The Influence of Organizational Commitment on Officer Retention: A 12-Year Study of U.S. Army Officers

Stephanie C. Payne
Assistant Professor of Psychology, Texas A&M University

Ann H. Huffman
Doctoral Student in Psychology, Texas A&M University

Trueman R. Tremble, Jr.
Research Psychologist, U.S. Army Research Institute for the Behavioral and Social Sciences

The Influence of Organizational Commitment on Officer Retention: A 12-Year Study of U.S. Army Officers

Stephanie C. Payne
Assistant Professor of Psychology
Texas A&M University

Ann H. Huffman
Doctoral Student in Psychology
Texas A&M University

Trueman R. Tremble, Jr.
Research Psychologist
U.S. Army Research Institute for the Behavioral
and Social Sciences

December 2002

T A B L E   O F   C O N T E N T S

F O R E W O R D

December 2002

On behalf of the IBM Endowment for The Business of Government, we are pleased to present this report, "The Influence of Organizational Commitment on Officer Retention: A 12-Year Study of U.S. Army Officers" by Stephanie C. Payne, Ann H. Huffman, and Trueman R. Tremble, Jr.

While the report focuses on how the United States Army can increase its retention rate for officers, the report's recommendations appear applicable to all government organizations. While much attention is now being focused on the issue of the potential retirement "wave" of senior career civil servants, a major implication of this report is that the entire federal government, including the military, should now focus increased attention on retaining individuals who have completed 10 to 20 years of federal service. The government has already made a substantial investment in these individuals, and with additional effort, it is likely that government will be able to retain these individuals until retirement.

The major finding from this report is that by increasing organizational commitment to individuals within an organization, the organization is more likely to retain them. This finding translates into a series of recommendations that can be undertaken by all organizations desiring to increase retention rates. Three recommendations appear applicable to all organizations. First, organizations must take actions to show their employees that they are supportive of them. Examples of such actions include creating mentoring programs and providing training and development opportunities. Second, organizations must give their employees opportunities to make a major contribution to their organizations. Thus, the recent trends toward employee "empowerment" and "job enlargement" appear to be major factors in the retention of employees. Third, all organizations must continue to reduce work-family conflicts and offer more family-friendly policies.

While the report focuses specifically on the United States Army, we trust that this report will be useful and informative to executives throughout government engaged in the strategic management of human capital, a major component of the President's Management Agenda. There is much that civilian government organizations can learn from the experience of their military counterparts.

Paul Lawrence
Co-Chair, IBM Endowment for
The Business of Government
paul.lawrence@us.ibm.com

Ian Littman
Co-Chair, IBM Endowment for
The Business of Government
ian.littman@us.ibm.com

E X E C U T I V E   S U M M A R Y

In an effort to inform the public sector, particularly the U.S. Army, about how to retain an outstanding workforce in the 21st century, this report seeks a further understanding of whether organizational commitment can predict the retention of Army officers over time. In particular, we examine two primary components of organizational commitment: (1) the *want factor,* or the extent to which employees want to remain in the organization, which is based on the employees' emotional attachment to, identification with, and involvement in the organization, and (2) the *need factor,* or the extent to which employees need to remain in the organization, which is based on an awareness of the costs associated with leaving the organization.[1]

Through data collected by the U.S. Army Research Institute for the Behavioral and Social Sciences over the course of 12 years (1988–2000), we answer the following three primary research questions concerning the predictive validity of organizational commitment.

1. How long does it take for organizational commitment to develop and at what point in an officer's career does it stabilize?

2. How do the various components of organizational commitment differentially relate to career intentions and actual turnover behavior?

3. Does organizational commitment interact with job satisfaction and demographic variables when predicting turnover?

The key findings of this report are summarized below:

- The single best predictor of retention was an employee's self-expressed intentions to stay or leave the organization.

- Both the want and the need factors initially developed in the first year of service as indicated by the relatively high levels reported in the first year.

- Both the want and the need factors decreased between the first and second years of service, stabilizing shortly thereafter.

- The periods of time when the want and need factors grew and developed varied. The want factor grew between the third and eighth years of service, while the need factor grew between the fourth and ninth years of service. This suggests that the time between the fourth and eighth years of service was a significant period of growth for employees' feelings of commitment to their organization.

- Both the want and the need factors correlated strongly with retention variables. The magnitude of the correlations was quite similar, with a slight advantage for the want factor. In terms of long-term prediction, the want factor maintained stronger correlations with career intentions over time than the need factor.

- Job satisfaction and organizational commitment did not interact when predicting career

intentions or retention in the Army. These variables independently predicted retention. This suggests that the influence of one is not dependent on the other.

- The want factor interacted with rank when predicting retention in the Army. In other words, the influence of the want factor on retention depended upon the rank of the officer. More specifically, the want factor had an even stronger relationship with retention for more-senior officers than junior officers.

- The need factor interacted with family financial responsibilities when predicting retention in the Army. In other words, the influence of the need factor on retention depended upon the officers' family financial responsibilities. More specifically, the need factor had an even stronger relationship with retention for officers who have more family responsibilities.

Given these findings, we offer the following five recommendations for increasing the want and the need factors with the expectation that higher levels of commitment will in turn lead to stronger intentions to remain in the Army and, ultimately, higher levels of retention.

The first three recommendations are directed at increasing the want factor. It is particularly important to initiate these efforts during an officer's first year in the Army and reinforce them between the third and eighth years of service.

1. Increase officers' perceptions of organizational supportiveness and fairness.

Officers are likely to feel more loyal to the Army if they feel the Army values their individual contributions, cares about their well-being, and treats them fairly. The primary way to enhance these perceptions is through just distribution of praise, rewards, and promotions.

2. Increase officers' feelings of personal importance and competence.

The want factor is also likely to be enhanced when officers feel they make important contributions to the Army. Officer perceptions of importance and competence are facilitated by challenging job responsibilities that require participative decision

making and judgments. These feelings are also enhanced through promotions.

3. Reduce work-family conflict and offer more family-friendly policies.

Work-family conflict describes the role pressures an officer can feel when work and family domains are mutually incompatible. Eliminating ambiguity on the job can reduce this. In addition, a number of family-friendly practices and policies can be adopted to facilitate the ability of officers to balance both work and family. In addition to offering these policies, it is important that officers are made aware of them and that the officers who are most likely to benefit from them are encouraged to take advantage of them.

The last two recommendations are intended to elevate the need factor. These actions should be considered during an officer's first year in the Army and between the fourth and ninth years of service.

4. Increase the costs associated with leaving the Army.

Whenever an officer feels the costs of leaving the Army outweigh the benefits, he or she is more likely to remain. Costs include time, effort, status, benefits, and stability.

5. Make the Army appear more attractive than other employment options.

Officers who perceive the Army as more appealing than employment alternatives in the civilian sector will be more committed to the Army and less likely to separate. One way to do this is to emphasize the unique perks one is entitled to as a member of the Army.

Introduction[2]

The public sector needs to attract and retain an outstanding workforce in the 21st century. The workplace is ever changing, and this has implications for obtaining and maintaining a workforce of talented personnel. To attract talent, management needs to be knowledgeable of the values and needs of today's workers as well as what the competition has to offer. To retain such talented personnel, management needs to know what contributes to employee turnover and how to utilize this information to its advantage. This report examines one characteristic that differentiates "stayers" from "leavers"—that is, how committed they are to their organization.

Understanding the Problem

Military Retention

One of the most significant demonstrations of public service is pursuing a career in the armed forces. Every year over 200,000 men and women become members of one of the branches of the military (Department of Defense, 1996). Like all other public sector organizations, the military has a need to attract and retain talented personnel. In particular, the military has a need to develop and maintain personnel who are highly motivated and capable for military service.

The need to maintain a ready military has become particularly salient since the September 11, 2001, terrorists attacks. As a result of these tragic events, the United States has entered into a "War on Terrorism" in an effort to prevent future terrorist activities and to maintain national security. As long as there are potential threats to the United States and our allies, we must ensure we have a military presence ready and willing to protect our country and all that it stands for. This means recruiting and retaining the best of the best.

It is important to acknowledge that pursuing a career in the military can be quite different from pursuing a career in the civilian sector. In an attempt to identify the characteristics and motivations of individuals who are likely to select the military as a career, Tziner (1983) pointed out some unique characteristics of the military to include the hierarchical decision-making structure; the three reinforcement systems (punishment, indoctrination, and advancement); the importance of ideology (national security); and prevalent values such as cooperation, mutual dependency, comradeship, and altruistic self-sacrifice.

The unique conditions of military service pose distinct challenges for ensuring retention and minimizing turnover. Becoming a member of the armed services can involve a long-term obligation to a life requiring travel, frequent relocation, and selflessness in the execution of life-threatening duties. As a result, the military is continually faced with retention challenges and eager to find ways to reduce turnover.

Retention has been a top priority for the Department of Defense (DoD) since the early 1990s and remains a top priority (DoD, 2001). Both recruitment and retention have been referred to as "major management challenges" in the DoD's performance plans (Saldarini, 1999). Accordingly, the DoD's Office of

Force Management Policy has established a Retention Working Group to address increased concerns about retention.

Why is retention a concern? Statistical trends suggest that the majority of soldiers, sailors, airmen, and marines leave by the end of their initial obligation (typically three to four years; Wigdor & Green, 1991). As a result, the military is consistently faced with recruiting and training new personnel to replace these individuals.

While numerous studies have been conducted on retention in the military, the General Accounting Office (GAO) has encouraged the Defense Department to continue its recent efforts to establish standard data and measures of retention across services and to monitor retention trends (GAO, 2000).

U.S. Army Retention
This report focuses specifically on retention in the U.S. Army. Compared to the other branches of the military, the Army maintains the largest number of active duty members. According to the Defense Department (2002), the Army contains 34.5 percent of our active duty military strength. This can be compared with 27.4 percent in the Navy, 25.5 percent in the Air Force, 12.5 percent in the Marine Corps, and 2.6 percent in the Coast Guard. Although more military members serve in the Army, aggregate retention rates across the four primary services (Army, Navy, Air Force, and Marines) are relatively similar (U.S. GAO, 2000). This report also focuses specifically on officer retention in the U.S. Army. Officers are leaders in the military. As a result, this report focuses on retaining the leaders of tomorrow.

Military leaders have reported significant problems with retention particularly among personnel with critical skills such as pilots. For the Army, retention has recently been identified as a significant problem in three health care occupational groups: nurses, dentists, and health service administrators (U.S. GAO, 2000). Retention rates also vary considerably among certain career stage groups. For example, GAO recently reported that retention rates for late-career officers (between 15 and 19 years of service) in the Army, Navy, and Air Force experienced significant declines as compared to retention rates for early- or mid-career officers.

While the majority of officers leave by the end of their first obligation, some officers choose to remain and devote their entire career to a military occupation and lifestyle. What differentiates these individuals from one another? Why do some officers remain in the Army while others leave? These questions are the focus of this report.

Understanding the Study

Two Surveys
Data to address these kinds of questions are available from an ongoing, longitudinal study of officer career-related issues, which is being conducted by the U.S. Army Research Institute for the Behavioral and Social Sciences. Over a period of 12 years (1988–2000), seven mail surveys, initially referred to as the Longitudinal Research on Officer Careers (LROC) and more recently as the Survey of Officer Careers (SOC), were distributed to thousands of officers of varying rank in the different branches. The sampling strategy for each subsequent survey sought to maximize multiple responses from the same officers so that longitudinal trends could be examined. Details on the sampling plan and methodology, sample sizes, response rates, and some descriptive statistics can be found in Appendix I. Despite some variation, there was considerable continuity in the questionnaire items that were administered in the surveys. Questionnaire items of particular interest to this report focus on organizational commitment, career intentions, job satisfaction, and demographic characteristics.

The survey archive was further supplemented with data from the Officer Longitudinal Research Database, a personnel database on all the officers in the Army. Variables of particular interest to this report include the year the officer entered service (ranged from 1970 to 2000), source of commissioning, length of initial obligation, and separation dates through September 30, 2000.

While previous research has demonstrated significant relationships between job attitudes like job satisfaction and organizational commitment and retention, this report is unique in that it examines survey data from seven distinct points in time, allowing for a more comprehensive examination of the predictive validity of organizational commitment and its components.

Surveys

Longitudinal Research on Officer Careers (LROC)		Survey on Officer Careers (SOC)	
Date	**Sample Size**	**Date**	**Sample Size**
1988	5,039	1996	9,146
1989	5,024	1998	8,928
1990	4,535	2000	16,546
1992	4,157		

Additional survey and sample details are provided in Appendix I.

Each survey was a standalone administration/study, providing cross-sectional data for each year it was administered. Subsequent surveys were mailed to previous survey respondents, generating a number of longitudinal samples as well.

While previous research has also been conducted on the survey archive examined in this study, most research has focused on the cross-sectional samples corresponding to the year in which the survey was administered. This research study is unique in that it:

- Combines the survey data with data from another organizational archive, allowing for an examination of the relationship between organizational commitment and actual turnover behavior.

- Examines longitudinal as well as cross-sectional samples.

- Analyzes data using more complete statistical analyses such as correlations and regressions (not just descriptive statistics).

The report first describes the various retention factors that are likely to contribute to an officer's decision to remain in the Army. It then examines the career intentions of the officers, a very strong predictor of retention. This is followed by a thorough description of organizational commitment, defining its various components and subcomponents as well as how it is measured in this research study. Next, three primary research questions exploring the longitudinal relationship between organizational commitment and retention are posed and answered. Finally, recommendations on how to retain an excellent workforce are provided to the U.S. Army and other public sector organizations.

Limitations

It is important to acknowledge limitations to the current research and the extent to which the findings can be generalized to other populations. In this study, we used ad hoc measures of organizational commitment, as opposed to more established measures from the psychological literature. Griffeth, Hom, and Gaertner (2000) found that, across numerous studies, established measures of organizational commitment generate higher predictive validity of turnover than ad hoc measures, making it more difficult to find significant relationships with ad hoc measures. On the contrary, the correlations we found with our ad hoc measures are stronger than those reported in the literature for established measures. Fortunately, the psychometric properties of our ad hoc measures are quite similar to the psychometric properties of Meyer and Allen's (1984) validated measure (Tremble, Payne, Finch, & Bullis, in press). At the same time, future research should take advantage of established measures whenever possible.

This report focused primarily on organizational commitment as a predictor of retention. It is important to recognize that no single factor determines an individual's decision on whether to stay in or leave the service (e.g., U.S. GAO, 1999). GAO claims that "the retention decision is complicated, highly personal, and usually a function of many factors" (U.S. GAO, 2001a, p. 8). Similarly, psychological researchers have identified a number of

variables related to turnover to include demographic variables, job satisfaction, organizational factors, job content, work environment factors, as well as cognitions and behaviors related to the withdrawal process (Griffeth et al., 2000). As a result the Defense Department is encouraged to maintain its view that there is no "one size fits all" solution to the complex challenge of retaining valuable personnel (Saldarini, 2000). Accordingly, a holistic approach that addresses multiple aspects of quality-of-life issues is seen as more effective.

Generalizations

We caution the reader from overgeneralizing our findings to populations beyond U.S. Army officers. Within the Army, officers represent approximately 16 percent of the uniformed personnel. We also acknowledge that our findings may be unique to officers and may not be generalizable to enlisted personnel. Previous research comparing Army officers and enlisted personnel has shown that enlisted retention rates are lower than officer retention rates (U.S. GAO, 2000), so retention of enlisted personnel is even more of a concern. Previous research has also shown that organizational commitment dimensions were more related to officer career intentions than enlisted career intentions (Sterling & Allen, 1983). Like officer retention, this suggests that organizational commitment is not the only variable that determines retention for enlisted personnel.

While the reader is cautioned from overgeneralizing the results of this study to other populations, many of the findings in this study are consistent with previous research conducted on both military and civilian samples. For example, it is well documented that employee self-expressed intentions to leave the organization is the single best predictor of turnover. Additionally, the two factors of organizational commitment—want and need—are also meaningful to civilians in both the public and private sectors. As a result, the general recommendations provided about how to enhance each of these factors are likely to be useful and applicable to retaining employees in the public sector as well.

Retention Factors

Researchers examining retention in both the public and private sectors have identified a number of variables that predict whether employees are likely to stay in their organization. One way to organize these variables is to use Ajzen's (1991) theory of planned behavior, which states that attitudes predict intentions, which in turn predict behavior. In other words, attitudes influence behavior through intentions, so attitudes are more distal predictors of retention whereas intentions are more proximal predictors (see Figure 1). The proximity of the predictor usually translates into stronger correlations and, therefore, higher levels of predictive validity.

A wide range of variables has been shown to be predictive of employee retention (usually examined as turnover) in the psychological literature. In a recent meta-analysis, Griffeth et al. (2000) determined the predictive validity for a comprehensive list of turnover antecedents. Their analysis included demographic variables (e.g., age, gender, organizational tenure); job satisfaction; organization factors (e.g., compensation, leadership, and co-workers); work environment factors (e.g., stress); job content; external environmental factors, as well as cogni-

tions and behaviors related to the withdrawal process (e.g., organizational commitment).

Consistent with Ajzen's (1991) theory, Griffeth et al. (2000) found that proximal predictors (e.g., turnover intentions) in the withdrawal process were better predictors of turnover than more distal predictors (e.g., characteristics of the work environment). More specifically, they found that turnover intentions is the best predictor of turnover (ρ = .38), followed by organizational commitment (ρ = -.23), and then job satisfaction (ρ = -.19). They also found that the correlation between turnover intentions and turnover is stronger for military personnel (ρ = .46) than civilians (ρ = .34). This supports pre-

Figure 1: The Theory of Planned Behavior
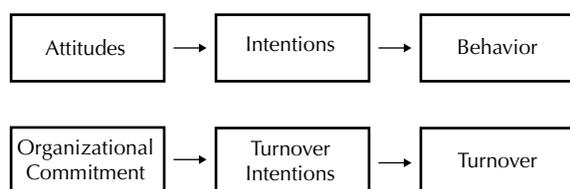
Career Intentions Survey Question

Which of the following best describes your current career intentions?

1. I will definitely leave the Army upon completion of my obligation.

2. I will probably leave the Army upon completion of my obligation.

3. I am undecided whether I will stay in the Army upon completion of my obligation.

4. I plan to stay in the Army beyond my obligation, but am undecided about staying until retirement.

5. I plan to stay in the Army until retirement (e.g., 20 years or sooner).

6. I plan to stay in the Army beyond 20 years.

vious observations that military personnel can more readily translate their termination decisions into leaving than can civilians (Hom, Caranikas-Walker, Prussia, & Griffeth, 1992; Steel & Ovalle, 1984).

Consistent with research in the civilian sector, the plethora of retention studies on military personnel has led to the conclusion that no single factor determines an individual's decision on whether to stay in or leave the service (e.g., U.S. GAO, 1999).

Officers' Self-Reported Career Intentions

As previously stated, the best predictor of retention is an employee's self-expressed intentions to stay or leave the organization (Griffeth et al., 2000). In all seven administrations of the LROC/SOC surveys, officers were asked to respond to the following question on a 6-point scale: Which of the following best describes your current career intentions? (6 = I plan to stay in the Army beyond 20 years, 1 = I will definitely leave the Army upon completion of my obligation.)

In an effort to see how historical trends might impact officer career intentions, we first examined officer responses to this question relative to the year in which they completed the survey. Table 1 depicts the percentage of officers who chose each of the six response options in each survey.

Our first observation when looking at the data in Table 1 is that the most frequently chosen response (shaded) in every survey administration was to stay in the Army until retirement (e.g., 20 years) with the exception of 1998 and 2000, in which the most frequently chosen response was to stay beyond 20 years. It is also interesting to note that the majority of officers (at least 70 percent) reported plans to stay beyond their initial obligation (one of the first three response options). Based on this information, it appears that officer career intentions have not changed dramatically between 1988 and 2000. In fact, the most recent data suggests that even more officers intend to remain in the Army beyond 20 years. Such results are quite promising for the Army.

It is important to note that Table 1 is a cross-sectional look at the data for each survey administration. It does not take into consideration that some of the same officers responded to more than one survey, nor does it account for a number of other variables that relate to career intentions such as organizational tenure (Cohen, 1991). Given this, officer career intentions were examined two other ways in an effort to further illuminate any changes over time as a function of historical trends.

First, the amount of time an officer has served (tenure) is likely to relate to his or her career intentions. We took this into consideration by examining only the officers who were in their first year of

Table 1: Career Intentions by Survey Administration Year

	1988 (5,039)	1989 (5,024)	1990 (4,535)	1992 (4,157)	1996 (9,146)	1998 (8,928)	2000 (16,546)
Beyond 20 years	20.2%	22.2%	22.5%	23.0%	29.1%	38.0%	35.5%
Until retirement	26.8%	30.9%	33.3%	36.2%	32.8%	34.1%	33.4%
Beyond obligation	25.0%	21.0%	17.4%	17.7%	17.9%	13.1%	13.1%
Undecided beyond obligation	11.7%	10.3%	10.3%	8.1%	8.7%	5.6%	6.8%
Probably leave after obligation	7.8%	7.2%	8.1%	5.3%	5.5%	3.8%	4.6%
Definitely leave after obligation	8.6%	8.6%	8.4%	9.7%	6.1%	5.4%	6.6%

Note: Numbers do not always add up to 100% because of rounding. The number in parentheses represents the number of respondents for each survey administration.

service (see Table 2). Accordingly, an individual officer's career intentions could be measured only once and therefore depicted in one cell of Table 2.

Table 2 also shows a fair amount of consistency in the officers' reports of their career intentions across the survey years. However, unlike Table 1, which depicts all officers who responded to a given survey, Table 2 reports only results for officers in their first year of service. It appears that the majority of first-year officers (at least 50 percent) were either planning to stay beyond their first obligation or undecided about staying beyond their first obligation. Interestingly, the officers' responses tended to fall into relatively equal quartiles, with approximately 25 percent of the officers reporting plans to stay until retirement or beyond, 25 percent planning to stay beyond their first obligation, 25 percent undecided about staying beyond their first obligation, and 25 percent planning to leave after their obligation is complete. The 25 percent that are undecided are probably the most likely to be enticed into staying and therefore a potentially fruitful sample to target for retention-oriented interventions.

Another way to look at these data is to take into consideration generational influences or trends. The generation most likely to respond to this set of surveys is a cohort of individuals frequently referred to

as Generation X (individuals born between 1964 and 1975). Unfortunately, Generation Xers have been criticized for job hopping and a lack of loyalty to their employer. However, a survey in late 2000 by Catalyst Research Group revealed that 47 percent of the 1,300 Generation X civilian workers surveyed reported they would be very happy to spend the rest of their careers at their current organizations (Gen X, 2001). To compare how Generation Xers feel about a career in the military, we looked at Generation X officers' responses to the career-intention question in each survey.

Table 3 depicts Generation X officers' career intentions across the seven surveys. It should be noted that the number of Generation X officers captured in each survey increases substantially over time from 850 officers in 1988 to 8,380 officers in 2000. On a whole, these data do not support the myth that Generation X workers are less loyal. With the exception of the 1988 survey (in which the most frequently chosen response option was undecided about staying beyond the initial obligation), the most frequently chosen response was to stay beyond the initial obligation or to stay until retirement. Interestingly, the percentage of officers reporting plans to stay until retirement increased almost threefold—from 10.7 percent in 1988 to 28.8 percent in 2000. Similar to the data collected by Catalyst Research Group on civilian Generation

Table 2: First-Year Officers' Career Intentions by Survey Administration Year

	1988 (607)	1989 (826)	1990 (1,031)	1992 (613)	1996 (1,280)	1998 (945)	2000 (669)
Beyond 20 years	10.4%	12.5%	14.1%	16.8%	19.1%	19.5%	18.8%
Until retirement	13.0%	15.1%	15.0%	16.0%	18.6%	15.8%	13.6%
Beyond obligation	27.0%	24.3%	24.0%	25.8%	23.9%	25.5%	27.7%
Undecided beyond obligation	26.7%	25.4%	25.7%	25.6%	24.5%	24.8%	23.5%
Probably leave after obligation	15.3%	14.3%	13.1%	10.3%	8.8%	8.0%	10.2%
Definitely leave after obligation	7.6%	8.4%	8.1%	5.5%	5.1%	6.5%	6.3%

Note: Numbers do not always add up to 100% because of rounding. The number in parentheses represents the number of first-year officers who responded to each survey administration.

Table 3: Generation X Officers' Career Intentions by Survey Administration Year

	1988 (850)	1989 (1,046)	1990 (1,311)	1992 (1,353)	1996 (5,234)	1998 (2,868)	2000 (8,380)
Beyond 20 years	8.8%	10.1%	12.4%	14.0%	19.5%	21.5%	19.2%
Until retirement	10.7%	10.9%	15.0%	20.4%	22.6%	28.8%	28.8%
Beyond obligation	26.2%	27.4%	24.9%	29.0%	26.7%	24.4%	22.8%
Undecided beyond obligation	27.1%	21.5%	19.6%	15.4%	13.0%	11.1%	11.1%
Probably leave after obligation	17.1%	14.1%	13.7%	9.5%	8.8%	6.5%	7.2%
Definitely leave after obligation	10.1%	15.9%	14.3%	11.7%	9.4%	7.7%	10.8%

Note: Numbers do not always add up to 100% because of rounding. The number in parentheses represents the number of Generation X officers who responded to each survey administration.

X workers in 2000, 48 percent of the officers in 2000 planned to pursue a career in the Army (28.8 percent "until retirement" plus 19.2 percent "beyond 20 years").

To further illuminate the predictive validity of career intentions, we correlated the officers' responses to the career-intentions question with the total number of years served. It should be noted again that our retention data were current through September 30, 2000. Consistent with Griffeth et al.'s (2000) findings, we found a strong positive correlation between career intentions and total years served (ranging from .48 in 1996 to .57 in 1988) in all seven survey administrations. This indicates that the longer the officers reported they intended to stay in the Army, the more time they actually served.

It is clear that a simple report of intentions to stay or leave is a fairly strong predictor of officer retention; however, this is not the only factor that contributes to an officer's decision. What determines an officer's career intentions? In the next section, we describe a predictor of both career intentions and turnover: organizational commitment.

Organizational Commitment

Organizational commitment is defined as "a psychological state that (a) characterizes the employee's relationship with the organization and (b) has implications for the decision to continue membership in the organization" (Meyer & Allen, 1991; p. 67). A highly committed employee is loyal, willing to work toward organizational objectives, and more likely to stay in an organization than an employee who is less committed.

Organizational researchers and psychologists are not the only ones who have recognized the importance of organizational commitment to retention. High-ranking military officials have also recognized and commented on the importance of this job attitude. For example, in his 1996 Annual Defense Report to the President and Congress, then Secretary of Defense William S. Perry stated, "The United States military maintains superior readiness and is the best-trained and best-equipped fighting force in the world. Advanced weapons give U.S. armed forces tremendous advantages, but U.S. national security ultimately relies on the quality and *commitment* of the men and women who serve in uniform and of the civilian employees who support them" (p. 1 of Chapter 12: Personnel; italics added for emphasis).

Organizational psychologists Meyer and Allen (1997) have differentiated between three states or components of organizational commitment. These three components differ in terms of the sources of attraction for relationship with the organization and are referred to as the affective, continuance, and normative commitment.[3] Due to the data available in the surveys administered, this report focuses on affective commitment, which will be referred to as the *want factor*, and continuance commitment, which will be referred to as the *need factor*. Each of these components and their subcomponents will be described in more detail in the next section.

The Want Factor

The want factor refers to the employee's emotional attachment to, identification with, and involvement in the organization (Meyer & Allen, 1997). It reflects an agreement with and willingness to work toward organizational goals and values. Individuals who are highly loyal identify with the organization and desire to be a part of it. As a result, they remain in the organization because they want to and doing so allows them to fulfill their occupational needs (Tziner, 1983).

The want factor is particularly meaningful to Army officers. The Army maintains a core set of seven values: loyalty, duty, respect, selfless service, honor, integrity, and personal courage. Every officer is

---

Want Factor Survey Items

1. Civilians are more likely to share my values and beliefs than other officers. (R)

2. One of the things I value most about the Army is the sense of community or camaraderie I feel.

3. I would discourage a close friend from joining the Army. (R)

4. I can count on Army people to help out when needed.

5. I am quite proud to tell people I am in the Army.

6. I feel I am really a part of the Army organization.

(R) = Reverse coded item.

---

expected to adopt these values and live by them day in and day out. In fact, many officers feel they should retain these values even after they retire from the Army. When officers behave in ways that exhibit these values, this suggests they identify with the Army and feel a strong sense of allegiance toward the Army.

The LROC/SOC surveys contained items that asked respondents to describe the extent to which they identified with the Army, had positive emotional feelings about their relationship with the Army, and felt a part of the Army. While these items were not specifically written to measure organizational commitment, they were written to measure attitudes that were judged to represent the definition of Meyer and Allen's (1984) affective commitment. Given this, we tested the extent to which these items measured the Meyer and Allen construct. Our analyses demonstrated that the scale generated from items in the LROC/SOC surveys has very similar psychometric properties to Meyer and Allen's Affective Commitment Scale and therefore could be used as a surrogate measure of the want factor (Tremble et al., in press).

The importance of having loyal employees has also been conveyed by author Frederick Reichheld in three recent books: *Loyalty Effect: The Hidden Force Behind Growth, Profits, and Lasting Value;*

U.S. Army Values

Loyalty—Bear true faith and allegiance to the U.S. Constitution, the Army, your unit, and other soldiers.

Duty—Fulfill your obligations.

Respect—Treat people as they should be treated.

Selfless Service—Put the welfare of the nation, the Army, and your subordinates before your own.

Honor—Live up to all the Army values.

Integrity—Do what's right, legally and morally.

Personal Courage—Face fear, danger, and adversity (physical or moral).

The Quest for Loyalty: Creating Value through Partnership; and *Loyalty Rules! How Today's Leaders Build Lasting Relationships.*

The Need Factor

The need factor refers to an awareness of the costs associated with leaving the organization, which leads to a feeling of being stuck in the organization (Meyer & Allen, 1997). This component of commitment has been associated with the side bets or investments an employee makes with an organization (Becker, 1960), as well as constraints and an absence of alternatives (Tziner, 1983). Individuals with high levels of the need factor "stake some unrelated aspect of their lives in continued organizational membership" (Reichers, 1985, p. 467). As a result, these employees remain in the organization because they need to.

The need factor is typically measured with survey items that describe how difficult it would be for an employee to leave their current organization, the sacrifices associated with leaving, and the extent to which other alternatives are available. The most frequently used scale to measure this construct is Meyer and Allen's (1984) Continuance Commitment Scale. While this particular scale was not included in the LROC/SOC surveys, the survey items that were administered were written to measure attitudes that were judged to represent the definition of continuance commitment. Given this, we tested the extent to which a scale based on these items measured the same construct as that measured by Meyer and Allen's scale. Our analyses suggested support of the use of this scale as a surrogate measure of the need factor (Tremble et al., in press).

Research using Meyer and Allen's (1984) Continuance Commitment Scale has found that it comprises two related dimensions—one reflecting high personal sacrifice and the other a lack of alternatives (Bullis & Wong, 1994; Dunham, Grube, & Castaneda, 1994; Hackett, Bycio, & Hausdorf, 1994; Magazine, Williams, & Williams, 1996; McGee & Ford, 1987; Meyer, Allen, & Gellatly, 1990; Somers, 1993). Similarly, the need factor scale used in this research is also comprised of these same two dimensions (Tremble et al., in press). These dimensions can be used as subscales of the need factor and will be referred to as *transition* and *attraction* factors.

Need Factor Survey Items

Transition Factors

1. It would be difficult for me to find a good civilian job right now, considering my own qualifications and current labor market conditions.

2. It would be difficult for me to leave the Army in the next year or so, given my current personal or family situation.

3. It would be difficult for me financially to be unemployed for two or three months if I needed time to find a new job.

Attraction Factors

4. The opportunities to advance are better in the military, compared to a civilian job that I could realistically expect to get.

5. The overall standard of living is better in the military, compared to a civilian job that I could realistically expect to get.

6. The overall quality of life is better in the military, compared to a civilian job that I could realistically expect to get.

7. Personal freedom is better in the military, compared to a civilian job that I could realistically expect to get.

Transition Factors

The transition factor reflects the investments individuals have with their employer. The longer individuals are on the job, the more likely they are to accumulate personal and professional investments that would be lost or they would have to sacrifice if they left the job. These investments are primarily time and effort, which translate into status (Louis, 1980; Vardi, 1980), as well as benefits (e.g., retirement). Another sacrifice if they left might be job security, or the peace of mind of a regular paycheck to provide for themselves and their family (Whitenar & Walz, 1993).

Transition factors have significant meaning to Army officers, as military members and their families are entitled to unique perks that civilians are not typically privy to, such as a housing allowance, access to the commissary and exchange, as well as com-

prehensive medical care. At the same time, preliminary findings from an ongoing study of military benefits by the GAO indicated the military's benefits package is comparable to the benefits packages offered by most private companies (Williams, 2002).

Officers who serve 20 years in the Army are also entitled to generous retirement benefits, which include pay and medical treatment for themselves and their families. Some mid-career officers who have served approximately 12 years in the Army have referred to such benefits as "golden handcuffs" (Freedberg, 1999b).

It should be noted that the 1996 Military Retirement Reform Act, bitterly referred to by some service members as "Redux," significantly reduced retirement benefits for any service member inducted after August 1, 1996. According to this act, service members who retire with 20 years of service receive 40 percent of basic pay instead of 50 percent. It also reduced annual cost-of-living adjustments in retiree checks. Such changes have likely impacted the transition component of the need factor for officers in the service at that time.

Attraction Factors

Attraction factors reflect the extent to which there are other employment opportunities available to the individual and how attractive these alternatives are relative to one's current employment situation. Individuals with a strong need to remain perceive a lack of attractive alternatives. Attraction factors also have a special meaning for Army officers. Typically, attraction factors are conveyed as opportunities for employment in the civilian workforce.

The skills officers acquire in the Army are often touted as transferable and marketable to the civilian sector. Consequently, available employment alternatives have recently been posed as a particular concern for military personnel in occupations critical to defense readiness. For instance, GAO conducted a survey in 1999 of active duty personnel in occupations such as electronic equipment repair, communication and intelligence, and mechanical equipment repair. This survey revealed that service members in these retention-critical occupations had more positive perceptions of the marketability of their skills in the civilian world

and were more optimistic about their prospects for civilian employment. GAO reported: "To the extent they possess marketable skills, it is more likely they are being 'pulled out' of the military by more attractive civilian opportunities" (U.S. GAO, 2001b, p. 2).

More recently, the DoD (2001) acknowledged specific retention challenges in highly technical jobs such as communications/computers, aviation maintenance, information technology, electronics, intelligence analysis, and linguistics. Acknowledging the influence of having employment options, DoD officials pointed out that "the level of technical training and hands-on experience provided to personnel makes them very competitive in the private sector" (p. F-2).

At the same time there is also some evidence to suggest that the longer one stays in the military, the less alternative occupational careers he or she may have (Louis, 1980). This may be the result of acquiring very narrow and specific knowledge and skills that are only applicable to military readiness. However, it is possible that these findings apply more to enlisted soldiers than officers, who tend to develop and use less of their technical skills and more of their leadership skills later in their careers.

Study Findings

Research Questions

The objective of this report is to examine the influence of organizational commitment on retention in the U.S. Army over the course of 12 years. The underlying goal of this investigation is to gain a deeper understanding of the development and influence of organizational commitment, which will contribute to the Army's ability to develop officer commitment, which will in turn enhance its ability to retain the most talented officers.

It has been suggested that the development of organizational commitment is a gradual process (Mowday, Porter, & Steers, 1982). Based on their review of the empirical literature, Mathieu and Zajac (1990) emphasized a need for research, which determines "how organizational commitment develops over time and what factors are most critical to employees at various career stages" (p. 191). Based on these views, longitudinal studies appear to hold promise for understanding the development of organizational commitment.

While previous longitudinal studies of organizational commitment have been conducted, very few studies have examined its influence beyond the first 12 months of employment. This is a problem, because some research evidence suggests that the factors that determine an employee's commitment do not stabilize until employees complete their initial socialization period, which for many occupations is more than 12 months (Bauer, Morrison, & Callister, 1998). In addition, at least one study found that organizational commitment did not stabilize before 30 months of employment (Van

Maanen, 1975). As a result, little is known about when job attitudes stabilize and to what extent they predict retention beyond the first year of employment. Accordingly, this research project seeks to answer these questions and further managers' understanding of how to retain the most qualified workforce in the public sector.

The objective of this report will be achieved by answering the following three research questions:

1. How long does it take for organizational commitment to develop and at what point in an officer's career does it stabilize?
We expect organizational commitment to take a minimum of one year to develop and for it to stabilize after the officer has completed his or her first obligation.

2. How do the various components of organizational commitment differentially relate to career intentions and actual turnover behavior?
We hypothesize that the want factor is the most stable component of organizational commitment and therefore the most fruitful longitudinal predictor of retention.

3. Does organizational commitment interact with job satisfaction and demographic variables when predicting turnover?
We hypothesize that job satisfaction will interact with the want factor to predict turnover such that the officers who have high levels of commitment (specifically the want factor) and job satisfaction will

be most likely to remain in the Army. Demographic variables are not expected to interact significantly with organizational commitment.

Major Findings

The results of our study suggest that officer career intentions have *not* changed dramatically between 1988 and 2000. Across the seven surveys administered, over 70 percent of the officers responding reported plans to stay beyond their initial obligation.

Career intentions are likely to vary based on where an officer is in their career at the time of the survey. Given this, we examined career intentions only for officers in their first year of service. Interestingly, first-year officer career intentions consistently fell into quartiles. Approximately 25 percent of the officers reported plans to stay until retirement or beyond, 25 percent planned to stay beyond their first obligation, 25 percent were undecided about staying beyond their first obligation, and 25 percent planned to leave after their obligation is complete. The officers who are undecided (25 percent) are the most likely to be enticed into staying and therefore a potentially fruitful sample to target for retention-oriented interventions early in their careers.

Despite the poor reputation Generation X workers have regarding loyalty to their employer, almost 50 percent of Generation X officers surveyed in 2000 reported intentions to remain in the Army their entire career.

Research Question 1

How long does it take for organizational commitment to develop and at what point in an officer's career does it stabilize?
Our first research question concerned the amount of time it takes for organizational commitment to develop and stabilize. We expected organizational commitment to take a minimum of one year to develop and that it would stabilize after the officer completed his or her first obligation. To answer this question, we calculated both the want and the need factor levels for officers relative to their time in the service. Given that seven surveys were administered over the course of 12 years to officers who entered the service as early as 1970, we were

able to calculate commitment levels through 23 years of service.

Unfortunately, we were not able to fully test our hypothesis regarding the stability of the want factor relative to the officer's first obligation. There were not enough officers responding to two consecutive surveys with the same length of obligation to determine the extent to which commitment stabilization related to the completion of the first obligation.

We were, however, able to see a number of trends regarding the development, stability, and decline of the want and need factors over time. We summarize our results below. Additional details about our analyses for all research questions are provided in Appendix II.

The data suggest that both the want and need factors develop over time. One possible explanation for the general increase in the need factor over time is the accumulation of investments or sacrifices (transition factors) that officers would have to give up if they chose to leave.

Answer to Research Question 1

How long does it take for organizational commitment to develop and at what point in an officer's career does it stabilize?

- Both the want and need factors initially developed in the first year of service. The want factor was stronger by the end of the first year than the second, third, or fourth years in the service. The need factor was stronger in the first year than any other year in an officer's career.

- Both the want and need factors initially decreased between the first and second years of service. The need factor continued to decrease into the third year. Following these periods of decline, the want factor initially stabilized between the second and third years of service, whereas the need factor initially stabilized between the third and fourth years of service.

- The periods of time when the want and need factors grew and developed varied. The want factor grew between the third and eighth years of service, while the need factor grew between the fourth and ninth years of service.

A number of people have speculated about—and perhaps even observed—the point in time when officers feel the need to make a "career decision." Given that officers are entitled to retirement benefits if they serve 20 years or more, one might speculate that a career decision is made at or around 10 years of service. In fact, Rudy de Leon, defense undersecretary for personnel and readiness in 1999, claimed that managers' "key challenge is to get people to stay in that 10-to-12-year period so that they'll do 20" (Freedberg, 1999a). Others speculate the decision point is a little earlier. For example, Senator Max Cleland of Georgia claims "when they get into the eight-to-10-year mark in the military, they've got young kids.… They're thinking about college already. Take care of the kids, and you keep their parents in uniform" (Freedberg).

Our data seem to confirm the latter belief that the decision point occurs between the eighth and 10th years as the need factor stabilized for a second time between the eighth and ninth years of service, reaching its highest level since the first year in the ninth year.

Research Question 2

How do the various components of organizational commitment differentially relate to career intentions and actual turnover behavior?

Our second research question sought to determine which of the organizational commitment components was the most fruitful longitudinal predictor of career intentions and actual turnover behavior. We expected the want factor to be the better pre-

dictor when compared to the need factor. To test this hypothesis, we calculated correlations between the want factor and three retention variables: career intentions, obligation completion, and years of service relative to the survey completed.

Research Question 3

Does organizational commitment interact with job satisfaction and demographic variables when predicting turnover?

Our final research question explored the extent to which organizational commitment interacts with (or depends upon) job satisfaction and demographic variables. We expected the want factor to interact with job satisfaction but not demographic variables. The demographic variables we focused on were rank and family financial responsibilities.

In summary, this research examines the influence of organizational commitment over a time period much longer than previously examined. By determining the length of time it takes for organizational commitment to develop and the point at which it stabilizes within the employees' tenure in the organization, managers will have a better understanding of when and how organizational commitment develops. This understanding will put them in a better position to facilitate and manage employee organizational commitment. It informs them as to when to be concerned about developing versus maintaining versus changing employee attitudes about their organization. Accordingly, an organization's ability to retain the most qualified employees will be enhanced, a particular concern for public sector organizations in the 21st century.

Answer to Research Question 2

How do the various components of organizational commitment differentially relate to career intentions and actual turnover behavior?

- Both the want and the need factors correlated strongly with all three retention variables. The magnitude of the correlations was quite similar, with a slight advantage for the want factor. In terms of long-term prediction, the want factor maintained stronger correlations with career intentions over time than the need factor.

Answer to Research Question 3

Does organizational commitment interact with job satisfaction and demographic variables when predicting turnover?

- Consistent with previous research, job satisfaction correlated strongly and in a positive direction with retention. Contrary to previous research, job satisfaction correlated more strongly with retention variables than either of the two organizational commitment factors.

- Job satisfaction and organizational commitment did not interact when predicting career intentions or retention in the Army. These variables independently predicted retention. The influence of one was not dependent on the other.

- The want factor interacted with rank when predicting retention in the Army. In other words, the influence of the want factor on retention depended upon the rank of the officer. More specifically, the want factor had an even stronger relationship with retention for more-senior officers than junior officers.

- The need factor interacted with family financial responsibilities when predicting retention in the Army. In other words, the influence of the need factor on retention depended upon the officers' family financial responsibilities. More specifically, the need factor had an even stronger relationship with retention for officers who have more family responsibilities.

Recommendations

Given the focus of this report is on the predictive validity of organizational commitment, we offer the following five recommendations for increasing organizational commitment with the expectation that higher levels of commitment will in turn lead to stronger intentions to remain in the Army and ultimately higher levels of retention. The first two recommendations are directed at enhancing the want factor. The next two recommendations are designed to increase the need factor. The final recommendation is likely to directly impact officer quality of life, which is likely to indirectly enhance both the want and need factors.

Meyer and Allen (1997) identified numerous antecedents to the want factor. They can be categorized into two primary themes: (1) supportiveness and fairness, and (2) personal importance and competence. We believe they may also facilitate the need factor and offer them as our first two recommendations.

Recommendation 1: Increase officers' perceptions of organizational supportiveness and fairness.

First, officers are likely to have high levels of commitment when they perceive the Army is supportive of them. Organizational support concerns the extent to which the organization values employee contributions and cares about their well-being (Eisenberger, Huntington, Hutchinson, & Sowa, 1986). In some ways, organizational support reflects the extent to which the organization is

"committed" or loyal to the employee. Perceptions of organizational support are influenced by the treatment employees receive, particularly with regard to organizational praise, approval, rewards, and positive evaluations.

One specific way the Army can convey support to their officers is to initiate mentoring programs and buddy systems. A number of studies have demonstrated a positive relationship between mentoring and organizational commitment (Aryee, Chay, & Chew, 1996; Baugh, Lankau, & Scandura, 1996; Scandura, 1997). Research suggests that mentoring should be initiated early in the career, and supervisory mentoring facilitates the want factor (Huffman & Payne, 2002). In addition to setting up a formal mentoring program, the Army should also consider training senior officers on how to effectively mentor. Mentoring programs for enlisted soldiers have proven to be effective (Steinberg & Foley, 1999), and buddy programs appear to be well accepted by the soldiers in the infantry branch of the Army (T. Williams, 2002).

Organizational support is not only important early in an officer's career; but it is also crucial during times of transition and change. This includes the move to new duty assignments, particularly those in foreign countries. Leaders should be held accountable for ensuring that officers receive the support they need. While most Army units have some type of sponsorship program available to officers in transit, the level of support varies tremendously. The Army should ensure sponsors have access to information that will help incoming officers.

Officers are also likely to have higher levels of commitment when they feel they are treated fairly. Fairness includes distributive justice or fairness of outcomes, results, or ends achieved (e.g., how rewards are distributed), as well as procedural justice or fairness of the policies and procedures used to make decisions (e.g., how it was determined who received the awards). In the Army, this primarily concerns the way senior officers interact with and treat junior officers.

Recommendation 2: Increase officers' feelings of personal importance and competence.

A second way to enhance the want factor of organizational commitment is to ensure officers feel they make important contributions to the Army. This can be conveyed through the trust the Army places in their officers to make sound decisions and judgments. Also, any efforts to provide officers with competence-enhancing experiences can contribute to feelings of loyalty. Such activities include giving officers the autonomy to make their own decisions, providing challenging work assignments that require a variety of skills, and increasing their overall responsibilities.

One specific way the Army can enhance officers' levels of and feelings of competence is through training. Officers need to feel they have the appropriate knowledge and skills needed to perform their jobs effectively. In addition, leadership training should teach senior officers how to convey supportiveness, fairness, personal importance, and competence to more-junior officers, which will in turn facilitate feelings of loyalty.

Organizations can also reward both personal importance and competence through promotions and awards. Here again, fairness is crucial. Officers want to see the individuals they perceive to be deserving of awards rewarded.

Meyer and Allen (1997) also identified two primary antecedents of the need factor: investments and attraction factors. We elaborate on each of these as our next two recommendations.

Recommendation 3: Reduce work-family conflict and offer more family-friendly policies.

A final way to enhance organizational commitment is to reduce work-family conflict and offer more family-friendly policies. The all-volunteer military of today tends to be older, married, and more likely to have children than service members anytime in the past (Kitfield, 1998; Freedberg, 1999a). As depicted in Appendix II, 62 to 75 percent of the officers responding to the surveys described in this report were married. Likewise, the number of officers with children increased from 33 percent in 1988 to 64 percent in 2000. Family is also important to Generation X (Gen X, 2001), a cohort well represented in the Army today.

Consistent with these demographic trends, officers have expressed concerns about family issues. For example, GAO (2001c) reported one of the main reasons for leaving the military in the 1999 Survey of Active Duty Personnel was the amount of personal/family leave time. Fortunately, the Department of Defense has recognized the importance of family support to service members and implemented a number of family-oriented initiatives. It appears that the Army realizes that "military family readiness is essential to total force readiness" (R. Williams, 2002).

One specific way to address officer concerns about family is to reduce work-family conflict. This is "a form of interrole conflict in which role pressures from the work and family domains are mutually incompatible in some respect" (Greenhaus & Beutell, 1985, p. 77). Some researchers have proposed and found empirical support that work-family conflict is a predictor of organizational commitment. For example, in a study of male Army soldiers and their wives, Bourg and Segal (1999) found that Army-family conflict had both a direct negative effect on soldier commitment as well as an indirect negative effect on soldier commitment through spouse commitment to the Army. Additionally, they found "organizational commitment of soldiers is increased when the military organization is perceived as supporting families and thus contributing to a decrease in married couples' perceptions of conflict between the military and family" (p. 648).

Another way to address officer concerns about family issues is to offer family-friendly policies. Segal and Harris (1993) suggested a number of family-friendly policies and practices that the Army can adopt to include allowing soldiers time off for family emergencies and non-emergency family activities (such as children's school events), encouraging and supporting family-oriented work unit activities, providing means for deployed soldiers to communicate with their families, providing relocation assistance, and informing soldiers and spouses about spouse employment programs. While many of these policies and practices are currently in place and well supported, the extent to which officers are made aware of these programs and have access to them may vary from one command to the next. As a result, the Army also needs to ensure all officers are aware of the support services they offer and have equal access to them, particularly those who are most likely to use them and benefit from them.

Family-related initiatives may directly impact retention or indirectly reduce attrition through the enhancement of the organizational commitment want factor. Bourg and Segal (1999) found that the variable in their study with the strongest effect on male soldier commitment was the wife's commitment to the Army. The next strongest variables influencing soldier commitment were unit leader support and Army policy support. They also found the degree to which soldiers perceive the Army is supportive of their family and the degree to which they perceive their unit leaders are supportive of them have independent positive effects on soldier commitment.

Recommendation 4: Increase the costs associated with leaving the Army.

The need factor of organizational commitment is directly related to costs associated with leaving the organization. So, any effort on the part of the Army to increase these costs is likely to enhance the perceived value of remaining in the Army. Such costs do not necessarily have to be costs incurred in the present or future. They can also reflect loss of an investment made in the past. For example, the perception of wasting time, money, or effort previously invested into the employment situation can be perceived as a significant cost. From the organization's perspective, investments include all benefits provided for the employee, not just a paycheck.

One unique cost to Army officers is the time they invest in getting acquainted with a new duty location. Such investments are likely to be more extensive for officers with families, since not only do the officers make investments into the community but so do their spouses and family members. As a result, longer duty station assignments may allow officers to reap the benefits of these investments for longer periods of time, making them less inclined to separate from the Army.

Another investment that is particularly relevant in the Army is officer training. While the Army makes a financial investment in an officer who undergoes training, the officer makes an investment by allocating time and effort to the learning experience. Training was previously described as a method for facilitating officers' competence. Accordingly, training is likely to positively influence the want factor through feelings of competence, and it is also likely to facilitate the need factor by adding to the sacrifices an officer would have to give up upon leaving the Army.

Recommendation 5: Make the Army appear more attractive than other employment options.

Officers who perceive few attractive employment opportunities beyond the Army are likely to have high levels of the organizational commitment need factor. Given this, any efforts to make the Army appear more appealing than employment options in the civilian sector will contribute favorably to officers' perceptions of the Army when they make comparisons between the two.

Officers often develop conceptions about how the Army compares to the civilian sector prior to commissioning as well as during Officer Basic Course. It behooves the Army to ensure that these conceptions are accurate by giving recruits a realistic job preview. This can be done through written literature and information conveyed on the Internet, videos, as well as television commercials. It is also impor-

tant that any expectations recruits develop during this time about their future experiences in the Army are met and fulfilled during their tenure in the Army. The Army can continue to keep officers informed about how employment opportunities in the civilian sector compare, doing their best to emphasize the most attractive components of a career serving one's country in the Army.

Conclusion

Both organizational commitment factors—the want factor and the need factor—develop significantly during the first year. As a result, the Army should make efforts to ensure that those feelings are maintained over time by continuing to ensure that the work environment is supportive and fair for both the officers and their families, that officers feel important and competent, that they are aware of the investments they would have to sacrifice if they left, and that they have accurate perceptions about the attractiveness of other employment options.

Appendix I: Study Methods and Descriptive Statistics

Longitudinal Research on Officer Careers (LROC) Surveys (1988-1992)[4]

The surveys administered by the U.S. Army Research Institute for the Behavioral and Social Sciences between 1988 and 1992 were called the Longitudinal Research on Officer Careers (LROC) Surveys. Surveys were administered in the fall/winter of 1988, 1989, 1990, and February of 1992. Troop movement after Operation Desert Shield/Storm necessitated changing the mailing date of the original 1991 survey to February of 1992. To avoid confusion, the name of the 1991 survey was changed to the 1992 LROC Survey, reflecting the time of mailing. The primary purpose of LROC was to identify the factors related to a successful officer's career, to understand the factors associated with attrition, and to track the perceived impact of policy change or events on the careers and attitudes of officers.

Gender and Source of Commissioning

Stratified random samples were drawn from the Officer Master File. The goal of the original sampling plan was to obtain a representative sample of the total active component, company grade officers (second lieutenants, first lieutenants, and captains) commissioned through the United States Military Academy (USMA) or the Reserve Officer Training Corps (ROTC). The sample was stratified by gender, source of commission, and year of commissioning. Officers were randomly selected within the strata. Females and USMA commissioned males were oversampled in order to ensure a sufficient number of respondents for statistical analyses. The stratification plan called for sampling 100 percent of USMA females, 33 percent of USMA males, 33 percent ROTC females, and 20 percent of ROTC males. In 1989, officers commissioned from both the Officer Candidate School (OCS) and Direct Commissioning (DC) were added to the sampling plan. The plan called for sampling 100 percent of OCS females, 10 percent of OCS males, and 10 percent of DC males and females.

Year of Commissioning

The sampling plan called for approximately 1,000 officers from each year of commissioning, beginning with 1980 and ending with the commissioning year that immediately preceded the survey year. Thus, the 1988 sample included officers commissioned in 1980 through 1987. The 1989 sample included all of the officers in the 1988 sample and added 1,000 officers commissioned in 1988. The sampling plan proceeded the same way for each subsequent survey administration. This plan ensured that all officers, whether they responded in any given year or not, remained in the sample for re-surveying for the life of the research project unless they left the Army.

Survey on Officer Careers (SOC) Survey (1996-2000)[5]

The 1996 Survey on Officer Careers (SOC) was mailed in April of 1996 by the U.S. Army Research Institute for the Behavioral and Social Sciences to a random sample of officers stratified by rank and source of commission. Minority and female officers

were oversampled to allow the survey results to be compared by both race and gender with a sampling error of +5% or less. The 928 officers who responded to all four administrations of the LROC surveys were also included in this sampling plan.

The 1998 and 2000 SOC surveys were mailed in their corresponding calendar years. Once again, surveys were mailed to previous LROC and SOC respondents in an effort to maintain a longitudinal sample allowing for an examination of trends over time.

General Procedure

Surveys were produced on machine-scannable booklets. Surveys were mailed directly to the officers' home address in the continental United States or indirectly through the Total Army Personnel Command for distribution when the officer was located outside the continental United States.

The initial survey mailings included a cover letter from the deputy chief of staff for personnel and a stamped addressed envelope for returning the completed survey. The letter explained the purpose of the survey, encouraged participation, and ensured

confidentiality of responses. A follow-up letter was mailed to nonrespondents a few months later in order to encourage participation in the survey. While officers' Social Security numbers were initially collected, results were stored by random identification codes so that the identity of the officers could not be revealed.

Database Development

Each survey was scanned into a file and edited using a Sentry 3000 Scanner and the National Computer System's software SCANTOOLS. The raw data files were converted to data files with variable names, values, and value labels. The seven survey data files were merged into one data file, which was subsequently merged with a select group of variables extracted from the Officer Longitudinal Research Database.

The sampling plan and response rates for each survey year are provided in Table A.1. Descriptive statistics for demographic variables are provided for each survey in Table A.2. Descriptive statistics for the want and need factor scales are provided in Table A.3.

Table A.1: Sampling Plan and Response Rates for Each Survey Year

Survey Year	Population* (Army)	Population of Interest	Year of Commissioning	Sample	Respondents	Response Rate
1988	771,847	32,390	1980–1987	8,931	5,598	63%
1989	769,741	43,682	1980–1988	10,966	5,553	51%
1990	732,403	44,115	1980–1989	9,684	4,997	52%
1992	610,450	45,740	1980–1990	9,674	4,563	47%
1996	491,103	**	1980–1995	**	10,240	**
1998	483,880	**	1980–1997	18,974	10,247	54%
2000	482,170	**	1980–1999	36,511	19,241	53%

Notes: *   These statistics came from the Department of Defense: Directorate for Information Operations and Reports, Statistical Information and Analysis Division: Military Personnel Statistics.

   **   Data not available.

Table A.2: Survey Sample Descriptive Statistics

Survey Year	Sample Size*	Gender	Race	Source of Commissioning	Rank	Job Type	Marital Status
1988	5,039	68.2% Male 28.5% Female	80.8% White 12.3% Black 6.9% Other	34.8% USMA 30.1% ROTC scholar 34.4% ROTC non	10.9% 2LT 30.7% 1LT 57.9% CPT 0.5% MAJ+	59.7% CA 19.5% CS 20.8% CSS	62.5% Married 28.2% Single 9.3% Other
1989	5,024	68.9% Male 26.6% Female	83.1% White 9.7% Black 7.3% Other	30.3% USMA 27.3% ROTC scholar 28.4% ROTC non	7.5% 2LT 24.5% 1LT 65.6% CPT 2.4% MAJ+	59.3% CA 20.0% CS 20.7% CSS	68.2% Married 23.7% Single 8.1% Other
1990	4,535	69.9% Male 25.6% Female	81.7% White 10.6% Black 7.7% Other	28.8% USMA 28.8% ROTC scholar 29.2% ROTC non	9.3% 2LT 22.7% 1LT 64.9% CPT 3.1% MAJ+	57.1% CA 23.3% CS 19.7% CSS	68.2% Married 23.2% Single 8.6% Other
1992	4,157	71.3% Male 25.1% Female	83.2% White 9.0% Black 7.9% Other	31.8% USMA 28.3% ROTC scholar 28.6% ROTC non	7.8% 2LT 20.5% 1LT 64.4% CPT 7.3% MAJ+	59.1% CA 21.2% CS 19.7% CSS	71.0% Married 21.0% Single 8.1% Other
1996	9,146	66.7% Male 22.4% Female	79.1% White 14.3% Black 6.4% Other	25.9% USMA 29.4% ROTC scholar 24.0% ROTC non	14.6% 2LT 19.4% 1LT 39.6% CPT 26.4% MAJ+	55.6% CA 23.4% CS 21.1% CSS	69.3% Married 20.3% Single 9.9% Other
1998	8,928	72.0% Male 17.0% Female	75.0% White 19.6% Black 5.4% Other	25.3% USMA 30.2% ROTC scholar 28.9% ROTC non	4.1% 2LT 13.0% 1LT 36.3% CPT 46.6% MAJ+	52.2% CA 24.2% CS 23.6% CSS	76.0% Married 14.6% Single 8.8% Other
2000	16,546	89.4% Male 8.2% Female	82.4% White 7.9% Black 11.7% Other	20.9% USMA 36.9% ROTC scholar 30.4% ROTC non	1.1% 2LT 14.1% 1LT 32.9% CPT 52.0% MAJ+	49.5% CA 31.8% CS 18.7% CSS	79.4% Married 14.9% Single 5.6% Other

*Notes: *Sample sizes are smaller than those reported in Table A.1, because these numbers only include respondents who provided valid Social Security numbers and therefore were included in the analyses.*

USMA = United States Military Academy, ROTC = Reserve Officer Training Corps, non = non-scholarship, LT = Lieutenant, CPT = Captain, MAJ = Major, CA = Combat Arms, CS = Combat Support, CSS = Combat Service Support.

Table A.3: Descriptive Statistics for Commitment Factor Scales by Survey Year

	The Want Factor			The Need Factor		
	Mean	**Standard Deviation**	**Coefficient Alpha**	**Mean**	**Standard Deviation**	**Coefficient Alpha**
1988	3.86	0.58	0.75	2.53	0.66	0.72
1989	3.83	0.59	0.75	2.56	0.67	0.72
1990	3.83	0.59	0.77	2.61	0.67	0.72
1992	3.81	0.57	0.75	2.74	0.65	0.70
1996	3.87	0.58	0.73	2.60	0.67	0.72
1998	3.85	0.60	0.74	2.39	0.66	0.70
2000	3.79	0.63	0.74	2.12	0.62	0.69

	Transition Factors			Attraction Factors		
	Mean	**Standard Deviation**	**Coefficient Alpha**	**Mean**	**Standard Deviation**	**Coefficient Alpha**
1988	2.75	0.91	0.71	2.36	0.79	0.74
1989	2.80	0.93	0.73	2.36	0.76	0.72
1990	2.87	0.95	0.74	2.39	0.76	0.73
1992	3.08	0.93	0.73	2.45	0.75	0.72
1996	2.86	0.89	0.69	2.37	0.80	0.72
1998	2.56	0.89	0.68	2.23	0.77	0.71
2000	2.26	0.87	0.66	2.01	0.73	0.70

Appendix II: Statistical Tables and Figures

Research Question 1: How long does it take for organizational commitment to develop and at what point in an officer's career does it stabilize?

To answer this question, we calculated both the want and the need factor levels for officers relative to their time in the service. Given that seven surveys were administered over the course of 12 years to officers who entered the service as early as 1970, we were able to calculate commitment levels through 23 years of service. Table A.4 depicts means, standard deviations, and sample sizes for both the want and the need factors relative to time served. The shading in Table A.4 reflects an increase from one year to the next. It should be noted that while some of the same officers reported their commitment at multiple times, Table A.4 is not a true longitudinal examination of the want and need factors.

In an effort to identify the development and stabilization of the want and need factors, we examined the means, looking specifically for increases, decreases, as well points of stabilization. As depicted in Table A.4, both the want and need factors developed significantly in the first year. This is indicated by the relatively high means for both in the first year of service. Both the want and need factors initially decreased from the first to the second year of service. The want factor appears to have an initial stabilization period between the second and third years. It then appears to increase

from the third through the eighth year. This is followed by a decline between the ninth and 13th years, and a second stabilizing period between the 13th and 14th years.

The need factor also experienced an initial stabilization period; however, this occurred a little later, between the third and fourth years. It then appeared to grow, developing from the fourth to the eighth year. This is followed by a decline in the 10th and 11th years. It also experienced additional stabilization periods between the eighth and ninth years and between the 13th and 16th years.

These results suggest that, consistent with our hypothesis, the want factor developed in the first year, but it also grew substantially between the third and eighth years of service. Likewise, the need factor developed during the first year and experienced another period of growth between the fourth and eighth years of service. In terms of stabilization, both the want and the need factors stabilized more than once throughout an officer's career. The want factor stabilized initially between the first and second years and then again between the 13th and 14th years of service. The need factor stabilized initially between the third and fourth years followed by a later stabilization between the eighth and ninth and between the 13th and 16th years of service. These trends are depicted in Figure A.4.

In an effort to see if the observed trends are robust, we explored the extent to which the means of the want and the need factors changed from one year

Table A.4: Cross-Sectional Examination of the Want and Need Factors Over Time

	Want Factor			Need Factor		
	Mean	**Standard Deviation**	**Sample Size**	**Mean**	**Standard Deviation**	**Sample Size**
1 Year	3.7954	.6098	3,040	2.5457	.6769	3,047
2 Years	3.7250	.6345	4,688	2.4112	.6879	4,695
3 Years	3.7376	.6229	4,668	2.3438	.6915	4,674
4 Years	3.7802	.6101	4,190	2.3787	.7024	4,195
5 Years	3.8446	.5820	3,679	2.4539	.6946	3,686
6 Years	3.8831	.5649	4,030	2.4928	.6839	4,035
7 Years	3.8969	.5725	3,294	2.4949	.6944	3,298
8 Years	3.9034	.5694	3,372	2.5363	.7041	3,377
9 Years	3.8948	.5741	2,751	2.5422	.6920	2,758
10 Years	3.8750	.5735	2,313	2.4852	.7075	2,315
11 Years	3.8413	.6002	2,021	2.3865	.6829	2,029
12 Years	3.8209	.6057	1,658	2.4357	.7056	1,661
13 Years	3.7993	.5988	1,192	2.3669	.6921	1,192
14 Years	3.7908	.6022	1,267	2.3556	.6576	1,273
15 Years	3.8245	.5860	1,386	2.3608	.6643	1,392
16 Years	3.7933	.5874	1,450	2.3558	.6425	1,459
17 Years	3.8060	.6263	1,309	2.3418	.6322	1,314
18 Years	3.8220	.6323	1,143	2.3478	.6324	1,145
19 Years	3.8250	.6201	1,183	2.2484	.6338	1,183
20 Years	3.8709	.5965	677	2.1922	.6357	681
21 Years	3.9214	.5862	504	2.1778	.6008	506
22 Years	3.8847	.6303	276	2.1687	.5955	276
23 Years	3.8781	.6077	231	2.1423	.5904	232

to the next using longitudinal data. More specifically, we identified officers who responded to a minimum of two surveys in two consecutive years and grouped them relative to when they responded in their respective careers. Table A.5 depicts the comparison of cross-sectional and longitudinal data for paired years through 10 years of service. Again, the shading reflects an increase from one year to the next.

When examining Table A.5, it may appear at first that the cross-sectional and longitudinal data tell very different stories; however, a closer examination of the means using paired samples t-tests revealed more similarities than differences. For the want factor, every consecutive pairing of longitudinal data showed a decrease from one year to the next. In contrast, the cross-sectional data showed only decreases from years 1-2, 8-9, and 9-10. In order to reveal any true differences between the two forms of data, we performed paired sample t-tests on the longitudinal data. These tests revealed that the only significant mean differences occurred

between years 1-2, 2-3, 5-6, 7-8, and 9-10. This means that the only real discrepancies between the cross-sectional and longitudinal data lie between years 2-3, 5-6, and 7-8. In all these situations, the cross-sectional data indicated the want factor increased from one year to the next, whereas the longitudinal data indicated a decrease.

An even closer examination of the discrepancies between the longitudinal and cross-sectional data for the want factor revealed that we captured two cohorts between the second and third years, fifth and sixth years, as well as the seventh and eighth years of their careers. Officers who entered in either 1986 ($n = 364$) or 1987 ($n = 262$) were captured in their second and third years of service (1988 and 1989 or 1989 and 1990 surveys). Both cohorts showed a decline in their level of the want factor from years 2-3; however, the decline was only significant for the 1986 cohort. This further supports the previous indication that the want factor tended to stabilize between the second and third years of service.

Figure A.1: Cross-Sectional Examination of the Want and Need Factors Over Time
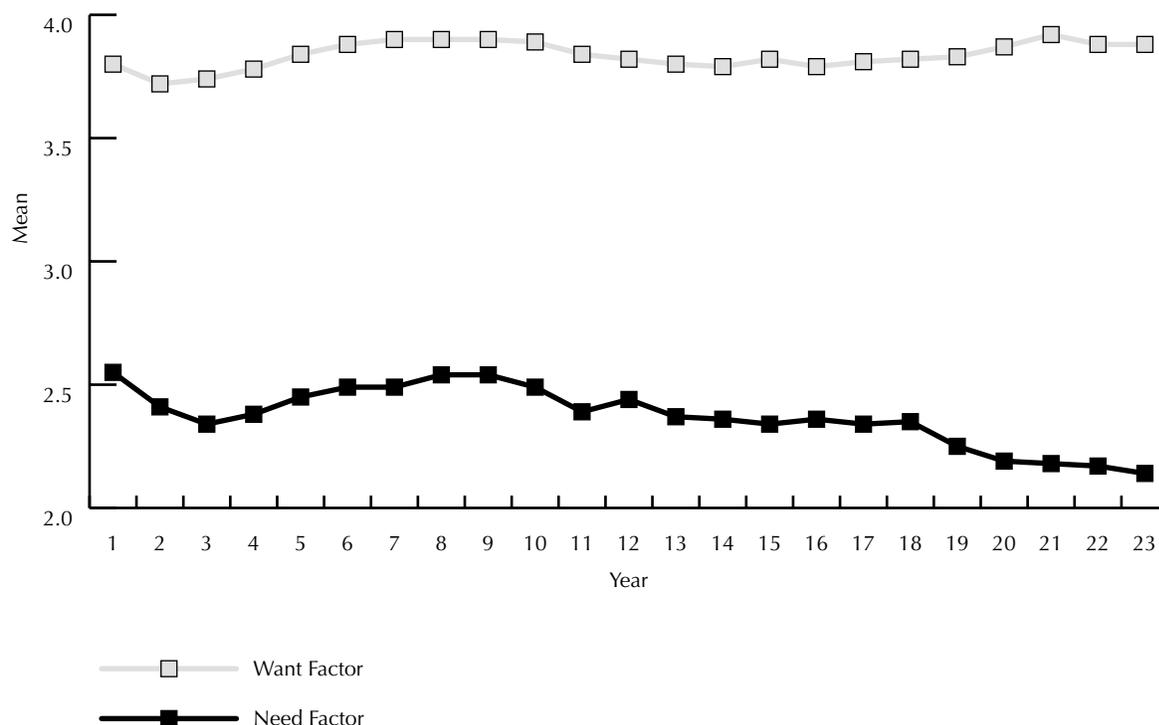
Table A.5: Examination of the Want and Need Factors Over Time: Comparison of Cross-Sectional and Longitudinal Data

	Want Factor				Need Factor			
	Cross-Sectional		Longitudinal		Cross-Sectional		Longitudinal	
Year	1	2	1	2	1	2	1	2
Mean	3.7954	3.7250	3.8269	3.7310*	2.5757	2.4112	2.4415	2.4001
N	3,040	4,688	553	553	3,047	4,695	555	555
Year	2	3	2	3	2	3	2	3
Mean	3.7250	3.7376	3.7461	3.7013*	2.4112	2.3438	2.4588	2.3756*
N	4,688	4,668	626	626	4,695	4,674	627	627
Year	3	4	3	4	3	4	3	4
Mean	3.7376	3.7802	3.7842	3.7656	2.3438	2.3787	2.4398	2.4396
N	4,668	4,190	547	547	4,674	4,195	547	547
Year	4	5	4	5	4	5	4	5
Mean	3.7802	3.8446	3.8464	3.8351	2.3787	2.4539	2.5736	2.5592
N	4,190	3,679	533	533	4,195	3,686	535	535
Year	5	6	5	6	5	6	5	6
Mean	3.8446	3.8831	3.9497	3.9050*	2.4539	2.4928	2.6113	2.6315
N	3,679	4,030	601	601	3,686	4,035	601	601
Year	6	7	6	7	6	7	6	7
Mean	3.8831	3.8969	3.9604	3.9488	2.4928	2.4949	2.6286	2.6873*
N	4,030	3,294	581	581	4,035	3,298	582	582
Year	7	8	7	8	7	8	7	8
Mean	3.8969	3.9034	3.9961	3.9583*	2.4949	2.5363	2.7096	2.6886
N	3,294	3,372	662	662	3,298	3,377	663	663
Year	8	9	8	9	8	9	8	9
Mean	3.9034	3.8948	4.0123	3.9629*	2.5363	2.5422	2.7520	2.8277*
N	3,372	2,751	643	643	3,377	2,758	645	645
Year	9	10	9	10	9	10	9	10
Mean	3.8948	3.8750	3.9159	3.8828	2.5422	2.4852	2.7778	2.8129
N	2,751	2,313	294	294	2,758	2,315	294	294

Officers who entered in either 1983 ($n = 327$) or 1984 ($n = 274$) were surveyed in their fifth and sixth years of service (1988 and 1989 or 1989 and 1990 surveys). Again, both cohorts experienced a decline in their level of the want factor from years 5-6; however, the decline was only significant for the 1984 cohort, suggesting this is just a period of fluctuation, but probably not a period of significant deterioration.

Officers who entered in either 1981 ($n = 383$) or 1982 ($n = 279$) responded to the 1988, 1989, and 1990 surveys in their seventh and eighth years of service. Once again, both cohorts experienced a decline in their level of the want factor from years 7-8; however, the decline was only significant for the 1981 cohort. This suggests that the want factor does not change dramatically between the seventh and eighth years of service.

For the need factor, the patterns were more disparate between the cross-sectional and longitudinal data; however, none of the differences between the two forms of data were significant. While the longitudinal data indicated the need factor declined from year 1-5, increased from year 5-7, declined again from year 7-8, and then increased again from years 8-10, many of the changes were not significant. The only mean changes that were significant were from years 2-3, 6-7, and 8-9, and in all cases, the direction of these changes were consistent with the cross-sectional data.

In sum, we can be fairly confident about the development and stabilization of the want and need factors when the cross-sectional and longitudinal data reveal the same trends. Such trends suggest that the want factor decreases from the first to the second year, fluctuates from the third to the eighth years but not significantly, and decreases again from the eighth to the 10th years of service. The want factor appears to stabilize between the second and third years of an officer's career in the Army. The need factor decreases from the first to third years, fluctuates between the fourth and fifth years, and increases between the fifth and seventh years as well as between the eighth and ninth years of service. It appears to stabilize between the third and fourth years of an officer's career.

Research Question 2: How do the various components of organizational commitment differentially relate to career intentions and actual turnover behavior?

To test this research question, we calculated correlations between the want factor and three retention variables: career intentions, obligation completion, and years of service relative to the survey completed (see Table A.6).

We calculated obligation completion from date of entry, length of initial obligation, and date of separation (if the officer had left the Army). We coded obligation completion into three categories: 1 = did not complete initial obligation and left, 2 = completed initial obligation, 3 = completed more than initial obligation. (We excluded individuals who were in the process of completing their initial obligation at the end of September 2000.) We calculated the same correlations for the need factor as well (see Table A.7).

As can be seen in Table A.6, the want factor correlated strongly with career intentions (.11 to .47) and in a positive direction. This means the stronger an officer's commitment, the longer he or she planned to stay in the Army.

The want factor correlated the strongest with career intentions that are measured in the same year (cross-sectional data, shaded correlations: .30 to .45) versus career intentions measured later in time (cross-lagged correlations). The want factor also correlated significantly with obligation completion (.04 to .23) and years in service (.08 to .30).

As depicted in Table A.7, the need factor correlated almost as strongly as the want factor with career intentions (up to .46) in the same year. Again, cross-sectional (shaded correlations: .28 to .46) are stronger than cross-lagged correlations. Like the want factor, the need factor also correlated significantly with obligation completion (.04 to .24) and years in service (.02 to .27).

Table A.6: Pairwise Correlations between the Want Factor and Three Retention Variables

	Want 1988	Want 1989	Want 1990	Want 1992	Want 1996	Want 1998	Want 2000
Career Intentions 1988	.45						
Career Intentions 1989	.36	.47					
Career Intentions 1990	.29	.37	.47				
Career Intentions 1992	.18	.25	.28	.42			
Career Intentions 1996	.15	.16	.20	.14	.35		
Career Intentions 1998	.15	.11	.13	.18	.23	.31	
Career Intentions 2000	.15	.15	.15	.12	.14	.19	.30
Obligation Completion	.23	.23	.21	.17	.17	.12	.04
Years in Service	.29	.30	.27	.22	.10	.09	.08

Notes: Want = The want factor. Sample sizes vary from 821 to 16,135. All correlations are significant, p < .01.

Table A.7: Pairwise Correlations between the Need Factor and Three Retention Variables

	Need 1988	Need 1989	Need 1990	Need 1992	Need 1996	Need 1998	Need 2000
Career Intentions 1988	.41						
Career Intentions 1989	.30	.46					
Career Intentions 1990	.23	.35	.46				
Career Intentions 1992	.10	.18	.26	.39			
Career Intentions 1996	.09	.09	.12	.09	.35		
Career Intentions 1998	.09	.11	.10	.14	.20	.31	
Career Intentions 2000	.12	.00	.11	.07	.11	.17	.28
Obligation Completion	.23	.23	.24	.17	.14	.14	.04
Years in Service	.25	.26	.27	.21	.05	.02	.05

Notes: Need = The need factor. Sample sizes vary from 823 to 16,182. All correlations are significant, p < .05, except .00 (between Need 1989 and career intentions 2000).

Consistent with our hypothesis, the want factor correlated more strongly than the need factor with career intentions. However, the correlations were very similar in magnitude, and in 1996 and 1998, the cross-sectional correlations were actually equivalent. The magnitude of the correlations between the two components of commitment and obligation completion as well as years in service was also very similar, with a slight advantage for the want factor. In terms of long-term prediction, the want factor maintained stronger correlations with career intentions over time as compared to the need factor.

It should be noted that Tables A.6 and A.7 were calculated using pairwise deletion in an effort to maximize sample sizes in each cell. To get a true feel for the predictability of commitment over time, we selected a longitudinal sample in which the same officers responded to all seven surveys (approximately 173 officers). We then recalculated these correlations using listwise deletion. (Cases that have missing values for any of the variables examined were omitted from the analysis). We could not include obligation completion in this analysis, as all officers in this longitudinal sample had the same value for this variable (stayed beyond their initial obligation).

The correlations in Tables A.8 and A.9 reflect analyses for the longitudinal sample and tended to show the same patterns as the correlations in Tables A.6 and A.7; however, the magnitude of the correlations were not nearly as strong. One explanation for this is the loss of statistical power when using a much smaller sample size. Despite this, both the want factor and the need factor correlated significantly with career intentions measured in the same year in five out of seven of the surveys. Again, the want factor tended to have slightly higher correlations with career intentions than the need factor. Interestingly, only the want factor in 1988 correlated significantly with years in service. None of the other commitment variables (the want factor in the other survey years or the need factor in any of the surveys) correlated significantly with this retention variable.

Research Question 3: Does organizational commitment interact with job satisfaction and demographic variables when predicting turnover?

The demographic variables we focused on were rank and family financial responsibilities. To test this research question, we calculated family financial responsibility from marital status (not married = 0, married = 1) and the number of children provided for (1 for each child). Final values for family financial responsibilities ranged from 0 to 6.

Job satisfaction can be measured at the global level (overall satisfaction with the job) or at the facet level (satisfaction with pay, supervisor, nature of work, etc.) (Spector, 1997). While survey questions assessed both types of satisfaction, we focused on satisfaction at the global level, which was measured using the single item: "All in all, how satisfied are you with your job?" Officers responded to this item in all seven surveys on a scale of 1-5: 1 = very dissatisfied, 5 = very satisfied.

Overall, officers seemed relatively satisfied with their jobs. We report means and standard deviations for job satisfaction in each survey in Table A.10. Before testing any interactions, we first looked at the relationship between job satisfaction and our three retention variables (see Table A.10). Consistent with previous research, job satisfaction correlated significantly and in a positive direction with all three retention variables. It correlated most strongly with the more proximal variable career intentions measured in the same year (.27 to .50), followed by years in service (.13 to .32), and obligation completion (.12 to .25). Contrary to Griffeth et al.'s (2000) findings, the correlations between job satisfaction and retention variables tended to be slightly stronger in magnitude than the correlations between organizational commitment and retention variables.

While not depicted but consistent with previous research, job satisfaction correlated significantly with the want factor (.31 to .51) and the need factor (.16 to .31).

Table A.8: Listwise Correlations between the Want Factor and Three Retention Variables

	Want 1988	Want 1989	Want 1990	Want 1992	Want 1996	Want 1998	Want 2000
Career Intentions 1988	.37*						
Career Intentions 1989	.29*	.34*					
Career Intentions 1990	.18*	.14	.14				
Career Intentions 1992	.09	.01	.05	.13			
Career Intentions 1996	.17*	.11	.05	.13	.19*		
Career Intentions 1998	.15	.11	.12	.09	.20*	.20*	
Career Intentions 2000	.25*	.16*	.01	.03	.18*	.25*	.36*
Years in Service	.19*	.15	-.05	.01	.01	.05	.10

*Notes: Want = The want factor. n = 173. * p ≤ .05.*

Table A.9: Listwise Correlations between the Need Factor and Three Retention Variables

	Need 1988	Need 1989	Need 1990	Need 1992	Need 1996	Need 1998	Need 2000
Career Intentions 1988	.22*						
Career Intentions 1989	.23*	.37*					
Career Intentions 1990	.17*	.22*	.21*				
Career Intentions 1992	.18*	.12	.18*	.21*			
Career Intentions 1996	.05	.04	.01	.03	.04		
Career Intentions 1998	.07	.05	.09	.04	.11	.21*	
Career Intentions 2000	.05	.02	.08	.04	.00	.09	.07
Years in Service	.03	.10	.01	.05	.01	.06	.05

*Notes: Need = The need factor. n = 176. * p ≤ .05.*

To test the interaction between job satisfaction and organizational commitment, we calculated interaction terms between job satisfaction and the want factor, as well as between job satisfaction and the need factor. We then performed two-step hierarchical regressions for each survey year, regressing total years served onto the want factor and job satisfaction followed by the interaction term. We did the same for the need factor, as well. Contrary to our expectation, neither the want factor nor the need factor interacted significantly with job satisfaction. In other words, while all three variables independently predicted retention, the influence of one variable was not dependent on the other.

Next, we examined rank and family financial responsibilities as predictors of retention. We first looked at the means, standard deviations, and correlations for these variables (see Tables A.11 and A.12). As reported in Table A.2, the majority of survey respondents were captains in the first five surveys, whereas the majority of respondents in 1998 and 2000 were majors or above.

In terms of relationships with retention variables, rank correlated positively and significantly with career intentions in the same year (.23 to .54), but not quite as strongly as the commitment variables correlated with retention. On the other hand, as one might expect, rank correlated more strongly with obligation completion (.35 to .41) and years in service (.48 to .95) than commitment or job satisfaction did with these same variables.

With regard to family responsibilities, most officers were married. Over time, average family responsibilities increased. This is most likely a function of having more-senior samples in the later surveys and because officers' families grew over time. Family responsibilities also correlated positively and significantly with all three retention variables, but not as strongly as commitment, satisfaction, or rank.

While we did not expect the commitment variables to interact with demographic variables, we tested interactions that we believed were theoretically meaningful. More specifically, we examined the

Table A.10: Pairwise Correlations between Job Satisfaction and Three Retention Variables

	JS 1988	JS 1989	JS 1990	JS 1992	JS 1996	JS 1998	JS 2000
Mean (Standard Deviation)	3.76 (1.01)	3.84 (0.99)	3.72 (1.11)	3.80 (1.00)	3.87 (0.97)	3.74 (1.02)	3.57 (1.09)
Career Intentions 1988	.50						
Career Intentions 1989	.34	.45					
Career Intentions 1990	.26	.30	.27				
Career Intentions 1992	.18	.23	.14	.38			
Career Intentions 1996	.14	.12	.10	.12	.39		
Career Intentions 1998	.14	.11	.07	.09	.24	.41	
Career Intentions 2000	.11	.09	.07	.07	.18	.21	.31
Obligation Completion	.25	.25	.12	.18	.15	.16	.06
Years in Service	.32	.29	.16	.20	.13	.13	.13

Notes: JS = Job Satisfaction. Sample sizes vary from 822 to 16,044. All correlations are significant, $p < .05$.

Table A.11: Pairwise Correlations between Rank and Three Retention Variables

	Rank 1988	Rank 1989	Rank 1990	Rank 1992	Rank 1996	Rank 1998	Rank 2000
Mean (Standard Deviation)	2.48 (0.69)	2.63 (0.66)	2.62 (0.71)	2.72 (0.73)	2.88 (1.16)	3.54 (1.24)	3.67 (1.15)
Career Intentions 1988	.31						
Career Intentions 1989	.39	.28					
Career Intentions 1990	.33	.27	.25				
Career Intentions 1992	.10	.15	.19	.23			
Career Intentions 1996	.21	.19	.21	.21	.41		
Career Intentions 1998	.25	.22	.30	.24	.47	.49	
Career Intentions 2000	.19	.26	.33	.31	.44	.51	.54
Obligation Completion	.37	.36	.37	.35	.41	.37	.32
Years in Service	.48	.48	.51	.58	.88	.91	.95

Notes: Rank coded 1 = 2nd Lieutenant, 6 = Colonel or above. Sample sizes vary from 822 to 16,192. All correlations are significant, p < .01.

Table A.12: Pairwise Correlations between Family Responsibilities and Three Retention Variables

	FR 1988	FR 1989	FR 1990	FR 1992	FR 1996	FR 1998	FR 2000
Mean (Standard Deviation)	1.19 (1.18)	1.42 (1.30)	1.59 (1.31)	1.57 (1.35)	1.79 (1.31)	1.96 (1.36)	2.09 (1.36)
Career Intentions 1988	.23						
Career Intentions 1989	.23	.23					
Career Intentions 1990	.23	.25	.24				
Career Intentions 1992	.14	.16	.15	.19			
Career Intentions 1996	.12	.13	.15	.18	.32		
Career Intentions 1998	.18	.19	.18	.23	.33	.35	
Career Intentions 2000	.13	.11	.16	.19	.26	.34	.39
Obligation Completion	.15	.15	.11	.16	.22	.23	.21
Years in Service	.25	.24	.25	.32	.43	.41	.44

Notes: FR = Family responsibilities. Sample sizes vary from 595 to 16,106. All correlations are significant, p < .01.

interaction between the want factor and rank and the interaction between the need factor and family responsibilities. Although not depicted, the want factor tended to correlate positively with rank (up to .10) and the need factor correlated positively and significantly with family responsibilities (up to .20). In particular, family responsibilities correlated with transition factors (.14 to .20), but it also correlated with attraction factors (.05 to .12).

Similar to the previous tests for interactions, we calculated interaction terms between the want factor and rank, as well as between the need factor and family responsibilities. We then performed two-step hierarchical regressions for each survey year, predicting years in the service. To save space, we depict the results for the regressions run with the 1988 data and the 2000 data in Table A.13. Results for the other survey years tended to mirror our findings for these years.

Contrary to expectation, we did find that organizational commitment significantly interacted with demographic variables. More specifically, the want factor interacted with rank, and the need factor interacted with family responsibilities when predicting years of service. Significant interactions indicated that the relationship between two variables was dependent upon a third variable. In most cases the beta-weights for the interaction terms were positive, indicating a synergistic interaction or the more of each predictor the better.

The interactions can be interpreted accordingly. The relationship between the want factor and years in service depended on rank. For higher-ranking officers, the want factor had an even stronger relationship with retention. Similarly, the relationship between the need factor and years in service depended on family responsibilities. For officers with more family responsibilities, the need factor had an even stronger relationship with retention.

Table A.13: Interactions between the Want Factor and Rank, the Need Factor and Family Responsibilities for Years Served

Variable	<u>B</u>	<u>SE B</u>	ß	Δ<u>R</u>²	<u>R</u>²
Years Served (*n* = 4,775)					
1. The want factor 1988	2.144*	0.109	0.241		
Rank 1988	3.461*	0.093	0.456	0.290*	0.290
2. Interaction between the want factor and rank 1988	0.313*	0.155	0.190	0.001*	0.291

Variable	B	SE B	ß	ΔR²	R²
Years Served (*n* = 16,069)					
1. The want factor 2000	-0.200*	0.028	-0.018		
Rank 2000	5.695*	0.015	0.949	0.896*	0.896
2. Interaction between the want factor and rank 2000	-0.059*	0.024	-0.044	0.000*	0.896

Variable	B	SE B	ß	ΔR²	R²
Years Served (*n* = 4,767)					
1. The need factor 1988	1.631*	0.109	0.209		
Family responsibilities 1988	0.937*	0.061	0.212	0.105*	0.105
2. Interaction between the need factor and family responsibilities 1988	-0.242*	0.093	-0.158	0.001*	0.106

Variable	B	SE B	ß	ΔR²	R²
Years Served (*n* = 16,032)					
1. The need factor 2000	-0.106	0.080	-0.010		
Family responsibilities 2000	2.233*	0.037	0.439	0.191*	0.191
2. Interaction between the need factor and family responsibilities 2000	-0.203*	0.058	-0.100	0.001*	0.192

* p < .05.
<u>B</u>: B weight
<u>SE B</u>: Standard Error of the B weight
ß: Beta weight
Δ<u>R</u>²: Change in the Percent of Variance Accounted For
<u>R</u>²: Percent of Variance Accounted For

Endnotes

1.   These organizational commitment factors have been defined as *affective* and *continuance commitment* by Meyer and Allen (1997) in the academic literature.

2.   The authors gratefully acknowledge the assistance of the U.S. Army Research Institute for the Behavioral and Social Sciences, the financial support provided by the IBM Endowment for The Business of Government, and the participation of the officers who completed the surveys.

3.   "Normative commitment reflects a feeling of obligation to continue employment" (Meyer & Allen, 1997, p. 11). This component of commitment may be brought on by the desire to conform to normative pres-sures perceived by family and friends. Employees with a strong normative commitment remain in the organization because they feel they ought to.

4.   Information in this section was summarized from Volume 1 of the Technical Manual for the 1988–1992 Surveys (Harris, Wochinger, Schwartz, & Parham, 1993).

5.   Information regarding the 1996 survey was summarized from "Findings from the Survey on Officer Careers—1996" (Jones, 1999). Information regarding the 1998 and 2000 surveys was gathered through personal communication with Dr. Morris Peterson.

Bibliography

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50,* 179-211.

Aryee, S., Chay, Y. W., & Chew, J. (1996). The motivation to mentor among managerial employees: An interactionist approach. *Group and Organization Management, 21,* 261-277.

Bauer, T. N., Morrison, E. W., & Callister, R. R. (1998). Organizational socialization: A review and directions for future research. *Research in Personnel and Human Resources Management, 16,* 149-214.

Baugh, S. G., Lankau, M. J., & Scandura, T. A. (1996). An investigation of the effects of protégé gender on responses to mentoring. *Journal of Vocational Behavior, 49,* 309-323.

Becker, H. S. (1960). Notes on the concept of commitment. *American Journal of Sociology, 66,* 32-42.

Bourg, C., & Segal, M. W. (1999). The impact of family supportive policies and practices on organizational commitment to the Army. *Armed Forces and Society, 25* (4), 633-652.

Bullis, R. C., & Wong, L. (1994). *Career intentions and organizational commitment: Is what a manager influences significant?* Paper presented to the Careers Division, Academy of Management Meeting, Dallas, Tex.

Cohen, A. (1991). Career stage as a moderator of the relationships between organizational commitment and its outcomes: A meta-analysis. *Journal of Occupational Psychology, 64,* 253-268.

Department of Defense (1996). *Annual defense report.* Washington, D.C.: U.S. Government Printing Office.

Department of Defense (2001). *Annual defense report.* Washington, D.C.: U.S. Government Printing Office.

Department of Defense (2002, February). *Directorate for Information Operations and Reports, Statistical Information and Analysis Division: Military Personnel Statistics.* http://web1.whs.osd.mil/mmid/military/miltop.htm

Dunham, R. B., Grube, J. A., & Castandea, M. B. (1994). Organizational commitment: The utility of an integrative definition. *Journal of Applied Psychology, 79* (3), 370-380.

Eisenberger, R., Huntington, R., Hutchinson, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71* (3), 500-507.

Freedberg, S. J., Jr. (1999a, February 3). *GOP, Clinton agree: Repeal DoD retirement cuts.* http://www.govexec.com/dailyfed/0298/020399t1.htm.

Freedberg, S. J., Jr. (1999b, April 1). *Retirement redux.* http://www.govexec.com/dailyfed/0499/0499s3.htm.

Gen X loyal to employers that treat them well, survey says. (2001, December 11). *Houston Chronicle.*

Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review, 10,* 76-88.

Griffeth, R. W., Hom, P. W., & Gaertner, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management, 26* (3), 463-488.

Hackett, R. D., Bycio, P., & Hausdorf, P. (1994). Further assessments of Meyer and Allen's (1991) three-component model of organizational commitment. *Journal of Applied Psychology, 79,* 15-23.

Harris, B. C., Wochinger, K., Schwartz, J. P., & Parham, L. (1993). *Longitudinal research on officer careers: Volume 1. Technical manual for 1988-1992 surveys* (ARI Research Product 93-10). Alexandria, Va.: U.S. Army Research Institute for the Behavioral and Social Sciences (DTIC No. ADA 273187).

Hom, P. W., Caranikas-Walker, F., Prussia, G. E., & Griffeth, R. W. (1992). A meta-analytical structural equation analysis of a model of employee turnover. *Journal of Applied Psychology, 77,* 890-909.

Huffman, A. H., & Payne, S. C. (2002). A longitudinal examination on the influence of mentoring on the organizational commitment and turnover of U.S. Army officers. In W. Casper & K. Fox (Chairs), *Building relationship networks to enhance commitment to the organization.* Symposium conducted at the 61st annual meeting of the Academy of Management, Denver, Colo.

Jones, J. T. (1999). *Findings from the Survey on Officer Careers—1996.* (ARI Research Product 99-03). Alexandria, Va.: U.S. Army Research Institute for the Behavioral and Social Sciences (DTIC No. ADA 370305).

Kitfield, J. (1998, December, 14). *The myth of the hollow force.* http://www.govexec.com/dailyfed/1298/121498t.htm

Louis, R. M. (1980). Career transitions: Varieties and commonalities. *Academy of Management Review, 5* (3), 329-340.

Magazine, S. L., Williams, L. J., & Williams, M. L. (1996). A confirmatory factor analysis examination of reverse coding effects in Meyer and Allen's affective and continuance commitment scales. *Educational and Psychological Measurement, 25,* 270-283.

Mathieu, J. E., & Zajac, D. M. (1990). A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. *Psychological Bulletin, 108* (2), 171-194.

McGee, G. W., & Ford, R. C. (1987). Two (or more?) dimensions of organizational commitment: Reexamination of the affective and continuance commitment scales. *Journal of Applied Psychology, 72,* (4) 638-642.

Meyer, J. P., & Allen, N. J. (1984). Testing the "Side-Bet Theory" of organizational commitment: Some methodological considerations. *Journal of Applied Psychology, 69* (3), 372-378.

Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review, 1,* 61-98.

Meyer, J. P., & Allen, N. J. (1997). *Commitment in the Workplace: Theory, Research, and Application.* Thousand Oaks, Calif.: Sage Publications.

Meyer, J. P., Allen, N. J., & Gellatly, I. R. (1990). Affective and continuance commitment to the organization: Evaluations of measures and analysis of concurrent and time-lagged relations. *Journal of Applied Psychology, 75* (6), 710-720.

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

Reichers, A. E. (1985). A review and reconceptualization of organizational commitment. *Academy of Management Review, 10,* 465-476.

Reichheld, F. F. (1996). *Loyalty Effect: The Hidden Force Behind Growth, Profits, and Lasting Value.* Boston: Harvard Business School Press.

Reichheld, F. F. (1996). *The Quest for Loyalty: Creating Value Through Partnership.* Boston: Harvard Business School Press.

Reichheld, F. F. (2001). *Loyalty Rules! How Today's Leaders Build Lasting Relationships.* Boston: Harvard Business School Press.

Saldarini, K. (1999, September 28). *Key military personnel aren't in for the long haul.* http://www.govexec.com/dailyfed/0999/092899k1.htm

Saldarini, K. (2000, March 13). *DoD needs better data on retention, report says.* http://www.govexec.com/dailyfed/0300/031300kl.htm

Scandura, T. A. (1997). Mentoring and organizational justice: An empirical investigation. *Journal of Vocational Behavior, 51* (1) 58-69.

Segal, D. R. (1986). Measuring the institutional/occupational change thesis. *Armed Forces & Society, 12,* 351-376.

Segal, M. W. & Harris, J. J. (1993). *What We Know About Army Families.* Alexandria, Va.: U.S. Army Research Institute for the Behavioral and Social Sciences.

Somers, M. J. (1993). A test of the relationship between affective and continuance commitment using non-recursive models. *Journal of Occupational and Organizational Psychology, 66,* 185-192.

Spector, P. E. (1997). *Job Satisfaction.* Thousand Oaks, Calif.: Sage Publications.

Steel, R. P., & Ovalle, N. K. (1984). A review and meta-analysis of research on the relationship between behavioral intentions and employee turnover. *Journal of Applied Psychology, 69,* 673-686.

Steinberg, A. G, & Foley, D. M. (1999). Mentoring in the army: From buzzword to practice. *Military Psychology, 11* (4), 365-379.

Sterling, B., & Allen, J. (1983). *Relationships among organizational attitudes, work environment, satisfaction with human resource programs and benefits, and army career intentions.* (ARI Technical Report 572). Alexandria, Va.: U.S. Army Research Institute for the Behavioral and Social Sciences (DTIC No. ADA 139864).

Tremble, T. R., Jr., Payne, S. C., Finch, J. F., & Bullis, R. C. (in press). Opening organizational archives to research: Analog measures of organizational commitment. *Military Psychology.* Special issue on Organizational Commitment in the Military.

Tziner, A. (1983). Choice and commitment to a military career. *Social Behavior and Personality, 11* (1), 119-128.

U.S. Government Accounting Office (1999, August 16). *Military Personnel: Perspectives of surveyed service members in retention critical specialties* (NSIAD-99-197BR). Washington D.C.: GAO.

U.S. Government Accounting Office (2000, March 7). *Military Personnel: Systematic analyses needed to monitor retention in key careers and occupations* (NSIAD-00-60). Washington DC: GAO.

U.S. Government Accounting Office (2001a, May 31). *Military Personnel: Higher allowances should increase use of civilian housing, but not retention* (GAO-01-684). Washington D.C.: GAO.

U.S. Government Accounting Office (2001b, June 28). *Military Personnel: Perceptions of retention-critical personnel are similar to those of other enlisted personnel* (GAO-010785). Washington D.C.: GAO.

U.S. Government Accounting Office (2001c, December 7). *Military Personnel: First-term personnel less satisfied with military life than those in mid-career.* (GAO-02-200). Washington D.C.: GAO.

Van Maanen, J. (1975). Police socialization: A longitudinal examination of job attitudes in an urban police department. *Administrative Science Quarterly, 20,* 207-228.

Vardi, Y. (1980). Organizational career mobility: An integrative model. *Academy of Management Review, 5* (3), 341-355.

Whitener, E. M., & Walz, P. M. (1993). Exchange theory determinants of affective and continuance commitment and turnover. *Journal of Vocational Behavior, 42*, 265-281.

Wigdor, A. K., & Green, B. F., Jr. (Eds.) (1991). *Performance assessment for the workplace, Vol. I & II.* Washington, D.C.: National Academy of Press.

Williams, R. (2002, May 24). *Military benefits are good, but could be better, Defense official says.* http://www.govexec.com/dailyfed/0502/052402afps.htm

Williams, T. (2002, August 20). Other branches looking at Infantry's buddy program. http://www.dtic.mil/armylink/news/Aug2002/a20020821buddyteams.html

A B O U T   T H E   A U T H O R S

Stephanie C. Payne is an Assistant Professor in the Department of Psychology at Texas A&M University. Dr. Payne's primary research interests include the measurement and prediction of efficient behaviors in the workplace, individual differences, military psychology, training, performance appraisal, and the history of industrial/organizational psychology. She regularly presents her work at national conferences such as the Society for Industrial and Organizational Psychology and the Academy of Management. Her research has been published in the *Journal of Applied Psychology, Personnel Psychology,* and *Organizational Research Methods*. Her teaching experience includes courses in research methods, personnel psychology, individual differences, and performance appraisal. Dr. Payne holds a Ph.D. in industrial/organizational psychology (2000) from George Mason University.
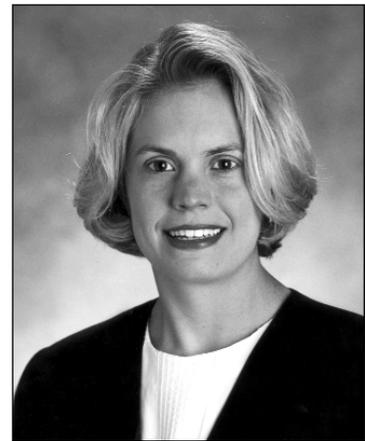
Ann H. Huffman is a doctoral student in industrial/organizational psychology at Texas A&M University. Ms. Huffman's primary research interests are military psychology, workplace turnover, and gender issues. She has presented her research at the American Psychological Association, International Military Testing Association, and the International Applied Psychologists Symposium. Ms. Huffman's published research studies are available in *Military Medicine, International Review of the Armed Forces Medical Services,* and *the Journal of Sleep Research*. Prior to her graduate work at Texas A&M University, Ms. Huffman worked as a principal investigator with the Walter Reed Army Research Institute-Europe.

Trueman R. Tremble, Jr., is Research Psychologist at the U.S. Army Research Institute for the Behavioral and Social Sciences. Dr. Tremble's primary research interests include leadership, organizational commitment, and retention. He presently leads a program of research on personnel selection for emerging organizational work roles. His research has been published in *Military Psychology, Small Group Research,* and *Organizational Research Methods.* Dr. Tremble holds a Ph.D. in social psychology from the University of Florida.
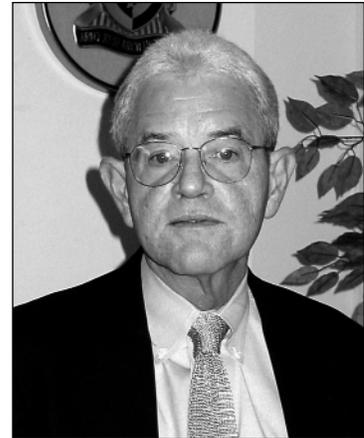
KEY CONTACT INFORMATION

To contact the authors:

Stephanie C. Payne
Assistant Professor
Department of Psychology
Texas A&M University
4235 TAMU
College Station, TX 77843-4235
(979) 845-2090

e-mail: scp@psyc.tamu.edu

Ann H. Huffman
Doctoral Student in I/O Psychology
Department of Psychology
Texas A&M University
4235 TAMU
College Station, TX 77843-4235
(979) 845-0168

e-mail: annhuffman@tamu.edu

Trueman R. Tremble, Jr.
Research Psychologist
U.S. Army Research Institute for the Behavioral and Social Sciences
5001 Eisenhower Avenue
Attn: PERI-RP
Alexandria, VA 22333
(703) 617-8276

e-mail: tremble@ari.army.mil

GRANT REPORTS

E-Government

Managing Telecommuting in the Federal Government: An Interim Report (June 2000)
Gina Vega
Louis Brennan

Using Virtual Teams to Manage Complex Projects: A Case Study of the Radioactive Waste Management Project (August 2000)
Samuel M. DeMarie

Supercharging the Employment Agency: An Investigation of the Use of Information and Communication Technology to Improve the Service of State Employment Agencies (December 2000)
Anthony M. Townsend

Assessing a State's Readiness for Global Electronic Commerce: Lessons from the Ohio Experience (January 2001)
J. Pari Sabety
Steven I. Gordon

Privacy Strategies for Electronic Government (January 2001)
Janine S. Hiller
France Bélanger

Commerce Comes to Government on the Desktop: E-Commerce Applications in the Public Sector (February 2001)
Genie N. L. Stowers

The Use of the Internet in Government Service Delivery (February 2001)
Steven Cohen
William Eimicke

State Web Portals: Delivering and Financing E-Service (January 2002)
Diana Burley Gant
Jon P. Gant
Craig L. Johnson

Internet Voting: Bringing Elections to the Desktop (February 2002)
Robert S. Done

Leveraging Technology in the Service of Diplomacy: Innovation in the Department of State (March 2002)
Barry Fulton

Federal Intranet Work Sites: An Interim Assessment (June 2002)
Julianne G. Mahler
Priscilla M. Regan

The State of Federal Websites: The Pursuit of Excellence (August 2002)
Genie N. L. Stowers

State Government E-Procurement in the Information Age: Issues, Practices, and Trends (September 2002)
M. Jae Moon

Preparing for Wireless and Mobile Technologies in Government (October 2002)
Ai-Mei Chang
P. K. Kannan

Public-Sector Information Security: A Call to Action for Public-Sector CIOs (October 2002, 2nd ed.)
Don Heiman

The Auction Model: How the Public Sector Can Leverage the Power of E-Commerce Through Dynamic Pricing (November 2002, 2nd ed.)
David C. Wyld

Financial Management

Credit Scoring and Loan Scoring: Tools for Improved Management of Federal Credit Programs (July 1999)
Thomas H. Stanton

Using Activity-Based Costing to Manage More Effectively (January 2000)
Michael H. Granof
David E. Platt
Igor Vaysman

Audited Financial Statements: Getting and Sustaining "Clean" Opinions (July 2001)
Douglas A. Brook

An Introduction to Financial Risk Management in Government (August 2001)
Richard J. Buttimer, Jr.

Human Capital

Profiles in Excellence: Conversations with the Best of America's Career Executive Service (November 1999)
Mark W. Huddleston

Reflections on Mobility: Case Studies of Six Federal Executives (May 2000)
Michael D. Serlin

A Learning-Based Approach to Leading Change (December 2000)
Barry Sugarman

Labor-Management Partnerships: A New Approach to Collaborative Management (July 2001)
Barry Rubin
Richard Rubin

Winning the Best and Brightest: Increasing the Attraction of Public Service (July 2001)
Carol Chetkovich

Organizations Growing Leaders: Best Practices and Principles in the Public Service (December 2001)
Ray Blunt

A Weapon in the War for Talent: Using Special Authorities to Recruit Crucial Personnel (December 2001)
Hal G. Rainey

A Changing Workforce: Understanding Diversity Programs in the Federal Government (December 2001)
Katherine C. Naff
J. Edward Kellough

Life after Civil Service Reform: The Texas, Georgia, and Florida Experiences (October 2002)
Jonathan Walters

Leaders Growing Leaders: Preparing the Next Generation of Public Service Executives (November 2002, 3rd ed.)
Ray Blunt

The Defense Leadership and Management Program: Taking Career Development Seriously (December 2002)

Joseph A. Ferrara
Mark C. Rom

The Influence of Organizational Commitment on Officer Retention: A 12-Year Study of U.S. Army Officers (December 2002)

Stephanie C. Payne
Ann H. Huffman
Trueman R. Tremble, Jr.

Managing for Results

Corporate Strategic Planning in Government: Lessons from the United States Air Force (November 2000)

Colin Campbell

Using Evaluation to Support Performance Management: A Guide for Federal Executives (January 2001)

Kathryn Newcomer
Mary Ann Scheirer

Managing for Outcomes: Milestone Contracting in Oklahoma (January 2001)

Peter Frumkin

The Challenge of Developing Cross-Agency Measures: A Case Study of the Office of National Drug Control Policy (August 2001)

Patrick J. Murphy
John Carnevale

The Potential of the Government Performance and Results Act as a Tool to Manage Third-Party Government (August 2001)

David G. Frederickson

Using Performance Data for Accountability: The New York City Police Department's CompStat Model of Police Management (August 2001)

Paul E. O'Connell

Performance Management: A "Start Where You Are, Use What You Have" Guide (October 2002)

Chris Wye

New Ways to Manage

Managing Workfare: The Case of the Work Experience Program in the New York City Parks Department (June 1999)

Steven Cohen

New Tools for Improving Government Regulation: An Assessment of Emissions Trading and Other Market-Based Regulatory Tools (October 1999)

Gary C. Bryner

Religious Organizations, Anti-Poverty Relief, and Charitable Choice: A Feasibility Study of Faith-Based Welfare Reform in Mississippi (November 1999)

John P. Bartkowski
Helen A. Regis

Business Improvement Districts and Innovative Service Delivery (November 1999)

Jerry Mitchell

An Assessment of Brownfield Redevelopment Policies: The Michigan Experience (November 1999)

Richard C. Hula

Determining a Level Playing Field for Public-Private Competition (November 1999)

Lawrence L. Martin

San Diego County's Innovation Program: Using Competition and a Whole Lot More to Improve Public Services (January 2000)

William B. Eimicke

Innovation in the Administration of Public Airports (March 2000)

Scott E. Tarry

Entrepreneurial Government: Bureaucrats as Businesspeople (May 2000)

Anne Laurent

Implementing State Contracts for Social Services: An Assessment of the Kansas Experience (May 2000)

Jocelyn M. Johnston
Barbara S. Romzek

Rethinking U.S. Environmental Protection Policy: Management Challenges for a New Administration (November 2000)

Dennis A. Rondinelli

The Challenge of Innovating in Government (February 2001)

Sandford Borins

Understanding Innovation: What Inspires It? What Makes It Successful? (December 2001)

Jonathan Walters

A Vision of the Government as a World-Class Buyer: Major Procurement Issues for the Coming Decade (January 2002)

Jacques S. Gansler

Contracting for the 21st Century: A Partnership Model (January 2002)

Wendell C. Lawther

Franchise Funds in the Federal Government: Ending the Monopoly in Service Provision (February 2002)

John J. Callahan

Managing "Big Science": A Case Study of the Human Genome Project (March 2002)

W. Henry Lambright

Leveraging Networks to Meet National Goals: FEMA and the Safe Construction Networks (March 2002)

William L. Waugh, Jr.

Government Management of Information Mega-Technology: Lessons from the Internal Revenue Service's Tax Systems Modernization (March 2002)

Barry Bozeman

21st-Century Government and the Challenge of Homeland Defense (June 2002)

Elaine C. Kamarck

Moving Toward More Capable Government: A Guide to Organizational Design (June 2002)

Thomas H. Stanton

Making Performance-Based Contracting Perform: What the Federal Government Can Learn from State and Local Governments (November 2002, 2nd ed.)

Lawrence L. Martin

Transforming Organizations

The Importance of Leadership: The Role of School Principals (September 1999)

Paul Teske
Mark Schneider

Leadership for Change: Case Studies in American Local Government (September 1999)

Robert B. Denhardt
Janet Vinzant Denhardt

Managing Decentralized Departments: The Case of the U.S. Department of Health and Human Services (October 1999)

Beryl A. Radin

Transforming Government: The Renewal and Revitalization of the Federal Emergency Management Agency (April 2000)

R. Steven Daniels
Carolyn L. Clark-Daniels

Transforming Government: Creating the New Defense Procurement System (April 2000)

Kimberly A. Harokopus

Trans-Atlantic Experiences in Health Reform: The United Kingdom's National Health Service and the United States Veterans Health Administration (May 2000)

Marilyn A. DeLuca

Transforming Government: The Revitalization of the Veterans Health Administration (June 2000)

Gary J. Young

The Challenge of Managing Across Boundaries: The Case of the Office of the Secretary in the U.S. Department of Health and Human Services (November 2000)

Beryl A. Radin

Creating a Culture of Innovation: 10 Lessons from America's Best Run City (January 2001)

Janet Vinzant Denhardt
Robert B. Denhardt

Transforming Government: Dan Goldin and the Remaking of NASA (March 2001)

W. Henry Lambright

Managing Across Boundaries: A Case Study of Dr. Helene Gayle and the AIDS Epidemic (January 2002)

Norma M. Riccucci

SPECIAL REPORTS

Government in the 21st Century

David M. Walker

Results of the Government Leadership Survey: A 1999 Survey of Federal Executives (June 1999)

Mark A. Abramson
Steven A. Clyburn
Elizabeth Mercier

Creating a Government for the 21st Century (March 2000)

Stephen Goldsmith

The President's Management Council: An Important Management Innovation (December 2000)

Margaret L. Yao

Toward a 21st Century Public Service: Reports from Four Forums (January 2001)

Mark A. Abramson, Editor

Becoming an Effective Political Executive: 7 Lessons from Experienced Appointees (January 2001)

Judith E. Michaels

The Changing Role of Government: Implications for Managing in a New World (December 2001)

David Halberstam

BOOKS*

E-Government 2001 (Rowman & Littlefield Publishers, Inc., 2001)

Mark A. Abramson and Grady E. Means, editors

E-Government 2003 (Rowman & Littlefield Publishers, Inc., 2002)

Mark A. Abramson and Therese L. Morin, editors

Human Capital 2002 (Rowman & Littlefield Publishers, Inc., 2002)

Mark A. Abramson and Nicole Willenz Gardner, editors

Innovation (Rowman & Littlefield Publishers, Inc., 2002)

Mark A. Abramson and Ian Littman, editors

Leaders (Rowman & Littlefield Publishers, Inc., 2002)

Mark A. Abramson and Kevin M. Bacon, editors

Managing for Results 2002 (Rowman & Littlefield Publishers, Inc., 2001)

Mark A. Abramson and John Kamensky, editors

Memos to the President: Management Advice from the Nation's Top Public Administrators (Rowman & Littlefield Publishers, Inc., 2001)

Mark A. Abramson, editor

Transforming Organizations (Rowman & Littlefield Publishers, Inc., 2001)

Mark A. Abramson and Paul R. Lawrence, editors

* Available at bookstores, online booksellers, and from the publisher (www.rowmanlittlefield.com or 800-462-6420).

About the Endowment

Through grants for research, the IBM Endowment for The Business of Government stimulates research and facilitates discussion on new approaches to improving the effectiveness of government at the federal, state, local, and international levels.

Founded in 1998, the Endowment is one of the ways that IBM seeks to advance knowledge on how to improve public sector effectiveness. The IBM Endowment focuses on the future of the operation and management of the public sector.

About IBM Business Consulting Services

With more than 60,000 consultants and professional staff in more than 160 countries globally, IBM Business Consulting Services is the world's largest consulting services organization. IBM Business Consulting Services provides clients with business process and industry expertise, a deep understanding of technology solutions that address specific industry issues, and the ability to design, build and run those solutions in a way that delivers bottom-line business value.

For additional information, contact:

Mark A. Abramson
Executive Director
IBM Endowment for The Business of Government
1616 North Fort Myer Drive
Arlington, VA 22209
(703) 741-1077, fax: (703) 741-1076

e-mail: endowment@businessofgovernment.org
website: www.businessofgovernment.org

IBM Endowment for
**The Business
of Government**

1616 North Fort Myer Drive
Arlington, VA 22209-3195