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CAREER ANCHORS OF

UNITED STATES AIR FORCE

INFORMATION SYSTEMS WORKERS:

A TURNOVER PREDICTOR?

THESIS

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DEPARTMENT OF THE AIR FORCE

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CAREER ANCHORS OF UNITED STATES AIR FORCE

INFORMATION SYSTEMS WORKERS: A TURNOVER PREDICTOR?

THESIS

Presented to the Faculty

Department of Systems and Engineering Management

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In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Information Resource Management

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March 2002

CAREER ANCHORS OF UNITED STATES AIR FORCE

INFORMATION SYSTEMS WORKERS: A TURNOVER PREDICTOR?

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First Lieutenant, USAF

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Lee A. Wynne

Table of Contents

List of Figures

List of Tables

Abstract

The United States Air Force (AF) has experienced a downward trend in retention of information systems (IS) workers over the past five years. This research draws on the employee turnover model proposed by Mobley et al. (1979) and the work of Schein (1987) to measure the career anchors, job satisfaction, and turnover intention of AF IS workers to determine if those whose job type and career anchor match report higher satisfaction and lower turnover intention than those with a mismatch. A portion of the AF IS workforce (AFSCs 3C0X1, 3C0X2, and 3C2X1; N = 10,133) was surveyed through an online instrument that returned 2,724 responses. Job security, service, and life-style anchors emerged as dominant. Partial support was found showing that job satisfaction is positively influenced by compatibility between job type and career anchor. Partial support was also found for the proposed link between turnover intention and compatibility. The most significant finding was that managerial and technical anchors did not dominate this population. This suggests that AF IS workers do not possess the same career anchors as civilian IS workers and may require different incentives to reduce turnover. Further research should be expanded throughout the AF and should explore other factors in addition to job type/career anchor compatibility as contributing factors.

CAREER ANCHORS OF UNITED STATES AIR FORCE

INFORMATION SYSTEMS WORKERS: A TURNOVER PREDICTOR?

I. Introduction

Overview

The explosive growth and extreme competitiveness of the information systems

(IS) personnel market has caused a power shift away from corporate human resources

departments and business owners and shifted it to the IS workers giving them the

freedom to choose their employer or leave for new jobs almost at will. As a result, some

Fortune 500 companies have reported employee turnover rates between 25-35% (Hayes,

1998) and the average tenure for an IS employee has decreased from 18 months to 13

months (Daniels and Vincant, 2000).

In a recent study, the Information Technology Association of America (ITAA)

found the U.S. workforce of Information Systems (IS) workers is over 10.4 million

strong. This is up four percent from the 10 million they reported in 2000 (Cohen and

Burton, 2001). Neither report included government, non-profit, or small entrepreneurial

firms, which would likely make the number even higher. The ITAA also projects that

companies will attempt to hire an additional 900,000 IS workers in 2001 and that 425,000

of those new positions will go unfilled for lack of qualified people.

In addition to ITAA's findings, the Bureau of Labor Statistics (BLS) reports that

the size of the IS workforce more than doubled between 1988 and 1998. They also

estimate that employment in IS careers overall will grow 117% between 1998 and 2008.

1

Furthermore, the BLS predicts an increase of more than 200% in specialized IS areas such as database administrators, computer engineers, and computer support (BLS, 2001).

Problem Statement

While the U.S. Air Force (AF) is constantly recruiting large numbers of people with the understanding that not all will reenlist, it has set goals for reenlistment rates that largely have been unmet over the past five years. One of the groups hardest hit is the AF's pool of IS workers. Their sagging reenlistment rates are very costly for the AF, both in actual dollars and other, harder to quantify costs, such as loss of continuity, productivity, and the time required to train their replacements. Identifying the variables that contribute to this IS retention problem is very important as an understanding may allow AF leaders to create programs and incentives that appeal to this group, thus improving their retention rates.

Figures 1 through 3 show the reenlistment rates since 1996 for the general enlisted AF population and the three IS career fields that are the focus of this study. The three career fields represented in the figures are from the Communications-Computer Systems (C-CS) umbrella of career fields, specifically 3C0X1 (C-CS Operations), 3C0X2 (C-CS Programmers), and 3C2X1 (C-CS Controllers). These C-CS fields are responsible for "management, administration, operation, security, and restoral of C-CS in the client, server, and network environment, its related operating systems software, hardware, and connectivity" (AFM 36-2108:224). Similar job types have been used in previous research on IS workers (Baroudi, 1988; Igbaria, Greenhaus, and Parasuraman, 1991; Crook, Crepeau, and McMurtrey, 1991; Igbaria and Siegel, 1992; Moore, 2000).

Figure 1 shows the reenlistment rates for first-term airmen (those separating

before their sixth year of AF service). Figure 2 shows rates for second-term airmen

(those separating between six and ten years of service) and Figure 3 shows the rates for

career airmen (those separating after ten years of service). With a couple of exceptions,

the retention rates have improved slightly or have remained unchanged from 1999 to

2000. It is difficult to tell the exact reasons why this happened, although it could be

attributed to initiatives the AF has implemented. These initiatives are further discussed in

the background section of this chapter. It is still clear, however, that the AF has a long

way to go to meet its established retention rates.
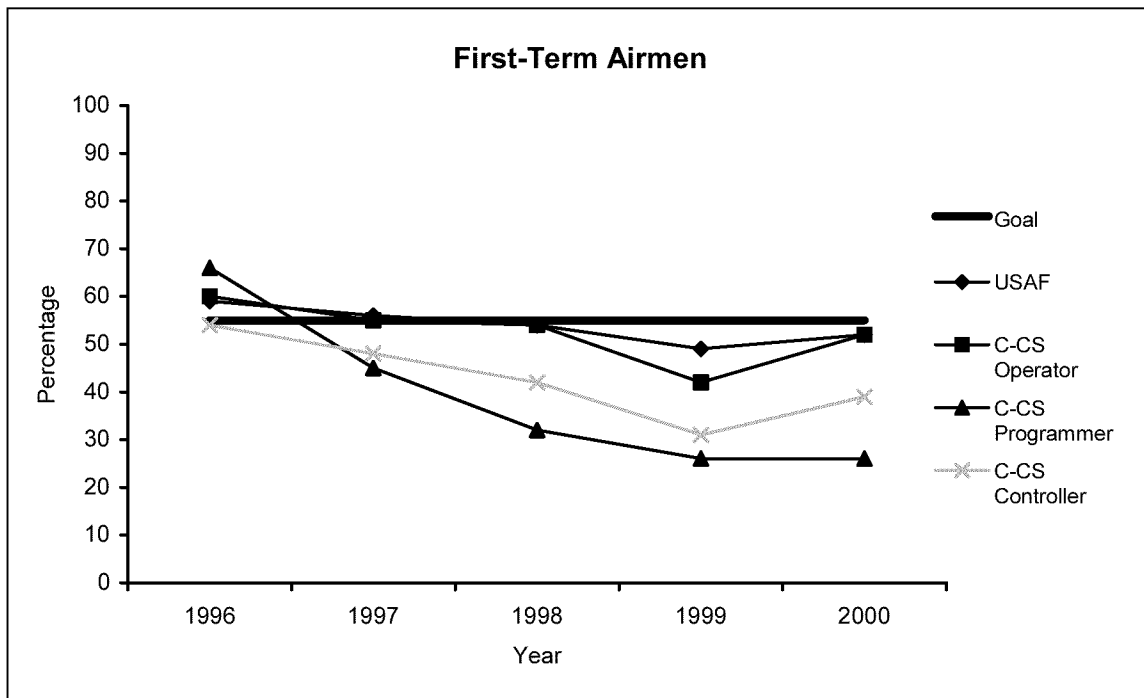
Figure 1: AF First-Term Reenlistment Rates
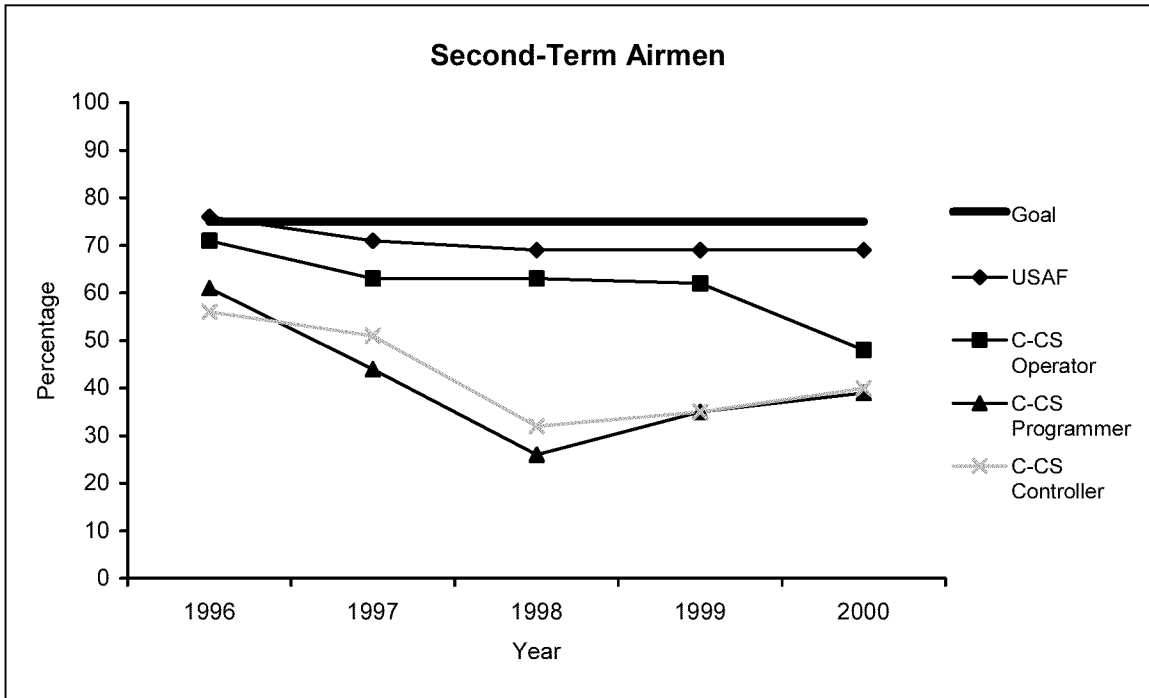
Figure 2: AF Second-Term Reenlistment Rates
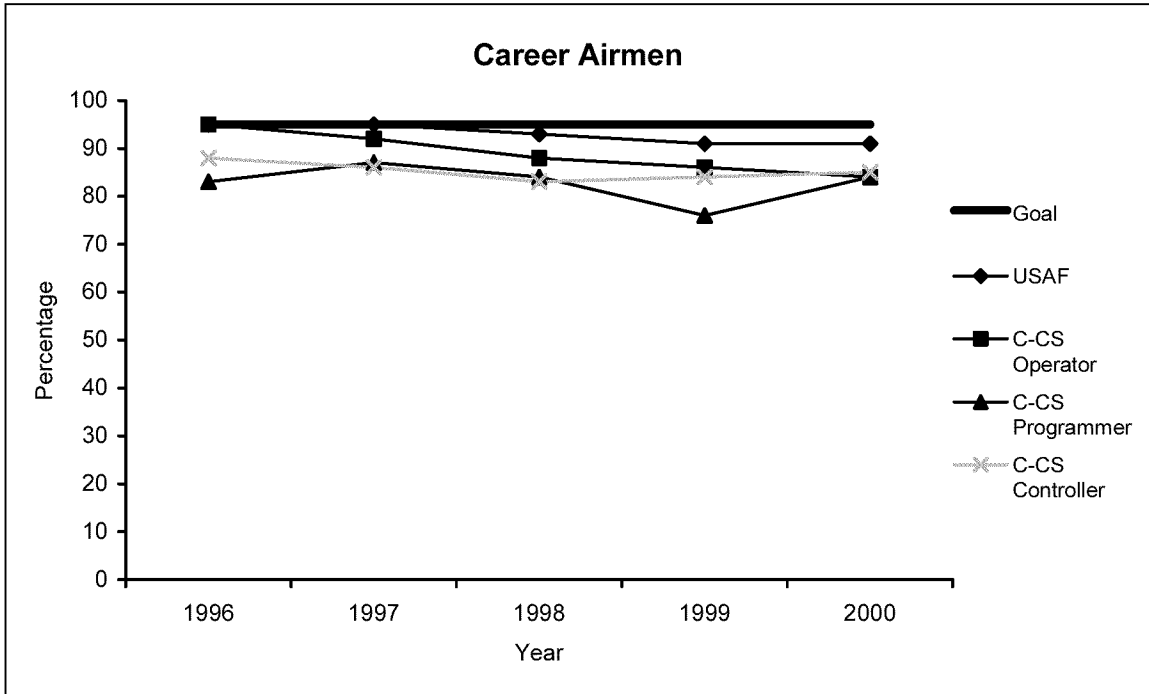
Figure 3: AF Career Reenlistment Rates

As shown in the preceding figures, reenlistment rates of AF personnel over the

past five years have barely met or have been below established goals. In the IS career

fields, retention is consistently and significantly below that of the general AF population.

Though the true cost of employee turnover is difficult to measure, some

businesses estimate the cost at $10,000 to $50,000 per employee while others estimate

that it costs between one to two-and-a-half times the employee's salary (PSI, 2001).

Table 1 shows the cost estimates of personnel separating from the AF.

Table 1: Estimated Turnover Costs for AF Personnel

	Pay Grade	Base Salary	BAH*	BAS	Total	Multiplier	Turnover Cost**
1st Term	E-4 (4 years TIS)	$18,914	$4,716	$2,796	$26,426	1.5	$39,639
2nd Term	E-5 (8 years TIS)	$22,662	$5,424	$2,796	$30,882	1.5	$46,323
Career	E-6 (12 years TIS)	$26,986	$5,976	$2,796	$35,758	1.5	$53,636

TIS = Time in service   BAH = Basic Allowance for Housing   BAS = Basic Allowance for Subsistence
*BAH calculated using average of with dependent and without dependent rate for each rank.
**Cost per person

Source: http://www.dfas.mil/money/milpay/pay/

Even using a conservative multiplier of one and a half times the salary to calculate

turnover costs, it is apparent that this is an expensive problem for the AF. To further

illustrate, Tables 2 through 4 show the estimated costs of the AF's failure to meet the

minimum retention goals for the past five years (Table 5 summarizes all costs). In the

tables, *eligible* is the number of airmen that year who had the option to reenlist, *goal* is

the AF's established retention target, *actual* is the number of airmen who chose to

reenlist, and *shortfall* is the difference between *goal* and *actual*.

Table 2: Estimated Annual Turnover Costs of First-Term IS Personnel

Fiscal Year	Eligible	Goal (55%)	Actual	Shortfall	Cost**	Annual Cost
FY96	1131	622	681	-59	$39,639	-$2,336,719
FY97	904	497	469	28	$39,639	$1,117,820
FY98	914	503	448	55	$39,639	$2,168,253
FY99	798	439	293	146	$39,639	$5,783,330
FY00	768	422	339	83	$39,639	$3,305,893
**From Table 1 (Salary is in FY 2001 dollars)					Total:	$10,038,577

Source: http://www.afpc.randolph.af.mil/afretention/RetentionInformation/Pages/Specific.asp

Table 3: Estimated Annual Turnover Costs of Second-Term IS Personnel

Fiscal Year	Eligible	Goal (75%)	Actual	Shortfall	Cost**	Annual Cost
FY96	999	749	675	74	$46,323	$3,439,483
FY97	652	489	381	108	$46,323	$5,002,884
FY98	557	418	289	129	$46,323	$5,964,086
FY99	575	431	308	123	$46,323	$5,709,310
FY00	465	349	206	143	$46,323	$6,612,608
**From Table 1 (Salary is in FY 2001 dollars)					Total:	$26,728,371

Source: http://www.afpc.randolph.af.mil/afretention/RetentionInformation/Pages/Specific.asp

Table 4: Estimated Annual Turnover Costs of Career IS Personnel

Fiscal Year	Eligible	Goal (95%)	Actual	Shortfall	Cost**	Annual Cost
FY96	1006	956	912	44	$53,636	$2,343,893
FY97	990	941	890	51	$53,636	$2,708,618
FY98	985	936	848	88	$53,636	$4,706,559
FY99	1085	1031	914	117	$53,636	$6,262,003
FY00	1024	973	860	113	$53,636	$6,050,141
**From Table 1 (Salary is in FY 2001 dollars)					Total:	$22,071,214

Source: http://www.afpc.randolph.af.mil/afretention/RetentionInformation/Pages/Specific.asp

Table 5: Summarized Annual Turnover Costs

Fiscal Year	Eligible	Goal	Actual	Shortfall	Total Annual Cost
FY96	3136	2327	2268	59	$3,446,657
FY97	2546	1927	1740	187	$8,829,322
FY98	2456	1856	1585	271	$12,838,899
FY99	2458	1901	1515	386	$17,754,643
FY00	2257	1744	1405	339	$15,968,642
					$58,838,162

While the total estimated turnover costs of the past five years is approximately $59 million, what these calculations have not taken into account are the intangible costs. Such intangible costs include the loss of productivity, increased workload on the remaining workers, delays in critical projects due to low manning, lack of continuity for customers, and the time and training costs associated with orienting a new employee. These costs can be hard to quantify with dollars, but they are real nonetheless.

Background

Mobley, Griffeth, Hand, and Meglino (1979) developed a model as a framework for understanding the employee turnover process. In it, they describe three main contributing factors to turnover: organizational, economic/labor market, and individual. Figure 4 shows a simplified representation of Mobley et al.'s employee turnover model. The full model is represented in Appendix A.
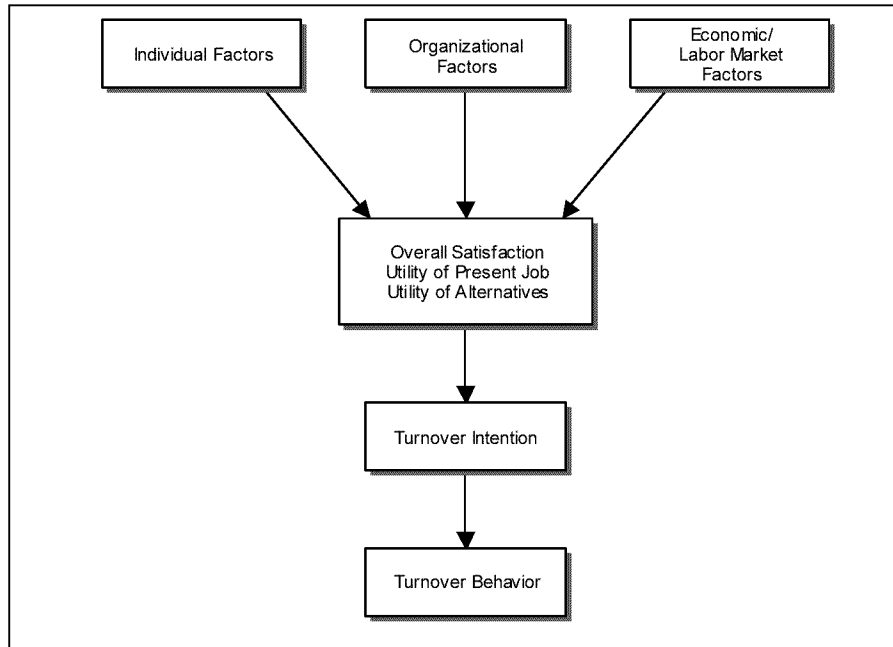
Figure 4: Mobley, Griffith, Hand, and Meglino's Turnover Model (Simplified)

Organizational factors are those that deal with the overall job environment such as pay, working conditions, policies, climate, size, and supervision. Economic/labor market factors consist of things external to the organization such as unemployment rates, job vacancies, job advertisements, and word of mouth information about alternate jobs. Individual factors include a worker's age, tenure, education, interests, personality, aptitude, and family responsibilities (Mobley et al., 1979).

The AF has been working to combat the overall retention problem for several years with initiatives focused on improving pay and allowances, retirement programs, quality of life programs, and care for families. These initiatives include the Air Expeditionary Force structure, reduction in the length of Operational Readiness Inspections, cuts in man-days supporting joint exercises, increases in basic pay, funding for new dormitories and base housing, and increased promotions (AFPC, 2001). Specific

initiatives for the C-CS fields include more on-the-job training, increased reenlistment bonuses, and the proposal for proficiency pay for certified personnel (Snyder, 2001).

While initiatives such as these may be partly responsible for the increased retention rates of some of the IS career fields from 1999 to 2000, they only address the organizational factors that influence turnover, which alone do not appear to have significantly improved retention rates. These programs and initiatives do not address the economic/labor market factors that are beyond the control of the AF and beyond the scope of this research. Furthermore, they do not address the individual factors that contribute to the turnover process. What is needed to better address the retention problem, in addition to the organizational initiatives, is further research into the individual reasons for employee turnover, specifically research into the reasons AF C-CS personnel are separating at a rate higher than the general AF population.

Research Focus

Over the past 20 years, the increased use of information technology in the public and private sectors has spurred research that investigates the reasons IS employees leave their organizations (Baroudi, 1988; Igbaria et al., 1991; Crook et al., 1991; Igbaria and Siegel, 1992; Jiang and Klein, 1999; Moore, 2000). One specific study focuses on the career anchor or career orientation of IS workers and its relation to job satisfaction and turnover (Igbaria et al., 1991). A career anchor is *"that element of our self concept that we will not give up, even if forced to make a difficult choice"* (Schein, 1987:158 italics in original). The theory posits that an employee's career anchor influences the types of jobs he or she will seek out and also affects overall job satisfaction. Job satisfaction, in turn,

has been shown to be consistently and negatively related to turnover (Porter and Steers, 1973, Locke, 1976; Mobley et al., 1979; Griffeth, Hom, and Gaertner, 2000). Thus, consistent with the research, one would expect that a person who is satisfied with their job would be less likely to leave than one who is not.

Another theory proposed by Igbaria et al. (1991) posits that a majority of IS workers are either managerially or technically oriented and those whose job type and career orientation match experience higher levels of job and career satisfaction and thus, lower levels of turnover intention than those with a job type/career orientation mismatch. In the context of the turnover model proposed by Mobley et al. (1979), a person's career orientation would be considered an individual factor and the job type offered by the employer as an organizational factor. A more detailed discussion of career anchors and job types is presented in Chapter 2.

The focus of this research is to determine if AF IS workers whose job type and career anchor match report higher levels of satisfaction and lower turnover intention than those whose job type and career anchor do not match, thus supporting Igbaria et al.'s (1991) theory. If the theory is supported, it may help explain why AF IS retention rates are still low despite numerous incentives and initiatives that have been created in an effort to combat the problem. It may also lend support for the creation of a dual career path for AF IS workers. Dual career paths have been used for several years in the civilian IS industry to improve employee retention in some corporations (Cole- Gomolski, 1999). If the theory is not supported, further research into the combination of individual and organizational factors may be needed.

Summary

This chapter discussed the current retention problems in the AF IS career fields and their cost to the AF. The employee turnover model was presented as a framework for understanding the reasons behind AF IS personnel turnover and the research focus for this study was outlined. The following chapter will review the literature on career anchors and its relation to IS workers. Specific hypotheses concerning the relationship between career anchors, job satisfaction, and turnover intention will be proposed. Chapter three will outline the methodology for conducting the research, to include characteristics of the population and the data collection techniques. Chapter four will provide the results of the data collection, and Chapter five will present the discussion of the findings, limitations of the research, implications for the Air Force, and suggestions for further study.

II. Literature Review

Overview

This chapter reports on the literature concerning career anchors and defines the constructs involved in measuring the proposed link between career anchors, job satisfaction, and turnover intention. Based on the literature reviewed and the definitions provided, a limited model of employee turnover, as it relates to career anchors, is presented.

Career Anchors Defined

A career anchor is defined as *"that element in our self concept that we will not give up, even if forced to make a difficult choice"* (Schein, 1987:158 italics in original). Career anchor research suggests that a person's career anchor will influence the types of jobs he or she will take and will affect their job satisfaction and organizational commitment (DeLong, 1982; Schein, 1985; Schein, 1987; Igbaria et al., 1991). For example, Igbaria et al. (1991) found that IS workers whose job type and career anchor did not match had lower levels of job satisfaction and organizational commitment than those whose job type and career anchor matched. Schein (1975:11) said that career anchors "…not only influence career choices, but also affect decisions to move from one company to another…" If this is true, identifying and understanding career anchors is important not only for the individual, but for companies who wish to retain valued employees.

Origin of Career Anchor Theory

The concept of career anchors came from Edgar H. Schein's study of managerial careers. Forty-four graduate students at the Sloan School of Management at the Massachusetts Institute of Technology were surveyed and interviewed in 1961, 1962, and 1963 to measure their values and attitudes (Schein, 1987). These students were then given periodic surveys through the tenth to twelfth years of their careers. In the final 1973 interview, the subjects were asked to give a detailed account of their career history, noting the major career decisions they had made, their reasons for making them, and their feelings about each subsequent change. The result of that study and other similar interviews with several hundred other people in various stages of their careers was the creation of the career anchor concept (Schein, 1975).

The original work of Schein has been refined and expanded over time; the current product is a conceptual framework for measuring and understanding a person's career anchor. The framework varies slightly among researchers, but Schein's model consists of the following eight career anchors: security/stability, autonomy/independence, technical/functional competence, managerial competence, entrepreneurial, sense of service, pure challenge, and life-style integration (Schein, 1987). Table 6 summarizes the career anchors reported by Schein (1987). A detailed discussion of each anchor is contained in Appendix B.

Table 6: Schein's (1987) Reported Career Anchors

Security/Stability	This anchor includes both geographical security (people who link themselves to a certain geographic region or put down roots in a community) and organizational/job security.
Autonomy/Independence	People with this anchor seek work that allows them to be largely free from organizational restrictions.
Technical/Functional	People with his anchor focus on the technical nature of the work and normally do not wish to move into general management.
Managerial	This anchor is concerned with the desire to supervise, lead, and manage people as well as coordinate their work.
Entrepreneurship	Individuals with this anchor may feel the need to create a business or develop a product or service of their own.
Service/Dedication	People with this anchor want to contribute to the greater good and wish to make the world a better place to live and work.
Pure Challenge	This anchor includes those with the need to overcome almost impossible obstacles and succeed in difficult situations.
Life-Style Integration	Individuals with this anchor want to balance their careers with their families and their own individual growth.

Distribution of Career Anchors

Throughout the 1970s and 1980s, Schein consistently found that managerial and technical anchors dominated the workforce. He found that approximately 25% of the population in his studies were managerially anchored, and another 25% were technically anchored. The autonomy and security anchors held approximately 10% each, and the remaining was divided among the other anchors (Schein, 1996). Igbaria et al. (1991) found similar results in their study of Association of Computing Machinery (ACM) personnel. They reported that approximately 22 percent of their sample was technically anchored and 26 percent was managerial. Autonomy ranked third with 14 percent and the other five anchors ranged between 5 and 10 percent.

14

Other career anchor researchers, however, have found significantly different results than those of Schein and Igbaria et al. (Baroudi, 1988; Ginzberg and Baroudi, 1992; Crepeau, Crook, Gosler, and McMurtrey, 1992). These differences may be explained by considering the different survey instruments and/or populations used in each study. Each study is discussed in the following paragraphs.

Baroudi (1988) found that IS personnel in his sample had a wide variety of career anchors and that managerial and technical did not dominate. Baroudi, however, used the older version of the Career Orientation Inventory (COI) developed by DeLong (1982). This COI uses five of Schein's original anchors (managerial, technical, security, service, and autonomy), but includes identity, variety, and creativity anchors instead of pure challenge, life-style, and entrepreneurial. DeLong (1982) and Schein (1985) use some of the same questions to measure the common anchors, but the wording on many questions is different between the two instruments. Furthermore, DeLong (1982) has two additional questions to measure technical and autonomy, one additional question to measure service, and different wording on many of the security and managerial questions. Also, Baroudi (1988) limited his study to IS personnel at two New York City banks, which may have contributed to the differences of the results.

Baroudi (1988) also found that scores for certain career anchors tended to covary. For example, he found a strong relationship between the technical, autonomy, security, and creativity anchors. He also found an association between managerial, organizational security, and service. Similar findings on the relationship between various anchors were also reported by Crepeau et al. (1992). These relationships will be discussed further in the next section.

Ginzberg and Baroudi (1992) used a modified COI that incorporated anchors from Schein (1985) and DeLong (1982). Their study expanded the number of constructs from eight to eleven measuring managerial, technical, challenge, entrepreneurship, service, autonomy, life-style, creativity, organizational identity, geographic security, and job security. However, in an effort to keep the survey short, they reduced the number of questions for each anchor from five to three. This may have affected the overall reliability of the instrument. Their population consisted of "IS technical, development, and management personnel" at four Fortune 500 sized companies (Ginzberg and Baroudi, 1992:43). The authors purposefully eliminated IS operations personnel because they "generally have different career options from those of other IS personnel, and often they are categorized as clerical rather than professional staff" (Ginzberg and Baroudi, 1992:43).

Crepeau et al. (1992) also used the COI developed by Delong (1982), but divided the security anchor into organizational and geographical security, thus giving them nine total. They also found a wide variety of career anchors and that managerial and technical did not dominate. This is consistent with the findings of Baroudi (1988). However, Crepeau et al. (1992) performed a second-order factor analysis on their sample and discovered findings similar to Baroudi (1988) in that certain career anchors tended to cluster together. They labeled these clusters, "career dimensions." These dimensions will be discussed in the next section.

Finally, Igbaria and Baroudi (1993) attempted to create a short-form version of the COI. They surveyed members of the Mid-Atlantic Data Processing Management Association (DPMA). The goal of their study was to reduce the original COI from 41

questions to 25. However, the reliability of the new short form appeared to be less than that of the original COI. A summary of reviewed career anchor literature is listed in Table 7.

Table 7: Summary of Applicable Career Anchor Studies

Study	COI	Population	n =	Major Findings
Baroudi (1988)	Older COI (Delong, 1982)	IS personnel at 2 NYC banks	99	Measured 9 anchors. IS career anchors varied widely. Managerial and technical did not dominate. Certain anchors grouped together.
Ginzberg and Baroudi (1992)	Modified COI	IS personnel at 4 Fortune 500 sized firms in the US	394	Measured 11 anchors. Found variety of anchors. Managerial and technical did not dominate.
Crepeau et al. (1992)	Older COI	IS personnel from 7 firms in the US Southeast	321	Measured 8 anchors. Found variety of anchors. Certain anchors clustered together.
Igbaria et al. (1991)	Newer COI (Schein, 1985)	ACM members in the US Northeast	464	Measured 8 anchors. Found variety of anchors. Managerial and technical dominated.
Igbaria and Baroudi (1993)	Newer COI (short-form)	DMPA members	396, 161	Inconclusive results in their attempt to create a shorter version of the original COI

From the information available, it is difficult to determine if differences in the survey instrument, population sample, or some other variable caused the inconsistent results between the studies. However, the fact that researchers are still attempting to refine the COI, are not using the same instrument to measure career anchors, and that they do not agree on the distribution of career anchors is, in itself, cause for further study. This study, however, uses the COI created and revised by Schein (1985) and is modeled after the work of Igbaria et al. (1991). Therefore, the patterns of career anchors in AF IS workers is expected to be consistent with their findings, i.e., AF IS personnel will possess various career anchors and managerial and technical anchors will dominate.

17

Career Anchors versus Career Dimensions

Schein (1985) suggests that a person can only have one career anchor and that a person's true anchor is the one with the highest score, relative to the others. However, as shown by Igbaria et al. (1991), one potential drawback in assigning an anchor using that methodology is that survey respondents who are not managerially or technically anchored, approximately 50 percent of their sample, will be discarded when matching job type with career anchor (job type will be discussed in the next section). To overcome this apparent limitation, this study will also use *career dimensions* as suggested by Crepeau, Crook, Goslar, and McMurtrey (1992). They found that certain "clusters" of career anchors made up three higher-level career dimensions: leadership, stability, and technical.

The first dimension, leadership, includes the managerial, service, identity, and variety anchors, all of which are related to managerial qualities (Crepeau et al., 1992). The instrument used by Crepeau et al. (1992) was developed by DeLong (1982) and contains the anchors creativity, identity, and variety in place of entrepreneurship, challenge, and life-style integration. The instruments, however, are similar and both have been used in career anchor research. The second dimension, stability, includes people who "tend to do what is required of them by their employers to maintain job security, a decent income, and a stable future in the form of a good retirement program, benefits, and so on." (Crepeau et al., 1992:154). This dimension loaded significantly with the organizational stability anchor. The third dimension, technical, describes people who are challenged by their actual work. "These individuals are interested in attaining competence in a particular area of expertise. Those adopting this anchor desire to be

recognized for their talents, demonstrating expertise respected by those in the field"
(Crepeau et al., 1992:154).

This research will assign anchors in two ways. First, a true career anchor will be assigned for each respondent using Schein's (1985) method of selecting the anchor with the highest relative score. Second, following the suggestion of Crepeau et al. (1992), a career dimension will also be assigned to each respondent based on the highest relative score of certain "clustered" career anchors. The second method should provide a larger usable sample size (when comparing anchors to job types) and help determine whether those people with a career anchor (as defined by Schein) are similar to those with a career dimension (as defined by Crepeau et al.). Because the career dimension is comprised of a cluster of the individual's most dominant career anchors, it is expected that the characteristics of those with career dimensions will be similar to those with career anchors. To illustrate, using Schein's method, a person is assigned *Service* as their career anchor because it received the highest relative score on the COI. However, their reported score for the *Managerial* anchor was only slightly lower than *Service*. Using Crepeau et al.'s approach, this same person would likely be assigned a *Leadership* career dimension because of the "clustering" of the *Service* and *Managerial* career anchors.

While no studies to date have attempted to assign career dimensions from the constructs in Schein's career orientations inventory (COI), it is assumed that they will be similar to Crepeau et al. (1992). Thus, consistent with findings of prior research and the COI chosen for this study, the following hypotheses are proposed:

19

H1a: The dominant career anchors of AF IS personnel will be managerial and technical.

H1b: Career anchors will cluster together, creating three career dimensions: leadership, stability, and technical.

H1c: The dominant career dimensions of AF IS personnel will be leadership and technical.

Job Types

In establishing a basis for comparing technical versus managerial jobs in their sample of ACM members, Igbaria et al. (1991) used job titles such as systems programmers, applications programmers, and software engineers to represent technical jobs. For managerial jobs, they used titles such as computer managers, systems analysts, and project leaders. While these job titles may be representative of the general IS workforce, they do not convert well to job types or duty descriptions in a military population. Therefore, this study will use existing AF survey results to classify personnel into managerial or technical job types.

The Air Force Occupational Measurement Squadron (AFOMS, 1999) released its Occupational Survey Report on the 3C0X1 and 3C2X1 career fields. Among other things, they analyzed the duty descriptions of approximately 4,700 workers in the two career fields. The study identified 16 job types including network security, systems administration, and network administration. The following are some examples of the duties for those jobs.

<u>Network Security</u>
- Review incoming or outgoing network logs for suspicious traffic
- Monitor network events, such as invalid log-ons
- Analyze statistical data, such as systems availability, traffic, or user log-ons

<u>Network Administration</u>

- Assist users in resolving computer software malfunctions and problems
- Answer trouble calls from end users dealing with network outages
- Troubleshoot network log-ons for end users
- Configure network software for end users
- Install network software for end users

<u>Systems Administration</u>

- Assist users in resolving computer software malfunctions or problems
- Configure operating systems, such as UNIX or NT Server
- Install computer hardware for end users
- Assist customers in preparation of help desk requests
- Analyze computer performance measurement data

Based on the duties performed by personnel in the jobs above, they will be considered technical in nature. The AFOMS study also identified a supervisor/manager job as one in which the respondents reported spending more than 41 percent of their time performing "management and supervisory activities" (AFOMS, 1999:12); these job types will be considered managerial. Below are some examples of supervisory/managerial duties from the AFOMS study.

<u>Supervisor/Manager</u>

- Write or endorse military performance reports
- Counsel subordinates concerning personal matters
- Write recommendations for awards or decorations
- Evaluate personnel for compliance with performance standards
- Interpret policies, directives, or procedures for subordinates

For the 3C0X2 (C-CS Programmer) field, the specific job description is much narrower than that of the 3C0X1 and 3C2X1 fields. While workers in the 3C0X1 and 3C2X1 fields can work in almost any of the job clusters described above, the C-CS

Programmers are generally limited to the jobs that fit the duty description below

(AFMAN 36-2108:228):

- Supervise and perform C-CS software analysis, design, and programming
- Develop computer systems programs and procedures
- Interpret specifications, formats, testing, maintaining, and modifying programs
- Analyze and design automated systems
- Prepare documentation of proposal specifications and programs
- Perform program and documentation maintenance

Based on the description above and the close relation to the technical job types

identified by Igbaria et al. (1991), job types for C-CS Programmers (database

administration, systems analysis/design, and computer programming) will be considered

technical. Also, consistent with the C-CS Operators and C-CS Controllers, this study will

classify those 3C0X2 personnel who report spending more than 41 percent of their time

performing supervisory or management duties as managerial job types.

Compatibility

The central theme for this research is the investigation of the effect of job

type/career anchor compatibility on satisfaction and turnover intention. Igbaria et al.

(1991) give the following definition of job type/career anchor compatibility.

> A job is compatible with a career orientation when it involves job duties and
> assignments that the employee finds interesting, when it requires abilities that the
> employee possesses and values, and when it provides rewards that the employee
> finds desirable (p. 153).

Compatibility indicates whether or not a worker's job type and career anchor

match. For example, a managerial job would be considered compatible with a

managerially anchored person, but a managerial job would be considered incompatible

with a technically anchored person.

To date, Igbaria et al. (1991) are the only researchers to investigate the effect of job type/career anchor match on job satisfaction and turnover intention in IS personnel. Understanding this relationship, though, is of central importance to the AF as it may help explain the sagging reenlistment rates of its IS workforce. Also, understanding one's career anchor can help the individual in career planning and decision-making. Schein described the importance of knowing one's career anchor as follows:

> You may wonder why it is important to know your career anchor. When you confront career choices, it is important to make those choices in a manner consistent with what you *really* value. Your career anchor reflects the pattern of factors that you really do not want to give up, because they represent your real self. Most of us do not realize what we truly would not give up, if forced to make a choice, so we are vulnerable to being persuaded into choices that later turn out to be mistakes. The goal of the career anchor activities is to help you gain the self-insight that would prevent such mistakes (Schein, 1985:1 italics in original)

Thus, knowledge of the career anchor gives people power to make informed choices throughout the course of their careers. Knowledge of the anchor can also, as Schein stated, help prevent career decision mistakes. This concept may be useful in helping to explain the relationship between job satisfaction and employee turnover. For example, Igbaria et al. (1991) found that people whose job type matched their career anchor had greater job satisfaction and lower turnover intention than those whose job type and career anchor did not match. According to Schein, those people may have mistakenly taken jobs that were incompatible with their career anchor because they had no knowledge of their true anchor. A person can discover his or her own career anchor by completing the self-assessment exercise presented by Schein (1985).

Knowledge of career anchors is also important from the organizational perspective. Employers who know the career anchors of their workers may be in a

position to offer certain job types, working conditions, or incentive packages compatible

with the anchors of their employees such as dual career paths for technicians and

managers (Moravec, 1998; Cole-Gomolski, 1999). Other incentives such as flexible

work hours, productivity-based bonuses, or quality of life initiatives may appeal to those

with other anchors such as autonomy, stability, or life-style. Thus, recognizing the value

of the compatibility of one's job type and career anchor and its proposed link to turnover,

the following modified turnover model (Figure 5) is proposed and discussed in the

following paragraphs.
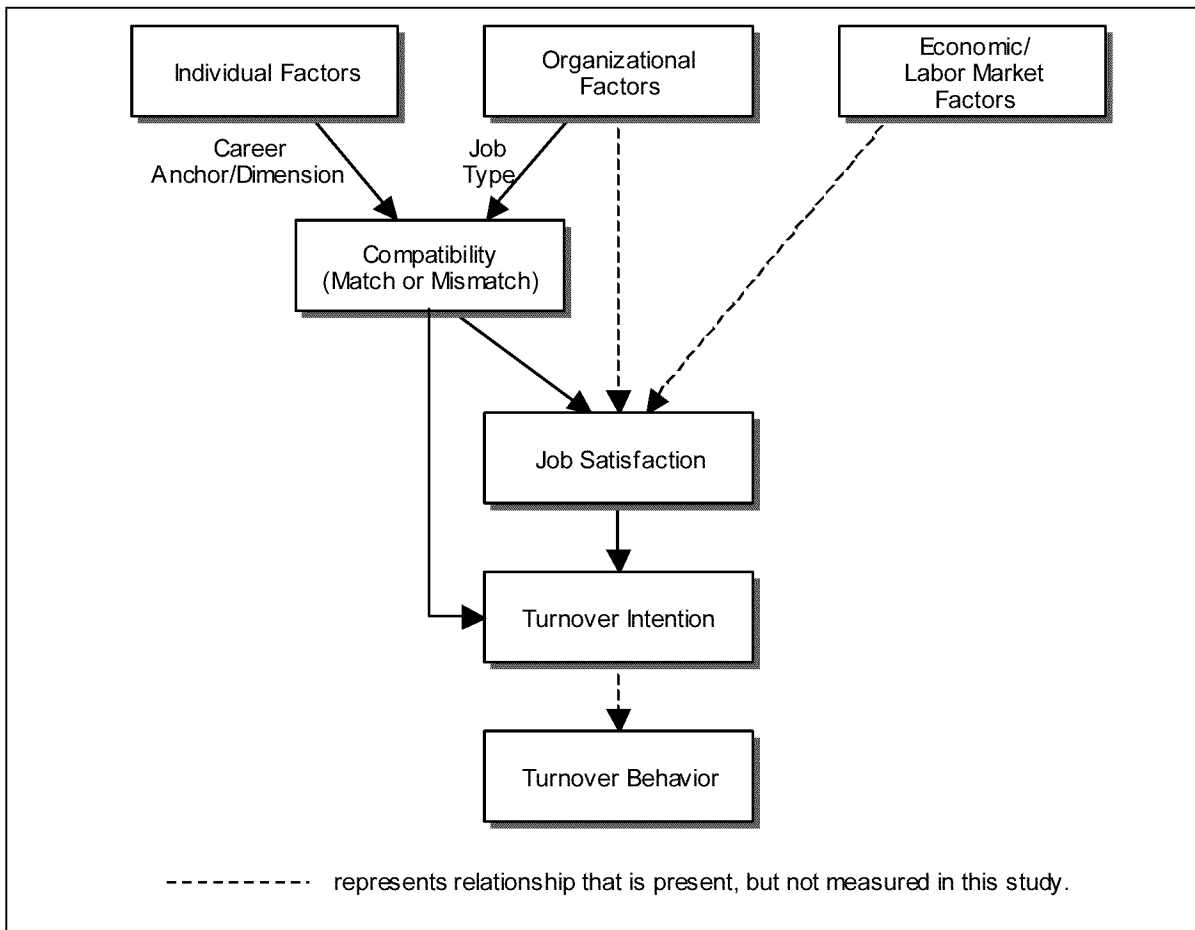
Figure 5: Proposed Employee Turnover Model

Job Satisfaction

The American Heritage Dictionary defines satisfaction as "the fulfillment or gratification of a desire, need, or appetite." Researchers have defined job satisfaction has "…the overall degree to which the employee is satisfied and happy with the job" (Hackman and Oldham, 1975:162) and "…the emotional reactions of individuals to their job and its experiences" (Igbaria and Siegel, 1992:325). The definition of job satisfaction by Hackman and Oldham (1975) encompasses many aspects of the working environment, including an employee's satisfaction with pay and rewards. Some researchers have also suggested that pay satisfaction is related to employee turnover (Mobley et al., 1979; Crepeau et al., 2000; Moore, 2000). In fact, in a recent AF retention survey, the two leading causes of turnover in AF IS workers were the availability of comparable civilian jobs, and pay and allowances (Snyder, 2001). Therefore, this study will measure job satisfaction based on Hackman and Oldham's (1975) definition because it includes a measure of pay satisfaction.

Several World Wide Web sites were consulted to gather information on the reported salaries of IS workers in the private sector (Computerworld.com, 2001; Datamasters.com, 2001; Dice.com, 2001; RHI Consulting, 2001). The survey results seem to indicate that civilian IS workers earn sometimes more than twice what AF IS workers earn; however, comparison of the results is difficult without knowing the demographic information of the respondents, their education levels, or level of professional certification. While the online reports did not specify the demographics of their samples, the survey from Dice.com did report the number of years of experience for each respondent. For comparison, a representative selection of job types that closely

match those found in AF IS workers was selected, along with the number of years of experience that represent a first-term, second-term, and career enlisted IS worker (4, 8, and 12 years, respectively). The survey results also list the average salary by age group. Table 8 shows salary comparisons between the two groups.

Table 8: Civilian/Military IS Salary Comparison

Dice.com			
		Experience	
Job Title	~4 yrs	~8 yrs	~12 yrs
Security Analyst	$62,848	$79,400	insf data
Help Desk	$39,477	$51,417	insf data
DB Administrator	$71,098	$90,444	$88,750
Sys Admin	$58,059	$70,940	$73,154
Tech Support	$45,769	$53,147	$45,600
WAN Specialist	$59,944	$58,500	$68,667
Applications Developer	$66,484	$70,716	$75,000
Income by age:	17-24	25-29	30-39
	$40,726	$51,492	$60,749
USAF C-CS			
	1st Term	2nd Term	Career
Basic Salary	$26,426	$30,882	$35,758
Typical Reenlistment Bonus (annual)*	$6,567	$9,440	$5,620
	$32,993	$40,322	$41,378
*http://www.afpc.randolph.af.mil/enlskills/documents/srbcomp.htm			

The report data from Dice.com shows significant differences for certain job types between the military and civilian IS workforce. However, without more information on the nature of the sample represented, one can only speculate on the reasons for these results. But, information like this may help explain the reason AF IS workers listed civilian jobs and pay and rewards as the top two reasons for separating.

While the differences in reported salaries are significant, the difference between the average salaries by age group is less significant. The education level of the two

populations may also help explain this difference. For example, nearly 95 percent of

Igbaria et al.'s (1991) ACM sample had completed at least a Bachelor's degree. Moore

(2000), in her study of work burnout in IS professionals reported that approximately 75

percent of her sample of Association of Information Technology Professionals (AITP)

possessed at least a Bachelor's degree. These findings stand in stark contrast to the

population of AF IS workers. Demographic data from the Air Force Personnel Center

collected in July, 2001 shows that a total of only 7 percent of 3C0X1, 3C0X2, and

3C2X1 personnel possess at least a Bachelor's degree, although approximately 86 percent

have between 1 and 3 years of college, including those with Associate's degrees. These

statistics may help explain why the younger workers in the Dice.com survey reported

lower salaries than the representative job types in Table 8. It's possible that the lower

salaries for the younger age groups may attributable to lower education levels and years

of experience, which may be more representative of those that a majority of AF IS

workers (see Table 9 for AF IS worker demographics).

There are also many other factors to consider when calculating a military

compensation package. For example, of the $26,426 base salary for a first-term AF IS

worker, only $18,914 is actually taxable. AF workers are also provided with 100 percent

medical and dental coverage, 75 percent tuition assistance for higher education and

professional certifications, and 30 days paid leave each year, beginning their first year of

service. Military members are also provided access to fitness centers free of charge, tax-

free retail shopping, and commissary facilities (grocery stores) that sell goods an average

of 29 percent cheaper than those off base

(http://www.afpc.randolph.af.mil/enlskills/benefits.htm, Aug 1, 2001).

While one cannot deny the existence of a pay gap between military and civilian IS workers, pay alone is only one factor in the job satisfaction equation. Other factors include the work environment, supervisors, coworkers, leadership, and the nature of the work (Hackman and Oldham, 1975). Also, because this study is not comparing AF workers with non-AF workers, pay satisfaction is expected to be constant and should not introduce bias into the study, although it may lower overall satisfaction.

Finally, though, the focus of this study is the interaction between job type and career anchor/dimension and its affect on job satisfaction and turnover intention. Thus, based on the proposition by Igbaria et al. (1991) that job satisfaction is affected by the compatibility between one's job type and career anchor and based on findings of Crepeau et al. (1992) that certain career anchors "cluster" together to form career dimensions, the following hypotheses are proposed.

> *H2a: AF IS personnel whose job type and career anchor match will experience higher job satisfaction than those whose job type and career anchor do not match.*

> *H2b: AF IS personnel whose job type and career dimension match will experience higher job satisfaction than those whose job type and career dimension do not match.*

Turnover Intention

Turnover intention is a worker's stated intent to leave an organization. In the AF it is discussed in the context of reenlisting. While turnover intention does not measure actual turnover, intent has been used extensively in the research and is considered one of the best leading indicators of actual turnover (Kraut, 1975; Mobley et al., 1979; Newman, 1974; Waters et al., 1976). The AF's own research into retention uses "career intent" as a leading indicator of actual turnover (Hamilton, 2001). Griffeth et al. (2000) also

conclude that quit intentions are the best predictor of turnover, except for job search behaviors. However, such job search behaviors are not easily measured in a military population because personnel are confined to specific enlistment contracts. For example, an individual in the second year of a six-year enlistment contract may not exhibit search behavior due to the years remaining on the contract, but might express the intention to quit at that early stage.

Research shows that turnover intention is negatively correlated with job satisfaction (Mobley et al., 1979; Griffeth et al., 2000) and Igbaria et al. (1991) reported that IS workers with a compatible job type and career anchor had higher levels of satisfaction and lower turnover intentions than those who did not. Therefore, recognizing the value of the compatibility of one's job type and career anchor and its proposed link to turnover intention, the following hypotheses are proposed.

> *H3a: AF IS workers whose job type and career anchor match will exhibit lower turnover intentions than those whose job type and career anchor do not match.*

> *H3b: AF IS workers whose job type and career dimension match will exhibit lower turnover intentions than those whose job type and career dimension do not match.*

Summary

Career anchor theory was created by MIT Professor, Edgar H. Schein in the mid-1970's and has since been adapted by researchers to help explain turnover in IS workers. While the exact names and distribution of the various anchors vary by researcher, some researchers agree on the existence of similarities between certain anchors (Schein, 1987; Baroudi, 1988; Igbaria et al. 1991; Crepeau et al., 1992). Crepeau et al. (1992) found similarities among the anchors and suggested the creation of three career dimensions

(*Leadership*, *Technical*, and *Stability*) as a more effective way to categorize IS workers' career anchors.

Igbaria et al. (1991) found that nearly half of the workers in their sample of ACM members were either technically or managerially anchored. They also suggested a link between the compatibility of job type and career anchor, job satisfaction, and turnover intention. Their findings support the creation of managerial and technical career paths similar to the ones that some private businesses have implemented to reduce employee turnover. Dual career paths are designed to attract and retain talented technical workers by offering them promotions and pay raises that are comparable to that received by managers, thus eliminating the need for these technically-anchored workers to move into managerial positions for equitable pay. However, Igbaria et al.'s research was limited because half of their sample possessed an anchor other than managerial or technical. This study will attempt to overcome that limitation by assigning survey respondents a career anchor as well as a career dimension.

The employee turnover model, based on the research of Mobley et al. (1979) and presented in Figure 5, is the basis for this study. This research will investigate the compatibility of individual factors (career anchor/dimension) and organizational factors (job type) on job satisfaction and turnover intention in AF IS workers. If the proposed link is supported by the research, it would provide evidence to support the creation of a dual career path for AF IS workers to help combat sagging reenlistment rates, similar to that seen in civilian industry (Cole-Gomolski, 1999). If not, research into other individual and organizational factors may be needed to help stem the tide of separating IS personnel.

The following chapter will outline the research methodology to test the hypotheses suggested in this chapter. Chapter 4 will detail the analysis of the data and Chapter 5 will discuss the research findings, any limitations, as well as suggestions for further research into this area.

III. Methodology

Overview

The preceding chapters discussed the current state of the information technology market, the sagging retention rates of AF IS workers, and background information on the concept of career anchors and their suggested relation to job satisfaction and turnover intention. The theory brought forward is that AF IS workers whose job type and career anchor are compatible will exhibit higher levels of job satisfaction and lower turnover intention than those whose job type and career anchor are incompatible. This chapter will outline the methodology to investigate the research hypotheses proposed in Chapter 2. It includes a description of the population under study, data collection methods, development of the survey instrument, and the statistical techniques that will be used to analyze the data.

Relevant Population

The population chosen for this research is comprised of enlisted personnel in the 3C0X1, 3C0X2, and 3C2X1 career fields. As stated in Chapter 2, these personnel are the AF's equivalent of IS workers. This study will exclude airmen with less than one year time in service because typical AF enlistees spend their first three months of service in Basic Military Training, and, for the IS workers, approximately another three months in their initial technical school. Excluding these workers will ensure that survey respondents have had adequate time at their current assignment to acclimate to the AF and develop some job proficiency. Also excluded are personnel in the highest enlisted

grade, Chief Master Sergeant (CMSgt). When AF members from any 3CXXX career field are promoted to CMSgt they are normally assigned to jobs with broad managerial roles and their AFSC changes to 3C0X0. This AFSC change signifies that that they are capable of working/managing anywhere within the 3CXXX umbrella of career fields, not strictly in the three fields under study. Also, CMSgts are sometimes selected for special duty positions or as advisors to senior Air Force leaders. These types of jobs remove them from their career field duties. Table 9 shows the demographic characteristics of the three career fields under study, excluding those with less than one year time in service and CMSgts.

Table 9: Demographics of Survey Population

Variables	3C0X1		3C0X2		3C2X1		Total	
MAJCOM								
ACC	2226	31.4%	457	38.7%	541	28.9%	3224	31.8%
AETC	529	7.5%	95	8.0%	169	9.0%	793	7.8%
AFMC	543	7.7%	270	22.8%	110	5.9%	923	9.1%
AFSOC	87	1.2%	3	0.3%	24	1.3%	114	1.1%
AFSPC	408	5.8%	39	3.3%	174	9.3%	621	6.1%
AMC	776	11.0%	58	4.9%	211	11.3%	1045	10.3%
PACAF	819	11.6%	4	0.3%	254	13.6%	1077	10.6%
USAFE	1010	14.3%	63	5.3%	232	12.4%	1305	12.9%
Other	682	9.6%	193	16.3%	156	8.3%	1031	10.2%
Total	**7080**	**100%**	**1182**	**100%**	**1871**	**100%**	**10133**	**100%**
Rank								
AB	20	0.3%	3	0.3%	4	0.2%	27	0.3%
Amn	141	2.0%	11	0.9%	31	1.7%	183	1.8%
A1C	1218	17.2%	118	10.0%	407	21.8%	1743	17.2%
SrA	1364	19.3%	157	13.3%	413	22.1%	1934	19.1%
SSgt	2060	29.1%	325	27.5%	423	22.6%	2808	27.7%
TSgt	1359	19.2%	308	26.1%	318	17.0%	1985	19.6%
MSgt	882	12.5%	254	21.5%	242	12.9%	1378	13.6%
SMSgt	36	0.5%	6	0.5%	33	1.8%	75	0.7%
Total	**7080**	**100%**	**1182**	**100%**	**1871**	**100%**	**10133**	**100%**
Career Level								
First-Term (0 < 6 yrs)	2773	39.2%	316	26.7%	904	48.3%	3993	39.4%
Second-Term (6 - 12 yrs)	1512	21.4%	212	17.9%	253	13.5%	1977	19.5%
Career (>12 yrs)	2795	39.5%	654	55.3%	714	38.2%	4163	41.1%
Total	**7080**	**100%**	**1182**	**100%**	**1871**	**100%**	**10133**	**100%**
Age Group								
17-24	2204	31.1%	241	20.4%	700	37.4%	3145	31.0%
25-34	2756	38.9%	364	30.8%	607	32.4%	3727	36.8%
35-44	2065	29.2%	552	46.7%	541	28.9%	3158	31.2%
45+	55	0.8%	25	2.1%	23	1.2%	103	1.0%
Total	**7080**	**100%**	**1182**	**100%**	**1871**	**100%**	**10133**	**100%**
Gender								
Female	1341	18.9%	73	6.2%	180	9.6%	1594	15.7%
Male	5739	81.1%	1109	93.8%	1691	90.4%	8539	84.3%
Total	**7080**	**100%**	**1182**	**100%**	**1871**	**100%**	**10133**	**100%**
Education Level								
HS/GED - 59 Sem Hrs	4008	56.6%	372	31.5%	898	48.0%	5278	52.1%
Associates's Degree	1309	18.5%	340	28.8%	351	18.8%	2000	19.7%
60+ Sem Hrs	1334	18.8%	288	24.4%	506	27.0%	2128	21.0%
Bachelor's Degree	356	5.0%	158	13.4%	102	5.5%	616	6.1%
Master's Degree	31	0.4%	18	1.5%	5	0.3%	54	0.5%
Unknown/Other	42	0.6%	6	0.5%	9	0.5%	57	0.6%
Total	**7080**	**100%**	**1182**	**100%**	**1871**	**100%**	**10133**	**100%**

Survey Development

The survey instrument for this study is based on the career anchor theory discussed in Chapter 2 and is modeled after Igbaria et al.'s (1991) study of career orientations of IS workers. To enhance reliability and validity, all of the measures used in this study are adapted from existing instruments. Measurement constructs are discussed in the following sections. The complete list of survey questions is contained in Appendix C.

<u>Career Anchor</u>

The 41-item career anchor portion of the survey is taken directly from Schein (1985) and its construct validity has been tested in other research by Igbaria et al. (1991) and Igbaria and Baroudi (1993). Results from both studies show the alpha internal reliability coefficient of some of the career anchor constructs as high as .93. Most constructs range in the .70 to .85 range; however, a few alpha coefficients range between .60 and .70.

Career anchors were assigned according to the method prescribed by Schein in that the anchor with the highest score, relative to the others, is the dominant anchor. Schein (1985) graded each question with a ten-point Likert-type scale. Other career anchor research has used five- and six-point scales (Crepeau et al., 1992; Igbaria et al., 1991). This research adopts a seven-point scale to ensure sufficient resolution and to maintain consistency with the job satisfaction and turnover intention variables that are both based on seven-point scales.

Career Dimension

Career dimensions were created based on career anchor groupings derived from a second order factor analysis of career anchor mean scores (Crepeau et al., 1992). After the dimensions were discovered, the researcher averaged those mean scores of the anchors that were shown to make up each dimension. The one with the highest average was assigned as the dominant career dimension. For example, if the second order factor analysis showed a grouping of the *Managerial, Service,* and *Life-Style* anchors, those were considered the *Leadership* dimension. If the factor analysis grouped the *Technical* and *Autonomy* anchors, they were considered the *Technical* dimension. To find the dominant career dimension, the mean scores of the *Managerial, Service,* and *Life-Style* anchors were averaged and compared to the average of the mean scores of *Technical* and *Autonomy* anchors. The one with the highest score was assigned as the dominant career dimension. This approach has only been attempted by Crepeau et al. (1992) using the constructs in Delong's (1982) COI. But, since DeLong's COI was derived from Schein's original survey instrument, it was expected that the loadings would be similar. The results of Crepeau et al.'s factor analysis are shown in Table 10.

Table 10: Crepeau et al.'s (1992) Factor Analysis Results

Career Variable	Leadership	Stability	Technical
Results of pattern matrix			
Technical Competence	-0.00841	0.03310	**0.71556**
Managerial Competence	**0.72389**	-0.12014	-0.16562
Autonomy	0.24593	-0.00625	0.17688
Organizational Stability	0.22152	**0.83145**	-0.16561
Geographic Stability	-0.10885	0.35592	0.15799
Serice	**0.54239**	0.17700	-0.04714
Identity	**0.61293**	0.05658	0.00700
Variety	**0.50872**	-0.02430	0.03905

Items in **bold** indicate significant loadings

36

Job Type

Job types for the 3C0X1 and 3C2X1 career fields were based on the findings of the Air Force's 1999 Occupational Survey Report (OSR). This survey contained a list of job types for the 3C0X1 and 3C2X1 fields that included Combat Communications, Network Administration, C-CS Security, Network Security, Quality Control, Switchboard Operator, Equipment Control, Formal Training, Systems Administration, Magnetic Media, Systems Monitor, Mainframe Operator, Message Distribution, Telecommunications, and Tech Control. For the 3C0X2 (C-CS Programmer) career field, job types included Database Administrator, Computer Programmer, and Systems Analyst. All of the job types listed above were considered technical in nature.

To measure managerial jobs, respondents were given the option of choosing a job type such as Noncommissioned Officer in Charge (NCOIC) or Branch Chief. Also, all respondents were asked what percent of their time they spend performing supervisory duties. Those who selected "NCOIC or Branch Chief" were grouped as managerial. Also, consistent with the 1999 OSR, any job that required more than 41 percent of the respondent's time on supervisory duties was considered managerial, regardless of the actual job type selected. However, for simplicity, the scale on this survey used 40 percent as the cutoff point.

For those personnel whose job type did not match one of the job types listed, space was provided on the survey for them to enter their job title. Based on the job listed and the amount of time they reported spending on supervisory/management duties, their job was classified as managerial (if over 40 percent) or technical (if less than 40 percent).

<u>Job Satisfaction</u>

Seven items from Hackman and Oldham (1975) were adapted for this study to measure job and pay satisfaction. As discussed in Chapter 2, overall job satisfaction is influenced by pay satisfaction; therefore, two of the seven items measured pay satisfaction. All items were measured on a seven-point Likert scale and asked the subjects their level of agreement with items such as, "Generally speaking, I am very satisfied with this job" and their level of satisfaction with items such as "The amount of pay and fringe benefits I receive". Igbaria et al. (1991) reported overall reliability of .77 for this measure.

<u>Turnover Intention</u>

This research used the same turnover intention measure as Hamilton and Datko (2000) used in the 2000 Report on Career Decisions in the Air Force. They used a single item to measure reenlistment intention. Respondents were asked what their current intentions were toward reenlisting for another term. Responses were measured on a seven-point Likert scale ranging from "Definitely will NOT reenlist in the Air Force" to "Definitely will reenlist in the Air Force." In addition to the seven options provided, a "Not Applicable" option was provided for those personnel who had already completed 20 years of service and for those who had not yet completed 20 years, but their current enlistment would extend them past that point.

Data Collection Method

One of the most common methods of gathering data from large populations with minimal cost has been through paper-based surveys. Normally, these surveys are either

personally handed to the individuals or sent through the mail. However, the population under study is unique in that it is the primary job of nearly all AF IS workers to work with or around computers and network equipment. Also, with very few exceptions, all AF IS workers have e-mail accounts and access to the Internet. Therefore, it seemed a natural fit to use the Internet as the means for conducting this survey.

Increasingly, the AF has become reliant on e-mail and web-based surveys to gather information about its population. For example, in 1999, the AFSB conducted its first ever web-based Climate and Quality of Life Survey. This survey had response rates of 28, 14, and 58 percent for first-term, second-term, and career-airmen, respectively (AFSB, 2000). In July 2000, the AFSB conducted a follow-up to the 1999 survey through direct e-mail distribution. The target sample was smaller than the original survey and notification was made by using the standard AF e-mail address of firstname.lastname@airforcebase.af.mil. Due to differences in some Air Force bases' e-mail naming conventions, their "hit rate" for surveys that actually reached the intended recipients was 70 percent. They reported that the standard delivery rate for mail surveys is approximately 85 percent. The response rates for the follow-up survey were 22, 8, and 70 percent for first-term, second-term, and career-airmen, respectively (AFSB, 2000). Overall, the response rates were comparable to the original survey. Furthermore, recent research conducted on AF personnel showed overall response rates of approximately 40 percent for enlisted personnel for a web-based survey and no significant differences between response rates and quality of responses between paper-based and web-based questionnaires (Franke, 2001).

Pilot Test

Permission was granted by the Commander, 17th Communications Squadron

(17 CS), Goodfellow AFB, TX, on 22 Aug 2001 to pilot test the survey instrument on IS

personnel in the squadron. On 25 August 2001, a notification e-mail was sent to the 73

IS workers at the 17 CS. Of the 73 e-mails, 4 were returned due to unrecognized e-mail

addresses. After double-checking the rejected names, one spelling error was found. That

one was corrected and successfully resent. Thus, the total number of completed

deliveries was 70 of 73 for a 95.5% success rate.

Initially, 28 responses were received. A follow-up e-mail was sent on 29 August

2001 to all participants, which prompted another 7 responses. Of the 35 received, two

were considered unusable and discarded because the respondent had selected option '4'

as the answer for every question. Thus a return rate of 45.2% was achieved based on 73

potential respondents.

Although only 33 usable responses were received, a factor analysis with varimax

rotation was performed on the 41 career anchor items of the survey. The career anchors

loaded on 11 factors, which is similar to the findings reported by Igbaria and Baroudi

(1993). Reliability of the five-item job satisfaction and two-item pay satisfaction

measures were .88 and .86, respectively. Reliability of turnover intention was not

measured because it consists of only one item.

Permission to Conduct the Survey

Permission to conduct this research was granted by the Air Force Personnel

Center's Survey Branch (AFSB) in accordance with Air Force Instruction (AFI) 36-2601.

The instruction requires all AF-wide surveys be approved and assigned an Air Force survey control number. The survey was approved on 7 September 2001 and assigned control number USAF SCN 01-092.

Survey Modifications

Based on the results from the pilot study and suggestions from the AFSB, minor changes were made to the survey. Initially, the survey respondents were asked to provide demographic information such as, "date entered active service" and "date current enlistment expires" as fill-in-the-blank options. However, nearly 25 percent of the respondents entered some of the dates incorrectly resulting in negative values for total time in service and time until enlistment expires. After reviewing the results, the researcher changed the "date of birth", "date entered active duty", and "date current enlistment expires" to drop-down lists containing only years to choose from. However, the option for "date of rank" was left as a (dd/mm/yy) fill-in-the-blank field.

The AFSB also suggested a few minor changes to the wording and format of the survey. They recommended changing the background color because the survey was difficult to read. The color was changed from green to tan and was noticeably easier to read. One minor spelling correction was also made. Finally, the AFSB determined that the word "controlling" in one of the career anchor questions was inappropriate. Therefore, the second career anchor item "The process of supervising, influencing, leading, and *controlling* people at all levels is..." was changed to "The process of supervising, influencing, leading, and *managing* people at all levels is..." None of the changes made were expected to affect the final survey results.

Sample Size

Permission was granted by the AFSB to survey the entire population of 3C0X1, 3C0X2, and 3C2X1 personnel. As stated earlier, this survey excludes CMSgts and those personnel with less than one year time in service. The population size was approximately 10,000. However, due to an anticipated notification failure rate of 30 percent, the number of personnel actually contacted for this study was estimated at 7,000.

With an expected return rate of approximately 30 percent, it was reasonable to assume a sample size of 2,100 would be returned. Such a large number should allow the research to be conducted with a 99 confidence interval. To determine the required sample size the following formula was used (HQ USAF/ACM):

$$n := \frac{N \cdot \left(z^2\right) \cdot p \cdot (1-p)}{(N-1) \cdot \left(d^2\right) + \left(z^2\right) \cdot p \cdot (1-p)}$$

where: n = required sample size
      N = population (10,133)
      p = maximum sample size factor (.5)
      d = desired tolerance (.05)
      z = factor of assurance (2.326) for a 99 percent confidence interval

Applying the formula to the data for this study, the following n was determined:

$$n := \frac{10133 \cdot \left(2.326^2\right) \cdot .5 \cdot (1-.5)}{(10133-1) \cdot \left(.05^2\right) + \left(2.326^2\right) \cdot .5(1-.5)}$$

$$n = 514$$

Thus, the power analysis returned a value of 514 as the minimum required sample size to achieve a 99 percent confidence interval for the study.

Survey Administration

Survey notification was made by e-mail using the AF's standard e-mail naming convention of firstname.lastname@airforcebase.af.mil. Addresses were generated from the list of personnel received from the AFIT Registrar's office and sent from an e-mail account created specifically for this research. To avoid the potential response bias of a person recognizing the name of the researcher, his personal e-mail account was not used. The new account was created with the address careersurvey@afit.edu. All e-mail notification failures were delivered to this account and monitored by the researcher. The text of the notification message explained that the survey was being conducted by the Air Force Institute of Technology to measure career attitudes of airmen in the C-CS career fields. The message also stated that the survey had been approved by the AFSB, was voluntary, and anonymous. The web-based survey was hosted on an AFIT web server at the address http://en.afit.edu/careersurvey.

Also, to help increase survey response rate, the Air Force 3CXXX Career Field Functional Manager forwarded an e-mail through the 3CXXX "grapevine" intended to reach all personnel in the three career fields under study. The email described the purpose of the study and encouraged 3CXXX personnel to complete the survey.

Statistical Procedures

The validity of the survey instrument was verified through factor analysis and reliability analysis on the 41-item COI, 2-item pay satisfaction, and 5-item job satisfaction measures. An initial factor analysis was performed on the COI to verify the

existence of the career anchors described in the literature. A second order factor analysis was also performed to establish the groupings of certain career anchors that made up the career dimensions.

Each survey respondent was assigned a career anchor and career dimension based on the factor analysis results. The respondents were then stratified into groups based on their job type (managerial or technical). Various ANOVAs were performed to compare job satisfaction and turnover intention in workers whose job type and career anchor/dimension match to those with a mismatch.

Summary

This chapter described the research design and methodology used to measure the career anchor/dimension of AF IS workers, their job satisfaction, and turnover intention. The research goal is to determine if, as hypothesized, AF IS workers whose job type and career anchor/dimension match experience higher levels of job satisfaction, thus lower levels of turnover intention than those whose job type and career anchor/dimension do not match. The following chapter discusses the analysis of the survey data. Results of the data analysis will be discussed in Chapter five along with the limitations of the research, implications for the Air Force, and suggestions for further study.

IV. Data Analysis

Overview

This chapter describes the survey results and outlines the statistical procedures used to analyze the stated hypotheses. The survey response rate is discussed, followed by the questionnaire reliability and factor analysis. Each hypothesis proposed in Chapter 2 is also analyzed.

Survey Response Rate

The total number of usable responses received was 2,724. The survey web site was available for respondents from September 26, 2001 through October 12, 2001. During this time, 2801 people successfully completed the survey. After reviewing the data, some respondents who were not part of the intended sample or who had incorrectly filled out the survey were removed, e.g., personnel who were from a career field other than 3C0X1, 3C0X2, and 3C2X1 had apparently been notified, possibly by word-of-mouth, about the survey and had completed it. Those personnel were removed. Also, those with less than one year time in service, as well as CMSgts were removed. Some respondents also chose not to faithfully complete the survey. Several people, for example, selected a single response for all of the 41 items in the COI, or filled out the first and second pages correctly, but chose a single response for the 20 questions on the third page. However, there were few of these types of responses. Once the data review was complete, the usable sample size of 2,724 remained. This was 26.9 percent of the entire population.

The failure rate for e-mail deliveries for this study was expected to be approximately 30 percent, based on similar studies by the Air Force Survey Branch (AFSB). Because the failed deliveries were returned to the researcher in clusters (e.g., failures for more than one address from the same base were sometimes contained in a single message and some were returned as a single e-mail) determining the actual failure rate was not as easy as counting the number of rejected messages. However, of the 10,133 e-mails sent, approximately 1,600 rejected messages were received. From a cursory examination, it appeared that each rejection message (on average) contained two failed addresses. Thus, a delivery rate of 70 percent is reasonably accurate. However, as stated in the previous chapter, the 3CXXX Career Field Functional Manager attempted to notify personnel about the survey through a separate e-mail sent through the MAJCOM Functional CMSgts. It is unknown exactly how many personnel who may not have gotten an e-mail notification from the researcher received one that was relayed from their Functional CMSgt. Table 11 shows the demographic characteristics of the usable sample stratified by MAJCOM, rank, career group, age, gender, and education level.

Table 11: Demographics of Survey Respondents

Variables	3C0X1		3C0X2		3C2X1		Total	
MAJCOM								
ACC	588	30.4%	106	40.0%	118	22.4%	812	29.8%
AETC	186	9.6%	46	17.4%	75	14.2%	307	11.3%
AFMC	122	6.3%	14	5.3%	27	5.1%	163	6.0%
AFSOC	35	1.8%	2	0.8%	5	0.9%	42	1.5%
AFSPC	108	5.6%	8	3.0%	48	9.1%	164	6.0%
AMC	226	11.7%	23	8.7%	69	13.1%	318	11.7%
PACAF	267	13.8%	0	0.0%	92	17.5%	359	13.2%
USAFE	277	14.3%	8	3.0%	66	12.5%	351	12.9%
Other	123	6.4%	58	21.9%	27	5.1%	208	7.6%
Total	**1932**	**100%**	**265**	**100%**	**527**	**100%**	**2724**	**100%**
Rank								
AB	3	0.2%	0	0.0%	0	0.0%	3	0.1%
Amn	39	2.0%	2	0.8%	12	2.3%	53	1.9%
A1C	321	16.6%	30	11.3%	108	20.5%	459	16.9%
SrA	313	16.2%	26	9.8%	112	21.3%	451	16.6%
SSgt	597	30.9%	70	26.4%	121	23.0%	788	28.9%
TSgt	400	20.7%	76	28.7%	101	19.2%	577	21.2%
MSgt	245	12.7%	60	22.6%	62	11.8%	367	13.5%
SMSgt	14	0.7%	1	0.4%	11	2.1%	26	1.0%
Total	**1932**	**100%**	**265**	**100%**	**527**	**100%**	**2724**	**100%**
Career Level								
First-Term (0 < 6 yrs)	728	37.7%	66	24.9%	250	47.4%	1044	38.3%
Second-Term (6 - 12 yrs)	487	25.2%	51	19.2%	88	16.7%	626	23.0%
Career (>12 yrs)	717	37.1%	148	55.8%	189	35.9%	1054	38.7%
Total	**1932**	**100%**	**265**	**100%**	**527**	**100%**	**2724**	**100%**
Age Group								
17-24	591	30.6%	45	17.0%	201	38.1%	837	30.7%
25-34	787	40.7%	86	32.5%	166	31.5%	1039	38.1%
35-44	544	28.2%	129	48.7%	158	30.0%	831	30.5%
45+	10	0.5%	5	1.9%	2	0.4%	17	0.6%
Total	**1932**	**100%**	**265**	**100%**	**527**	**100%**	**2724**	**100%**
Gender								
Female	421	21.8%	21	7.9%	62	11.8%	504	18.5%
Male	1511	78.2%	244	92.1%	465	88.2%	2220	81.5%
Total	**1932**	**100%**	**265**	**100%**	**527**	**100%**	**2724**	**100%**
Education Level								
HS/GED - 59 Sem Hrs	1163	60.2%	105	39.6%	306	58.1%	1574	57.8%
Associates's Degree	332	17.2%	46	17.4%	101	19.2%	479	17.6%
60+ Sem Hrs	254	13.1%	53	20.0%	81	15.4%	388	14.2%
Bachelor's Degree	164	8.5%	52	19.6%	37	7.0%	253	9.3%
Master's Degree	17	0.9%	8	3.0%	2	0.4%	27	1.0%
PhD	2	0.1%	1	0.4%	0	0.0%	3	0.1%
Total	**1932**	**100%**	**265**	**100%**	**527**	**100%**	**2724**	**100%**

Survey Item Reliability

Although the measures used in this study have been used in previous studies and their reliability calculated, a confirmatory factor analysis and reliability analysis were conducted for this study. The results are reported in the following sections.

<u>Job and Pay Satisfaction</u>

A factor analysis with Varimax rotation was conducted on the seven-item measure of job and pay satisfaction. The items loaded on two separate factors with reliabilities of alpha = .83 for the five job satisfaction items and alpha = .88 for the two pay satisfaction items. Table 12 shows the factor loadings for these items. Turnover intention did not load > |0.40| with any job or pay satisfaction item.

Table 12: Factor Analysis – Job and Pay Satisfaction

Item	1	2
Job Sat1	0.88	
Job Sat2	0.82	
Job Sat3	0.76	
Job Sat4	0.76	
Job Sat5	0.62	
Pay Sat1		0.94
Pay Sat2		0.94
Alpha	0.83	0.88

Loadings < |0.40| not shown

<u>Career Orientation Inventory</u>

A factor analysis with Varimax rotation was conducted to verify the factor loadings of the 41-item COI against previous research (Igbaria and Baroudi, 1993). While most of the items loaded as expected, the life-style questions did not. Three of them (15, 31, and 39) loaded with the items from the autonomy anchor (3, 11, 19, 27, and 35). The two other life-style questions (7 and 23) loaded together. Refer to Appendix C for the wording of the actual survey questions.

48

Upon further review of the actual wording of these two groups of questions, it is understandable that the respondents answered them in a similar manner. For example, life-style question 31 states "*A career is worthwhile only if enables me to lead my life in my own way.*" whereas autonomy question 3 states "*The chance to do things my own way and not be constrained by the rules of an organization is...*" Both questions ask the respondent about their personal motivation towards their work and career although they are trying to measure two different constructs. The other two life-style and four autonomy questions are similarly worded.

The two life-style questions (7 and 23) that loaded together contain references to "balancing career and family" with the key word being *family*. None of the other life-style questions mentioned *family*. These results suggest the respondents interpreted the life-style questions as measuring their attitudes towards family values. Based on these results, further review of Schein's COI may be necessary to refine the wording of some of the affected questions.

The only other anchor to have inconsistent loading was the challenge anchor. However, as shown by Igbaria and Baroudi (1993) items measuring this anchor load on more than one factor, further suggesting the possible need to refine the COI. Table 13 shows the factor loadings for the sample with the alpha reliability score at the bottom of each column.

Table 13: Factor Analysis - Career Orientation Inventory

Anchor	Question	Component 1	2	3	4	5	6	7	8	9	10	11
L	31	0.69										
A	35	0.68										
A	11	0.67										
A	3	0.66								0.42		
A	19	0.64										
A	27	0.63										
L	39	0.53										
L	15	0.45										-0.43
M	18		0.80									
M	10		0.76									
M	26		0.75									
M	2		0.70									
M	34		0.66									
S	37			0.78								
S	21			0.76								
S	13			0.76								
S	29			0.74								
S	5			0.56								
E	40				0.86							
E	24				0.84							
E	16				0.78							
E	32				0.64							
T	17					0.82						
T	9					0.77						
T	33					0.63						
T	1					0.60						
T	25					0.60						
G	20						0.86					
G	41						0.86					
G	28						0.82					
J	4							0.79				
J	12							0.74				
J	36							0.70				
C	14								0.78			
C	30								0.75			
C	38								0.47			
E	8									0.58		
C	6									0.55		
L	23										0.74	
L	7										0.69	
C	22											0.69
Alpha		0.80	0.85	0.81	0.86	0.75	0.85	0.70	0.70	0.50	0.48	----

L = Lifestyle   A = Autonomy   M = Managerial   S = Service

E = Entrepreneurial   T = Technical   G = Geographic Security

J = Job Security   C = Challenge

50

Assigning the Career Anchor

In determining which questions to use to assign a person their dominant anchor, Schein (1985) recommends averaging the five questions for each item (three questions each for job security and geographic security); the one with the highest relative score is assigned as the dominant anchor. While this sample did not load as cleanly on each anchor as previous studies have shown, the reliability for each anchor's questions is minimally affected by using Schein's recommended method as opposed to their actual factor loadings. Therefore, this study will assign the dominant career anchor using the method prescribed by Schein (1985). This method will also maintain consistency with the established career anchor research and allow a more direct comparison between this study and others. Table 14 summarizes the alpha reliability for each anchor. The reported alpha levels from Igbaria et al. (1991) and Igbaria and Baroudi (1993) are shown for comparison.

Table 14: Comparison of COI Item Reliabilities

	Study		
Anchor	AF IS Workers	Igbaria et al. (1991)	Igbaria and Baroudi (1993)
Managerial	0.85	0.86	0.81
Geographic Security	0.85	0.80*	0.76
Entrepreneurial	0.83	0.91	0.89
Service	0.81	0.83	0.76
Autonomy	0.77	0.81	0.74
Technical	0.75	0.74	0.79
Job Security	0.70	0.80*	0.91
Challenge	0.66	0.72	**
Life-Style	0.54	0.73	0.67
Sample n =	**2724**	**464**	**396**
* Anchors were combined			
** Item did not load cleanly			

51

Hypothesis 1 Analysis

Hypothesis 1 stated that (*a*) the dominant career anchors of AF IS workers will be managerial and technical, that (*b*) career anchors will cluster together to create three career dimensions; leadership, technical, and stability, and that (*c*) the dominant career dimensions of AF IS workers will be leadership and technical.

Career Anchors

To test *H1a*, each respondent was assigned a career anchor based on the average score for each group of COI questions. The anchor that emerged with the highest relative score was assigned as that person's anchor. However, in approximately 10 percent of the sample, a tie score was reported for two or more anchors. If the tie score included a technical or managerial anchor, the tie was broken in favor of those anchors. If not, the respondent was not assigned a dominant anchor and was represented as "None".

Analysis revealed that the actual percentage of AF IS workers with managerial and technical anchors was 2 and 8 percent, respectively. As shown in Figure 6, the dominant career anchors were found to be job security, service, and life-style with 33, 19, and 12 percent, respectively. The distribution of managerial and technical jobs was 65 and 35 percent, respectively. Thus, using this method of assigning a dominant career anchor, *H1a* was not supported.
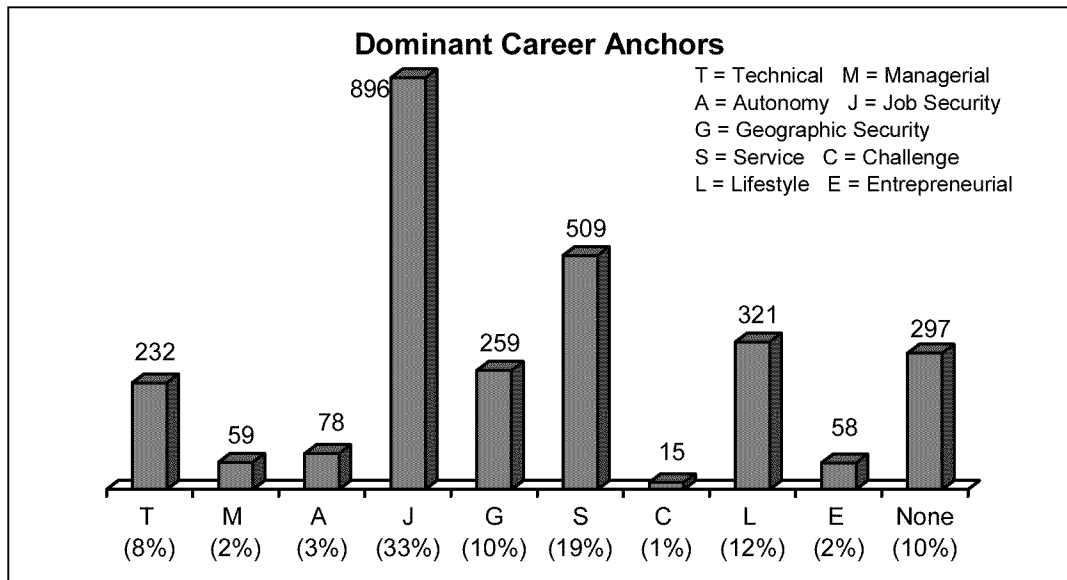
Figure 6: Distribution of Dominant Career Anchors

Career Dimensions

For *H1b*, a factor analysis with Varimax rotation was performed on the average

score for each anchor to determine which anchors clustered together. Table 15 shows the

second order factor loadings. Bold items indicate significant loadings and were used to

assign the career dimension. The alpha reliability score for each cluster of anchor scores

is also reported.

Table 15: Second Order Factor Analysis Results (Career Dimensions)

Anchor	Component 1	2	3
Entrepreneurial	**0.81**		
Managerial	**0.71**		
Challenge	**0.67**		
Geographic Security		**0.74**	
Life-Style		**0.65**	
Technical		**0.64**	
Autonomy	0.50	**0.54**	
Service			**0.76**
Job Security		0.44	**0.71**
Alpha	0.68	0.58	0.51

Loadings < |0.40| not shown

As shown in Table 15, the managerial, entrepreneurial, and challenge anchors clustered together. These results are consistent with those of Crepeau et al. (1992), thus this career dimension was labeled *Leadership*. The second career dimension consisting of the technical, geographic security, life-style, and autonomy anchors was labeled *Technical*, also consistent with Crepeau et al., although it includes anchors other than strictly technical as they reported. The third dimension includes the service and job security anchors that loaded separately in Crepeau et al.'s study. However, these two anchors come together here and were labeled as *Service/Security*. While the actual mix of anchors differs slightly than previous research, three distinct career dimensions emerged, thus supporting, *H1b*.

To test *H1c*, career dimensions were assigned in a manner similar to the career anchors. Questions for the anchors that clustered together were averaged to produce the career dimension score. The dimension with the highest score, relative to the other dimensions, was assigned as the dominant one. As shown in Figure 7, *H1c* is not supported. The service/security dimension dominates the sample (81%). This is understandable though based on the distribution of dominant career anchors from *H1a*, e.g., the job security and service anchors were dominant in over 50 percent of the sample.

Examining the mean scores of each career anchor may also help explain the prevalence of the service/security dimension. As shown in Table 16, the mean scores of the service and job security anchors are the highest of all nine anchors. Thus, one would expect that even those who were not assigned service or job security as their dominant anchor rated those questions very high, and when those two anchors were combined, their scores dominated the career dimension assignment.

54

Table 16: Career Anchor Mean Scores

	T	M	A	J	G	S	C	L	E	Grand
Mean	4.54	3.82	4.26	5.69	4.04	5.39	3.93	5.27	3.73	4.52
Std Dev	1.22	1.38	1.14	1.00	1.78	1.02	1.05	0.88	1.32	
T = Technical M = Managerial A = Autonomy J = Job Security G = Geographic Security										
S = Service C = Challenge L = Life-style E = Entrepreneurial										
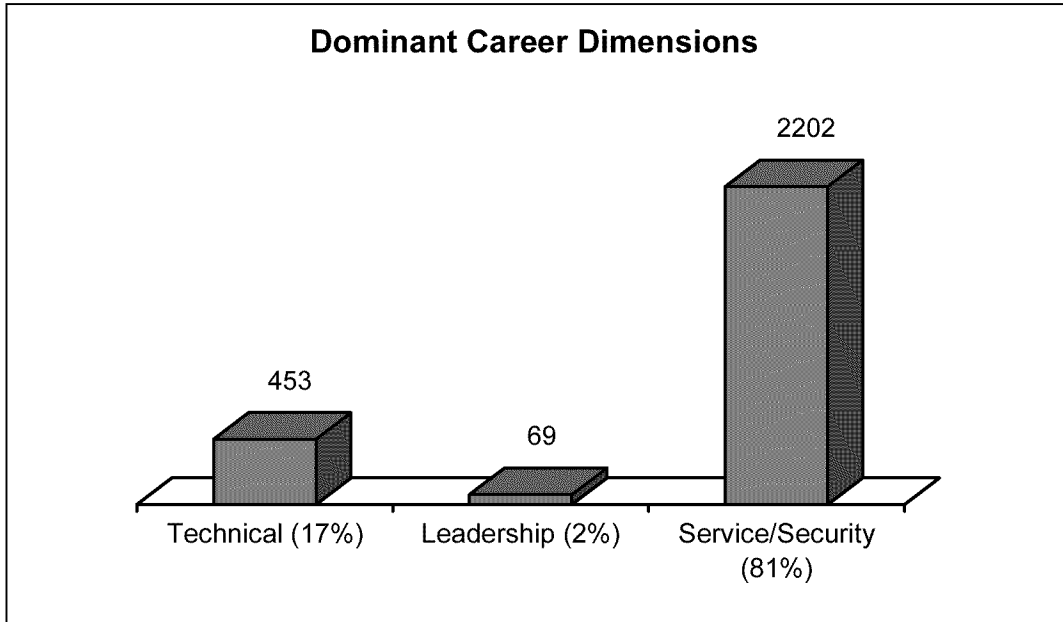
Figure 7: Distribution of Dominant Career Dimensions

Relative Anchors

Previous AF retention studies suggest that service and job security factors play a significant role in retention of AF personnel (AFSB, 2000). The AFSB study reported that patriotism and job security were the top two reasons enlisted personnel stayed in the AF. In fact, patriotism was listed as a "strong" or "very strong" influence to stay in 64 percent of respondents. These results and similar findings by Hamilton and Datko (2000) suggest that AF personnel place high importance on patriotism and job security factors.

In an attempt to compensate for the overriding prevalence of those factors, another method of assigning career anchors was used.

The concept of a "relative" career anchor emerged as an attempt to look beyond the dominant service and job security factors to an underlying preference for technical or managerial tendencies. This method involved measuring the average score for the technical and managerial anchors, comparing them to each other, and then comparing them to the average score of all nine anchors. If respondents' average score for technical was higher than their average score for managerial and higher than the average score for all anchors, they were assigned technical as their relative career anchor. The same method was used for the managerial anchor score. Results from this method suggest that approximately half of the AF IS workforce have a relative technical anchor while another 20 percent have a managerial anchor (Figure 8). Thus, partial support for *H1a* is provided after adjusting the scores to account for service and job security factors. Results from the relative anchor assignments will also be used in the analysis of hypotheses two and three.

Relative Career Anchors

1377

550

262

156

130

102

94

28

4

21

T = Technical   M = Managerial
A = Autonomy   J = Job Security
G = Geographic Security
S = Service   C = Challenge
L = Lifestyle   E = Entrepreneurial

| T | M | A | J | G | S | C | L | E | None |
| (51%) | (20%) | (1%) | (10%) | (4%) | (6%) | (0%) | (5%) | (1%) | (4%) |
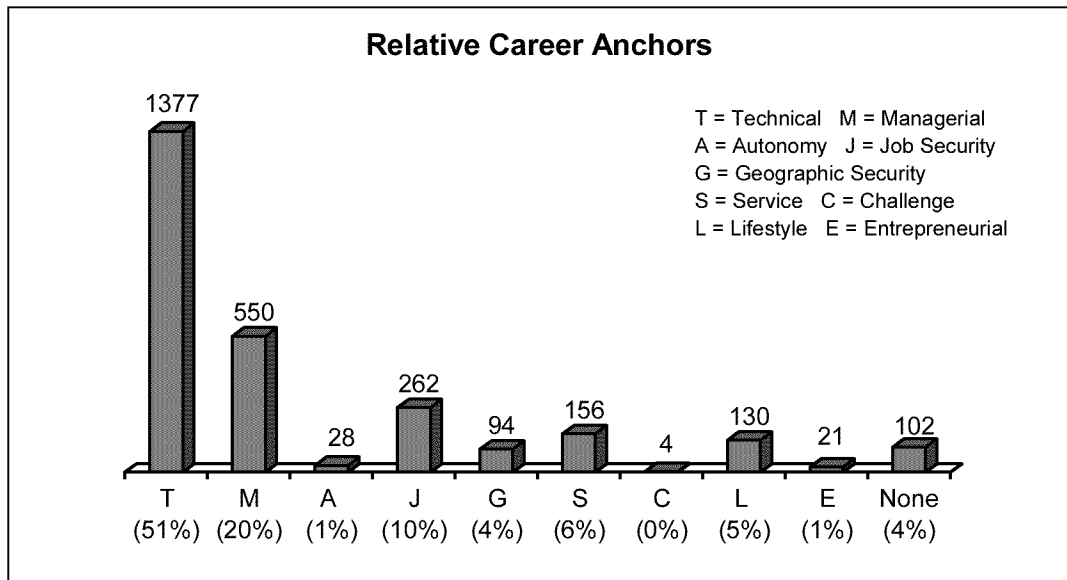
Figure 8: Distribution of Relative Career Anchors

Adjusted Career Dimensions

An alternate method of assigning career dimensions was also used to compensate for the dominance of the job security and service factors. This method consisted of removing the job security and service anchor mean scores from the second order factor analysis. The remaining anchors grouped together in only two dimensions, one relating to leadership qualities, and the other relating to technical qualities (Table 17). These loadings are similar to the loadings of the original career dimensions. The distribution of the adjusted career dimensions is also similar to the distribution of the relative career anchors; specifically that technical is prevalent in approximately 75 percent of the sample and managerial prevalent in approximately 25 percent. Figure 9 shows the distribution of the adjusted career dimensions.

The factor loadings and distribution of the adjusted career dimensions provide partial support for *H1b* in that after removing job security and service anchors, the remaining anchors load on two distinct components that relate to leadership and technical

57

qualities. These two adjusted dimensions, however, are dominant by default and do not

provide meaningful support for *H1c*, but they will be used along with the relative anchor

groups in the analysis of hypotheses two and three in the following sections.

Table 17: Second Order Factor Analysis Results (Adjusted Career Dimensions)

	Component	
Anchor	**1**	**2**
Geographic Security	0.73	
Life-Style	0.68	
Autonomy	0.64	
Technical	0.62	
Managerial		0.83
Challenge		0.75
Entrepreneurial		0.73
Alpha	0.58	0.68
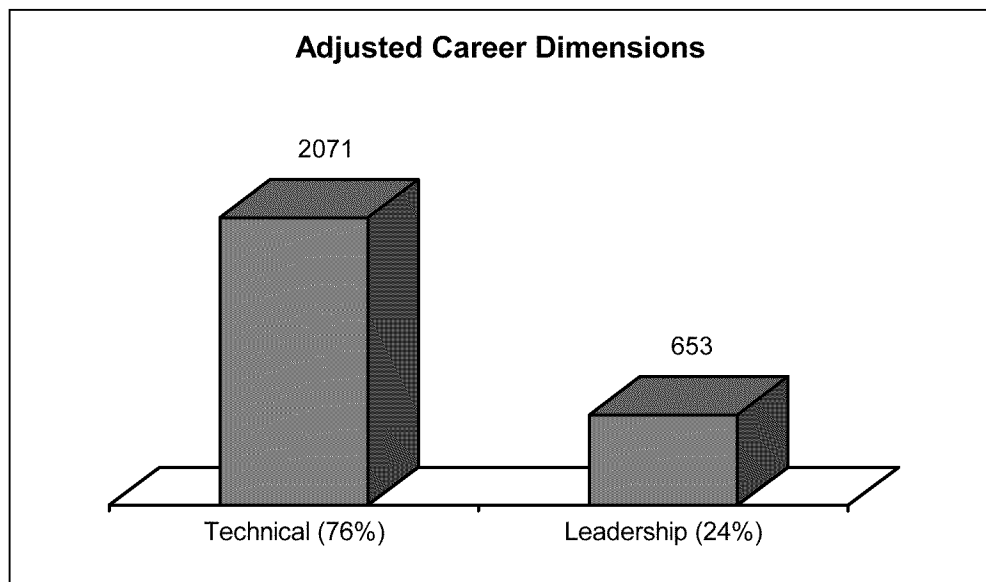
Figure 9: Distribution of Adjusted Career Dimensions

Hypothesis 2 Analysis

Hypothesis 2 stated that (*a*) AF IS workers whose job type and career anchor

match will report higher levels of job satisfaction than those whose job type and career

anchor do not match, and (*b*) AF IS workers whose job type and career dimension match

58

will report higher levels of job satisfaction than those whose job type and career dimension do not match.

Compatibility and Satisfaction

To assess the overall difference between the match group and the mismatch groups, a one-way ANOVA was conducted on the sample. The match group includes those workers with technical anchors working in technical jobs and those with managerial anchors working in managerial jobs; the mismatch group includes all others. Results indicate insignificant differences in satisfaction levels between the dominant anchor groups (Table 18). However, in the relative anchor group, job satisfaction was higher in those with a job type/relative anchor match ($p < .01$). Scores for pay satisfaction were also reported to determine if they may have influenced the job satisfaction scores. There appears to be little difference in pay satisfaction between the groups.

Table 18: Satisfaction Levels for Career Anchor Match/Mismatch Groups

	Dominant Anchor Group			
Variable	Match	Mismatch	Univariate F	p
n =	156	2568		
Job Satisfaction	4.59	4.40	2.79	.10
Pay Satisfaction	3.47	3.43	.10	.75
	Relative Anchor Group			
Variable	Match	Mismatch	Univariate F	p
n =	1149	1575		
Job Satisfaction	4.51	4.34	10.01	.002
Pay Satisfaction	3.42	3.44	.11	.74

A one-way ANOVA was also conducted to assess difference in satisfaction levels between those with a job type/career dimension match and those with a mismatch. As Table 19 shows, those with a match actually reported lower levels of job satisfaction than those with a mismatch ($p < .001$). However, some of that difference may be explained by

59

the large difference in group sizes and the reported scores for pay satisfaction. No

significant differences were reported between groups with adjusted career dimensions.

The latter comparison may be a more accurate measure due to the relatively equal sizes

between the two groups and more balanced scores for pay satisfaction.

Table 19: Satisfaction Levels for Career Dimension Match/Mismatch Groups

| | Career Dimension | | | |
Variable	Match	Mismatch	Univariate F	p
n =	350	2374		
Job Satisfaction	4.17	4.45	12.66	< .001*
Pay Satisfaction	3.02	3.50	32.01	< .001
	Adjusted Career Dimension			
Variable	Match	Mismatch	Univariate F	p
n =	1627	1097		
Job Satisfaction	4.42	4.41	.03	.86
Pay Satisfaction	3.47	3.38	2.49	.11
*Mismatch group reported higher job satisfaction than match group				

Analysis of Technical and Managerial Anchors

Further analysis was conducted on those with only technical or managerial

anchors (e.g., technical jobs with technical anchors, managerial jobs with technical

anchors, etc.) to determine differences in their reported satisfaction levels. In the

technically anchored group, those with compatible anchors/jobs in both the dominant and

relative groups (Tables 20 and 21) had higher job and pay satisfaction than the

incompatible groups ($p < .01$). Those with a managerial anchor showed no significant

differences. However, the sample size for the dominant managerial anchor groups

(match = 35, mismatch = 24) is too small to draw reliable conclusions. However, group

sizes for those with a relative managerial anchor were sufficiently large. Thus, support

for *H2a* is provided, but only for those workers with a technical anchor.

Table 20: Satisfaction Levels for Dominant Anchor Groups

| | Technical Anchor (Dominant) | | | |
Variable	Technical Job	Managerial Job	Univariate F	p
n =	135	97		
Job Satisfaction	4.61	4.05	8.70	.003
Pay Satisfaction	3.50	2.80	12.93	< .001
	Managerial Anchor (Dominant)			
Variable	Technical Job	Managerial Job	Univariate F	p
n =	24	35		
Job Satisfaction	4.26	4.38	.13	.72
Pay Satisfaction	3.16	3.23	.03	.87

Table 21: Satisfaction Levels for Relative Anchor Groups

| | Technical Anchor (Relative) | | | |
Variable	Technical Job	Managerial Job	Univariate F	p
n =	898	479		
Job Satisfaction	4.53	4.35	4.78	.03
Pay Satisfaction	3.41	3.19	7.10	.008
	Managerial Anchor (Relative)			
Variable	Technical Job	Managerial Job	Univariate F	p
n =	299	251		
Job Satisfaction	4.45	4.45	.00	.99
Pay Satisfaction	3.53	3.47	.20	.66

Analysis of Technical and Leadership Dimensions

One-way ANOVAs were also conducted on groups with technical and leadership dimensions to investigate any potential differences in job satisfaction. Results shown in Tables 22 and 23 reveal no significant differences between job satisfaction levels among those with a job type/career dimension match or mismatch within those assigned a technical or leadership dimension (including adjusted career dimensions). Thus, *H2b* is not supported for any of these groups.

Table 22: Satisfaction Levels for Career Dimension Groups

| | Technical Dimension | | | |
| | Technical | Managerial | Univariate | |
Variable	Job	Job	F	p
n =	331	122		
Job Satisfaction	4.16	3.99	1.04	.31
Pay Satisfaction	3.05	2.89	1.19	.28
	Leadership Dimension			
	Technical	Managerial	Univariate	
Variable	Job	Job	F	p
n =	50	19		
Job Satisfaction	4.41	4.31	.10	.76
Pay Satisfaction	3.06	2.39	2.55	.11

Table 23: Satisfaction Levels for Adjusted Career Dimension Groups

| | Technical Dimension (Adjusted) | | | |
| | Technical | Managerial | Univariate | |
Variable	Job	Job	F	p
n =	1213	480		
Job Satisfaction	4.40	4.32	.99	.32
Pay Satisfaction	3.45	3.18	11.96	< .001
	Leadership Dimension (Adjusted)			
	Technical	Managerial	Univariate	
Variable	Job	Job	F	p
n =	370	191		
Job Satisfaction	4.59	4.50	.50	.48
Pay Satisfaction	3.62	3.50	.77	.38

Hypothesis 2 Summarized Findings

Overall, analysis revealed no support for *H2a* between match and mismatch

groups using the dominant career anchor assignment, though support was provided using

the relative anchor method. Further analysis of the managerial and technical anchor

groups showed support for the hypothesis within the technically-anchored group using

the dominant and relative anchor assignment, but no support within the managerial

anchor group. *H2b* was not supported with either the career dimension or adjusted career

dimension assignments. Table 24 summarizes the findings for Hypothesis 2.

Table 24: Summary of Hypothesis 2 Results

Hyp.	Group	Method	Results
2a	All (Match/Mismatch)	Dominant Anchor	Not Supported
2a	All (Match/Mismatch)	Relative Anchor	Supported
2a	Technical Anchor (Match/Mismatch)	Dominant Anchor	Supported
2a	Managerial Anchor (Match/Mismatch)	Dominant Anchor	Not Supported
2a	Technical Anchor (Match/Mismatch)	Relative Anchor	Supported
2a	Managerial Anchor (Match/Mismatch)	Relative Anchor	Not Supported
2b	All (Match/Mismatch)	Career Dimension	Not Supported
2b	All (Match/Mismatch)	Adjusted Career Dimension	Not Supported
2b	Technical Dimension (Match/Mismatch)	Career Dimension	Not Supported
2b	Leadership Dimension (Match/Mismatch)	Career Dimension	Not Supported
2b	Technical Dimension (Match/Mismatch)	Adjusted Career Dimension	Not Supported
2b	Leadership Dimension (Match/Mismatch)	Adjusted Career Dimension	Not Supported

Hypothesis 3 Analysis

Hypothesis 3 stated that (*a*) AF IS workers whose job type and career anchor match will report lower levels of turnover intention than those whose job type and career anchor do not match, and (*b*) AF IS workers whose job type and career dimension match will report lower levels of turnover intention than those whose job type and career dimension do not match.

Compatibility and Turnover Intention

Before analyzing turnover intention, the sample data was filtered to eliminate those workers who did not express a turnover intention. As stated in Chapter 3, the measure of turnover intention included a "N/A" option for those workers who had already completed 20 years active service and those whose current enlistment would carry them to the 20-year point. After these individuals were removed, the resulting sample size was 2254.

A one-way ANOVA was conducted to assess any differences in turnover intention between the match and mismatch groups for dominant career anchors, relative

career anchors, career dimensions, and adjusted career dimensions. The results are

reported in Table 25. With the exception of those in the relative anchor group, the data

suggests that those with a match actually report higher turnover intention than those with

a mismatch. Thus, *H3a* and *H3b* are not supported for these groups.

Table 25: Turnover Intention for Match and Mismatch Groups

Group	Group n (match / mismatch)	Turnover Intention Match	Mismatch	Univariate F	p
Dominant Anchor	136 / 2118	4.20	3.81	4.43	.04*
Relative Anchor	969 / 1285	3.78	3.88	1.20	.27
Career Dimension	321 / 1933	4.89	3.66	105.89	< .001*
Adjusted Dimension	1404 / 850	3.98	3.60	18.00	< .001*
* Match group reported higher turnover intention than mismatch group					

Analysis of Technical and Managerial Anchors/Dimensions

Further analysis was conducted to separately investigate the turnover intention of

the technical and managerial anchor/dimension groups. In the groups assigned a

dominant anchor, those with a technical anchor in the match group actually reported

higher turnover intention than those in the mismatch group. Thus, *H3a* was not

supported. The hypothesis was supported in the group with a dominant managerial

anchor (p = .03), however the small sample size of the group is a concern. Table 26

displays the ANOVA results for the dominant anchor groups.

Table 26: Turnover Intention for Dominant Anchor Groups

| | Technical Anchor (Dominant) | | | |
| | Technical | Managerial | Univariate | |
Variable	Job	Job	F	p
n =	116	79		
Turnover Intention	4.48	4.27	.54	.46*
	Managerial Anchor (Dominant)			
	Technical	Managerial	Univariate	
Variable	Job	Job	F	p
n =	33	20		
Turnover Intention	4.09	2.80	4.70	.03
* Match group reported higher turnover intention than mismatch group				

Similar results to those above were found in the relative anchor groups for technical and managerial groups. Table 27 shows that, contrary to expected results, turnover intention of the match group with a relative technical anchor was again higher than the mismatch group. For the relative managerial anchor, however, the match group reported lower turnover intention, supporting *H3a*.

Table 27: Turnover Intention for Relative Anchor Groups

| | Technical Anchor (Relative) | | | |
| | Technical | Managerial | Univariate | |
Variable	Job	Job	F	p
n =	787	335		
Turnover Intention	4.02	3.68	6.55	.01*
	Managerial Anchor (Relative)			
	Technical	Managerial	Univariate	
Variable	Job	Job	F	p
n =	277	182		
Turnover Intention	3.80	2.76	31.52	< .001
* Match group reported higher turnover intention than mismatch group				

ANOVA results for the career dimension groups were similar to those of the career anchor groups. Tables 28 and 29 show again that match groups in both the technical dimension and adjusted technical dimension report higher turnover intention than those with a mismatch. Turnover intention was shown to be lower in the groups

with leadership dimensions, but was only proven significant in the adjusted dimension group. Thus, *H3b* was only supported for the adjusted group with a leadership dimension.

Table 28: Turnover Intention for Career Dimension Groups

| | Technical Dimension | | | |
| | Technical | Managerial | Univariate | |
Variable	Job	Job	F	p
n =	307	96		
Turnover Intention	4.93	4.27	8.16	.005*
	Leadership Dimension			
	Technical	Managerial	Univariate	
Variable	Job	Job	F	p
n =	49	14		
Turnover Intention	4.96	4.07	2.56	.11
* Match group reported higher turnover intention than mismatch group				

Table 29: Turnover Intention for Adjusted Career Dimension Groups

| | Technical Dimension (Adjusted) | | | |
| | Technical | Managerial | Univariate | |
Variable	Job	Job	F	p
n =	1213	480		
Turnover Intention	4.15	3.51	33.32	< .001*
	Leadership Dimension (Adjusted)			
	Technical	Managerial	Univariate	
Variable	Job	Job	F	p
n =	370	191		
Turnover Intention	3.72	2.89	25.48	< .001
* Match group reported higher turnover intention than mismatch group				

Turnover Intention and Age

The unexpected findings that AF IS workers whose job type and career anchor/dimension match reported higher turnover intention than those with a mismatch prompted further analysis into differences. Results of an ANOVA (Table 30) that compared the turnover intention and age of those in managerial and technical jobs shows significant differences between the groups, which may help explain the findings.

Furthermore, a regression analysis (Figure 10) showed a strong negative relationship between age and turnover intention, suggesting that younger people have higher overall turnover intention (R square = .081, F = 199.56, p < .001). Finally, a comparison of the turnover intention between managerial and technical jobs revealed that those AF IS workers in managerial jobs reported significantly lower turnover intention overall. Therefore, it is possible that the difference in turnover intention between the groups is partly attributable to age rather than the effect of job type and career anchor compatibility.

Table 30: Turnover Intention and Mean Age by Job Type

Variable	Technical Job	Managerial Job	Univariate F	p
n =	1583	671		
Turnover Intention	4.05	3.33	59.47	< .001
Mean Age	26.4	32.3	539.27	< .001
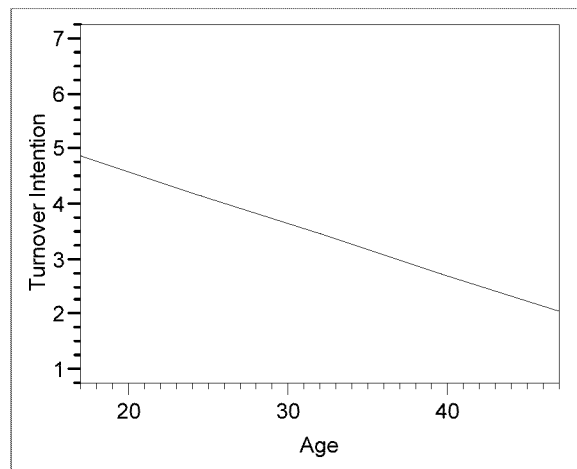
Figure 10: Regression of Turnover Intention by Age

While not specifically hypothesized in this study, the relationship between job

satisfaction and turnover intention has been shown to have a strong negative relationship,

e.g., when job satisfaction is high, turnover intention is low (Griffeth et. al, 2000). A

regression analysis was performed to investigate the relationship for this sample. Results

show a strong negative relationship (R square = .088, F = 217.20, p < .001) which

suggest that as job satisfaction increases, turnover intention decreases. Figure 11

graphically represents the job satisfaction/turnover intention relationship.

Figure 11: Regression of Turnover Intention by Job Satisfaction

Hypothesis 3 Summarized Findings

Overall, analysis revealed partial support for *H3a*. No support was found using

the dominant or relative career anchor assignment for the match and mismatch groups.

However, support was found for *H3a* in those with a managerial anchor using the

dominant and relative anchor assignment. Hypothesis *3b* was also supported in those with

a leadership dimension using the adjusted career dimension assignment. Table 31 summarizes these findings.

Table 31: Summary of Hypothesis 3 Results

Hyp.	Group	Method	Results
3a	All (Match/Mismatch)	Dominant Anchor	Not Supported
3a	All (Match/Mismatch)	Relative Anchor	Not Supported
3a	Technical Anchor (Match/Mismatch)	Dominant Anchor	Not Supported
3a	Managerial Anchor (Match/Mismatch)	Dominant Anchor	Supported
3a	Technical Anchor (Match/Mismatch)	Relative Anchor	Not Supported
3a	Managerial Anchor (Match/Mismatch)	Relative Anchor	Supported
3b	All (Match/Mismatch)	Career Dimension	Not Supported
3b	All (Match/Mismatch)	Adjusted Career Dimension	Not Supported
3b	Technical Dimension (Match/Mismatch)	Career Dimension	Not Supported
3b	Leadership Dimension (Match/Mismatch)	Career Dimension	Not Supported
3b	Technical Dimension (Match/Mismatch)	Adjusted Career Dimension	Not Supported
3b	Leadership Dimension (Match/Mismatch)	Adjusted Career Dimension	Supported

Summary

This chapter analyzed the data collected for this study and briefly discussed the findings for each hypothesis. *H1a* was not supported as results showed that a majority of AF IS workers held job security, service, and life-style anchors instead of managerial and technical. Support for *H1a*, however, was found using the relative anchor assignment. Support for *H1b* was also found as certain groups of career anchors clustered together to form three career dimensions. Of the three dimensions identified, the service/security dimension dominated 81% of the sample, thus providing no support for *H1c*. Partial support for *H2a* was found in those AF IS workers with a technical anchor, but *H2b* was not supported. *H3a* was partially supported in those AF IS workers with a managerial anchor and *H3b* was supported in those assigned a leadership dimension. Finally, a strong negative relationship was found between job satisfaction and turnover intention as well as age and turnover intention.

V. Conclusions and Recommendations

Overview

The focus of this study was to measure the distribution of career anchors of AF IS workers and determine if those whose job type matched their career anchor reported higher job satisfaction and lower turnover intention than those whose job type and career anchor did not match. AF IS workers in the 3C0X1, 3C0X2, and 3C23X1 career fields were surveyed through a web-based instrument that returned 2,724 usable responses on which the analyses of the following hypotheses were based:

H1a: The dominant career anchors of AF IS personnel will be managerial and technical.

H1b: Career anchors will cluster together, creating three career dimensions: leadership, stability, and technical.

H1c: The dominant career dimensions of AF IS personnel will be leadership and technical

H2a: AF IS personnel whose job type and career anchor match will experience higher job satisfaction than those whose job type and career anchor do not match.

H2b: AF IS personnel whose job type and career dimension match will experience higher job satisfaction than those whose job type and career dimension do not match.

H3a: AF IS workers whose job type and career anchor match will exhibit lower turnover intentions than those whose job type and career anchor do not match.

H3b: AF IS workers whose job type and career dimension match will exhibit lower turnover intentions than those whose job type and career dimension do not match.

Discussion

Contrary to *H1a* that technical and managerial anchors would be dominant in AF IS workers, this study found that these two anchors represented only 8 and 2 percent of the sample, respectively. The career anchors that emerged as dominant were job security, service, and life-style. These findings are understandable, though, given results from previous AF retention surveys. In fact, the AFSB (2000) found that AF personnel listed job security and patriotism as the top two reasons to stay in the service, and Hamilton and Datko (2000) found that 64 percent of respondents listed patriotism as a "strong" or "very strong" influence to stay in the AF. While no support was found for *H1a* using the dominant anchor assignment, after controlling for the dominance of the job security and service anchors using the relative anchor assignment, some evidence was found that suggests AF IS workers have underlying technical and managerial anchors, similar to civilian IS workers.

Hypothesis 1b stated that certain career anchors would cluster together to form three career dimensions: leadership, technical, and stability. While the make-up of the anchors that define these dimensions differed somewhat from the findings of Crepeau et al. (1992), three distinct dimensions did emerge. The second order factor analysis showed a leadership dimension made up of the managerial, challenge, and entrepreneurial anchors; a technical dimension consisting of the technical, geographic security, life-style, and autonomy anchors; and a service/security dimension made up of the service and job security anchors. These results were used to test *H1c*, which stated the leadership, and technical dimensions would dominate the AF IS workforce. Analysis of the data revealed no support for this hypothesis because the service/security dimension

was dominant in 81 percent of the sample. These results were expected given that job security and service anchors dominated AF IS workers.

Hypothesis 2 stated that workers whose job type and career anchor/dimension were compatible would report higher job satisfaction than those whose were not compatible. Support for this hypothesis was lacking in all groups except those with a technical anchor, suggesting that this measurement of compatibility is not a significant enough predictor of job satisfaction to yield any significant findings. Conversely, support for hypothesis 3, that AF IS workers whose job type and career anchor/dimension were compatible would report lower turnover intention than those whose career anchor/dimension and job type were incompatible, was generally lacking and found support in only small groups of workers who possessed a managerial anchor and leadership dimension.

Implications for the Air Force

One main finding that should be taken from this study is that AF IS workers appear to be significantly different than other civilian IS workers studied to date. This may suggest that the retention programs in place in the civilian sector do not necessarily apply to AF IS workers. Thus, the AF should not blindly implement recruitment or retention initiatives specifically designed for civilian IS workers until they understand their impact on this (or the entire AF) population. However, it does appear that current retention efforts that focus on pay, bonuses, retirement, quality of life, and care for families may be on the right track. These types of retention initiatives should appeal to the job security, service, and life-style factors that AF IS workers reported as important.

The dominance of the job security, service and life-style anchors also suggest that AF IS workers place higher value on those factors than they do managerial or technical factors. This does not mean that the AF should ignore technical or managerial issues such as dual career paths, recurring technical training, or programs that prepare enlisted people for managerial positions; it merely indicates that these factors are not the most prevalent concern for this population, but they are present. Additionally, the finding that job satisfaction and turnover intention are negatively related may suggests an area where AF leaders could potentially lower turnover intention by improving workers' job satisfaction.

Finally, compared to job satisfaction, pay satisfaction is relatively low across the spectrum of all ages, ranks, and job types in these career fields (mean pay satisfaction = 3.44, mean job satisfaction = 4.41; scale = 1 to 7). Air Force and 3CXXX career field leaders have already begun to address these issues, but it is unknown if the current initiatives will be enough to significantly improve pay satisfaction of these IS workers.

Implications for Researchers

Results from this study expand existing career anchor research by introducing this survey instrument into the AF IS worker domain. Most studies to date using Schein's COI have sampled from professional societies or managerial groups with mostly older workers who possess higher education levels than those found in this study. Introduction of Schein's COI into this younger population may help better understand the instrument itself and could lead to refinements in the wording of its questions, specifically the autonomy, challenge, and life-style anchors whose constructs were problematic here.

This study could also benefit researchers by providing insight into additional variables that make up civilian IS workers. For example, it is reasonable to assume that a majority of AF IS workers who leave the military join the civilian IS workforce. Therefore, researchers could include prior military service as a demographic variable that may help explain the existence of job security, service, or life-style factors in the civilian IS workforce.

Limitations

As with nearly all studies, certain factors emerge that introduce uncertainty and limit the reliability of the results. Perhaps the most significant limiting factor in this case is that the survey data was collected shortly after September 11, 2001. This could have affected respondents' overall feelings of patriotism (service) and job security due to the uncertainty that followed the event. Although comparison of the distribution of career anchors with the pilot group (n = 33, collected prior to September 11) showed little difference in satisfaction levels, turnover intention, or the distribution of career anchors, it is impossible to determine what effect, if any, recent events had on this study.

Online data collection is still a relatively new method of conducting surveys, thus it may have discouraged those not comfortable with computers from participating. However, considering that the target population was comprised of operations, programming, and maintenance personnel who work with computers on a daily basis, it is unlikely that the online distribution and collection introduced any significant bias. Also, it is impossible to know exactly how many participants attempted to complete the survey

but were unable due to technical difficulties such as web server errors or communications failures, but few people actually reported such problems to the researcher.

While the statistical power provided by this large sample size allowed the researcher to reliably generalize results of the study to the targeted career fields, results cannot be generalized outside the AF IS worker population. Additional studies would have to be conducted on other populations to measure their members' career anchors, satisfaction, and turnover intention. Finally, the job and pay satisfaction instruments, as well as the COI, were developed by civilian researchers, presumably to measure the attitude of civilian workers. Since the measures were not created specifically for military members, it is possible that they may have been interpreted in a way other than intended by their designers.

Future Research

In choosing possible avenues to follow-up the results of this study, a likely place to start would be with the Air Force's IS "Managers", the 33SX Communications and Information officers. Individuals in this career field are responsible for the overall operations and maintenance of the AF communications infrastructure. These individuals may also provide a better match to studies of civilian IS workers that have largely sampled from management organizations and other populations with older workers with higher education levels, which is more representative of the 33SX population.

Analyses could also be performed on the data collected for this study to further investigate distribution of career anchors by age, education, etc. Also, a career anchor study could be conducted on a sample of the general AF population and comparisons

made on the distribution of career anchors, job and pay satisfaction, and turnover intention as it relates to job type/career anchor compatibility to see if AF IS workers are different than the general AF population.

Finally, since this was a correlational study, it is impossible to determine if the distribution of career anchors and other factors would change over time or if those who expressed high turnover intention will actually separate. Longitudinal studies that track specific individuals could be useful to help determine, as Schein (1996) suggested, if career anchors may change over time and if turnover intention equals actual turnover behavior.

Conclusion

Results from this study suggest that AF IS workers are significantly different than civilian IS workers in what they consider important in a career. Specifically, that AF IS workers do have underlying technical and managerial anchors, but they appear to place an overriding importance on job security, service, and life-style factors. Additionally, analysis showed that AF IS workers reported varying levels of job satisfaction and turnover intention based on their career anchor/dimension and the compatibility between their job type and career anchor/dimension. After controlling for the overriding dominance of job security and service, limited support was found for the stated hypotheses, indicating that the AF should not completely ignore the underlying technical and managerial aspirations of its enlisted IS workforce in favor of recruitment and retention initiatives that focus solely on job security, service, and life-style factors.

Finally, results from this study suggest that job type and career anchor/dimension compatibility alone may not be an adequate predictor of job satisfaction or turnover intention for this population. Therefore, further research into other individual and organizational factors is needed to determine why AF IS workers are separating at a rate higher than the general AF population.

Appendix A: Mobley et al's Employee Turnover Model

Organizational

Goals-Values
Policies
Practices
Rewards
Job Content
Supervision
Work Group
Conditions
Climate
Size

Individual

Occupational
Hierarchical Level
Skill Level
Status
Professionalism

Personal
Age
Tenure
Education
Interests
Personality
Soci-Economic
Family Responsibility
Aptitude

Economic-Labor Market

Unemployment
Vacancy Rates
Advertising Levels
Recruiting Levels
Word of Mouth
Communication

Job Related Perceptions

Individual Values

Labor Market Perceptions

Expectations RE: Present Job

1. Expectations re: future job outcomes
2. Expectancy re: keeping job

Satisfaction

Expectations RE: Alternative Jobs

1. Expectations re: future job outcomes
2. Expectancy re: attaining alternative

Attraction – Expected Utility: Present Job

Attraction – Expected Utility: Alternatives

Centrality of non-work values; Beliefs re: non-work consequences of quitting; Contractual constraints

Immediate vs. delayed gratification

Intention to search: Intention to quit

Alternative forms of withdrawal behavior

Impulsive behavior; Specificity & time between measures

Turnover Behavior

78

Appendix B: Expanded Discussion of Career Anchors

Security/Stability

Researchers have identified two kinds of security anchors; geographical and job (Schein, 1987). A geographically anchored person prefers to remain in the same general area and does not wish to move. This type of person may be willing to sacrifice his standard of living somewhat in order to maintain stability. Individuals who are anchored in job security usually display a significant amount of loyalty to one organization. Schein (1987:162) refers to this as the "golden handcuffs" in which a person turns over their entire career management responsibility to the organization in exchange for the job security they desire. Unlike the geographically anchored person though, a job-security anchored person is willing to move or change jobs as necessary so long as it keeps them with the company.

Security/stability anchored people prefer a work environment that is stable and predictable (Schein, 1987). They also prefer a pay and promotion system based on seniority as well as an established system that explicitly states how long one must serve and what one must do to earn a promotion. Finally, these types of people wish to be recognized for their contributions and loyalty to the organization. Their overall feeling is that their loyalty is a significant benefit to the organization and their pay and rewards should reflect that trait.

Autonomy/Independence

People who do not wish to be confined by an organizations' rules and regulations, and who wish to work at their own pace and by their own rules fall into the

autonomy/independence anchor (Schein, 1987). These types of people may try to open a business of their own or may work in an organization that allows them the freedom to pursue their own goals. Teaching, consulting, research and development, market research, and financial analysis are a few of the types of jobs where one might find an autonomy-anchored person.

The autonomy-anchored person prefers work that has well-defined goals, but leaves the means of accomplishing them to the individual. Schein (1987:164) also states that these people are terrified by the "golden handcuffs" and prefer a pay system of bonuses, piecework, and other compensation that is portable and does not tie them to the organization.

Technical/Functional Competence

People who are thought of as master craftsmen or experts in their profession are probably anchored in the technical/functional competence area. People with this anchor want to be the best at what they do. They have real talent in their profession and usually find work outside that specialty less than rewarding and they are often pulled back to their anchor (Schein, 1987). Researchers have discovered that while most careers start out with technical/functional orientation (Dalton, Thompson, and Price, 1977; Super, 1957), Schein (1987) suggests that some people may just be using the technical job as a stepping stone to the fulfillment of their true career anchor.

Technical/functional people also prefer to be paid according to their skill level, and they equate their worth to their level of education and experience. These people have a lot in common with the autonomous individuals in what they want for pay, rewards, and benefits. They may view themselves as mobile and prefer portable benefits and will also

80

resist the "golden handcuffs" for fear of getting stuck in a position that no longer

challenges them (Schein, 1987:165).

The typical promotion ladder into managerial positions does not appeal to the

technical person because they see it as moving them out of their specialty and into

broader managerial roles. In some organizations, separate career ladders have been

established to allow technically anchored workers to achieve pay and status equal to their

managerial counterparts while still remaining in their technical specialty. Promotions up

the technical ladder may consist of increases in pay, job scope, job responsibility, access

to senior management, or a larger budget for their section (Schein, 1987).

Schein (1987) suggests that the technical person values the recognition of his or

her professional peers most of all. He gives the example that a specialist would prefer the

acknowledgement of a professional colleague for completion of a difficult task over that

of a supervisor who may not have truly understood the task's difficulty. Other forms of

rewards that Schein suggests are educational programs that allow technical workers to

keep their skills up to date, encouragement to attend professional meetings, and money to

buy equipment and books for their professional development. He goes on to suggest that

these types of rewards might even be more important than a small percentage raise so

long as the basic pay structure of the specialists is equivalent to their colleagues in other

similar organizations.

Managerial Competence

People who wish to become general managers have a desire to reach high levels

in the organization. They want their decisions to have an impact on the success and

failure of the company (Schein, 1987). Schein states that it may take years before a

person recognizes that this is their anchor. Once that anchor is identified, they realize

that they must master three basic areas of expertise to be successful: analytical

competence, interpersonal and intergroup competence, and emotional competence.

> *Analytical competence*: the ability to identify, analyze, synthesize, and solve
> problems under conditions of incomplete information and uncertainty (Schein,
> 1985:42 italics in original).

> *Interpersonal and intergroup competence*: the ability to influence, supervise, lead,
> manipulate, and control people at all levels of the organization toward organizational
> *goal* achievement (Schein, 1985:42 italics in original).

> *Emotional competence*: the capacity to be stimulated by emotional and interpersonal
> issues and crises rather than exhausted or debilitated by them; the capacity to bear
> high levels of responsibility without becoming paralyzed; and the ability to exercise
> power and make difficult decisions without guilt or shame (Schein, 1985:43 italics in
> original).

Overall, managerially anchored people feel they have something to contribute to

an organization and want to achieve high levels of responsibility in order to apply their

skills. Like technically anchored individuals, they also measure their success by their

income but in a slightly different way. They expect to be highly paid for their work, but

do not usually compare their income with their peers as technically anchored people do.

Managerially anchored individuals want to be paid more than their previous level and

will usually be happy if that condition is met, even if someone else at the same

managerial level is earning more (Schein, 1987).

The benefit and promotion systems for a managerially anchored person are

somewhat similar to those who are security/stability anchored. Since managers usually

need to spend many years with an organization, they are also content to accept the

"golden handcuffs" so long as some of their rewards come in the form of a good

retirement package (Schein, 1987:167). They prefer a promotion system based on results

and measured performance that can help them reach higher levels of management. Their most important form of recognition is through promotion; they measure such promotions by rank, title, salary, size of their budget, and number of subordinates.

Entrepreneurial

The entrepreneurial person has an overriding desire to start a business of their own or to reshape an existing business in their own image (Schein, 1987). These people possess high levels of motivation and constantly feel the need to create things. They are easily bored and may build one business up only to sell it and create another one.

The biggest motivational factor for these people is ownership. As business owners, they often do not pay themselves very well but will retain overall control of the company. In organizations, they tend to favor a promotion system that allows them the freedom to do whatever they need to meet their goals. Furthermore, their rewards are structured around recognition of what they have accomplished. If they are business owners, their company or its products will often bear their name (Schein, 1987).

Sense of Service

The people in Schein's studies who had a service anchor had made some of their career decisions because they were working toward some values or goals that they considered very important. Schein (1987:168) refers to these types of people as working in the "helping professions" such as nursing, teaching, or the ministry, but could also be working in other businesses and pursuing organizational careers.

Schein believes that money is not centrally important to people with this anchor, but they would expect to be fairly compensated for their work. Also, they would value a promotion system that rewards their contributions and could move them into other

positions where they could make a difference. Finally, they respond well to recognition from their peers and supervisors and want their supervisors to share their values.

Pure Challenge

People with a pure challenge anchor may be referred to as "adrenaline junkies" because they strive for challenge no matter what the competition. Their whole personality revolves around winning at all costs. Derr (1980) found this trait in some naval aviators whose sole purpose in life was to prepare for confrontation with the enemy. He stated that they needed that confrontation in order to prove their superiority. Schein (1987) felt that the military example was over-dramatized, but did speculate on similar traits in professional athletes, salespeople, and even some managers who defined their careers as a competition where winning is everything.

Life-Style Integration

People with a life-style integration anchor strive for a career in which they can integrate their work and family life. Schein first discovered this anchor in women but later researchers found it increasingly in male subjects (Applin, 1982; Burnstine, 1982). Schein states that because the characteristics of life-style integration are always evolving, a person with this anchor wants flexibility more than anything. This allows them to make the decisions they feel necessary to achieve a good balance between work and the rest of their life. They appear to take from many of the other anchors and it appears they are looking more for a specific organizational culture than anything else.

Appendix C: Survey Questions

Demographic Items

Gender	Year of Birth
AFSC	Rank
Date of Rank	MAJCOM
What year did you enter active service?	Highest level of education completed
What year does your current enlistment expire?	

Job Type

Combat Communications	*Network Administration*
C-CS Security	*Network Security*
Computer Programming	*Quality Control*
Database Administration	*Switchboard Operator*
Equipment Control	*System Analysis/Design*
Formal Training	*Systems Administration*
Magnetic Media	*Systems Monitor*
Mainframe Operator	*Tech Control*
Message Distribution	*Telecommunications*
NCOIC or Branch Chief	*Other:* _____

Supervisory/Management Time

Approximately what percentage of your time do you spend performing supervisory or management duties such as scheduling/coordinating the work of others, writing/endorsing performance reports or decorations, counseling subordinates, allocating resources, or interpreting policies, directives, or procedures? (please select one)

0%   10%   20%   30%   40%   50%   60%   70%   80%   90%   100%

<u>Job Satisfaction Items</u>

Please indicate how you personally feel about each aspect of your job. Each of the statements below is something that a person might say about his or her job. You are to indicate your own personal feelings about your job by marking how much you agree with each of the following statements. Please use the following scale:

(1) Disagree strongly   to   (7) Agree strongly

1. Generally speaking, I am very satisfied with this job.
2. I frequently think of quitting this job.
3. I am generally satisfied with the kind of work I do in this job.

Please think of the other people in your organization who hold the same job you do. If no one has exactly the same job as you, think of the job that is most similar to yours. Think about how accurately each of the statements describes the feelings of those people about the job. It's quite all right if your answers here are different from when you described your own reactions to the job. Often, different people feel quite differently about the same job.

4. Most people on this job are very satisfied with the job.
5. People on this job often think of quitting.

<u>Pay Satisfaction Items</u>

1. The amount of pay and fringe benefits I receive.
2. The degree to which I am fairly paid for what I contribute to this organization.

<u>Turnover Intention Item</u>

What are your current intentions towards reenlisting for another term in the Air Force?

N/A. I have already completed 20 years of service
N/A. My current enlistment completes 20 or more years of service
I will definitely reenlist in the Air Force
I will probably reenlist in the Air Force
I am leaning toward reenlisting in the Air Force
I am undecided
I am leaning toward NOT reenlisting in the Air Force
I probably will NOT reenlist in the Air Force
I definitely will NOT reenlist in the Air

<u>Career Anchor Items</u>

<u>Technical</u>

1. To build my career around some specific functional or technical area is...
9. Remaining in my specialized area as opposed to being promoted out of my area of expertise is…
17. Remaining in my area of expertise throughout my career is…
25. I will accept a management position only if it is in my area of expertise.
33. I would rather leave my company than be promoted out of my area of expertise.

<u>Managerial</u>

2. The process of supervising, influencing, leading, and managing people at all levels is...
10. To be in charge of a whole organization is…
18. To rise to a high position in general management is…
26. I would like to reach a level of responsibility in an organization whereby I would supervise others in various business functions and my role would primarily be to integrate their efforts.
34. I will feel successful in my career only if I become a high level general manager in some organization.

<u>Autonomy</u>

3. The chance to do things my own way and not be constrained by the rules of an organization is...
11. A career that is free from organization restrictions is…
19. A career that permits a maximum amount of freedom and autonomy to choose my own work, hours, etc., is…
27. During my career I have been mainly concerned with my own sense of freedom and autonomy.
35. I do not want to be constrained by either an organization or the business world.

<u>Job Security</u>

4. An employer who will provide security through guaranteed work, benefits, a good retirement program, etc., is…
12. An organization that will give me long-run stability is…
36. I prefer to work for an organization that provides tenure (lifetime employment)

<u>Geographic Security</u>

20. Remaining in one geographical area rather than moving because of a promotion is…
28. It is important or me to remain in my present geographical location than to receive a promotion or new job assignment in another location.

41. I prefer to work for an organization that will permit me to remain in one geographical area.

Service

5. The use of my interpersonal and helping skills in the service of others is…
13. Using my skills to make the world a better place to live and work in is…
21. Being able to use my skills and talents in the service of an important cause is…
29. I have always sought a career in which I could be of service to others.
37. I want a career in which I can be committed and devoted to an important cause.

Pure Challenge

6. Working on problems that are almost insoluble is…
14. Competing with and winning out over others is…
22. The only real challenge in my career has been confronting and solving tough problems, no matter what area they were in.
30. Competition and winning are the most important and exciting parts of my career.
38. I feel successful only if I am constantly challenged by a tough problem or a competitive situation.

Life-Style

7. Developing a life style that balances my career and family needs is…
15. Developing a career that permits me to continue to pursue my own life style is…
23. I have always tried to give equal weight to my family and my career.
31. A career is worthwhile only if it enables me to lead my life in my own way.
39. Choosing and maintaining a certain life style is more important than is career success.

Entrepreneurship

8. To be able to create or build something that is entirely my own product or idea is…
16. Building a new business enterprise is…
24. I am always on the lookout for ideas that would permit me to start and build my own enterprise.
32. Entrepreneurial activities are the central part of my career.
40. I have always wanted to start and build up a business of my own.

Appendix D: Screen Shots of Online Survey and Notification E-Mail

Survey Page 1

AF Career Attitudes Survey

(page 1 of 3)

Welcome to the AF Career Attitudes Survey.
Please take the next few minutes to answer the following series of questions concerning your career attitudes.
This survey takes approximately 5 minutes to complete.

Please enter the following demographic information

Gender: ○ Male ○ Female   Year of Birth: [Select One ▾]   AFSC: [Select One ▾]

Rank: [Select One ▾]   Date of Rank: [   ] - (dd/mm/yy)   MAJCOM: [Select One ▾]

What year did you enter active duty? [Select One ▾]

What year does your current enlistment expire? [Select One ▾]

Please indicate the highest level of education you have completed: [Select One ▾]

Please choose the job type that most closely matches your current job: [Select One ▾]

If your current job was not listed above, please enter it here: [   ]

Approximately what percentage of your time do you spend performing supervisory or management duties such as scheduling/coordinating the work of others, writing/endorsing performance reports or decorations, counseling subordinates, allocating resources, or interpreting policies, directives, or procedures?

○ 0% ○ 10% ○ 20% ○ 30% ○ 40% ○ 50% ○ 60% ○ 70% ○ 80% ○ 90% ○ 100%

Next, please indicate how you personally feel about each aspect of *your job*. Each of the statements below is something that a person might say about his or her job. You are to indicate your own personal feelings about your job by marking how much you agree with each of the following statements.
Please use the following scale:

			1	2	3	4	5	6	7
(1) Disagree strongly	to	(7) Agree strongly							
1. Generally speaking, I am very satisfied with this job.			○	○	○	○	○	○	○

Survey Page 1 (cont.)

Approximately what percentage of your time do you spend performing supervisory or management duties such as scheduling/coordinating the work of others, writing/endorsing performance reports or decorations, counseling subordinates, allocating resources, or interpreting policies, directives, or procedures?

○ 0% ○ 10% ○ 20% ○ 30% ○ 40% ○ 50% ○ 60% ○ 70% ○ 80% ○ 90% ○ 100%

Next, please indicate how you personally feel about each aspect of *your job*. Each of the statements below is something that a person might say about his or her job. You are to indicate your own personal feelings about your job by marking how much you agree with each of the following statements. Please use the following scale:

(1) Disagree strongly to (7) Agree strongly	1	2	3	4	5	6	7
1. Generally speaking, I am very satisfied with this job.	○	○	○	○	○	○	○
2. I frequently think of quitting this job.	○	○	○	○	○	○	○
3. I am generally satisfied with the kind of work I do in this job.	○	○	○	○	○	○	○

Now, please think of the *other people* in your organization who hold the same job you do. If no one has exactly the same job as you, think of the job that is most similar to yours. Think about how accurately each of the statements describes the feelings of *those people* about the job. It's quite all right if your answers here are different from when you described your own reactions to the job. Often, different people feel quite differently about the same job. To what extent do you agree or disagree with the following statements? Please use the following scale:

(1) Disagree strongly to (7) Agree strongly	1	2	3	4	5	6	7
4. Most people on this job are very satisfied with the job.	○	○	○	○	○	○	○
5. People on this job often think of quitting.	○	○	○	○	○	○	○

Now, please indicate how satisfied you are with each aspect of your job listed below. Please use the following scale:

(1) Extremely dissatisfied to (7) Extremely satisfied	1	2	3	4	5	6	7
6. The amount of pay and fringe benefits I receive.	○	○	○	○	○	○	○
7. The degree to which I am fairly paid for what I contribute to this organization.	○	○	○	○	○	○	○

What are your current intentions towards reenlisting for another term in the Air Force?

Select One ▼

[Next Page >]

90

Survey Page 2

For each of the following statements, think about the criteria you have used in recent years to make decisions about your job and career. Also, think about the kinds of criteria that are important to you as you consider future career decisions.

For each criteria listed below, select the response that best describes **how important** it has been and continues to be in your career decisions. Please use the following scale:

	1	2	3	4	5	6	7
(1) Of no importance to me to (7) Centrally important to me							
8. To build my career around some specific functional or technical area is...	○	○	○	○	○	○	○
9. The process of supervising, influencing, leading, and managing people at all levels is...	○	○	○	○	○	○	○
10. The chance to do things my own way and not be constrained by the rules of an organization is...	○	○	○	○	○	○	○
11. An employer who will provide security through guaranteed work, benefits, a good retirement program, etc., is...	○	○	○	○	○	○	○
12. The use of my interpersonal and helping skills in the service of others is...	○	○	○	○	○	○	○
13. Working on problems that are almost insoluble is...	○	○	○	○	○	○	○
14. Developing a life style that balances my career and family needs is...	○	○	○	○	○	○	○
15. To be able to create or build something that is entirely my own product or idea is...	○	○	○	○	○	○	○
16. Remaining in my specialized area as opposed to being promoted out of my area of expertise is...	○	○	○	○	○	○	○
17. To be in charge of a whole organization is...	○	○	○	○	○	○	○
(1) Of no importance to me to (7) Centrally important to me	**1**	**2**	**3**	**4**	**5**	**6**	**7**
18. A career that is free from organization restrictions is...	○	○	○	○	○	○	○
19. An organization that will give me long-run stability is...	○	○	○	○	○	○	○
20. Using my skills to make the world a better place to live and work in is...	○	○	○	○	○	○	○
21. Competing with and winning out over others is...	○	○	○	○	○	○	○
22. Developing a career that permits me to continue to pursue my own life style is...	○	○	○	○	○	○	○
23. Building a new business enterprise is...	○	○	○	○	○	○	○
24. Remaining in my area of expertise throughout my career is...	○	○	○	○	○	○	○
25. To rise to a high position in general management is...	○	○	○	○	○	○	○
26. A career that permits a maximum amount of freedom and autonomy to choose my own work, hours, etc., is...	○	○	○	○	○	○	○
27. Remaining in one geographical area rather than moving because of a promotion is...	○	○	○	○	○	○	○
28. Being able to use my skills and talents in the service of an important cause is...	○	○	○	○	○	○	○

Next Page >

Survey Page 3

As in the previous section, think about the criteria you have used in recent years to make decisions about your job and career. Also, think about the kinds of things that are important to you as you consider future career decisions.

For each criteria listed below, select the response that best describes **how true** each question is and continues to be in your career decisions. Please use the following scale.

	1	2	3	4	5	6	7
(1) Not at all true to (7) Completely true							
29. The only real challenge in my career has been confronting and solving tough problems, no matter what area they were in.	●	○	○	○	○	○	○
30. I have always tried to give equal weight to my family and my career.	○	●	○	○	○	○	○
31. I am always on the lookout for ideas that would permit me to start and build my own enterprise.	○	●	○	○	○	○	○
32. I will accept a management position only if it is in my area of expertise.	○	●	○	○	○	○	○
33. I would like to reach a level of responsibility in an organization whereby I would supervise others in various business functions and my role would primarily be to integrate their efforts.	○	●	○	○	○	○	○
34. During my career I have been mainly concerned with my own sense of freedom and autonomy.	○	●	○	○	○	○	○
35. It is important for me to remain in my present geographical location than to receive a promotion or new job assignment in another location.	○	●	○	○	○	○	○
36. I have always sought a career in which I could be of service to others.	○	●	○	○	○	○	○
37. Competition and winning are the most important and exciting parts of my career.	○	●	○	○	○	○	○
38. A career is worthwhile only if it enables me to lead my life in my own way.	○	●	○	○	○	○	○
39. Entrepreneurial activities are the central part of my career.	○	●	○	○	○	○	○
(1) Not at all true to (7) Completely true	1	2	3	4	5	6	7
40. I would rather leave my company than be promoted out of my area of expertise.	○	●	○	○	○	○	○
41. I will feel successful in my career only if I become a high level general manager in some organization.	○	●	○	○	○	○	○
42. I do not want to be constrained by either an organization or the business world.	○	●	○	○	○	○	○
43. I prefer to work for an organization that provides tenure (lifetime employment).	○	●	○	○	○	○	○
44. I want a career in which I can be committed and devoted to an important cause.	○	●	○	○	○	○	○
45. I feel successful only if I am constantly challenged by a tough problem or a competitive situation.	○	●	○	○	○	○	○
46. Choosing and maintaining a certain life style is more important than is career success.	○	●	○	○	○	○	○
47. I have always wanted to start and build up a business of my own.	○	●	○	○	○	○	○
48. I prefer to work for an organization that will permit me to remain in one geographical area.	○	●	○	○	○	○	○

Submit answers

92

Survey Confirmation Page

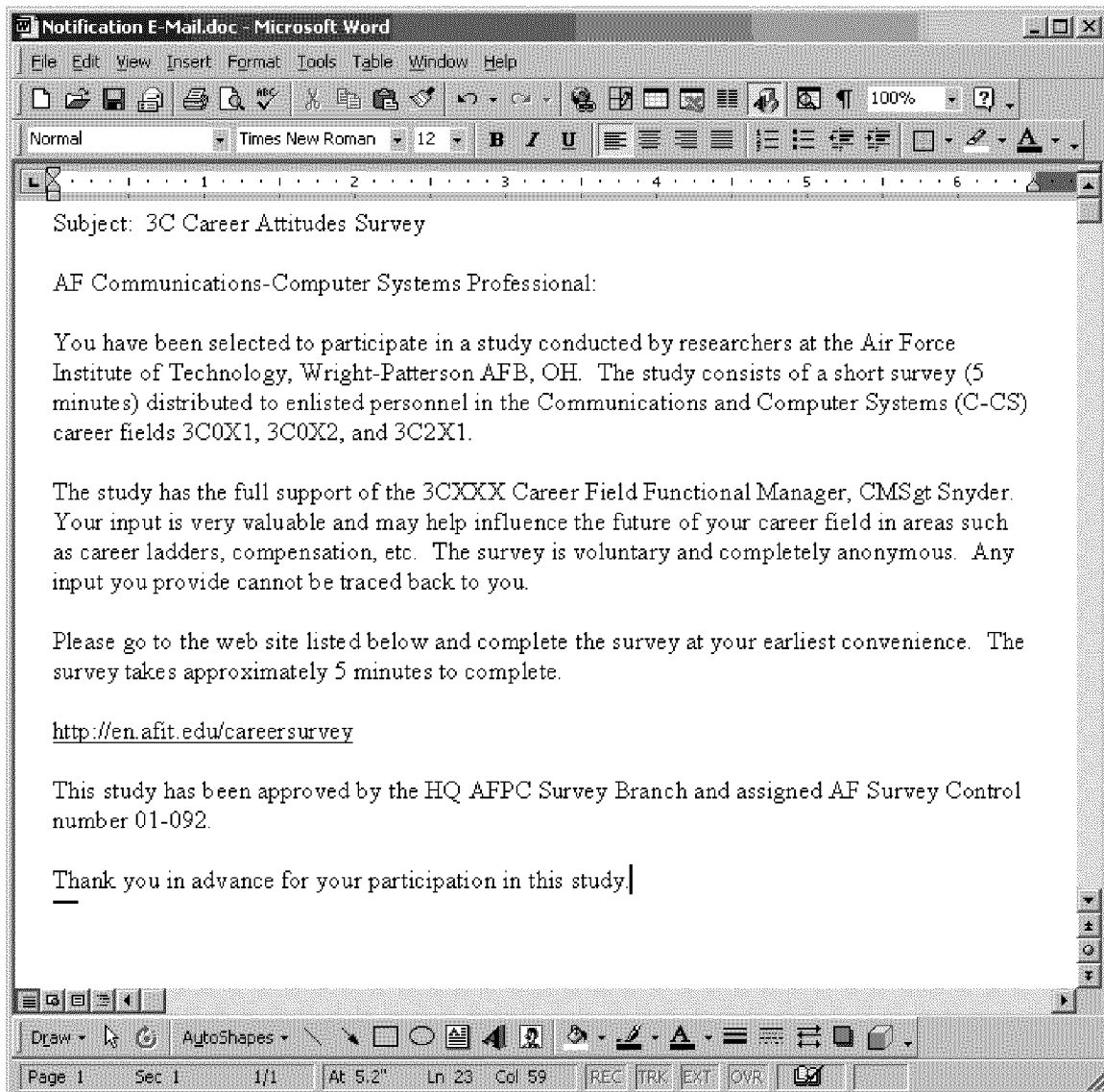**AF Career Attitudes Survey**

Your input has been sent!

Thank you for completing this survey. Please close your browser.

Notification E-Mail

Notification E-Mail.doc - Microsoft Word

File Edit View Insert Format Tools Table Window Help

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Subject: 3C Career Attitudes Survey

AF Communications-Computer Systems Professional:

You have been selected to participate in a study conducted by researchers at the Air Force
Institute of Technology, Wright-Patterson AFB, OH. The study consists of a short survey (5
minutes) distributed to enlisted personnel in the Communications and Computer Systems (C-CS)
career fields 3C0X1, 3C0X2, and 3C2X1.

The study has the full support of the 3CXXX Career Field Functional Manager, CMSgt Snyder.
Your input is very valuable and may help influence the future of your career field in areas such
as career ladders, compensation, etc. The survey is voluntary and completely anonymous. Any
input you provide cannot be traced back to you.

Please go to the web site listed below and complete the survey at your earliest convenience. The
survey takes approximately 5 minutes to complete.

http://en.afit.edu/careersurvey

This study has been approved by the HQ AFPC Survey Branch and assigned AF Survey Control
number 01-092.

Thank you in advance for your participation in this study.

Draw   AutoShapes

Page 1   Sec 1   1/1   At 5.2"   Ln 23   Col 59   REC TRK EXT OVR

94

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Vita

Lieutenant Lee Wynne graduated from Burkburnett High School in Burkburnett, Texas in May 1989 and enlisted in the Air Force of August of the same year. While on active duty, he completed his Bachelor of Science degree in Electronics Management from Southern Illinois University, Carbondale.

His first assignment was to Lowry AFB, Colorado where he was trained as a Space Systems Equipment Maintenance Technician. He then served as a Defense Meteorological Satellite Program maintenance technician at the 6th Space Operations Squadron, Offutt AFB, Nebraska. After that, he served a one-year remote tour at Osan AB, South Korea and then on to Ramstein AB, Germany where he was selected to attend Officer Training School.

Lieutenant Wynne was commissioned through Officer Training School, Maxwell Air Force Base, Alabama in April 1998 and assigned to Keesler AFB, Mississippi where he completed Basic Communications Officer Training. He was subsequently assigned to the 17th Communications Squadron, Goodfellow AFB, Texas where he served as the Network Control Center Chief and Plans Flight Deputy Commander. In August 2000, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology. Upon graduation, he will be assigned to the Air Force Communications Agency at Scott AFB, Illinois.

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14. ABSTRACT
The United States Air Force (AF) has experienced a downward trend in retention of information systems (IS) workers over the past five years. This research draws on the employee turnover model proposed by Mobley et al. (1979) and the work of Schein (1987) to measure the career anchors, job satisfaction, and turnover intention of AF IS workers to determine if those whose job type and career anchor match report higher satisfaction and lower turnover intention than those with a mismatch. A portion of the AF IS workforce (AFSCs 3C0X1, 3C0X2, and 3C2X1; N = 10,133) was surveyed through an online instrument that returned 2,724 responses. Job security, service, and life-style anchors emerged as dominant. Partial support was found showing that job satisfaction is positively influenced by compatibility between job type and career anchor. Partial support was also found for the proposed link between turnover intention and compatibility. The most significant finding was that managerial and technical anchors did not dominate this population. This suggests that AF IS workers do not possess the same career anchors as civilian IS workers and may require different incentives to reduce turnover. Further research should be expanded throughout the AF and should explore other factors in addition to job type/career anchor compatibility as contributing factors.

15. SUBJECT TERMS
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