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An Investigation Into the Determinants of Information Systems Employee Turnover

Kenita F. McKenny
Lindenwood College

AN INVESTIGATION INTO THE DETERMINANTS OF INFORMATION SYSTEMS EMPLOYEE TURNOVER

Kenita F. McKenny, B.S.

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ABSTRACT

This thesis will concentrate on the subject of the determinants of voluntary employee turnover in the workplace. Business owners and corporate executives are interested in the subject of turnover because it has a financial impact on organizations. For decades, this concern has made employee turnover a popular topic of study for researchers. Several definitions have been used to describe turnover, thereby creating an opportunity for theorists to research many areas, such as functional or dysfunctional turnover, organizational and individual effects of turnover, and causes of turnover.

The purpose of the present study is to focus on the turnover of a particular group of workers, information systems or MIS employees. It is hypothesized that the high rate of turnover for these professionals is a result of many factors that are directly or indirectly related to job satisfaction. The determinants include role stressors, promotion satisfaction, demographic characteristics, outside job opportunities, and ethical behavior within organizations. Job-related factors, such as

training, changing technology, managerial behavior, and work load are all determinants of MIS employee turnover.

Several studies by researchers concerned with employee turnover in general, as well as those specifically interested in the turnover of MIS personnel, were reviewed and evaluated. The researchers used different methodologies to perform their studies. An evaluation of the data collected and the research methods of each study was performed.

Evaluation of the studies produced support for the hypothesis. It was concluded that information systems professionals are faced with many factors, related to job satisfaction, that lead them to consider leaving their current employers and seeking new opportunities. Role stressors, such as role conflict and role ambiguity, were found to be major determinants of MIS employee turnover. Salary, outside job opportunities, and perceived promotability were also identified as causes for turnover. Demographic factors, such as age, seniority, geography, and marital status play a key role in helping employees make the decision to move to other companies.

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COMMITTEE IN CHARGE OF CANDIDACY:

Associate Professor Daniel W. Kemper,
Chairperson and Advisor

Adjunct Assistant Professor Patrick Akers

Adjunct Assistant Professor Jan R. Kniffen

DEDICATION:

When the journey gets rough, I think of you and continue on.

To Jerren and Kimberly, for your patience the last two years. Thanks for taking care of each other and being wonderful children.

To my mother, Maggie, the person I admire most in this world. From you I have learned to love, to live, and to never give up.

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Chapter I

INTRODUCTION

Employee turnover is a major concern for many companies. In his article "The True Cost of Turnover and How to Prevent It", Terry Taylor stated, "Nationally, turnover rates run from two percent to thirty five percent per year. Turnover costs companies millions of dollars a year in lost productivity, increased training time, increased employee selection time, lost work efficiency, and other indirect costs" (Taylor 20). Employee turnover can be defined several ways. The most inclusive definition is the result of someone changing job titles. In that case, companies may want to increase turnover because it means they are promoting employees and that there are opportunities for career growth. Low turnover would represent a stagnant company. The most common definition of turnover includes anyone who leaves the functional area. An illustration of this definition would be a computer programmer transferring to the user community within the company. This form of turnover could also be desirable. The employee would still be a part of the company and may be available to help his previous department to train his replacement, as well as answer questions, when needed. The strictest definition would add to the turnover rate in the event someone leaves the company. If that rate is high, it could be considered a problem unless the company is attempting to reduce staff (Ware 25).

There are basically two types of turnover, involuntary turnover and voluntary turnover. Involuntary turnover is a result of layoffs, firings, or other reasons for termination imposed by the company. Other forms of involuntary turnover result from death, major illness, or injury of the employee. The employee has no control over this type. Voluntary turnover occurs when the employee decides to leave the company. There are a number of reasons for voluntary turnover (Cascio 598).

After a company has chosen how it defines turnover, the rate of turnover must be measured. To do this, the company compares the current rate with a rate from the past. This will suggest a trend which is more revealing than static event information (Ware 25). For example, if in 1993, a company experienced a turnover rate of ten percent, and in 1994 there was a thirty percent turnover rate, something has occurred to cause employees to leave the company. The next step would be to determine who is leaving the company. If it is determined that the best employees are being retained and the rest are leaving, the company does not have a problem. On the other hand, if the company is losing the best and keeping the rest, there is a problem, and the company needs to determine the cause and identify relieving and alternative actions.

In the article, "Are You Hiring The Right People?," Donald DeCamp cited that a recent survey found that eight out of ten employees at all levels said they would seriously consider a job change if the right opportunity was given (DeCamp 44). This response is not very surprising

since company loyalty is not very high in today's organizations. DeCamp pointed out that the chief reason for the decay of loyalty and job satisfaction is that companies do not know how to hire. The employee is competent and can do the job, but does not get along with the boss, with other workers, or with the corporate culture. Usually during the interview, perspective employees discuss their technical competence, but seventy percent of the hiring decision is based on personal attraction - a like or dislike reaction that occurs within a few minutes of the interview. Another problem is that the interview environment is not the same as the work environment. Many candidates know the right things to say during the interview, but some people who are not as skillful at interviewing may be very good employees. High-stress interviews do not work because they prevent real personalities on both sides. Human resource departments are beginning to use extensive psychological testing and compatibility interviews as part of the hiring process. Employers are usually attracted to candidates that are considered "fast trackers." Often the job description may be one that remains the same year after year. In that case, a fast tracker may not be the best person for the position. The new employee may become bored doing the same job over and over and leave the company out of boredom (45).

DeCamp also discussed a way to assess a candidate's character traits and correlate them with patterns of managerial style. It is based upon response to surroundings versus degree of assertiveness. High

responsiveness joined with low assertiveness results in the "amiable" style. High responsiveness and assertiveness produce "expressive" style. Low responsiveness and high assertiveness characterize the "directing" style, while low scores on both characteristics indicate detail-oriented "analytical" style (47).

Another suggestion is to define the culture of the organization. Companies fall into three categories: the charismatic, the democratic, and the systematic. Charismatic firms are characterized by a great deal of responsibility but little authority. A democratic firm manages by consensus, often using quality circles and team management. Systematic organizations are highly structured and depend on set procedures, channels of communication and chains of command. DeCamp states, "All organizations are a blend of cultures and philosophies, but over the years one or the other tends to prevail. The hiring authority that reduces turnover will be the one that identifies the tendencies and matches them to candidate styles" (46). The management styles of both the hiring authority and the supervisor to which the person will report should be determined. This will help overcome bias during the evaluation of the candidate and future employee. The article also identified five ways to discover what needs to be known about a candidate: by asking questions during the interview, testing, watching reactions, asking others and intuition. Most interviewers depend on intuition, which is the least reliable. The use of references is probably the best way, but is often neglected. "Effective

hiring procedures are 90 percent of the battle for reduced employee turnover, since they are aimed at placing the most suitable candidates in the environment where they will function most effectively" (47).

Once an employee has been hired, many changes to the work environment can occur. DeCamp developed an acronym "CLAMPERS" for the eight major reasons for leaving a job. These are Challenge, Location, Advancement opportunities, Money, Pride in the job and the company, Equal treatment for equal competence, Respect and recognition, and Security (47).

Employees have identified many reasons for leaving a company, including those in CLAMPERS. One of the main reasons employees give for leaving a company is for higher pay (King 1). When given the opportunity to make more money at another company, an individual will accept a position, sometimes giving up other positive features of their current job. Chief Information Officers (CIO) will negotiate very high base salaries and bonuses because they feel they are taking a risk when accepting a new position. With changing technology and downsizing of companies, CIOs feel they should bargain up front for a good compensation package (Cafasso 20). Although they are concerned about being terminated, many voluntarily leave their companies when they receive better offers. To prevent turnover from occurring due to higher pay, a company has to be very competitive in the compensation of employees. They must be willing to counter-offer when employees give

resignation notices. In this situation, employees will go to the highest bidder.

Unclear objectives are another reason for turnover. Employees complain of not being given well-focused objectives. They complain of not knowing their exact job responsibilities. Their roles are ambiguous and often conflict. To solve this issue, well-defined objectives should be created, with input from the employees. They should be informed concerning what is important, and how their jobs fit in with other jobs and activities.

Guidance and trust are important to employees. A lack of these is another reason employees will leave a company. When a worker does not receive guidance from his manager, he often feels lost and confused. Managers should provide direction to their subordinates. Trust is also a concern of employees. When they feel that they can not trust their managers, they become uneasy and sometimes, paranoid. If managers do not stand up for the rights of their people or defend their actions, employees think that they can not depend on them. Open communication and honesty can resolve the problems that come from lack of guidance and trust (Jenner 24).

Lack of objectivity and fairness is another reason for turnover. Employees stay with organizations that give them responsible performance appraisals with mutually agreed-upon objectives, supportive supervision,

results based rewards, training and development opportunities, and upward mobility based on performance, not politics (24).

Another reason that employees leave their company is that their bosses have left. Many times when a mid level to senior level manager leaves the company, soon some of her employees follow her. This is especially true with the group of people called Generation X, individuals in their twenties. They have loyalty to individuals, rarely to institutions. This group has seen parents with twenty years of service thrown away by their employers (Kennedy 11). They have seen them laid off and have decided that putting emotional capital into a company is stupid. Companies need to increase company loyalty. Employees must be made to feel they are a part of the business, and are important and valuable.

Employee demographics have been identified as another reason people leave their jobs for new opportunities (Igbaria 35). The age of the employee has been found to be related to turnover. Younger employees will leave a company sooner than an older employee. Studies have suggested that younger employees have less loyalty and lower job satisfaction. Tenure is also a predictor of turnover. Employees with fewer years at a company are more likely to change jobs than those with many years with the company. Employees with a high level of education are also more likely to leave for another position (35). After receiving a higher degree, such as an MBA, an employee will seek a position at a company where he can use his newly acquired skills and knowledge.

Geographic location can also affect turnover. Employees want to work in a particular part of the country. Some want to work in a warm climate, some in a cooler climate, some in an area where there is a lot of technology, i.e., Silicon Valley in California, some in big cities, and some in small towns. Employees are constantly searching for their ideal location. In the case of employee demographics, there is not much a company can do to prevent turnover. Improving loyalty and job satisfaction are two ways that the company may retain employees. Large companies may be able to transfer employees to different departments or divisions in other cities when geographic location is important to employees.

Employee turnover has also been linked to women and the stress they experience on their jobs. More and more women are working outside of the home. Almost half of the women surveyed by the New York Business Group on Health (NYBGH) said they were affected by stress at their jobs. Women who are also mothers usually have a higher degree of stress. The report advised companies to find out how women handle stress at both work and home, and the potential for job turnover as a result. The report also offered suggestions to employers. According to the study, reported in the September, 1993 issue of HR Focus, after companies have identified the sources of stress, they should possibly

> look at job change and financial worries; recognize the potential costs of psychological symptoms linked to stress

> at work and at home that may affect productivity and performance, as well as the potential for costly turnover among stressed and dissatisfied employees, and identify the needs of subgroups of women - such as single mothers, care-givers of elderly family members, and those who have been sexually harassed - and consider ways to assist them. ("Study Pinpoints The...." 24)

In the February 26, 1995 issue of Parade Magazine, the article "Business Must Do More for Working Parents" discussed, in the format of an "open letter", the relationship between turnover and child care in businesses. The author, Elliot Lehman, mentioned that in single-parent families, a working parent may have to give up a job and resort to welfare in order to care for a child. "We have a nationwide shortage of decent, affordable child care, and that means employers are finding more and more parents coming to work with something on their minds besides their jobs, or simply calling in sick" (12). In addition to paying salaries, businesses need to pay attention to the personal needs of their employees. Many companies do not, and are paying the price in absenteeism and turnover that costs U.S. businesses an estimated three billion dollars a year (12). To be competitive, businesses must attract and retain a productive, motivated workforce and help them realize their potential. In 1993, the University of Chicago School of Social Service Administration and its Graduate School of Business performed a study on the company Fel-Pro's child care programs to determine how they and similar programs might contribute to corporate profits. The study found that employees who used company benefits the most also had the best work performance and made

the fewest errors on the job. There was greater morale, less turnover, better teamwork, heightened loyalty and an atmosphere of goodwill. All these things helped the bottom line and increased profitability (14).

There are several creative ways that organizations have used to keep employees. United Parcel Service (UPS) has begun a program in which transportation is provided to employees without vehicles. The delivery giant experiences high turnover of employees working in their loading docks. Most of the positions are part time, and many employees cannot afford to own cars. The company can get a van or bus to go to poor areas and pick up the employees. The company hopes that a drop in resignations will occur.

Another creative idea for retaining employees is company sponsored child care services for employees who cannot afford to pay the fees. Some companies offer daycare scholarships, in which all or part of the fees are paid. Employees have said that they feel that the company makes them feel valuable and like a family member when it is concerned about their children.

Finally, companies can provide bonuses to employees for tenure. For example, if an employee remains at the company for a year, a $100.00 bonus could be given. For three years, $300.00 would be given. Although these are not large sums of money, many employees, such as those at UPS would want to remain at the company to receive the bonuses.

If employers were able to recognize signs of workers' unhappiness, companies could respond to the signs and prevent turnover. In the article "How to Tell When You Might Lose a Valued Employee", several telltale signs were identified. To be able to anticipate how employees will respond in different situations will help management spot signs of discontent, and develop "personal comfort zones" (62). Personal comfort zones provide employers with the tools they need to determine whether employees are considering leaving the organization. One variation of an employee's behavior is avoidance of eye contact. This could be a sign that the employee is unhappy with his job. Furtive behavior is another sign. With this form of behavior the employee appears to be hushed or secretive. Although the above behaviors could be signs of unhappiness with the job, it is hard to really determine whether unhappiness is job related or not. There are signs that give employers better clues that workers are considering leaving. Employees asking unexpectedly for a day off without a reasonable excuse could be responding to a hurried call for an interview. Employees who had previously been active and vocal contributors at meetings but become silent may be thinking about leaving. Sudden changes in vacation plans are yet another sign. Employers must become aware of major changes in employees' behaviors that were steady and predictable in the past. They should look for obvious signs, but not try to play psychologists. Most employees want to stay where they are, so some

effort to let them know how much they are valued may prevent them from deciding to leave the company (62).

The loss of employees due to voluntary turnover has a major financial impact on organizations. Donald D. DeCamp stated the Labor Department estimates that the cost of hiring one worker is $40,000. When the hidden costs are added, like loss of production and overtime for remaining employees, the cost for replacing a valuable employee almost reaches two times his or her annual salary (44).

Wayne Cascio identified three categories of turnover costs: separation costs, replacement costs and training costs. Separation costs elements include exit interview, administrative duties related to termination, separation pay, and unemployment tax increases. Replacement costs have eight elements: communicating job availability, preemployment administrative functions, interviews of candidates, testing, staff meetings to determine replacement needs, travel and moving expenses, postemployment acquisition and dissemination of information, and medical examinations. Training costs have three elements: informational literature, formal training program, and on-the-job training. The purpose for measuring turnover costs is to improve the decision making skills and techniques of management, in order to institute a turnover reduction program (Cascio 599-601).

In summary, turnover can be defined and categorized in several ways. Depending on the definition, a high rate can be considered good or

bad. There are many reasons for turnover. Companies need to determine if they have a turnover problem and come up with ways to correct the problems. Companies must also take into account that more and more minorities and women are entering the workforce. According to Charles Garfield, in the article "Embracing Diversity", by the year 2000 most jobs will be held by minorities. Today there are few women in executive level management positions in the Fortune 100 companies. In order to overcome turnover problems, companies will need to train women and minorities to replace employees in the predominantly white male positions. Employees must also consider the outcome of their decision to leave one company for another. They should make sure that they are leaving the company for the right reasons. Studies should be done to find out whether employees that have left a previous job found a better environment in their new job. To reduce turnover, both employees and employers need to start at the interview process in determining if there is a fit between the organization and employee. Both parties should remember that the company helps employees live - and work too (Lehman 14). It is hard to separate business and personal lives, therefore they need to work together.

Historically, information systems or MIS professionals have displayed a very high turnover rate. Excessive turnover in this area can be dysfunctional to a business because of a shortage of MIS employees and the high cost to train new employees. Researchers concerned with MIS

turnover have identified human resource management as one of the areas requiring attention. According to Lisa Jenner,

> For many MIS professionals the demand in today's booming technologies far outstrips supply. As of December 1994 the job market was up 44% over 1993. Compared to 1992, the number of MIS jobs has increased by 64%. (24)

The purpose of this study is to focus on the voluntary turnover of information systems personnel. Researchers have identified determinants of turnover of information systems professionals. In addition to reviewing and analyzing the determinants, the methodologies used to research the subject will be evaluated and discussed.

Chapter II

LITERATURE REVIEW

Historically, employee turnover has been the focus of many researchers. More specific, the determinants and results of voluntary employee turnover have been studied for decades. In 1952, J. Weitz hypothesized that job dissatisfaction was related to an employee's dissatisfaction with everyday life events. He argued that attempts to improve the prediction of turnover might benefit from considering employees' dispositions (Judge 395). Weitz speculated that if two employees report the same level of dissatisfaction, the one most likely to quit is the one with the highest predisposition to be happy or satisfied in general. He developed a "gripe index" that assesses satisfaction with forty four items important in everyday life. He suggested that "some individuals generally gripe more than others" and that when dissatisfied with their jobs are less likely to quit than those that are happy with their lives. The researcher explained that this should be expected because a person with a positive disposition reporting a certain level of job dissatisfaction is more dissatisfied on the job relative to other things in his life than a person with a negative disposition reporting the same level of job dissatisfaction (395). This theory suggests that the relationship between job dissatisfaction and turnover is greater for generally satisfied than for generally dissatisfied individuals. For the latter, dissatisfaction

with the job is no more meaningful than other dissatisfying events in their lives.

J. Brehm and L. Festinger, in 1956 and 1957, respectively, used the dissonance theory to suggest that people who change jobs voluntarily will report improvements in job quality subsequent to job change (Gupta 432). The researchers posited that after an employee makes a choice among two or more equally desirable alternatives, the chosen alternative is reevaluated to appear more positive. In other words, once a turnover decision is made, the new job should be considered superior by the individual, and the old job reevaluated as inferior (432).

In their 1975 study, L.W. Porter and R.M. Steers supported the prediction that perceived job quality will deteriorate subsequent to voluntary turnover. The evidence stems from the impact of unmet expectations on turnover. Many people have unrealistic expectations when they enter a new job, but experiences with reality drive down heightened expectations. The decline in expectations leads to lower perceived job quality (Gupta 433). Later, Porter and Steers studied organizational commitment and turnover. They defined highly committed employees as those who want to remain with their employing organizations (Cohen 1141). Findings indicated that low commitment alone does not produce large correlation in the relationship between commitment and turnover. Other variables, including time, have been studied along with organizational commitment. The researchers found that employees who

were a month and a half or less away from terminating reported significantly less commitment than stayers. When employees were two to three and a half months from actually terminating they showed less commitment than equivalent stayers, but the difference was not significant. Commitment was almost the same between stayers and employees who were at least six months away from terminating (1141).

Weitz's 1956 hypothesis was supported in 1977 by W.H. Mobley's psychological process model of turnover. Mobley argued job dissatisfaction is first translated into thoughts of quitting, then to evaluation of alternatives, and finally, turnover because quitting is expected to result in a more satisfying job. Employees that are negatively disposed toward life may have no such expectation. Those employees can see little relationship between job dissatisfaction and quitting. Therefore, changing jobs may not result in higher job satisfaction (Judge 396).

In 1986, J.L. Cotton and J.M. Tuttle linked several variables with employee turnover. Findings indicate a negative relationship between turnover and age. Younger employees are more likely to leave a company than older employees because of unmet job expectations and/or less need to financially support dependents. Unmet job expectations would occur when a young employee has fewer options to compare one job to another. Cotton and Tuttle also supported a negative relationship between job satisfaction and turnover. The correlations are consistent and significant but have not been very high (Crandall 199). The researchers identified

employee benefits as a component of job satisfaction. Based on their research, other variables such as tenure, gender, education, salary level, ease of movement, and family responsibility are used to control the effects that other relevant factors may have on the dependent variables (Heshizer 85).

In the past five years, several recent studies have been done on the subject of turnover. These studies have yielded an abundance of knowledge. In 1992, Nina Gupta, G. Douglas Jenkins, and Terry A. Beehr performed a study that examined the "effects of turnover on perceived job quality" (Gupta 433). The researchers explored the propositions of Brehm and Festinger. Intraorganizational turnover and interorganizational turnover were included in the analysis. A sample of employees of five midwestern organizations were used in the study. Data collection techniques used were interviews, observations, personnel records, and supervisor ratings. Data were collected in two phases. Phase Two data were collected two years after Phase One data. Respondents for whom data were available in both phases were used for the study. Replacements for employees who had turned over between the two phases were also respondents. Finally, Phase One respondents who had quit their jobs between Phase One and Phase Two for whom follow-up information was available were also used. The focus of the study was on job changes between Phase One and Phase Two. Respondents were classified into four groups: stayers, transfers, replacements, and turnovers. The demographic

distribution was as follows: 56.1 percent males, 75.8 percent were white, 67.8 percent were married, 75 percent had completed high school, and the average age was 37.6 years. The respondents were asked to compare their current and previous jobs. They were also asked to rate overall changes in their jobs, ranging from "a lot worse" to "a lot better." Finally, they were asked to report their satisfaction with ten job facets (435). Results of the study were interesting. Respondents classified as Replacements and Turnovers reported that, although job changes were voluntary, they did not see major improvements in their new jobs and working conditions. Stayers saw more improvements in their financial rewards than did Turnovers who had been employed in a new job for a reasonable period of time. Contrary to expectations, Transfers did not report greater pay raises than the Stayers. Turnovers reported the greatest improvements in supervision, co-workers, and promotion opportunities, but reported the greatest deterioration in hours, effort, and fringe benefits. These results suggest that job changes may improve interpersonal, but not financial or physical, conditions of work. Stayers reported the greatest improvements in wages and fringe benefits, which suggest that tenure plays an important role in the accumulation of pay and benefits (440). The results supported the idea of dispositonal influences. In other words, job satisfaction may be a function of individual predisposition more so than of job quality. Job attitudes showed stability over time despite job changes, which suggest

that job attitudes may change as individuals change jobs, but people appear to maintain "cross-situational" consistency in their attitudes.

In another 1992 study, Rick Hackett, Peter Bycio and Peter Hausdorf also studied organizational commitment and turnover. The researchers made further assessments of the three-component model of organizational commitment of J.P. Meyer and N.J. Allen. The three facets of commitment are affective, continuance, and normative (Hackett 15). With affective commitment the employee identifies with the organization, and is committed to pursue its goals. Employees are emotionally attached to the organization. Continuance commitment is a reflection of recognized, accumulated interests that bind the employee to the organization, and is considered more calculative than affective. The employee is committed to the company based on the costs associated with leaving the organizations, such as loss of pensions and seniority. Normative commitment refers to the employee's feelings of obligation to stay with the company. The feelings result from internalizing normative pressures from family or culture prior to entry, or following entry from organizational socialization (15). In 1991, Meyer and Allen proposed that employees' willingness to contribute to organizational goals would be influenced differently by the nature of their commitment. Those with affective commitment were more likely to exert effort to perform than those with continuance or normative commitment. In the current study, the researchers were interested in the relationships between the three components of commitment. They looked

at job satisfaction and motivation as antecedents of commitment. Rated and nonrating performance and intention to quit were considered the consequences of commitment. Negative relationships involving intent to leave were expected with all three components of commitment. The strongest intent to leave were expected among those with affective commitment. Questionnaires of 2,301 registered nurses, as well eighty bus operators, were used in the study. Ninety-eight percent of the nurses were female. Their average age was 38 years, and 74 percent were married. They had an average of 15 years in nursing. The mean age and mean tenure of the bus operators were 41 years and eight years. Twenty three percent of them were female (16). Results showed that of the three components, affective commitment was most affected by the nature of the employees' work experiences. Continuance commitment was associated positively with organizational tenure but was unrelated to age. Because continued employment in an organization is a necessity for the employee with high continuance commitment, the nature of the link between commitment and on-the-job behavior is likely to be dependent on the implications of that behavior for employment (22).

In 1993, Timothy A. Judge expanded on J. Weitz's 1952 study of the relationship between disposition, dissatisfaction, and turnover. Judge hypothesized that there is an interaction between affective disposition and job satisfaction in predicting turnover. The effect of job satisfaction on turnover depends on a person's affective disposition and that the more

positive the disposition, the stronger the negative relationship between job satisfaction and turnover. The researcher looked at several control variables in his study: age, work experience, wage rates, education, and labor market alternatives (Judge 396). Subjects for the study were 234 nurses from a medical clinic in the Midwest. Education of the respondents ranged from high school diploma (twelve percent) to a master's degree (nine percent). Fifty six percent were registered nurses, fifteen percent were licensed practical nurses, fifteen percent were medical office assistants, and fourteen percent were laboratory technicians or clinical specialists. Hourly wages ranged from $4.15 to $17.43. Age ranged from 21 to 70 years, with an average of 37 years. Job tenure ranged from newly employed to fifty years. Approximately 40 percent of the respondents thought there were little or no employment alternatives, about 42 percent some alternatives, and about 18 percent thought they had many job alternatives. The annual voluntary turnover for respondents was 17.9 percent (396). Respondents were given questionnaires. Judge used Weitz's 44-item "gripe index" scale to measure affective disposition. The scale was used because it is assumed to avoid distinction between positive and negative affectivity. The current researcher preferred it because it reflects a better assessment of a dispositional trait as opposed to an affective state than do measurements of positive and negative affectivity. Job satisfaction was measured by a Job Description Index and was represented by five facets: pay, promotion opportunities, supervision, co-

workers, and the job itself. Information on voluntary turnover was gathered from the medical clinic's records. Alternative employment opportunities, age, wage rates, tenure, and educational level were measured from specific questions on the survey (397). The study provided support for Weitz's hypothesis that affective disposition moderates the relationship between job satisfaction and voluntary turnover. Results indicate that employees with positive dispositions who were dissatisfied with their jobs were more likely to leave than those who had negative dispositions. Although the effect of the covariates (age, education, wage rates, and alternative employment) was in the expected direction, in most cases statistical significance was low. Previous research had suggested a greater significance. The researcher suggests that a larger and more diverse sample may have provided more support.

William Crandall and John Parnell studied the "Relationship Between Propensity For Participative Management and Intentions to Leave" in June, 1993. Participative decision making (PDM) has been found to increase skill variety, job satisfaction, and other job core characteristics. Propensity for participative management (PPM) refers to a manager's tendency to use direct participative techniques and shift some of the responsibility and authority for decision making to the subordinates. The study looked at several variables that have been linked to participative management and turnover. The first variable was age. Younger employees are more likely to voluntarily leave the company than older

employees because of unmet job expectations or less need to financially support dependents. Tenure has also been identified as a predictor of turnover. Studies suggest that people with greater tenure are given more management responsibilities than employees with less tenure. Therefore, those with less tenure are more likely to leave the company. Job satisfaction is a variable that has often been studied in relationship with turnover. Job satisfaction and turnover are negatively related. When employees are satisfied with their jobs, they will not change jobs as much as those who are not satisfied. As posited by Porter and Steers in 1975, organizational commitment is considered to be a better predictor of turnover than satisfaction. Finally, employees' intentions to leave their current jobs are considered a reliable predictor of turnover, and is used by researchers as a substitute for voluntary turnover. The results of the study indicate that employees who measure high on participative management scales display lower intentions to leave a company. The researchers administered a survey to 209 subjects enrolled in a business administration program at a Midwestern university. They represented a variety of work backgrounds and organizations. The ages of respondents ranged from 21 to 47. Males accounted for 63.2 percent. Years of work experience ranged from two to twenty six, with years of management experience ranging from zero to eighteen. Less than half (45.5 percent) had no management experience while 41.1 percent said they were at the supervisory level. Eleven percent reported that they were middle

managers and 2.4 percent said they were in top level management. The researchers hypothesized that as employees get older and gain more experience on the job they will be exposed to more opportunities for employee participation. These employees will also experience a higher level of satisfaction and organizational commitment. As a result, intentions to leave the organization will be negatively impacted. The results of the study indicate employees' propensity for participative management (PPM) is strongly associated with the number of years of management experience. PPM did not show significant correlations with age, management level, or total years of work experience. The results indicate that PPM is linked to job satisfaction and organizational commitment. Employees who desire to take part in participative management and are in organizations that encourage such a culture will respond positively as displayed in job satisfaction and organizational commitment. PPM was the best indicator of intentions to leave, more than job satisfaction and organizational commitment. Employees who have been exposed to participative management will seek career opportunities where they can be employed in this type of work culture. If their current work place encourages participative management they will show fewer signs of intentions to leave. This result implies that although job satisfaction and organizational commitment scales are used by management, propensity for participative management scales should also be offered by organizations to help predict turnover intentions. The

results of the study indicate that employees who measure high on the PPM scale display lower intentions to leave their organizations. The researchers suggested that a further study should be done to solidify the role of participative management and turnover (206-208).

In October, 1993, Aaron Cohen performed a meta-analysis of thirty six studies from 1967 to 1991 on organizational commitment and turnover. The analysis examined "whether differences in the lengths of time elapsed between the measurement of organizational commitment and departure interact with the career stages of employees in moderating the commitment-turnover relationship" (Cohen 1140). The researcher hypothesized that the relationship between organizational commitment and turnover will be stronger the shorter the time elapsed between the measurement of the two variables. There are two determinants of the effect of time upon the commitment-turnover relationship. First is the probability that a decline in organizational commitment will occur, and secondly, the rapidity and intensity of the decline. Cohen stated, "If the probability of decline in employees' organizational commitment is high and the process from decline to their leaving an organization is rapid, more employees who reported high levels of commitment at the time of an attitude survey and who were expected to remain in the organization might leave before turnover data could be collected" (1142). The researcher expected the probability and intensity of decline to differ across career stages. Employees in later career stages are more oriented than new

employees to settling down in a company and are less willing to relocate or to leave an organization to achieve a promotion. They have a higher organizational commitment and need for stability than the newer employees. Results strongly supported the hypothesis when age was used as the career stage indicator, but not when tenure was used. For younger employees, a prediction problem occurs because employees who report high levels of commitment had a decline shortly after a survey, which resulted in turnover and prediction errors that caused a low organizational commitment-turnover relationship. Predictions are more accurate the shorter the time interval between the measurement of the organizational commitment and turnover (1150). For older employees, prediction errors occur more because employees report low levels of organizational commitment but may not leave their organizations because of few employment alternatives, a desire for stability, and structural bonds. For the latter, predictions are more accurate the longer the time interval between the measurement of the two variables. Cohen proposed an explanation as to why tenure did not support the hypothesis. "Tenure cannot be interpretable in the first years of employment because at this stage the commitment-turnover relationship is largely a reflection of affect triggered by unrealistic and inflated job preview and new employees' need to justify their choice among employment alternatives" (1153). Employees need experience in the organization in order to develop realistic evaluations of it.

In another 1994 study entitled "Does Pay for Knowledge Pay Off", Kevin J. Parent and Caroline Weber discussed the pay for knowledge (PFK) system and its relation to turnover. Under the system employees are paid on the basis of the skills they have to offer rather than the job performed. In other words, the system is designed to offer higher base wages to employees who can perform a larger number of tasks. Advocates of PFK say the system increases worker productivity and product quality, and decreases turnover. The study compared two manufacturing plants in Canada - one with a PFK system and one without. The PFK facility had 150 nonunion employees. Males made up 60 percent of the employee population. The average age of the PFK employees was 35 years. The non-PFK facility employed 75 nonunion employees, of which 75 percent were female. The average age at the facility was 32 years. The study found higher quality, greater job satisfaction and less turnover for the PFK group. It was difficult to draw conclusions because there were other differences between the two groups (Parent 45). The PFK's facility's manufacturing operation was unlike the production process at the non-PFK facility, although their assembly divisions were alike. Another difference was the age of the two plants. The non-PFK facility was less than two years old, whereas the PFK facility was six years old. This may mean that the productivity and quality measures for the non-PFK facility are biased. Finally, the workforce demographics were different. The employees of the non-PFK facility were mostly female, those at the PFK facility were

predominately male. A greater percentage of new-hires at the newer, non-PFK facility may produce higher turnover rates there. Also, there is evidence that women have higher absenteeism rates in Canada. Since advocates of PFK argue that it reduces turnover because it increases job satisfaction, the researchers measured voluntary turnover. Turnover data was available only for the fiscal year, not on a monthly basis. The research produced statistically significant differences between the PFK and non-PFK plants (47). It found that the non-PFK facility demonstrated higher productivity rates, averaging 91.54, than the PFK facility, averaging 82.51. However, the result may be affected by the newer equipment at the non-PFK facility or gender composition. No turnover was reported in the PFK facility, compared with 2% in the non-PFK facility for the same period. The turnover rate in the non-PFK facility may have been higher because of the new hires' lower tenure with the company. Researchers suggest that the pay-for-knowledge systems may be successful because there is an explicit incentive and reward for training. The results also suggest that PFK systems may be an effective replacement for more traditional compensation systems (49).

The relationship between turnover and benefits has also been studied. In 1994, Brian Heshizer studied the impact of flexible benefits plans on job satisfaction, organizational commitment and turnover intentions. With flexible benefits, employees are allowed to choose from several options the specific benefits and level of benefits coverage they

desire. Some employers argue that these benefit plans help them recruit and retain employees (84). Earlier studies had found that benefits satisfaction, overall job satisfaction and understanding of benefits increased after implementation of the flexible benefits plan. Data from two organizations located in a major Midwestern city were collected via questionnaires completed by employees. Both companies had implemented a flexible benefits plan. A total of 286 questionnaires were used in the study. Both samples were predominantly female (60 percent from company one and 84 percent for company two). The average ages were 37 and 41 years. The mean tenure was 9.5 and 8.4 years. Over fifty percent of the respondents were married and had at least one child. Dependent variables used in the study were job satisfaction, organizational commitment, and turnover intentions. The objective of the study was to investigate the dimensionality of employees attitudes toward flexible benefits plans. The dimensions of flexible benefits satisfaction that were measured are benefits staff knowledge and support, understanding the plan, and the need for more information about the plan. The study, like many other turnover research, looked at demographic variables of age, tenure, gender, education, salary level, ease of movement and family responsibility. These variables have been found to be directly related to job satisfaction. Results indicated that attitudes contribute significantly to the prediction of turnover intent (88). Human resource staff assistance and employee understanding of the benefits plan were found to have an effect

on job satisfaction, but it was a modest amount. One variable that was not included in the study was the cost of benefits. Previous research indicates that knowing the cost of benefits is an important factor in employee attitudes towards benefits and the organization (89). The current focus on national health care has sparked interest in benefits packages offered by organizations. Employees are placing more value on benefit plans when deciding to accept job offers and leave their current organizations. The demographic variables produced the same results as previous research. Age, education and gender, when measured with benefits factors, were found to have positive effects on job satisfaction. Older employees are presumably more satisfied with their jobs. The availability of other job opportunities has a positive effect on turnover. Consistent with previous research, family responsibility was shown to have a negative effect on turnover.

Charles R. Williams and Linda P. Livingstone examined the relationship between performance and voluntary turnover in 1994. Like Cohen, the researchers performed a meta-analysis. It was based on 55 studies that implied that there is a negative relationship between performance and turnover (270). The researchers expanded the previous studies in several ways. First, they investigated reward contingency as a moderator. It was predicted that making rewards contingent on performance would result in a greater negative relationship between performance and turnover. When good performers are rewarded and poor

performers are not, the good performers are less likely to leave the organization. Second, the role of external labor market forces were examined. The study analyzed how unemployment rates moderated the relationship between performance and voluntary turnover. It was hypothesized that as unemployment rates dropped, poor performers would more likely leave the organization. Third, the researchers reexamined the hypothesis that performance and turnover have a U-shaped curvilinear relationship. It was predicted by E.J. Jackofsky in 1994 that performance and turnover would be inversely related for poor performers, who experience an actual or a perceived threat of firing, unrelated for average performers, and positively related for good performers, who have better employment opportunities (271). Fourth, the researchers used more studies that had been used in previous meta-analysis studies, and therefore had a larger sample. The sample size for the study was 15,138. The larger sample size was expected to produce more stable estimates. Studies that were able to measure employee performance prior to turnover were used in the meta-analysis (272). Results indicated that poorer performers were more likely to leave when rewards were contingent on performance and were more likely to stay when they were not. The negative relationship between performance and turnover was significantly stronger for good performers in organizations where contingency rewards were given. The results also showed that unemployment rates did not significantly affect the relationship between performance and turnover. When unemployment

was low the negative relationship was slightly stronger. The study indicates that the scarcity or abundance of alternative job opportunities had little effect on the link between performance and voluntary turnover. Based on eight of the studies, the U-shape curvilinear analysis was supported by the analysis. Reward contingency was a stronger moderator than unemployment rates. The pattern suggests that organizations can encourage better performers to stay and poorer performers to leave (274).

Turnover is relevant for Management Information Systems (MIS) managers due to shortages in programmers and other MIS employees, as well as to the high cost of training new hires. Although there has been a great amount of research done on voluntary turnover, historically, not many studies focused on the turnover of information systems personnel. Poor job satisfaction is considered a major determinant of employee turnover. Several studies have focused on job satisfaction and its relationship with job characteristics and perceptions. In 1981, D. Couger and R. Zawacki performed the largest and most well-known study, of that time, of the work-related correlates of job satisfaction in programmer analysts (Goldstein 103). The study showed that job satisfaction is negatively correlated with turnover, absenteeism, and other variables. It examined the relationship between the feelings programmers/analysts had about their jobs and the actual tasks they performed. The researchers hypothesized that personal and work-related outcome variables, such as job satisfaction and effectiveness of work are related to five objective job

characteristics: skill variety, task identity, task significance, autonomy, and feedback from the job. Over one thousand programmers and analysts were surveyed. Significant and strong correlations between ratings on each of the five characteristics and job satisfaction were found. It was also discovered that the workers scored higher on job satisfaction, job characteristics, and growth need measures than workers in other professions (104). A shortcoming of the Couger and Zawacki study is that it assumed the workers did their jobs independently. Programmer/analysts usually work in teams and deal with users, co-workers, and managers.

Also in 1981, R.P. Bostrom studied role conflict and ambiguity in information systems personnel (Goldstein 105). Systems development and other specialized jobs were thought to be major sources of personal stress. Role conflict and role ambiguity, as defined by Bostrum, often result from the specialized jobs and responsibilities and are causes of stress in information systems professionals. Bostrom defined the two role stressors:

> Role conflict is the degree of incongruity or incompatibility in the expectations or requirements communicated to a focal person. Role ambiguity is the degree to which desired expectations are vague, ambiguous, or unclear, thereby making it difficult for the person to fulfill the requirements of his role. (105)

Bostrom found significant negative correlations between job satisfaction and role conflict/ambiguity. He also found significant negative correlations between role conflict and ambiguity and programmers' job satisfaction.

In 1984, David K. Goldstein and John F. Rockart examined the work-related correlates of job satisfaction in programmer/analysts. They expanded on the studies of Bostom and Couger and Zawacki. Goldstein and Rockart predicted that relationships with project leaders, co-workers, and users are significant correlates of job satisfaction. The relationship between job satisfaction and role conflict, role ambiguity, and quality of leadership provided by supervisors and peers was of specific interest. They hypothesized that the addition of role perceptions and leadership characteristics to job characteristics will significantly increase the understanding of work-related correlates of job satisfaction. A sample of 118 programmer/analysts was used in the study. The subjects were employees of four large companies in the Northeast and Midwest (103). The programmer/analyst were involved in system development, as well as maintenance of existing systems. Each subject completed a questionnaire which was administered in a classroom setting. Measures of role conflict, role ambiguity, supervisor leadership, and peer leadership, job characteristics, and job satisfaction were performed. Results supported the hypothesis. Significant correlations between job satisfaction and the independent variable - job characteristics, role perceptions, and leadership

characteristics - were found. The job characteristic of autonomy was most highly correlated with satisfaction, compared to the other four job characteristics: skill variety, task identity, task significance, and feedback from the job. A higher negative correlation was found between ambiguity and satisfaction than with role conflict and satisfaction. A higher positive correlation between supervisor leadership and satisfaction was found than with peer leadership and satisfaction (109).

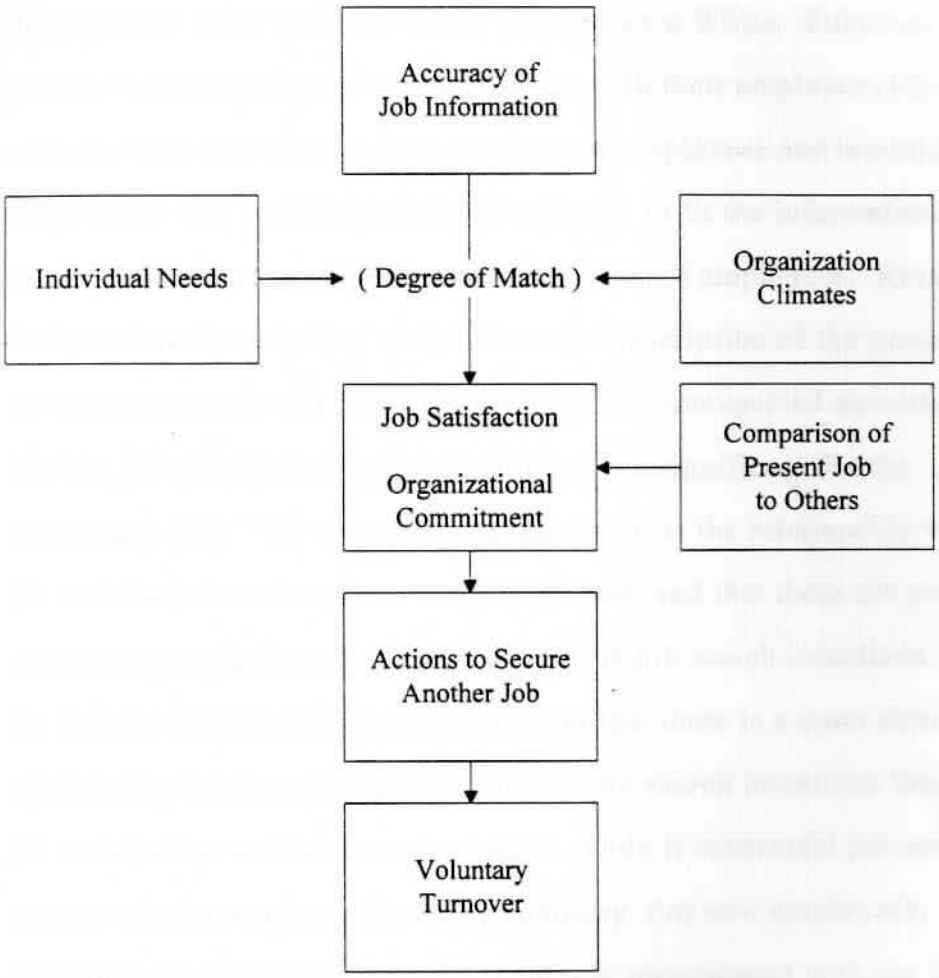
The relationship between ethics and job satisfaction for MIS professionals was examined in 1990 by Scott J. Vitell and D.L Davis. There is very little published research on this relationship. MIS professionals were selected for the study because the field is still considered to be young, as compared to other business professions. In the study top management's ethical stance and the subject's overall sense of social responsibility were compared to five dimensions of job satisfaction: (1) satisfaction with pay, (2) satisfaction with promotions, (3) satisfaction with co-workers, (4) satisfaction with supervisors and (5) satisfaction with work itself (489). Sixty one information systems professionals answered a self-administered questionnaire and were used as the subjects. Their positions ranged from programmers to managers. Ages ranged from twenty nine to sixty four years. Fifty seven percent of the respondents were male. They had an average of 14.6 years of experience in the field, with tenure in the company ranging from one year to thirty five years. The average annual salary range was $40,000 to

$50,000 (490). The study found that the subjects were less satisfied with their jobs when unethical behavior was common in their company. The respondents who believed that success and ethical behavior was prevalent in their organizations were more satisfied with their jobs. Results also indicated that social responsibility had very little positive correlation with job satisfaction. The respondents were more satisfied with their jobs when their top management was perceived as supporting ethical behavior. Pay satisfaction was not found to have a significant relation to ethical considerations (493).

An examination of underlying realistic job previews (RJPs) and turnover was performed in 1990 by Robert J. Vandenberg and Vida Scarpello. The researchers tested the "matching model" of J.P. Wanous to explain why realistic job previews should affect employee adjustment and employment stability (60). The matching model is reproduced in Table 1. The model posits that a match between an individual's preferences for job rewards and his perception that the organization is providing those rewards results in job satisfaction and employment stability. Initially, the applicant depends on the organization and others with knowledge about needs-rewards match and compares the present job to other jobs. When the employee determines that the present job is better than outside opportunities he develops organizational commitment. If the individual decides that other opportunities provide a better match, actions are taken to secure another job, and often voluntary turnover results. Four

Figure 1

MATCHING
MODEL



SOURCE: Wanous's (1980) matching model. (From Organizational Entry: Recruitment, Selection, and Socialization of Newcomers by J. P. Wanous, 1980, Reading, MA: Addison-Wesley. Copyright 1980 by Addison-Wesley. As cited in Journal of Applied Psychology by Robert J. Vandenberg and Vida Scarpello (1990).

questionnaires were administered to 393 information systems and data processing personnel from nine insurance companies throughout the United States. The average age of the respondents was 32 years. Fifty-three percent were male and ninety percent were White. Fifty-eight percent had three or more years of tenure with their employer (62). The subjects were divided into two groups, new employees and tenured employees. The matching model is expected to fit the information of new employees better than the information of tenured employees. Results indicate that the matching model is a valid description of the processes newcomers go through in an organization. An unexpected outcome was that the job satisfaction-turnover path was nonsignificant for the newcomers (66). The researchers suggested that the relationship between job satisfaction and turnover may be indirect, and that there are possibly other moderating factors. One possibility is job search intentions. Using the tenured sample, the researchers found that there is a more direct relationship between job satisfaction and job search intentions than with job satisfaction and turnover intentions. Only if successful job search occurs will the employee leave the company. For new employees, searching for alternative jobs is cognitively inconsistent with the act of just joining the organization (66). Support of the matching model for new employees reemphasizes the importance information and information sources have on the organization's socialization of new employees. The study found that the matching model does not represent the work

adjustment of more tenured employees. Findings suggest that other components, such as performance rewards and career progress should be included in the model (66).

In an interesting study in 1992, Yash Gupta, Tor Guimaraes, and T.S. Raghunathan examined the attitudes and intentions of information center personnel. The researchers used L.W. Hammond's description of the Information Center (IC) concept:

> ...a portion of the information systems (IS) development resource organized and dedicated to support the users of IS services in activities such as report generation and modification, data manipulation and analysis, spontaneous inquiries, etc. the fundamental premise underlying an IC is that if provided proper education, technical support, usable tools, data availability, and convenient access to the system, users may directly and rapidly... and willingly... satisfy a part of their business area requirements that depend on an IS environment. (Gupta 152)

The researchers also considered the turnover intentions of IS personnel to be different from turnover intentions of IC personnel:

> They (IC employees) differ significantly from IS employees on a number of demographic, personality, and motivational factors. IC personnel must have interpersonal skill; their business skills are generally more important than technical skills. They tend to be more flexible and creative, have greater need for social interaction and are significantly more end user oriented. Nearly 50 percent of IC staff members are female, approximately 50 percent are 30 years or younger, and a large majority are better educated than their IS

> colleagues. The IC personnel generally have limited advancement opportunities. This problem is compounded by the fact that IC personnel tend to be faced with negative salary differentials with respect to IS personnel. (153)

In performing their normal duties, IC personnel are required to interact with IS personnel and with the users. Sometimes they are required to cross boundaries. In other words, they may have to perform some of the functions of the IS employees. This "boundary spanning" causes role conflict and role ambiguity to develop. It is hypothesized that the higher levels of boundary spanning activities that IC personnel perform are associated with higher levels of intentions to quit (153). In addition to role conflict, role ambiguity, and intentions to quit, boundary spanning is also associated with job satisfaction and organizational commitment. Seventy five IC professionals from thirty organizations in Cleveland were used in the study. Seventy percent had Bachelors Degrees and over sixty percent were under thirty four years old. Fifty two percent of the subjects were male and seventy nine percent had two or less years of service with the organization (156). The primary finding was that role conflict and role ambiguity were the main factors that affect IC personnel. When role conflict and role ambiguity were low, job satisfaction and organizational commitment were high and intentions to quit were low.

In recent years the most valuable researchers of information systems turnover are Magid Igbaria and Jeffrey Greenhaus. In a study published in 1991 with Saroj Parasuraman, the researchers performed an

empirical analysis of the career orientations of MIS employees. A career anchor (orientation) "refers to a cluster of self-perceived needs, values, and talents that give shape to an employee's career decisions" (151). Eight career orientations that guide an employee's career decisions were identified: (1) security/stability; (2) autonomy or independence; (3) managerial competence; (4) technical or functional competence; (5) entrepreneurial creativity; (6) sense of service or dedication; (7) pure challenge; and (8) lifestyle integration. An employee's career orientation influences the selection of specific occupations and work settings, and it affects the employee's reactions to his or her work experiences (151). Three hypotheses were proposed:

> H1: MIS employees are more likely to hold technical or managerial career orientations other than security, autonomy, entrepreneurial, service, pure challenge, or lifestyle career orientations.
>
> H2: MIS employees with a technical career orientation are more likely to hold technical positions than non-technical positions, and those with a managerial career orientation are more likely to hold managerial positions than nonmanagerial positions.
>
> H3: MIS employees whose career orientations matches their current job setting are more satisfied with their job and career, more committed to their organization, and less inclined to leave their organization than employees whose orientation does not match their job setting. (153)

Subjects were 464 MIS employees who are members of the Association for Computing Machinery in Pennsylvania, Delaware, and New Jersey. The subjects responded to questionnaires that were mailed to them. They held a variety of positions within the MIS profession. Eighty percent were male and sixty eight percent were married. Ninety four percent of them had at least a bachelor's degree. Sixty percent had salaries that ranged from $25,000 to $54,999. Each subject was assigned a dominant career orientation based on how they scored on each of the eight orientations. Job satisfaction, organizational commitment, intention to leave, perceived job characteristics, and boundary spanning activities were also measured. Findings were consistent with hypothesis one (153). Almost 50 percent of the sample held managerial and technical orientations. Other career orientations held by the employees were autonomy, lifestyle and service. The entrepreneurship orientation was the least characteristic. Technically oriented employees scored high on autonomy and service, but low on managerial orientation. On the other hand, managerially oriented respondents scored very low on technical and autonomy orientations and relatively high on pure challenge and entrepreneurship. The results indicated that career orientation was unrelated to age, education, marital

status, and tenure in the job, but it is related to gender. A higher percentage of men than women were technically oriented. More women were lifestyle oriented (158). Findings also supported hypothesis two. Results indicated that career orientation is related to position held by the employee. Systems programmers were mostly technically or autonomy oriented. Applications programmers and software engineers were technically oriented but were less likely to be managerially or autonomy oriented than the systems programmers. About fifty percent of the managers, systems analysts, and project leaders were managerially oriented (159). The study confirmed hypothesis three in that it provided considerable support for the importance of a match between career orientation and job setting. Managerially oriented respondents who held managerial positions reported higher job satisfaction, greater organizational commitment, and lower intention to leave than those that held technical positions. Likewise, technically oriented individuals with technical positions were more satisfied with their jobs than were those in managerial positions. The results for organizational commitment and intention to leave were in the expected direction, but were not significant (162).

In 1992, Magid Igbaria and Jeffrey Greenhaus took another look at their 1991 career orientations study and focused on the determinants of MIS employees' turnover intentions. Using the same respondents and questionnaires, the new study addressed the impact of employee demographic characteristics on turnover intentions of MIS personnel, the impact of role stressors, and the impact of career experiences on turnover intentions (36). The study took a better look at employee demographics of age, tenure, education, and organizational commitment. The two role stressors analyzed were role ambiguity and role conflict. As a result of incomplete information to perform the job adequately, conflicting or unclear expectations of peers, or ambiguity of performance evaluation methods, MIS employees may feel less satisfied with their job and career, and less committed to their organization. Three career experiences were also studied: salary, perceived promotability, and extra-organizational career opportunities. Salary and promotability have a positive relation to job satisfaction. Extra-organizational career opportunities have been found to be negatively related to job satisfaction and company loyalty (36). Career experiences may also have direct effects on turnover intentions over and above their effects through satisfaction and

commitment. The study found that MIS employees who experience extensive role stress are likely to have strong turnover intentions because they experience low job satisfaction, low career satisfaction, and low organizational loyalty. As expected, salary and promotability had positive effects on job satisfaction and commitment (45). The researchers were surprised that there was a positive effect of external career opportunities on work related attitudes. It is possible that extensive career opportunities increase the employees' self-esteem, which promotes positive feelings about their job, career, and company. The most immediate determinants of turnover were found to be job satisfaction and organizational loyalty. Education was the only demographic variable that had a direct or positive effect on turnover intentions. Young, highly educated MIS employees were more susceptible to high turnover than older and less educated employees (46).

Historical and recent research have proven that there are many reasons for voluntary employee turnover. Although the majority of studies has been performed on employees that are not in information systems careers, the studies have resulted in findings that are very similar to those studies that have focused on MIS employees. Authors and researchers of

MIS employee turnover suggest that programmers and other MIS professionals are different. In her article, "Now You See It", Janet Ruhl stated,

> Keeping programmers happy - indeed, just plain keeping them - is a complex job. Many approaches focus on understanding the programmer personality because 'real programmers' - the inspired ones who do the vital work - tend to be more inwardly directed and less competition-driven than the usual employee. Thus, the kinds of incentives that work for other personnel often fail to motivate programmers or keep them in their jobs. (65)

It is easier for MIS employees to leave companies. As stated by Julia King and Erin Callaway, "Demand for IS professionals skilled in today's booming technologies far outstrips supply. Given this employment boom, IS job seekers with highly sought-after skills are in a prime position to ask for plum deals" (1). Researchers of MIS employees have studied many causes for turnover, including a mismatch between career orientations and job positions and settings. Ethics and employee demographics, such as age, tenure, and education are other reasons MIS employees turnover. Low organizational commitment is yet another cause, and so are role ambiguity and role conflict. Career experiences including salary, perceived promotabilty, and extra-organization career opportunities were identified as reasons employees change jobs.

One variable consistently found in the recent MIS employee turnover studies is job satisfaction. Some variables, such as ethics, unrealistic job previews, low salary, role stressors, and extraorganizational career opportunities are direct determinants of job satisfaction or job dissatisfaction. Education and age are indirect determinants of job satisfaction. Unlike the other variables, organizational commitment is a result of job satisfaction.

The current expository study performs a comprehensive analysis of the recent MIS employee turnover research. The statistical and research methods used in the studies are evaluated. Conclusions and limitations identified by the researchers, as well as those discovered in this analysis, are discussed. It is hypothesized that there are several determinants of MIS employee turnover and that these determinants are directly or indirectly related to job satisfaction.

Chapter III

SELECTIVE REVIEW AND EVALUATION OF RESEARCH

Several studies of information systems personnel have overwhelmingly supported the hypothesis of the present study. Each study used questionnaires to collect information. Some of the researchers developed their own instruments and others used previously developed questionnaires. Information systems personnel with different specialties, ages, years of experience, and career orientations were used as subjects in the studies. Sample sizes ranged from very small to very large. Several statistical analysis methods were chosen and used by the researchers.

David K. Goldstein and John F. Rockart's 1984 study examined the work-related correlates of job satisfaction. Information was collected from 125 subjects. A sample of 118 subjects was used after seven of the respondents were excluded because they were not programmer/analysts. A questionnaire was administered in a classroom to groups of seven to thirty subjects at a time (106). The respondents completed the Job Diagnostic Survey developed by J.R. Hackman and G.R. Oldham. Measures of role conflict, role ambiguity, supervisor leadership, peer leadership, job characteristics, and job satisfaction were performed based on answers to the items in the questionnaire. The items in the questionnaire provided ample information to the researchers for support of their conclusions. Job characteristics, role perceptions, and leadership

characteristics were used as the independent variables. Job satisfaction was identified as the dependent variable. Correlations between the independent and the dependent variable, as well as correlations among the independent variables were performed (109). Means, standard deviations, and internal consistency reliabilities were measured for the variables. Multiple regression analyses were used for two reasons. They were performed "to examine the amount of variance in job satisfaction explained by each of the three sets of independent variables" (109). They were also used to test the hypotheses that role perceptions and leadership characteristics increase the amount of variance in job satisfaction explained by the independent variables (110). An initial concern in the evaluation of the research methods used by Goldstein and Rockart was the sample size. A larger sample size usually results in a decrease in random sampling errors, although the rate of decrease diminishes as the sample becomes even larger. In his book, Business Research Methods, William G. Zikmund stated that a large sample size is not always necessary. When the sample population is homogenous only a small sample is required. Also, when similar studies have been conducted in the past, there is not a need to use a large sample in the current study (Zikmund 408). Because Goldstein and Rockart concentrated on information systems personnel, specifically programmer/analysts, and referred to several related studies, the sample size was not an issue. By using the Hackman and Oldham's Job Diagnostic Survey and items from other studies, the researchers

reduced the risk of omitting important questions, and increased questionnaire relevancy and accuracy. In the classroom setting, the researchers were able to give verbal instructions to respondents. The mean is a very common measure of central tendency, and the standard deviation is probably the most valuable index of dispersion (392). The use of each index was appropriate in the study. The measurement of internal consistency reliabilities was also valuable in determining errors in the research methods. Correlation measurement and multiple regression analysis are effective methods of investigating relationships between the variables. The researchers pointed out that the correlation and regression analyses used were based on cross-sectional data. As a result, a direct conclusion that changes in job characteristics, role perceptions, or leadership characteristics will cause corresponding changes in job satisfaction could not be made. Only through a longitudinal study could such a conclusion be drawn (Goldstein 113).

Scott J. Vitell and D.L Davis mailed questionnaires to 114 management information system professionals for their 1990 study of the relationship between ethics and job satisfaction. Sixty one individuals with positions ranging from programmers to managers answered the self-administered questionnaire and were used in the study. Respondents varied in age, tenure, salary, and positions (490). The Managerial Job Satisfaction Questionnaire, developed by Anthony Cellucci and David DeVries, was used to measure job satisfaction. Five dimensions of job

satisfaction were measured: 1) pay satisfaction, 2) promotion satisfaction, 3) co-worker satisfaction, 4) Supervisor satisfaction, and 5) Work itself satisfaction (490). Four items per dimension were measured. Respondents were also asked questions that were used to measure their perceptions of unethical behavior. A seven-point Likert scale was used, with "1" representing strongly agree and "7" representing strongly disagree. Correlations between each of the five job satisfaction dimensions and unethical behavior, ethical optimism, social responsibility, and top management actions were examined. An obvious limitation is evident in the study. As in the aforementioned study, the sample size in the current study was small. Out of 114 mailed, only sixty one questionnaires were returned and used. Information systems employees from multiple areas of expertise and levels were used as respondents. Because of the diversity of respondents a larger sample size would have been more appropriate. The limitation of the small sample size is overcome by the fact that the study referenced several similar studies when presenting its findings. Also, the use of the Managerial Job Satisfaction Questionnaire, an instrument which was based on the work of other researchers, reduced the concern of the small sample size because questionnaire reliability and accuracy were increased. The use of the seven-point Likert scale was appropriate and well done. The score of "1" indicating strong disagreement and "7" indicating strong agreement was consistent throughout the questionnaire. The instrument consisted of thirty two items, divided into two scales, the

job satisfaction scale and the ethical optimism scale. It was well-developed and provided adequate data for analysis. Vitell and Davis performed several factor analyses. Factor analysis is used to summarize the information contained in a large number of variables into a smaller number of factors (Zikmund 585). In the study, the researchers performed factor analysis on the twenty items used to measure job satisfaction and expected a five-factor solution. They also performed several other factor analyses to measure the five dimensions being evaluated, and expected one-factor solutions to each analysis. The measurement of correlations between the variables was useful in performing the factor analyses.

Robert J. Vandenberg and Vida Scarpello used four questionnaires to perform their examination of realistic job previews and the Matching Model. Human resource specialists within nine insurance companies administered the questionnaires to 455 information systems and data processing personnel. From the sample, 393 subjects were used in the study (62). Minimum respondent identification, off-site processing of data, and use of group means and frequency counts were methods used to maintain anonymity. The respondents were divided into two groups, new-comers and tenured. The study used seven measures from the surveys. First, the accuracy in which the company portrayed the job and responsibilities was measured with a 5-point scale. Second, comparison of the current job to similar ones within the organization was measured, also with a 5-point scale. Third, using the 21-item Minnesota Importance

Questionnaire (MIQ) and the Minnesota Job Description Questionnaire (MJDQ), the employee needs and perceptions of rewards were measured. Fourth, job satisfaction was also measured by the MIQ and MJDC. The greater the score, the more satisfied the respondent. Fifth, organizational commitment was assessed using the nine-item version of the Organizational Commitment Questionnaire, with items anchored on a 7-point scale. Finally, intentions to quit was measured with one item, in which the respondents indicated the probability of leaving their current organizations (62). Internal consistency coefficients were calculated for each of the measures. Five fit indexes were used to judge the fit of the matching model: 1) parameter estimates, 2) Chi-square, 3) Chi-square/degree of freedom ratio, 4) coefficient of determination, and 5) Tucker-Lewis index (64). Means, standard deviations, and correlations among the research variables were calculated. The use of the large sample size was appropriate because the respondents were divided into the two groups. The number in the newcomer group was fifty-five and the tenure group consisted of 338 subjects. This presents a concern because a more even distribution would have provided better comparisons. Another cause for concern was the use of four questionnaires in the study. Three of the questionnaires were Minnesota instruments and one was developed by Vandenberg and Scarpello. According to Zikmund, the layout and attractiveness of questionnaires are important. Burdensome questions, order bias, and complexity should be avoided (337). The researchers

avoided potential problems by administering the questionnaires during work hours and having the assistance of human resource personnel. A number of research methods were used. They considered a fit judgment to be a subjective process and decided to use multiple indicators to provide them with more objective information. The researchers used LISREL VI, a general maximum likelihood estimation procedure, to test the matching model's fit to the data from the newcomer and tenured groups. According to Yash Gupta, et al, "LISREL VI can estimate the unknown parameters of a system of linear structural equations" (Gupta 156). Vandenberg and Scarpello used four models with LISREL: 1) completely unequivalent, 2) measurement equivalence, 3) structural equivalence, and d) completely equivalent:

> The completely unequivalent model assumes no equality between measurement and structural parameters of the newcomer and tenured groups. The measurement equivalence model assumes invariance among measurement parameters but not among structural parameters. The reverse is true for the structural equivalence model. The completely equivalent model assumes invariance among all measurement and structural parameters in both groups. (64)

The significance level of obtained parameter estimates was used as one indication of fit. Each estimate was accompanied by the approximate *t*-distribution. Zikmund stated that t-distribution should be used when the

sample size is smaller than thirty (496). The respondents in the study were divided into two sample groups. There were fifty five respondents in the newcomer group and 338 in the tenured group. Based on Zikmund's statement, both groups are too large for use of t-distribution. When the sample size is large, the t-distribution is similar to the Z-distribution (496). Therefore, the Z-distribution is more appropriate. Chi-square was also used to indicate fit. The researchers suggested that a significant chi-square value would imply a poor fit and a nonsignificant value would imply a good fit. They pointed out that chi-square is also dependent on sample size. For that reason, they evaluated the chi-square values against other fit indexes.

They also used the chi-square/degree of freedom ratio to provide a summary of the chi-square test. The coefficient of determination (CD) was used to measure reliability for the whole structural model. It is a good way to measure the portion of the total variance of a variable that is accounted for by knowing the value of another variable (Zikmund 554). Finally, the Tucker-Lewis index was computed in the study. It was chosen as a fit index because it is "relatively independent of sample size, it correctly mirrors differences in fit, and requires an appropriate penalty

function for the inclusion of additional parameters" (Vandenberg 64). At first glance, it appeared that the researchers were trying to use every statistical analysis method available. Because they divided their respondents into two sample groups, one large and one relatively small, it was necessary to use multiple analysis methods. A comparison of the computations from the fit indexes would result in a more objective solution or judgment.

A questionnaire was also used by Yash Gupta, Tor Guimaraes, and T.S. Raghunathan in their 1992 study which examined quit intentions of information center personnel. Seventy five IC professionals from thirty organizations were used in the study. All respondents were assured anonymity. Relationships between boundary spanning, role conflict, role ambiguity, job satisfaction, organizational commitment and intentions to quit were analyzed by using questionnaire items that had been developed by other researchers in similar studies. They used LISREL VI to analyze the structural models. They preferred this method over regression analysis because it accounts for the amount of measurement errors in the data while simultaneously estimating the structural parameters (156). The measures used to determine the fit of the model were: 1) the chi-square statistic and

the associated p-value, 2) the parameter estimates and the associated level of statistical significance, 3) the goodness of fit index, and 4) the root mean square residual (157). The researchers stated that the goodness of fit index is independent of sample size and robust against departures from normality. Gupta et al. pointed out the limitation to the goodness of fit index: "Its statistical distribution is unknown, even under idealized assumptions, there exists no standard for comparison" (157). The other indexes are sample size dependent. For this reason, it is good that a variety of analyses techniques were used to determine the fit of the model.

In 1991, Magid Igbaria, Jeffrey Greenhaus, and Saroj Parasuraman studied the career orientations of 464 MIS employees who responded to questionnaires that were mailed to them. Demographic characteristics of gender, age, education, marital status, salary, and tenure were used as variables. A factor analysis was conducted to measure internal consistency. Factors analyzed were related to eight career orientations identified by the researchers: 1) autonomy, 2) managerial competence, 3) creativity and entrepreneurship, 4) sense of service, 5) lifestyle integration, 6) security, 7) technical features, and 8) challenge (156).

A chi-square goodness of fit test was conducted to compare the observed frequencies of managerial and technical orientations to their expected frequencies. An analysis of variance (ANOVA) was performed, in which the dominant career orientation was used as the independent variable and the eight career orientation scale raw scores were used as the dependent variables. An ANOVA is the analysis of one independent variable to determine if statistically significant differences of means occur between two or more groups (Zikmund 525). The ANOVA was used to confirm the classification individuals in terms of their dominant career orientation. Another ANOVA and chi-square tests were also performed to evaluate the relationship of demographic characteristics to the dominant career orientations (157). A multivariate analysis of covariance (MANCOVA) was conducted using match and mismatch as the independent variables, gender and organizational level as the covariates, and the four career outcomes (job satisfaction, career satisfaction, organizational commitment, and intention to stay) as the dependent variables (158). A MANCOVA is a technique that provides a simultaneous significance test of mean difference between groups for two or more dependent variables (Zikmund 584). The items on the questionnaire were developed by the researchers

performing the study and by other researchers who had performed similar studies. Again, the use of previously developed items increases the chance for questionnaire relevancy and accuracy. Over two thousand instruments had been mailed. Since the response was rather low, the researchers analyzed the demographic characteristics of the respondents to determine if they had an appropriate sample of MIS professionals. The use of ANOVA, MANCOVA, and the chi-square tests was appropriate in the study.

In their second study, Magid Igbaria and Jeffrey Greenhaus used the same questionnaire and 464 subjects from their 1991 study to analyze the determinants of MIS employees' turnover intentions. A five-point Likert-type scale was used to measure the following: 1) turnover intentions, 2) career satisfaction, 3) job satisfaction, 4) organizational commitment, and 5) role stressors. Career experiences were measured by items that assessed salary, perceive promotability, and extra-organizational career opportunities. The study used Partial Least Squares (PLS), a form of multivariate analysis, to estimate the parameter of a structural model. According to the researchers, PLS recognizes two

components of model building: the measurement model and the structural model:

> The measurement model consists of the relationships between the constructs and the items used to measure them. The structural model assesses the explanatory power of the independent variables, and examines the size and the significance of the path coefficients. Together, the measurement and structural models form a network of measures and constructs. (40)

To assess convergent validity, the study used item reliability, composite reliability of each scale, and average variance extracted by each construct. Discriminant validity, the degree to which items measure distinct concepts, was tested by examining the correlations between the measures of two constructs. Measures of constructs are expected to correlate more highly with their own items than with measures of other constructs. Zikmund stated, "There are three major criteria for evaluating measurements: reliability, validity, and sensitivity" (288). Igbaria and Greenhaus concentrated on these areas in their second study. Sensitivity, a measurement instrument's ability to accurately measure variability in stimuli or responses (292), was not discussed in the study, but was a criteria. The use of the five-point Likert scale made the instrument a more

sensitive scale because it allowed for a greater range of possible scores than a single-item scale (293). The scale was consistent for each item being measured, with "1" meaning strongly disagree/ very unlikely and "5" meaning strongly agree/very likely. A comparison of Igbaria, et al's two studies found that the researchers measured some of the same variables with different questionnaire items. For example, organizational commitment was measured with fifteen items in the 1990 MIS Career Orientation study. In the 1991 MIS Employees' Turnover Intentions study, the researchers used nine items. The researchers stated that six items were excluded from the later study because they overlapped with the measure of turnover intentions. They explained, "Thus the shorter version of the scale used in this study (1991) represents a more pure measure of the affective dimensions of commitment to the employing organization" (39). Another example of a change in the items to measure variables was with the measurement of career satisfaction. In the first study, career satisfaction was measured by an eight-item scale. The second study used a five-item scale adapted from the previous study, "with appropriate changes to make the items more relevant to the present study" (39). Zikmund pointed out, "A questionnaire is relevant if no

unnecessary information is collected and if the information that is needed to solve the business problem is obtained" (322). The statement by the researchers that the changes made the items more relevant to the present study leads one to question the relevancy of the items in the first study. Because different types of analysis were conducted in the two studies it is difficult to compare conclusions.

Although some concerns and limitations were identified, for the most part, all researchers used respondents and questionnaires that were appropriate for their areas of study. The items in the questionnaires were well developed and supported the conclusions. Most of the researchers used a variety of complicated statistical methods, but some used the more basic analytical methods. The measurements used differed in each study, but they all supported the current hypothesis that there are several determinants of MIS employee turnover, all of which are directly or indirectly related to job satisfaction.

Chapter IV

RESULTS

Several research methods were used by the researchers who conducted the six studies being analyzed. Measures of central tendency, dispersion, reliability, and correlations were the most used, but other analysis methods were also performed. Presented in Table 1 are the means, standard deviations, and ranges provided by Yash Gupta, Tor Guimaraes, and T.S. Raghunathan in their study of attitudes and intentions of information center personnel. The range shows the lowest and highest values of the frequency distribution for each of the variables.

Table 1

Summary Information on measures

Construct	**Mean**	**Std Dev**	**Range**
Boundary Spanning	27.0	6.40	16.0-41.0
Commitment	59.2	16.3	33.0-96.0
Role Conflict	34.9	6.17	25.0-52.0
Role Ambiguity	11.2	4.92	0.0-22.0
Job Satisfaction	74.6	11.1	52.0-100.0
Intention to quit	7.9	3.11	3.0-14.0

Source: Information & Management. Adapted from "Attitudes and Intentions of Information Center Personnel" by Yash Gupta, Tor Guimaraes, and T.S. Raghunathan (1992).

Means were computed by the MANCOVAs performed by Magid Igbaria, Jeffrey Greenhaus, and Saroj Parasuraman to show the impact of match between dominant career orientation and job setting on career outcomes. The results, presented in Table 2, indicate that respondents who experienced a match between their career orientation (technical or managerial) and their job settings reported higher job and career satisfaction, more organizational commitment, and lower intentions to leave their organization than those who experienced a mismatch (Igbaria 162).

Table 2

Impact of Match Between Dominant Career Orientation and Job Setting

	Subgroup Means	
Career Outcomes	**Match**	**Mismatch**
Job Satisfaction	3.74	3.30
Career Satisfaction	3.75	3.35
Organizational Commitment	3.47	3.19
Intention to Leave	2.90	3.33

Source: MIS Quarterly. Adapted from "Career Orientations of MIS Employees: An Empirical Analysis" by Magid Igbaria, Jeffrey Greenhaus and Saroj Parasuraman (1992).

Means and standard deviations among research variables, from the study performed by David Goldstein and John Rockart, are presented in Table 3. All of the variables were seven-point scales. The relative magnitudes of the means and standard deviations for the study were found to be very similar to the results in previous research (Goldstein 107).

Table 3

Summary Statistics for Dependent and Independent Variables

Variable	**Mean**	**Std Dev**
Skill Variety	5.50	.922
Task Identity	5.18	1.29
Task Significance	5.05	1.25
Autonomy	5.25	1.04
Feedback from Job	5.02	1.21
Role Ambiguity	2.96	.998
Role Conflict	3.61	1.06
Person-role Conflict	3.86	1.14
Peer Support	5.06	1.01
Peer Goal Emphasis	4.73	1.03
Peer Work Facilitation	4.37	1.13
Peer Interaction Facilitation	4.42	1.21
Supervisor Support	5.08	1.16
Supervisor Goal Emphasis	5.09	1.10
Supervisor Interaction Facilitation	4.14	1.18
General Satisfaction	5.12	1.06
Growth Satisfaction	5.17	1.15
Co-Worker Satisfaction	5.42	.917
Supervisor Satisfaction	5.02	1.28

Source: MIS Quarterly. Adapted from "An Examination of Work-Related Correlates of Job Satisfaction in Programmer/Analysts" by David Goldstein and John F. Rockart (1994).

Table 4 presents the means and standard deviations for variables for the newcomer (N) and tenured (T) groups studied by Robert Vandenberg and Vida Scarpello. The means for the newcomer group were higher than those of the tenured group for job responsibilities and demands, career progress opportunities, and desired level of job accomplishment. The mean for type of work was the same for both groups. The mean for financial gains was lower for the newcomer group than the mean for the tenured group. The differences in the standard deviation for the newcomer and tenured groups were not significant.

Table 4

Means and Standard Deviations for Newcomer and Tenured Employees

Variable	Mean		Standard Deviation	
	N	T	N	T
Job Responsibilities and demands	2.8	2.7	.5	.5
Career Progress Opportunities	2.8	2.6	.5	.8
Type of Work	2.5	2.5	.6	.6
Financial Gains	3.7	3.8	.9	.8
Desired Level of job accomplishment	3.8	3.6	1.0	.9

Source: Journal of Applied Psychology. Adapted from "The Matching Model: An Examination of the Processes Underlying Realistic Job Previews" by Robert Vandenberg and Vida Scarpello (1990).

Reliabilities for the variables were also computed in most of the studies. S.J. Vitell and D.L Davis performed factor analysis on the twenty items used to measure job satisfaction, which resulted in a five factor solution. Table 5 indicates that the dimensions are reliable in terms of internal consistency. The lowest coefficient alpha was 0.761 for promotion satisfaction.

Table 5

Reliability of job satisfaction dimensions

Dimension	**Coefficient alpha**
1. Pay satisfaction	0.780
2. Promotion satisfaction	0.761
3. Co-Worker satisfaction	0.850
4. Supervisor satisfaction	0.821
5. Work Itself satisfaction	0.880

Source: Journal of Business Ethics. Exhibit from "The Relationship Between Ethics and Job Satisfaction: An Empirical Investigation" by Scott Vitell and D.L. Davis (1990).

Goldstein and Rockart used Cronbach's alpha to measure internal consistency reliability. The results of their reliability measure are presented in Table 6. With the exception of person-role conflict, all of the

reliabilities are within the satisfactory range. Magid Igbaria and

Table 6

Internal Consistency Reliability

Variable	Cronbach's alpha
Skill Variety	.62
Task Identity	.77
Task Significance	.74
Autonomy	.80
Feedback from Job	.85
Role Ambiguity	.81
Role Conflict	.79
Person-Role Conflict	.32
Peer Support	.75
Peer Goal Emphasis	.66
Peer Work Facilitation	.80
Peer Interaction Facilitation	.80
Supervisor Support	.85
Supervisor Goal Emphasis	.76
Supervisor Interaction Facilitation	.59
General Satisfaction	.80
Growth Satisfaction	.74
Co-Worker Satisfaction	.70
Supervisor Satisfaction	.89

Source: MIS Quarterly. Adapted from "An Examination of Work-Related Correlates of Job Satisfaction in Programmer/Analysts" by David Goldstein and John F. Rockart (1994).

Jeffrey Greenhaus used factor loading to assess item reliability, and used Cronbach's alpha to measure composite reliability of each scale. An alpha of 0.70 is considered to be a high loading. The reliability of all the scales

ranged from 0.88 and 0.97. The factor loadings of all constructs were significant, each exceeding 0.70 (Igbaria 40). Y.P. Gupta et al. measured reliabilities of the constructs that were presented in Table 1, with coefficient alphas ranging from 0.71 to 0.91 (Gupta 155).

Correlation analysis is the most popular technique that indicates the relationship of one variable to another (Zikmund 551). The correlations between job satisfaction and the independent variables of job characteristics, role perceptions, and leadership characteristics are found in Table 7. Goldstein and Rockart found that all of the independent variables were significantly correlated with the satisfaction variables. Of the job characteristics, autonomy correlated most highly with the satisfaction variables. Role ambiguity correlated more highly (negatively) with satisfaction than role conflict. Among the leadership variables, supervisor work facilitation and supervisor support correlated most highly with job satisfaction (107). Comparing the three overall variables, the role perceptions correlated more highly with satisfaction than the leadership characteristics or the job characteristics. Of the two leadership characteristics, supervisor leadership correlated more highly with job satisfaction than peer leadership.

Table 7

Correlation of Independent Variables With Satisfaction Variables

Variable	General Satisfaction	Growth Satisfaction	Co-Worker Satisfaction	Supervisor Satisfaction
Skill Variety	.44	.53	.31	.23
Task Identity	.27	.41	.21	.20
Task Significance	.42	.30	.28	.20
Autonomy	.49	.59	.35	.37
Feedback from Job	.41	.46	.35	.39
Role Ambiguity	-.57	-.69	-.44	-.52
Role Conflict	-.40	-.31	-.30	-.30
Person-Role Conflict	-.46	-.42	-.31	-.36
Intrasender	-.33	-.27	-.38	-.20
Intersender	-.40	-.17	-.14	-.22
Peer Support	.35	.43	.46	.40
Peer Goal Emphasis	.35	.45	.37	.32
Peer Work Facilitation	.32	.40	.43	.34
Peer Interaction Facilitation.	.36	.37	.41	.32
Supervisor Facilitation	.47	.50	.32	.76
Supervisor Goal Emphasis	.38	.46	.36	.62
Supervisor Work Facilitation	.44	.53	.44	.64
Supervisor Interaction Facil.	.42	.41	.31	.49

Source: MIS Quarterly. Adapted from "An Examination of Work-Related Correlates of Job Satisfaction in Programmer/Analysts" by David Goldstein and John F. Rockart (1994).

S.J. Vitell and D.L. Davis examined the correlations between each of the five dimensions of job satisfaction and the perceptions of unethical behavior within the organization. All dimensions of job satisfaction were negatively correlated with perceptions of unethical behavior. Table 8

indicates that only supervisor, co-worker, and work itself satisfaction showed significant correlations. All dimensions of satisfaction, except

Table 8

Correlations of Unethical Behavior and Job Satisfaction

Dimension of Job Satisfaction	**Company Ethics**	**Industry Ethics**
Promotion satisfaction	-.18	-.45
Co-Worker satisfaction	-.40	-.58
Supervisor satisfaction	-.37	-.44
Work Itself satisfaction	-.26	-.45
Pay satisfaction	-.16	-.07

Source: Journal of Business Ethics. Exhibit from "The Relationship Between Ethics and Job Satisfaction: An Empirical Investigation" by Scott Vitell and D.L. Davis (1990).

pay satisfaction, were significantly correlated (negatively) with perceived unethical behavior with the industry. The researchers also determined the correlations between the five dimensions and the "ethical optimism" scale. There was a significant correlation between all aspects of job satisfaction and the degree of optimism about ethical behavior being linked to success (492). Significant correlations between the dimensions and the top management action scale indicated that MIS professionals were more

satisfied where top management supported ethical behavior and actions (492).

In addition to the basic research methods discussed, other analysis procedures were used by the researchers. MANCOVA and chi-square analyses performed by Igbaria, Greenhaus and Parasuraman revealed that a match between respondents' career orientation and their job setting resulted in higher job satisfaction and career satisfaction (161). Using chi-square/degree of freedom ratio, and coefficient of determination, Vandenburg and Scarpello found significant correlations that supported a better fit of the matching model to newcomers' data than to the tenured group's data (65). Y.P. Gupta et al. used LISREL VI to perform analysis of the structural model. Table 9 summarizes the structural relationship between boundary spanning, role conflict, role ambiguity, job satisfaction, organizational commitment, and intentions to quit (156). Although the significance of the relationships or correlations are not presented, the direction each relationship is shown. The researchers found that boundary spanning did not significantly affect any variable contributing to the intentions to quit. Results indicated that role conflict and role ambiguity

were the major dysfunctional variables for information center personnel intentions to quit.

Table 9

Summary of hypothesized relationships and their directions

Hypothesized relationships	**Direction of relationships**
Boundary spanning and Role conflict	+
Boundary spanning and Role ambiguity	+
Boundary spanning and Intentions to quit	+
Boundary spanning and Job satisfaction	+
Boundary spanning and Organizational Commitment	-
Role conflict and Role ambiguity	+
Role conflict and Job satisfaction	-
Role conflict and Intentions to quit	+
Role conflict and Organizational Commitment	-
Role ambiguity and Job satisfaction	-
Role ambiguity and Intentions to quit	+
Role ambiguity and Organizational commitment	-
Job satisfaction and Organizational commitment	+
Job satisfaction and Intentions to quit	-
Organizational commitment and Intentions to quit	-

Source: Information & Management. Adapted from "Attitudes and Intentions of Information Center Personnel" by Yash Gupta, Tor Guimaraes, and T.S. Raghunathan (1992).

Chapter V

DISCUSSION

Summary

The results presented supported the researchers' hypotheses, as well as the hypothesis in the current study. Goldstein and Rockart's standard deviation, reliability, and correlation results supported the hypotheses that leadership characteristics and role perceptions are important correlates of job satisfaction in programmer analysts. The results indicated that job satisfaction correlated strongly to role ambiguity and role conflict. The researchers also concluded that leadership characteristics correlated significantly to job satisfaction. Goldstein and Rockart suggested that leadership characteristics and role perceptions, for research purposes, should be added to the Job Characteristic Model to allow better understanding of work-related correlates of job satisfaction (112). There are practical implications to the study as well. Improving leadership training of information systems professionals may be an effective way to increase job satisfaction (113). Role conflict and role ambiguity may decrease with improved training programs. Managers that are given proper training will improve their ability to support and manage their staff,

improve job satisfaction, and finally, reduce turnover. Some implications for research were discussed. Task-related factors of job satisfaction should be studied in order to evaluate the differences between maintenance programmers and development programmers. Longitudinal studies of MIS professionals should be performed to determine how training experiences and career planning sessions effect job satisfaction.

Vitell and Davis's results also supported their hypotheses. The results indicated that MIS professionals are more satisfied with their jobs when top management values and stresses positive ethical behavior. It was concluded from the study that employees are less satisfied with their jobs when unethical behavior is common within their company and industry. The practical implication is that managers may improve job satisfaction within the organization if they reduce opportunities for unethical behavior. Employees that believed that success and ethical behavior were consistent seemed to be more satisfied with their jobs. This may imply that rewarding ethical behavior will improve job satisfaction. Results indicated that a sense of social responsibility is not significant to job satisfaction in programmer analysts. Pay satisfaction was not

significantly related to ethical behavior, and was dependent upon other factors unrelated to ethics (493).

Role conflict and role ambiguity were found to be the most important factors that need to be reduced in the study performed by Gupta, Guimaraes, and Raghunathan. Results indicated that job satisfaction and commitment in Information Center personnel increased when role ambiguity and role conflict were reduced. Intentions to quit were reduced when role ambiguity and role conflict were reduced. As discussed in the study by Goldstein and Rockart, training is one way to reduce role ambiguity and role conflict. Hiring procedures may be yet another way to reduce the perceptions and increase job satisfaction. When recruiting employees, managers should try to hire individuals who appear to have a higher tolerance for role conflict and role ambiguity. Boundary spanning was not a significant contributing factor for intentions to quit. The researchers indicated that results of the study differed significantly from the results on turnover intentions of IS personnel. Based on the analysis of this study with other studies analyzed, a difference in the turnover of information center and information system personnel was not

found. The findings presented by Gupta et al. were similar to the findings of Goldstein and Rockart.

Vandenberg and Scarpello presented results of the chi-square/degree of freedom ratio and coefficient of determination that supported a better fit of the matching model to the newcomer information than to the tenured data (65). Unexpectedly, results showed a nonsignificant relationship between job satisfaction and turnover intentions for the newcomer group. These results differed from the results of previous studies. It appears that there is an indirect relationship, and that other factors may affect the path. For example, the relationship between job satisfaction and job search intentions was more significant. The addition of external job opportunities increased turnover intentions. The results also indicated that the matching model accurately reflects the use of information in the adjustment of the newcomer to the organization (66). Results suggested that turnover in tenured employees is influenced by job-related experiences or rewards, such as vacation time and pension, as well as other interventions like job enrichment. Although the researchers did not discuss any, there are some practical implications of the study. To keep employees satisfied, particularly newcomers, managers

must provide an accurate match between the employee and the job. Improvements in hiring practices will increase job satisfaction, reduce the chances that employees will seek other job opportunities, and reduce turnover. For tenured personnel, employers must provide rewards, such as pension plans, job enrichment programs, and other positive job-related experiences, in order to keep them satisfied. Providing opportunity for career development and growth are ways organizations can create a match between the employee and the position.

Igbaria, Greenhaus, and Parasuraman study revealed that there is a number of career orientations held by information system employees. Managerially oriented employees scored low on technical interests, and typically held positions as systems analysts, project leaders, and managers. Technically oriented employees scored low on managerial interests and were in such positions as systems programmers, software engineers, and applications programmers. The results also indicated the importance of a match between career and job setting. The results showed that employees who experience a match between their career orientation and their job setting reported higher job satisfaction and career satisfaction, more organizational commitment, and lower intentions to leave their

organization than employees who experienced a mismatch (162). Several practical implications were discussed. Employers need to recognize the diversity of their employees and develop training, reward systems, and career growth programs that are also diverse. The reward must match the career orientation in order to be appropriate. Implications for university faculty preparing students were also discussed. Students should be encouraged to explore their values and interests (166). Discussions of career opportunities and orientations will help them recognize their aspirations.

In their study of the turnover intentions of MIS personnel, Igbaria and Greenhaus found that the effects of role stressors on turnover were indirect and positive. Employees who experience role stress are likely to hold strong intentions to leave their organizations because they experience low job satisfaction, low career satisfaction, and low organizational commitment. Results also indicated that salary and promotability had positive effects on satisfaction and commitment. Surprisingly, in the study, career opportunities outside the organization had a positive effect on work-related attitudes. The researchers suggested that the possibility of external opportunities may enhance self-esteem which promotes

positive feelings about one's job (45). Results indicated that job satisfaction and organizational commitment are the most significant and direct determinants of turnover intentions in MIS employees. Demographic characteristics of age, tenure, and education were also found to be causes of turnover. Young, highly educated, and inexperienced employees are more likely to have turnover intentions. There are several implications of the study. Since results indicated that job satisfaction and organizational commitment are the most immediate causes of turnover intentions, the researchers suggested that managers monitor the level of employee attitudes by using surveys. The factors that are thought to influence work attitudes should be assessed, and solutions identified (46). Another implication not suggested by the researchers is for employers to organize groups that are responsible for accepting employee concerns, suggestions, and problems. The groups should be empowered to solve problems or refer employees to someone who can solve them. As discussed previously, role stressors can be reduced by providing employees with clearly defined tasks and priorities. Management should provide an environment in which conflicts can be resolved. Career experiences, such as salary and promotion opportunities are important to

employees, therefore, managers must find creative ways to increase career growth opportunities for workers. The researchers suggest a dual career path approach, in which technical employees are advanced and provided with salary increases. Those employees who would like to change their career path to a managerial path should be provided with career planning and training experiences (46). In addition, employers must become aware of the competitive salaries that are available for MIS employees and provide pay increases to valuable employees.

The six studies analyzed several correlates of job satisfaction and information employee turnover. Several of the studies presented results that indicated that role ambiguity and role conflict are strongly significant to job satisfaction and organizational commitment. A mismatch between the career orientation and job setting of an employee increased stress and reduced job satisfaction. Although Gupta et al. discussed that there is a difference in the attitudes and intentions of information center personnel and information systems personnel, the current study did not find a difference among the two groups. Demographic characteristics of age, tenure, and education were found to have a direct impact on job satisfaction, but an indirect impact on turnover intentions. The

relationship between ethics and job satisfaction was evaluated in only one of the studies. Specifically, the ethics behavior of top management in the organization and industry was shown to be related to job satisfaction. Ethics and pay satisfaction were found to be unrelated. Results indicate a significant relationship between salary, promotability, and benefits with job satisfaction. Unexpected results in Vandenberg and Scarpello's research indicated that there is not a direct relationship between job satisfaction and turnover intentions for new employees. A more direct relationship was found between job satisfaction and job search intentions, as well as, between job search intentions and turnover intentions. A different result concerning the relationship between job satisfaction and external job opportunities was found by Igbaria and Greenhaus. There was a positive relationship between job satisfaction and external job opportunities. The result indicated that employees became more satisfied with their current position when external opportunities were identified. In summary, the studies selected provided ample support of the current hypothesis. There are many determinants of information systems employee turnover that are directly or indirectly related to job satisfaction.

Limitations

Although the hypothesis was supported in this study, some limitations were found. As mentioned in a Chapter Three, several of the studies used small samples of respondents, which increased the chance for random sampling errors. Although Vandenberg and Scarpello used a large sample group, they divided the respondents into two smaller groups: newcomer and tenured. Fifty-five respondents were part of the newcomer group and 338 were part of the tenured group. The researchers were surprised at the result that indicated a nonsignificant relationship between job satisfaction and turnover in the newcomer group. A more even distribution may have changed the results.

Secondly, one of the studies used human resource department personnel to administer the questionnaires used for the research. Although it allowed respondents to receive verbal instructions and assistance, a limitation of the technique may have existed. It is possible that employees did not feel comfortable to respond truthfully to questions because the human resources department was participating in the survey.

A third limitation to the current study is that there was difficulty combining the six studies into one study. Each study focused on different aspects of job satisfaction and different determinants of employee turnover. Results and diagrams presented were based on each individual study due to the different methods employed by the researchers. Better comparisons could have been made if the studies had focused on the same determinants and if the same research statistics were used.

Finally, it was difficult finding historical and current research on information systems employee turnover. An abundant amount of information is available on turnover, but not much research has been focused on information systems professionals. Except for job satisfaction, it would have been hard to discuss on one specific determinant of MIS turnover in detail. It was easy to identify the experts in the area of study because several of the researchers referenced the same studies and experts. It is evident that there is a need for more research to be done in the area of information systems employee turnover. As organizations continue to improve their computer systems and use advanced technology to position themselves against competitors, the importance of hiring and retaining

information systems professionals will increase, and so will the need to study that group of employees.

Suggestions For Future Research

One area where research is warranted is a closer look at female information systems employees and turnover. More and more women are entering the workforce. They are faced with challenges that are different from those experienced by men. For example, working women who are mothers have to find creative ways to balance their responsibilities as mothers and employees. A study that compares the turnover intentions of women and men would help identify the different experiences of the two groups.

A second area where research is needed is the examination of the relationship between information systems employee turnover and geographic location. In locations where there are computer companies and other large companies, information systems professionals are numerous. Locations where there are not many professionals available also pose a problem for MIS and human resource managers. A study of the turnover intentions in those locations will help managers and researchers identity determinants and solutions.

A longitudinal study should be performed to look at employees who gave resignation notices to their employers, were promised increased salaries and promotions by their employers, and accepted the counter offer. Often MIS employees are persuaded by their managers to remain with the company, but, within a year, the employees leave. A study should focus on job satisfaction and turnover intentions after the acceptance of the counter offer.

Finally, there is a need for a longitudinal study of employees who had turnover intentions and left their organizations for new positions. Job satisfaction for the new job should be analyzed. Some employees are unhappy with their jobs, but some employees are unhappy with life experiences and may have problems with any job they accept. The study will help to determine why employees leave their organizations, and identify the characteristics of employees who will always have turnover intentions.

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