Management changes occurred.	☐	☐	☐	☐
L. A less flexible work schedule.	☐	☐	☐	☐
M. A less relaxed work environment.	☐	☐	☐	☐
N. Poor working relationship with coworkers.	☐	☐	☐	☐
O. Increased level of stress.	☐	☐	☐	☐
P. Poor communication within your department.	☐	☐	☐	☐
Q. Changing quality of life offered by living in this community.	☐	☐	☐	☐
R. Limited training provided to assist with job responsibilities.	☐	☐	☐	☐
S. Had degrees and/or training needed to seek positions elsewhere.	☐	☐	☐	☐
T. Concerns with salary amount.	☐	☐	☐	☐
U. Limited potential for regular salary increases.	☐	☐	☐	☐
V. Concerns over level of health insurance provided by your employer.	☐	☐	☐	☐
W. Concerns over level of sick leave provided by your employer.	☐	☐	☐	☐
X. Concerns over level of vacation provided by your employer.	☐	☐	☐	☐
Y. Limited job security.	☐	☐	☐	☐
Z. Lost interest in working within a higher education environment.	☐	☐	☐	☐
AA. Options for employment elsewhere in the community.	☐	☐	☐	☐

Q12   **Please Indicate any other reasons <u>not mentioned in the items above</u> that would play a role in your decision to leave your current position.**
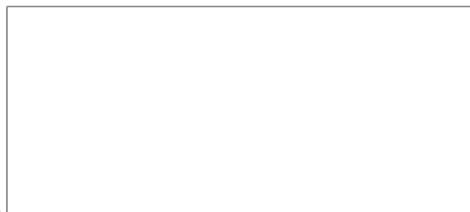
Other Reasons ....

Please indicate the extent to which each of the following reasons played a role in your decision to leave your former position.

Q13

	Not at all	To a Limited Extent	To a Moderate Extent	To a Large Extent
A. Position offered limited challenges.	☐	☐	☐	☐
B. Limited advancement opportunities.	☐	☐	☐	☐
C. Limited opportunities for recognition.	☐	☐	☐	☐
D. Limited respect for you or your position.	☐	☐	☐	☐
E. Supervisor's poor management skills when dealing with people.	☐	☐	☐	☐
F. Supervisor's poor management skills when dealing with tasks.	☐	☐	☐	☐
G. Decreasing loyalty to your employer.	☐	☐	☐	☐
H. Poor relationship with your supervisor.	☐	☐	☐	☐
I. Reorganization or job shuffling occurred.	☐	☐	☐	☐
J. Downsizing occurred.	☐	☐	☐	☐
K. Management changes occurred.	☐	☐	☐	☐
L.. A less flexible work schedule.	☐	☐	☐	☐
M. A less relaxed work environment.	☐	☐	☐	☐
N. Poor working relationship with coworkers.	☐	☐	☐	☐
O. Increased level of stress.	☐	☐	☐	☐
P. Poor communication within your department.	☐	☐	☐	☐
Q. Changing quality of life offered by living in this community.	☐	☐	☐	☐
R. Limited training provided to assist with job responsibilities.	☐	☐	☐	☐
S. Had degrees and/or training needed to seek positions elsewhere.	☐	☐	☐	☐
T. Concerns with salary amount.	☐	☐	☐	☐
U. Limited potential for regular salary increases.	☐	☐	☐	☐
V. Concerns over level of health insurance provided by your employer.	☐	☐	☐	☐
W. Concerns over level of sick leave provided by your employer.	☐	☐	☐	☐
X. Concerns over level of vacation provided by your employer.	☐	☐	☐	☐
Y. Limited job security.	☐	☐	☐	☐
Z. Lost interest in working within a higher education environment.	☐	☐	☐	☐
AA. Options for employment elsewhere in the community.	☐	☐	☐	☐

Q14   **Please Indicate any other reasons <u>not mentioned in the items above</u> that played a role in your decision to leave your former position.**

Other Reasons ....
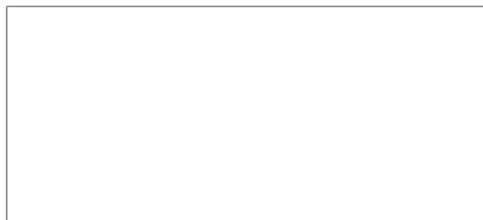
Q15   **What do you consider to be the greatest benefits of working for your current employer?**

Q16   **Please identify any recommendations that you may have to improve employee retention at your current place of employment.**

Thank you for your time. If you would like a copy of the results summary, please send an email to the researcher at holmesm@ferris.edu to request one.

Submitting this survey indicates your consent to have your answers used in this research project.

Appendix B

Email to Participants

Dear (supply name):

I would like to ask for your participation in a web-based survey. I am currently in the process of my dissertation research on the retention of Information Technology (IT) professionals in higher education institutions in the state of Michigan. This research is attempting to identify factors of importance to IT Professionals regarding their decision to stay in, or leave, a given IT position.

A link to this web-based survey is listed below. The survey will take about 10 minutes to complete. Your reply will be confidential and you may choose not to answer any question and simply leave it blank.

If you choose not to participate in the survey, you may respond via email to holmesm@ferris.edu and your name will be removed from the email distribution list, or you may simply not complete the survey and ignore any future email reminders.

For those of you interested in receiving a copy of the summarized results, you may email me directly at holmesm@ferris.edu.

Thank you in advance for you assistance. If you have any questions for concerns, please contact me at holmesm@ferris.edu or my dissertation Chair, Dr. Louann Bierlein Palmer at Western Michigan University (269) 387-3596 or l.bierleinpalmer@wmich.edu. You may also contact the Chair, Human Subjects Institutional Review Board (269-387-8293) or the Vice President for Research (269-387-8298) if questions or problems arise during the course of the study.

Link to survey:
http://www.ferris.edu/admissions/testing/survey/infotechemployee_survey.htm

Sincerely,

Mary Holmes

Appendix C

Human Subject Institutional Review Board Approval Letter

Date: April 13, 2006

To: Louann Bierlein Palmer, Principal Investigator
        Mary Holmes, Student Investigator for dissertation

From: Mary Lagerwey, Ph.D., Chair

Re: HSIRB Project Number: 06-03-31

This letter will serve as confirmation that your research project entitled "Retaining Information Technology Employees in Higher Education" has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: April 13, 2007