

Navy Personnel Research and Development Center

San Diego, California 92152-6800

TN-91-23

September 1991



AD-A241 363



2

**Officer Career Development:
A Review of the Civilian and Military
Research Literature
on Turnover and Retention**

DTIC
SELECTE
OCT 08 1991
S D

**Gerry L. Wilcove
Regina L. Burch
Aileen M. Conroy
Reginald A. Bruce**

91-12647



91 10 7 028

Approved for public release: distribution is unlimited.

**Officer Career Development:
A Review of the Civilian and Military Research
Literature on Turnover and Retention**

Gerry L. Wilcove
Regina L. Burch
Aileen M. Conroy
Reginald A. Bruce



Reviewed by
Robert F. Morrison

Approved and released by
Jules I. Borack
Director, Personnel Systems Department

Approved for public release;
distribution is unlimited.

Accession For	
NTIS CRA&I	✓
DTIC TAB	✓
Unannounced	✓
Justification	
By	
Distribution	
Availability Codes	
Dist	Avail and/or Special
A-1	

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE September 1991	3. REPORT TYPE AND DATE COVERED Final--Oct 88-Sep 90	
4. TITLE AND SUBTITLE Officer Career Development: A Review of the Civilian and Military Research Literature on Turnover and Retention		5. FUNDING NUMBERS Program Element 0602233N Work Unit RM33M20.06	
6. AUTHOR(S) Gerry L. Wilcove, Regina L. Burch, Aileen M. Conroy, Reginald A. Bruce		8. PERFORMING ORGANIZATION REPORT NUMBER NPRDC-TN-91-23	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Navy Personnel Research and Development Center San Diego, California 92152-6800			
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Chief of Naval Research (ONT-222) 800 North Quincy Street Arlington, VA 22217-5000		10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.		12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) Reviews were conducted of both the civilian and military research literatures on turnover in preparation for a predictive study involving aviation warfare officers and actual retention behavior. In the present report, results from the two literature reviews are presented and compared. An annotated bibliography, which has been computerized, is also presented, and is available on disk upon request. Both the literature reviews and the subsequent retention study were part of a 9-year research program that examined a wide range of career development and career management issues for three unrestricted line officer communities: aviation warfare officers, surface warfare officers, and general unrestricted line officers.			
14. SUBJECT TERMS attrition, retention, continuance, reobligation, reenlistment, careers		15. NUMBER OF PAGES 100	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UNLIMITED

FOREWORD

This effort was conducted within program element 0602233N (Mission Support Technology), project RM33M20 (Manpower and Personnel Technology), task RM33M20.06 (Career and Occupational Design). The purpose of the work unit was to develop explanatory models of unrestricted line (URL) officer career decisions. Models of this type could then be used to assess the impact of existing and proposed URL career policies and practices upon officers' career decisions and activities.

This report was completed under the sponsorship of the Office of Chief of Naval Research (ONT-222). It reviews and compares the results of the military and civilian research literatures on retention/turnover. The present report was done to identify those variables that should be included in a study of the factors influencing aviator retention. A microcomputer-based decision aid incorporating the abstracts of the literature review was provided to the Chief of Naval Operations (OP-136D) to help him respond to specific questions about retention. Following the literature review, the Navy Personnel Research and Development Center conducted research on aviator retention. Results of that effort can be obtained from the points of contact on officer career research, Dr. Robert F. Morrison, who originated and directed the research program (AUTOVON 553-9256 or Commercial (619) 553-9256) and Dr. Gerry L. Wilcove (AUTOVON 553-9120 or Commercial (619) 553-9120).

JULES I. BORACK
Director, Personnel Systems Department

SUMMARY

Problem

Since fiscal year (FY) 1982, the retention of pilots until the completion of their eleventh year of service has often been too low for the Navy to adequately fill its department head billets. For example, the Navy estimated in FY90 that there was a 34 percent chance that jet pilots in their sixth year of service would remain in the Navy until the completion of their eleventh year. The Navy's goal was 42 percent. In addition to pilots, the Navy has experienced retention problems at times for naval flight officers (NFOs) within certain aviation subcommunities.

Objective

The goal of the present effort was to help the Navy increase the retention of quality aviation warfare officers. This effort, a review of the civilian and military research literature on retention and turnover, was a prelude to a study designed to predict which aviators would remain in the Navy and which would leave. The purpose of the literature review was to identify factors that would be expected to predict turnover behavior, and then to use these factors in the planned research.

Procedure

The Navy Personnel Research and Development Center (NAVPERSRANDCEN) maintained a research program from 1981 to 1989 that: (1) examined a wide range of officer career development and management issues, and (2) produced databases comprised of questionnaire and personnel record data collected at two points in time (FY82 and FY86/87). The project focused on three unrestricted line officer communities, one of which was aviation warfare officers. The same individuals, where possible, were included in both data collection efforts, and many of the same questionnaire items were employed to detect changes over time. One of the main goals of the project was to assist the Navy in its attempt to retain quality unrestricted line officers for full 20-year careers. Thus, one of the planned efforts was to use questionnaire data in an attempt to predict whether or not aviators remained in the Navy or left. In advance of that effort, a literature review was conducted to obtain the most up-to-date information on which variables could be expected to predict retention behavior. The literature review is summarized in the present report, and the results of the predictive study are contained in an article submitted for publication in a professional journal.

Findings

1. The use of background factors to predict turnover has not been very successful in either the civilian or military realm, even though studies have examined variables such as age, marital status, family size, and educational level.
2. Measures of personality traits, as well as interest inventories, have been shown to be promising predictors of turnover in both the civilian and military sectors.
3. The most consistent relationship emerging from both the civilian and military literatures was that the probability of turnover decreases as job challenge and autonomy increase.

4. The civilian literature indicated that lower turnover rates were associated with a considerate supervisory style and satisfaction with one's co-workers. Military studies only focused on these two areas as part of broad spectrum efforts, and thus definitive conclusions await future research.

5. Civilian studies, although few in number, suggested that higher levels of turnover were associated with higher levels of family and personal-life stress. Extensive work in the military implicated spousal support as a key variable in the service member's decision to remain in the military. Varied and sometimes conflicting results were obtained on the influence of family separation on retention decisions.

6. Civilian research on organizational characteristics and practices concentrated on realistic job previews. Results suggested that individuals who had been briefed on both the positive and negative aspects of an organization tended not to attrite. Research in the military generally suggested that lower levels of turnover were associated with favorable perceptions of organizational characteristics (e.g., an emphasis on human resources and a responsive assignment system).

7. Civilian and military studies consistently found that lower levels of turnover were associated with higher levels of pay and perceived promotional opportunity.

8. Results in the civilian sphere suggested that high turnover rates were related to the availability of attractive jobs and low unemployment rates. Military research revealed that military-civilian pay differential was an important consideration in turnover decisions for naval aviators, along with the availability of civilian jobs, job benefits, and the person's perception of their own marketability.

9. Both civilian and military studies found that low turnover rates were associated with high levels of job satisfaction, organizational commitment, and met expectations.

10. Both the civilian and military literatures indicated a strong relationship between intention to leave and actual turnover behavior.

Conclusions

The research literature suggested that various factors help predict turnover. It was thus concluded that these factors should be considered in any attempt to predict the turnover/continuance of aviation warfare officers. The factors identified by the literature included: personality characteristics; interest inventory scores; job challenge; supervisory style (considerate versus authoritarian); spousal support; organizational characteristics and practices; pay and promotional opportunities; availability of attractive civilian jobs; measures of job satisfaction, organizational commitment, and met expectations; and the intention to stay or leave an organization. These factors should be considered by individuals studying the retention/turnover issue. Most of them were included in the aviation warfare officer study, which has been submitted for publication in a professional journal.

CONTENTS

	Page
INTRODUCTION	1
Problem.....	1
Objective.....	1
Background.....	1
Approach.....	2
Organization of the Report	2
FINDINGS.....	2
Background Factors	2
Personal Characteristics.....	3
Job/Career Characteristics	3
Social Environmental Factors--At Work	3
Social Environmental Factors--Nonwork (Family).....	3
Organizational Characteristics and Practices.....	4
Job Performance and Evaluations.....	4
Economic Environment--Internal	4
Economic Environment--External	4
Affective Responses	5
Behavioral Intentions.....	5
Withdrawal Behaviors	5
CONCLUSIONS.....	5
PRIOR PERSONNEL DISTRIBUTION AND CAREER DEVELOPMENT PUBLICATIONS.....	7
REFERENCES.....	9
APPENDIX A--UNABRIDGED LITERATURE REVIEW.....	A-0
APPENDIX B--EXAMPLES FROM ANNOTATED BIBLIOGRAPHY.....	B-0
APPENDIX C--REFEREE BIBLIOGRAPHIC DATABASE MANAGER.....	C-0
APPENDIX D--IDENTIFIERS NEEDED FOR COMPUTERIZED ANNOTATED BIBLIOGRAPHY.....	D-0
DISTRIBUTION LIST	

INTRODUCTION

Problem

Since fiscal year (FY) 1982, the retention of pilots until the completion of their eleventh year of service has often been too low for the Navy to adequately fill its department head billets. For example, the Navy estimated in FY90 that there was a 34 percent chance that jet pilots in their sixth year of service would remain in the Navy until the completion of their eleventh year.¹ The Navy's goal was 42 percent. In addition to pilots, the Navy has experienced retention problems at times for naval flight officers (NFOs) within certain aviation subcommunities.

Objective

The goal of the present effort was to help the Navy increase the retention of quality aviation warfare officers. This effort, a review of the civilian and military research literature on retention and turnover, was a prelude to a study designed to predict which aviators would remain in the Navy and which would leave. The purpose of the literature review was to identify factors that would be expected to predict turnover behavior, and then to incorporate these factors in the planned research.

Background

The Navy Personnel Research and Development Center (NAVPERSRANDCEN) maintained a research program from 1981 to 1989 that was devoted to a wide range of officer career development and career management issues. This program focused on surface warfare officers, aviation warfare officers, and general unrestricted line officers. Morrison and Cook (1985) describe the conceptual and methodological foundations of the research program.

Data were collected at two points in time for the research program: FY82 and FY86/87. Approximately 300 interviews were conducted at both times on retention issues and a variety of career development and management topics. In addition, questionnaire data were collected from over 9,000 individuals in FY82 and 12,000 individuals in FY86/87. Of the 12,000 individuals, close to 5,500 constituted the "longitudinal" sample; that is, they had completed questionnaires at both points in time, and since the questionnaires contained many of the same items, the resulting database contains "repeated-measures" data.

One of the main goals of the research was to assist the Navy in its attempt to retain quality unrestricted line officers for full 20-year careers. The aviation community was of special interest to the researchers because of the retention problems it was experiencing. Thus, one of the project's planned efforts was to use questionnaire data in an attempt to predict which aviators remained in the Navy and which ones left. The longitudinal database contained close to 500 questionnaire variables related to retention and a variety of career development and management issues. The most up-to-date information was needed on which of these variables could best predict retention behavior. Some of this information was provided by the interviews that had been conducted. Possible predictors were also suggested by an earlier predictive study with aviators (pilots and

¹Personal communication with CAPT B. J. O'Connell (PERS-21D2), Aviation Community Manager, on 11 September 1991.

NFOs combined) (Bruce & Burch, 1989). It was also decided to conduct a literature review because of important advances in the understanding and prediction of turnover/retention. The results of that effort are published in the present report, while the results of the predictive study are presented in a document submitted for consideration as a journal article (Murphy & Morrison, in process). (Pilots and NFOs were examined separately and together.)

Approach

A computer search was made of the Psychological Abstracts to identify the civilian and military studies on turnover and retention. These studies were then reviewed, evaluated, and summarized.

Organization of the Report

The findings of the literature search are briefly summarized in the report and are organized by classes of factors that had been examined as possible predictors of turnover (e.g., background factors, personal characteristics, and organizational practices).

Four appendices are included. Appendix A presents the unabridged literature review written by Wilcove and Burch. Two reference lists are provided, one for the civilian studies that were reviewed, and one for the military studies. Appendix B presents a limited portion, for illustrative purposes, of an annotated bibliography that was constructed by Conroy and Bruce. This bibliography, which has been computerized, contains many of the studies included in the literature review. An asterisk has been placed in the reference lists next to studies abstracted in the annotated bibliography. Appendix C, prepared by Bruce, describes the steps that should be followed to load and access the studies on a Zenith 248 using the REFEREE Bibliographic Database Manager (Raymond, 1987). Diskettes are available of the studies stored in the REFEREE system. Appendix D, prepared by Conroy, presents an alphabetized list of the identifiers needed to access studies.

FINDINGS²

Background Factors

The use of background factors to predict turnover has not been very successful. Of the five factors examined in the literature (age, marital status, family size, race, and educational level), only age was shown to relate to turnover, such that the older the individual the less likely they were to leave the organization. Regarding educational level, civilian studies tended to show that lower (higher) levels of education were associated with a lower (higher) probability of turnover. Military studies with enlisted personnel showed just the opposite. The longer the tenure of an individual in a civilian organization, the less likely there were to leave. While it was presumed that this dynamic also applied to military settings, the particular function relating turnover and tenure had not been examined to any great extent. While gender had been examined in the civilian literature, this

²A negative (positive) relationship between turnover and another variable means that higher (lower) levels of turnover are associated with lower (higher) levels of the variable under consideration. For example, a negative relationship between turnover and intelligence means that higher levels of turnover are associated with lower levels of intelligence.

variable was not relevant, for the most part, to officer warfare communities, which are composed primarily of males.

Personal Characteristics

Measures of personality traits, as well as interest inventories, were shown to be promising predictors of turnover in both the civilian and military realms. The civilian literature was extensive regarding personality traits, while the military literature was more limited. A variety of personality predictors were shown to correlate with turnover in the civilian realm, including need for achievement, self-assurance, and coping abilities. Some traits were more important than others, depending on occupational group. In the military, conformity and internal "locus of control" (the person views themselves as controlling their own behavior rather than its being the product of chance or circumstances) were identified as promising correlates of turnover. Regarding interest inventories, it was found, as expected, that turnover tended to be less if a person's job was congruent with their interests. Interest inventories were used as selection tools in some cases and simply as measurement tools for people already placed in jobs in other instances. Contradictory results were found in both the civilian and military spheres regarding the predictive value of aptitude and intelligence.

Job/Career Characteristics

The most consistent relationship emerging from both the civilian and military literatures was that the probability of turnover is inversely associated with job challenge (autonomy and responsibility): the greater the challenge, the less turnover in an organization. The civilian literature tended to support expected relationships for work unit size and task repetition; in short, the larger the work unit and the more task repetitiveness, the higher the turnover rate. In the civilian realm, higher turnover tended to be associated with unclear role definitions. In the military realm, early studies were split in their conclusions regarding the contribution of job factors to turnover, while later studies emphasized their importance, especially the contribution of challenge and autonomy.

Social Environmental Factors--At Work

The civilian literature corroborated a relationship between turnover and both supervisory style and satisfaction with co-workers, although the form of the relationship (linear or curvilinear) had not been conclusively determined. Concerning supervisory style, a considerate style was shown to be related to lower turnover than were task-oriented and authoritarian styles. Various elements of supervisor-subordinate relationships were examined (communication, feedback, opportunity to voice dissatisfaction, etc.), with expected results; for example, lower turnover was related to quality and consistency of communication and feedback, and the opportunity to voice dissatisfactions. The military research had not focused on these types of variables, except as part of omnibus studies, making it difficult to draw conclusions.

Social Environmental Factors--Nonwork (Family)

This group of factors was shown in both the civilian and military literatures to be related to turnover. The civilian literature was limited, however, and had done only preliminary work

regarding family life variables and personal life stress. In contrast, military personnel research was fairly extensive and had focused on spousal support, family life, personal freedom, and separation from family. Spousal support and personal freedom variables yielded the highest correlations (i.e., low turnover was related to spousal support and the belief that the service member's and the family's personal freedom were not appreciably curtailed by military service). The conclusions of military personnel researchers varied markedly regarding the impact of family separation on turnover, some researchers viewing this variable as relatively unimportant and others viewing it as a key variable for understanding turnover.

Organizational Characteristics and Practices

Civilian research in this area was limited, although military personnel research was quite extensive. Civilian research concentrated primarily on realistic job previews, and results generally supported the notion that individuals who have been briefed on both the positive and negative aspects of an organization tend not to attrite. There was reason to believe that some individuals, having received a preview, "selected themselves out"; and thus, did not become a member of an organization. Research done in the military tended to support a negative relationship between organizational characteristics and turnover (the more favorable the perceptions of the service members, the lower the turnover rate). A variety of factors were examined (e.g., emphasis on human resources, the assignment process, and policies regarding living conditions) and they were found to apply to both enlisted and officer personnel, the latter including the surface warfare and aviation warfare communities.

Job Performance and Evaluations

The issue raised in the civilian and military literatures was whether good performers were the ones leaving for greener pastures. Many civilian researchers concluded that no clear-cut answer was available. They suspected that the inconsistent results reflected time of data collection (i.e., whether data were collected before or after individuals had made their turnover decisions). In the military, studies were scarce, although available data suggested that good performers decided to stay rather than leave.

Economic Environment--Internal

Civilian studies consistently found a negative relationship between pay and promotion and turnover, such that the higher the pay and the greater the probability of promotion, the lower the probability of turnover. Other civilian studies examining incentive programs and the financial success of organizations found results in the expected direction, but too few studies had been conducted to draw definitive conclusions. Military personnel researchers identified pay and promotion as the primary factors affecting turnover decisions, although a few studies suggested that nonpecuniary factors such as job and organizational characteristics were more important.

Economic Environment--External

Initial results in the civilian sphere suggested that turnover was related to the availability of attractive jobs outside one's current organization and low unemployment rates. However, researchers were still attempting to: (1) identify the actual chain of events involved (e.g., some

studies suggested that external economics affected turnover intention which then affected behavior) and (2) clarify dependent variables (e.g., whether results pertained to individual turnover decisions or decisions aggregated across individuals). Military personnel researchers suggested that military-civilian pay differential was not important in the turnover decision except for naval aviators, but that perceived job alternatives, benefits, and a person's perception of their own marketability were important considerations.

Affective Responses

Both civilian and military researchers consistently found negative relationships (some of them strong) between "affective" responses and intended and actual turnover. Affective responses were defined in the literature as a strong liking or disliking for something (an issue, program, behavior, etc.) based on positive or negative evaluations. Three affective measures, in particular, were found to be effective predictors: job satisfaction, organizational commitment, and met expectations. It was presumed with respect to the last that expectations reflected an opinion on what "should be" and that met expectations gave rise to strong positive emotional reactions, and unmet expectations, strong negative reactions. Some research suggested that organizational commitment was a better predictor than job satisfaction, although in both cases, it was assumed that they directly affected turnover behavior. However, other research suggested that all affective response-turnover relationships were indirect (i.e., affective responses influenced the intention to stay or leave, which, in turn, influenced actual turnover behavior).

Behavioral Intentions

Both the civilian and military literatures indicated a strong relationship between intention to stay or leave and actual turnover behavior. Most researchers seemed to agree that this relationship was the primary one, with other variables, such as economics, being indirectly related to turnover through the intention to stay or leave.

Withdrawal Behaviors

Civilian research suggested that withdrawal behaviors such as absenteeism, declining performance, and turnover all reflected the same underlying psychological process and that the individual often showed a progression from one behavior to the next. Military studies examining these kinds of issues were lacking.

CONCLUSIONS

The research literature suggested that various factors help predict turnover. It was thus concluded that these factors should be considered in any attempt to predict the turnover/continuance of aviation warfare officers. The factors identified by the literature included: personality characteristics; interest inventory scores; job challenge; supervisory style (considerate versus authoritarian); spousal support; organizational characteristics and practices; pay and promotion opportunities; availability of attractive civilian jobs; measures of job satisfaction, organizational commitment, and met expectations; and the intention to stay or leave an organization. These factors should be considered by individuals studying the retention/turnover issue. Most of them were included in the aviation warfare officer study. That study has been submitted for publication to a professional journal.

PRIOR PERSONNEL DISTRIBUTION AND CAREER DEVELOPMENT PUBLICATIONS

- Bruce, R. A. (1989). *Officer career development: Fleet perceptions of the aviation duty officer program* (NPRDC-TN-89-25). San Diego: Navy Personnel Research and Development Center.
- Bruce, R. A. (1991). *The career transition cycle: Antecedents and consequences of career events* (NPRDC-TR-91-8). San Diego: Navy Personnel Research and Development Center.
- Bruce, R. A., & Burch, R. L. (1989). *Officer career development: Modeling married aviator retention* (NPRDC-TR-89-11). San Diego: Navy Personnel Research and Development Center.
- Bruce, R. A., Burch, R. L., & Russell, G. L. (in process). *Officer career development: Cross-sectional sample--Fiscal years 1986/1987*. San Diego: Navy Personnel Research and Development Center.
- Bruce, R. A., Russell, G. L., & Morrison, R. F. (1991). *Officer career development: The post-resignation survey* (NPRDC-TN-91-6). San Diego: Navy Personnel Research and Development Center.
- Bruni, J. R., & Wilcove, G. L. (1988). *Officer career development: Preliminary surface warfare officer perceptions of a major career path change* (NPRDC-TN-89-5). San Diego: Navy Personnel Research and Development Center.
- Burch, R. L., Bruce, R. A., & Russell, G. L. (in process). *Officer career development: Longitudinal sample--Fiscal year 1982*. San Diego: Navy Personnel Research and Development Center.
- Burch, R. L., Bruce, R. A., & Russell, G. L. (in process). *Officer career development: Longitudinal sample--Fiscal years 1986/1987*. San Diego: Navy Personnel Research and Development Center.
- Burch, R. L., Sheposh, J. P., & Morrison, R. F. (1991). *Officer career development: Surface warfare officer retention* (NPRDC-TR-91-5). San Diego: Navy Personnel Research and Development Center.
- Cook, T. M., & Morrison, R. F. (1982). *Surface warfare junior officer retention: Early career development factors* (NPRDC-TR-82-59). San Diego: Navy Personnel Research and Development Center.
- Cook, T. M., & Morrison, R. F. (1983). *Surface warfare junior officer retention: Background and first sea tour factors as predictors of continuance beyond obligated service* (NPRDC-TR-83-6). San Diego: Navy Personnel Research and Development Center.
- James, L. R., & Hertzog, C. K. (1989). *Officer career development: An overview of analytic concerns for the research* (NPRDC-TN-89-27). San Diego: Navy Personnel Research and Development Center.

- James, L. R., & Hertzog, C. K. (1989). *Officer career development: Analytic strategy recommendations* (NPRDC-TR-89-13). San Diego: Navy Personnel Research and Development Center.
- Kozlowski, S. W. J., & Morrison, R. F. (1990). *Officer career development: Mopping rater strategies in officer fitness report ratings* (NPRDC-TR-91-2). San Diego: Navy Personnel Research and Development Center.
- Morrison, R. F. (1983). *Officer career development: Surface warfare officer interviews* (NPRDC-TN-83-11). San Diego: Navy Personnel Research and Development Center.
- Morrison, R. F. (1988). *Officer career development: URL officers in joint-duty assignments* (NPRDC-TN-88-26). San Diego: Navy Personnel Research and Development Center.
- Morrison, R. F., & Cook, T. M. (1985). *Military officer career development and decision making: A multiple-cohort longitudinal analysis of the first 24 years* (NPRDC-TN-85-4). San Diego: Navy Personnel Research and Development Center.
- Morrison, R. F., Martinez, C., & Townsend, F. W. (1984). *Officer career development: Description of aviation assignment decisions in the antisubmarine warfare (ASW) patrol community* (NPRDC-TR-84-31). San Diego: Navy Personnel Research and Development Center.
- University of San Diego (1984). *Proceedings: Volume 1. Group reports. Tri-service career research workshop*. San Diego: University of San Diego, Continuing Education.
- Wilcove, G. L. (Ed.). (1988). *Officer career development: Problems of three unrestricted line communities* (NPRDC-TR-88-13). San Diego: Navy Personnel Research and Development Center.
- Wilcove, G. L. (1988). *Officer career development: General unrestricted line officer perceptions of the dual-career track* (NPRDC-TN-88-62). San Diego: Navy Personnel Research and Development Center.
- Wilcove, G. L. (in process). *Officer career development: Changes in perceptions of career planning and reassignment experiences*. San Diego: Navy Personnel Research and Development Center.
- Wilcove, G. L., Bruni, J. R., & Morrison, R. F. (1987). *Officer career development: Reactions of two unrestricted line communities to detailers* (NPRDC-TN-87-40). San Diego: Navy Personnel Research and Development Center.
- Wilcove, G. L., & Morrison, R. F. *Officer career development: Factors that predict subspecialty decisions and proven-subspecialty status* (NPRDC-TN-91-7). San Diego: Navy Personnel Research and Development Center.
- Wilcove, G. L., & Wilson, W. C. *Officer career development: Measures and samples in the 1981-1989 research program* (NPRDC-TN-91-8). San Diego: Navy Personnel Research and Development Center.

REFERENCES

- Bruce, R. A., & Burch, R. L. (1989). *Officer career development: Modeling married aviator retention* (NPRDC-TR-89-11). San Diego: Navy Personnel Research and Development Center.
- Burch, R. L., Bruce, R. A., & Russell, G. L. (in process). *Officer career development: Longitudinal sample--Fiscal year 1982*. San Diego: Navy Personnel Research and Development Center.
- Burch, R. L., Bruce, R. A., & Russell, G. L. (in process). *Officer career development: Longitudinal sample--Fiscal years 1986/1987*. San Diego: Navy Personnel Research and Development Center.
- Bruce, R. A., Burch, R. L., & Russell, G. L. (in process). *Officer career development: Cross-sectional sample--Fiscal years 1986/1987*. San Diego: Navy Personnel Research and Development Center.
- Morrison, R. F., & Cook, T. M. (1985). *Military officer career development and decision making: A multiple-cohort longitudinal analyses of the first 24 years* (MPL-TN-85-4). San Diego: Navy Personnel Research and Development Center.
- Murphy, K. R., & Morrison, R. F. (1991). *The competing requirements of theory and application: Modeling naval warfare officer retention*. Manuscript submitted for publication.
- Raymond, S. (1987). *REFeree: Bibliographic database manager* (EPA Tech. Rep. 600/8-87/052a). Research Triangle Park, NC: U.S. Environmental Protection Agency.

APPENDIX A

UNABRIDGED LITERATURE REVIEW

**Gerry L. Wilcove
Regina L. Burch**

UNABRIDGED LITERATURE REVIEW¹

Background Factors

The use of background factors to predict turnover has not been very successful. Of the five factors examined in the literature (age, marital status, family size, race, and educational level), only age has been shown, generally speaking, to relate to turnover, such that the older the individual the less likely they are to leave the organization. Regarding educational level, civilian studies tended to show that lower (higher) levels of education are associated with a lower (higher) probability of turnover. Military studies with enlisted personnel showed just the opposite. The longer the tenure of an individual in a civilian organization, the less likely they are to leave. While it is presumed this dynamic also applies to military settings, the particular function relating turnover and tenure has not been examined to any great extent. While gender has been examined in the civilian literature, this variable is not relevant, for the most part, to officer warfare communities, which are composed primarily of males.

Age

Civilian. Most studies support a well established negative relationship between increased age and turnover (e.g., Bluedorn, 1982; Robinson, 1972; Waters, Roach, & Waters, 1976). A review of turnover studies (Cotton & Tuttle, 1986) identified 27 studies which supported the negative age-turnover relationship. Similarly Porter and Steers (1973) identified nine studies, with young employees having the highest turnover rate. A few studies have been cited which found a positive relation or no relation between the two variables (e.g., Bassett 1967; Downs, 1967; Hellriegel & White 1973; Shott, Albright, & Glennon, 1963). Age has also been found to correlate with other withdrawal behaviors. For example, among a sample of industrial workers, De La Mare and Sergean (1961) found age to be positively related to absenteeism. Likewise, Cooper and Payne (1965) obtained the same results among a sample of construction workers.

Military. Kissler (1980, p. 6) concluded that age is negatively related to first-term attrition (i.e., the younger the individual, the more likely it is that they will leave the service) (Goodstadt & Glickman, 1975; Guthrie, Lakota, & Matlock, 1978; Hand, Griffeth, & Mobley 1977; Mobley, Hand, & Logan, 1977; Sands, 1978). Vernez and Zellman (1987, p. 22) generally found the same results in the literature; for example, when Allen (1981) held years of service constant, age and career intention were significantly and negatively related for both enlisted personnel and officers. However, Vernez and Zellman (1987) also noted other studies (Lockman, 1977a, b) reporting a curvilinear relationship, such that Navy sailors younger than 18 and older than 19 were more likely to attrite during the first-term than 18- and 19-year olds.

¹A negative (positive) relationship between turnover and another variable means that higher turnover is associated with a lower (higher) level of the factor under discussion.

Marital Status and Family Size

Civilian. The results of studies looking at the relationship between marital status and turnover have been mixed. Some studies looking at married versus non-married employees have found that individuals who are married are less likely to turnover than those who are not married (Arnold & Feldman, 1982; Federico, Federico, & Lundquist 1976; Mangione, 1973). In contrast, a review by Cotton and Tuttle (1986) of 14 studies found that marital status was unrelated to turnover. In six additional studies, married individuals were found to be less likely to turn over than unmarried individuals. Among a group of clerical workers, Waters, Roach, and Waters (1976) determined that turnover was unrelated to marital status. Porter and Steers (1973) offer an explanation for these apparently mixed results. They point to the covariation of factors such as marital status, gender, and number of dependents. They suggest that these variables require further decomposition to determine the relationship among them.

Similar to the marital status-turnover relationship, the research on family size and withdrawal behaviors has been inconsistent. Many studies have concluded that there is a negative correlation between number of dependents and turnover (Cotton & Tuttle, 1986; Federico, Federico, & Lundquist 1976; Marsh & Mannari, 1977). Knowles (1964) found this to be the case among a group of male factory workers, but studies conducted by Naylor and Vincent (1959) and Stone and Athlestan (1969) discovered that absenteeism and turnover, respectively, were positively associated with increases in number of dependents among female workers. As stated earlier, the possibility of gender moderating the family size-turnover relationship needs further investigation.

Military. Boesel and Johnson (1984, p. 59) reported mixed results on marital status and family size. Most studies seemed to confirm that married individuals (as compared to single individuals) and married individuals with children (as compared to no children) seem more prone to attrite (Lockman, 1977; Sands, 1977, 1978; Guthrie, Lakota, & Matlock, 1978; Mobley, Hand, Baker, & Meglino, 1978; Landau & Farkas, 1978) (i.e., results contradict six of the civilian studies). Even in the military literature, there are too many exceptions to draw firm conclusions. For example, Boesel *et al.* (1984) indicated that Buddin (1981) found just the opposite relationship and Greenberg, Murphy, and McConeghy (1977) found insignificant relationships for Marines.

Stolzenberg and Winkler (1983, p. 57) reviewed many of the same studies and felt more comfortable generalizing from the results ("we think the preponderance of evidence is that marriage and children tend to increase the probability of voluntary termination from military service").

Vernez and Zellman (1987, p. 25) disagreed (i.e., they believed that inconsistent results are obtained when researchers examine the relationship between marital status and first-term reenlistment. Regarding the presence of children, Vernez and Zellman believed this variable is uniformly related to an increased likelihood of individuals leaving before the end of their first-term (Sinaiko, Chatelier, Cook, Hosek, & Sicilia, 1981; Buddin, 1981; Oganessoff, 1982).

Our position on the military literature is there are too many studies that do not confirm the relationship between marital status and career continuance to reach a clear conclusion. Further, it is speculated that other variables interact with marital status (e.g., occupational specialty, marital

satisfaction, length of service, etc.) in ways that make general conclusions unrealistic. Similarly, based on research results, no firm conclusions can be drawn with respect to family size.

Race

Civilian. The relationship between race and organizational withdrawal has received little research attention, although one study provides some insight into the relationship between these two variables. Among a sample of blue collar workers, Wanous, Stumpf, and Bedrosian (1979) found no relationship between race and turnover, regardless of whether it was voluntary or involuntary.

Military. Results on race (done primarily with enlisted personnel) are mixed. For example, Boesel and Johnson (1984, p. 30) discovered studies reporting that non-whites extend their first-term or reenlist more often than whites (Chow & Plich, 1980; Fletcher & Giesler, 1981). However, another study (Goldberg & Warner, 1982) found the opposite result, and still another study (Hiller, 1982) found no relationship with race for second-term reenlistments.

After reviewing the literature, Stolzenberg and Winkler (1983) concluded (pp. 56-57):

Studies of race effects do not reveal unambiguously if race is merely correlated with factors which have true effects on termination from service (e.g., high school completion, AFQT or . . . ASVAB scores) or if there is something about Blacks' military experiences, or their attitudes toward these experiences, that makes them more or less willing than otherwise comparable whites to continue their military service.

Education

Civilian. In most studies reviewed, educational level was positively related to turnover (Cotton & Tuttle, 1986) (i.e., the more education an individual had acquired, the greater the probability of their leaving an organization). In contrast, several studies have reported that there is no relationship between these two variables among samples of clerical workers, bus drivers, certified public accountants, and production workers (Brown & Ghiselli, 1947; Hellriegel & White, 1973; Mangione, 1973; Mowday, Porter, & Stone, 1978; Parasuraman, 1982). Using a sample of female clerical workers, Kirchner and Dunnette (1957) found the relationship between education and turnover to be curvilinear. In a review of the literature, Mobley, Griffeth, Hand, and Meglino (1979) determined that there is weak support for a positive relationship between education and turnover. They state that the variance in educational level, in the studies reviewed, was so small that it made accurate analysis of this relationship impossible. They suggest the use of conceptual models and multivariate analyses as a way of investigating the education-turnover linkage.

Military. Stolzenberg and Winkler (1983, p. 58) stated for enlisted personnel that "the evidence seems heavily in favor of a conclusion that years of schooling and the probability of attrition are inversely related." That is, their conclusion was opposite from the conclusion of many civilian studies. Boesel and Johnson (1984, p. 57), Kissler (1980, p. 6), and Hand *et al.* (1977, p. 93) reached a similar conclusion, based on the same studies that Stolzenberg and Winkler (1983) reviewed on aptitude, as did Hand *et al.* (1977) who reviewed Lockman (1976), Plag, Goffman, and Phelan (1970), Guinn (1977), and Mathews (1977). Interestingly, Vernez and Zellman (1987,

p. 21) discovered a study for officers (Lund, 1978) that contrasted with enlisted results (i.e., only 10% of junior Army officers with a college degree planned to remain in the service, compared with 55% of those without a college degree). We tend to discount these results for two reasons: (1) the number of officers without a college degree is quite small and (2) those without a college degree would not have much of a future in the Army and thus be encouraged to leave.

Tenure

Civilian. Tenure has been found to be consistently and negatively related to turnover (Cotton & Tuttle, 1986; Federico, Federico, & Lundquist, 1976; Fleishman & Berniger, 1960; Knowles, 1964; Mangione, 1973; Mobley, Horner, & Hollingsworth, 1978; Robinson, 1972; Schott, Albright, & Glennon, 1963; Taylor & Weiss, 1972; Waters, Roach, & Waters, 1976; Werbel & Gould, 1984). Only one study reviewed found tenure and turnover to be unrelated (Michaels & Spector, 1982). The relationship between tenure and other withdrawal behaviors, such as absenteeism, appears to be less clear cut. Hill and Trist (1955) found tenure to be unrelated to absenteeism among a sample of factory workers, and negatively related among a sample of male blue-collar workers. Baumgartel and Sobol (1959) found a positive relationship between these two variables for a sample of female blue-collar, and male and female white-collar workers. In summary, it appears that tenure is a fairly reliable predictor of turnover, but less so for other withdrawal behaviors, such as absenteeism. The possibility that tenure moderates the absenteeism-turnover relationship has also been investigated. Ferris and Rowland (1987) found that low-tenured individuals who were absent frequently were less likely to leave the organization, but high-tenured individuals who were absent frequently were more likely to leave.

Military. No studies were found examining the relationship between tenure and turnover.

Personal Characteristics

Measures of personality traits, as well as interest inventories, have been shown to be promising predictors of turnover in both the civilian and military realms. The civilian literature is extensive regarding personality traits, while the military literature is more limited. While a variety of personality predictors have been shown to correlate with turnover in the civilian realm, significant results tend to vary by occupational group. Regarding interest inventories, it was found, as expected, that turnover tends to be less if a person's job is congruent with their interests. Interest inventories have been used as selection tools in some cases and simply as measurement tools for people already placed in jobs in other instances. Contradictory results have been found in both the civilian and military spheres regarding the predictive value of aptitude and intelligence.

Personality

Civilian. Personality traits and needs of individuals, including need for achievement, coping abilities, and locus of control have all received considerable attention in the turnover literature (Bernardin, 1977; Cotton & Tuttle, 1986; Schuh, 1967b). Hines (1973) investigated differences in

need for achievement (nAch) between entrepreneurs and non-entrepreneurs. Results showed that entrepreneurs had higher nAch scores and lower turnover rates than other occupational groups. Also, individuals in the non-entrepreneur group who were high in nAch had a higher turnover rate than their non-entrepreneur peers. Several studies lend support to the positive relationship between need for achievement and turnover (Farris, 1971). Meyer and Cuomo (1962) investigated not only need for achievement, but several other personality characteristics. They found that individuals who left the organization tended to be high in need for achievement, aggression, independence, self-confidence, and sociability. Individuals who stayed with the organization were higher in emotional stability, maturity, and sincerity. They had stronger job identification and were moderate in need for achievement. Other personality traits that have demonstrated a positive relationship with turnover are manifest anxiety, authoritarianism, and neuroticism (Cleland & Peck, 1959; Hakkinen & Toivainen, 1960; MacKinney & Wolins, 1960). Manifest anxiety has also shown a strong, positive relationship with absenteeism (Sinha, 1963). However, the positive relationship between anxiety and turnover has not been supported across all samples (Parasuraman, 1982).

Bernardin (1977) investigated the relationship between personality traits and withdrawal behaviors using Cattell's 16 Personality Factor (16 PF) Questionnaire. The results indicated that conscientiousness and anxiety were the strongest predictors of both absenteeism and turnover. Individuals who terminated tend to score low in conscientiousness, and high on anxiety. Barton and Cattell (1972) also investigated the personality trait-turnover relationship using the 16 PF. It was found that among a group of graduating seniors, those individuals who terminated employment 5 years later scored higher on imagination, self-assurance, and frustration, and scored lower on self-discipline, than individuals who stayed on the job. A group of female flight attendants completed the 16 PF. Among this sample, extraversion, anxiety, criteria (tough mindedness), and independence were uncorrelated with turnover.

Using the Personality Research Form, Mowday, Porter and Stone (1978) found that among a group of clerical workers, those who scored high on autonomy and low on need for harm avoidance were more likely to turn over. Spector and Michaels (1986) found that there is a strong positive relationship between external locus of control and intention to quit. Individuals with an external locus of control (LOC) were more likely to intend to quit than individuals scoring low on this dimension. Blau (1987) also looked at LOC and its relationship to turnover. This study revealed that LOC moderates the relationships between pay and promotional satisfaction to both withdrawal cognitions and turnover. Locus of control also moderated the relationship between withdrawal cognitions and turnover. There were stronger negative relationships for internals than externals between satisfaction items and withdrawal cognitions and turnover, as well as a stronger positive relationship for internals than externals between withdrawal cognitions and turnover.

In summary, it appears that many personality variables are fairly good predictors of turnover, although the literature indicates that certain traits are better predictors depending on the occupational group in which they are applied.

Military. Ramsey (1974), La Rocca *et al.* (1977) and Rakoff *et al.* (1987) all identified research illustrating the possible role of a person's values in turnover decisions and behavior. Ramsey (1974, p. 8), for example, summarized Gordon and Medland (1964) who found that officers who desired to remain in the service tended to score higher on conformity and benevolence and lower on independence. Enlisted men scored higher on benevolence and lower on independence and

support. La Rocca *et al.* (1977) cited Bachman (1974) and Stoloff (1971), while Rakoff *et al.* (1987, p. 11) pointed out a study (Faris, 1984) indicating that belief in the importance of the military mission is related to reenlistment decisions. In general, not much research has been done that examines values and their relationship to career motivation and action. Based on the research that has been done, however, values seem promising as predictors.

Like values, not much not much research has been conducted on personality traits, but preliminary results are encouraging. According to Ramsey (1974, p. 8), a study by Kotual and Anderson (1963) represents one of the best examples of the potential value of personality research. These individuals found that a composite personality measure (of characteristics necessary for adjustment to the military) was significantly related, both statistically and practically, to reenlistment intention after 1 year in the service. Vernez and Zellman (1987, p. 23) indicated that a personality characteristic, locus of control (Rotter, 1966), has been examined in relation to attrition (Szoc, 1982). It was found that *internal* locus of control (the person views himself as controlling his own behavior rather than being controlled by chance or external circumstances) is related to first-term attrition.

Stolzenberg and Winkler (1983) viewed mental health and adjustment as key personality variables in the prediction of attrition behavior because of the results of studies such as Wilcove, Thomas, and Blankenship (1979); Hoiberg, Hysham, and Berry (1977); Erwin and Herring (1977); Frank and Erwin (1978); Atwater, Skrobiszewski, and Alf (1976); Greenberg, Murphy, and McConeghy (1977); Cooper (1979); Yellen (1975); and Lau (1979). Many of these studies focused on the proclivity of the individual to engage in antisocial or illegal behavior, or are maladjusted, and found they are more likely to leave the service, either voluntarily or involuntarily.

Aptitudes and Intelligence

Civilian. Numerous aptitudes and abilities have been investigated in order to determine their relationship with organizational withdrawal (e.g., Rosse (1987)). Summaries of these studies have pointed to results similar to those of intelligence measures. Measures of clerical aptitude used to predict clerical worker attrition have indicated no relationship between these two variables (Kriedt & Gadel, 1953; MacKinney & Wolins, 1959). Using the same sample, MacKinney and Wolins (1959) did find a negative relationship between the King Factored Aptitude Test and clerical worker turnover. The use of arithmetic and language tests to predict cashier turnover produced a curvilinear relationship (Viteles, 1924), as did a Ortho-rater test to predict turnover among male lens inspectors (Kephart, 1948). Shott *et al.* (1963) found a negative relationship between card punch aptitude and officer worker attrition, as did Kelleher *et al.* (1968) when the predictability of a mixed test battery in determining nursing aide turnover was investigated. Hines (1973) administered the Lynn Achievement Motivation test to 315 accountants, engineers, and managers and the results indicated a positive relationship between this measure and turnover. In a study conducted by Ekpo-Ufot (1976), there was a negative relationship between measures of self-perceived ability among automobile assemblers and turnover in this group. Jackofsky and Peters (1983b) present a process model involving task-relevant ability and its relation to turnover. They suggest that ability is related to turnover through individuals' perceptions of ease of movement and desirability of movement.

The results of studies investigating the relationship between intelligence and turnover appear somewhat mixed. Various studies have been conducted, utilizing various intelligence measures and diverse samples, but no clear cut pattern seems to emerge. In a review by Muchinsky and Tuttle (1979), studies claiming that there is no relationship, a negative relationship, a positive relationship, and a curvilinear relationship were all identified (Brown & Ghiselli, 1947; Kriedt & Gadel, 1953; Mackinney & Wolins, 1959; Robbins & King, 1961; Scholl & Bellows, 1952; Schuh, 1967a); Shott, Albright, & Glennon, 1963; Snow, 1927).

Military. Reviewers of the enlisted literature have drawn various, often conflicting, conclusions. La Rocco *et al.* (1977) and Stolzenberg and Winkler (1983) in their reviews concluded that studies showed that the higher the aptitude of enlisted personnel, the less likely they were to leave the Navy--during either the first-term or later. Aptitude was typically measured by the Armed Services Vocational Aptitude Battery (ASVAB) or the Armed Forces Qualifications Test (AFQT). On the other hand, Boesel and Johnson (1984) described studies with a variety of results (i.e., no relation, positive relation, or negative relation).

The aptitude studies reviewed by each of the authors were as follows. La Rocco *et al.* (1977, p. 25) cited Quigley and Wilburn (1969) and Singer and Morton (1964), while Stolzenberg and Winkler (1983, p. 59) discussed Mobley *et al.* (1978), Lockman (1977a,b), Sands (1977, 1978), Guthrie, Lakota, and Matlock (1978), Buddin (1981), Fletcher and Giesler (1981), and Landau and Farkas (1978). Boesel and Johnson (1984, p. 28) described Goldberg and Warner (1982) and Chow and Polich (1980), both of which suggested that higher aptitude scores are associated with lower likelihood that personnel will reenlist when their first enlistment has been completed. Boesel and Johnson (1984) also mentioned Fletcher and Giesler (1981), which reported zero, negative, and positive relationships for first-term reenlistment, depending on occupational category. The picture, according to Boesel and Johnson (1984), is equally muddled after the first-term (Hiller, 1982; Fletcher & Giesler, 1981; Golderberg & Warner, 1982).

Regarding officers, Ramsey (1974) reviewed a study by Githens, Neumann, and Abrahams (1966), which found no relation between "service tenure" of Naval Reserve Officer Training Corps (NROTC) officers and scores on the Naval College Aptitude Test. The same result was found by Githens, Abrahams, and Neumann (1968) when using the Officer Classification Battery.

Interest Inventories

Civilian. Numerous studies using interest inventories to predict subsequent turnover of employees have been conducted. The most frequently used of these is the Strong Vocational Interest Blank. Studies using this measure have found it to be useful in predicting attrition among life insurance salesmen, male production foremen, and engineers (Boyd, 1961; Ferguson, 1958; Mackinney & Wolins, 1960). However, Stone and Athelstan (1969) found no relationship between answers given on this inventory and the turnover of both occupational therapists and physical therapists. The Kuder Preference Record has proved helpful in predicting turnover among metal parts applicants and junior foresters (Mayeske, 1964; Tiffin & Phelan, 1953). In each of these studies, turnover was inversely related to preference ratings for activities that were congruent with the individuals' current jobs.

Military. Research suggests that interest measurement may be a fruitful area for investigation. For example, Ramsey (1974, p. 6) draws our attention to studies done at the Navy Personnel Research and Development Center. He mentioned that the Strong Vocational Interest Blank has been validated against officer "tenure," NROTC disenrollment, and Naval Academy disenrollment (Neumann & Abrahams, 1972; Abrahams & Neumann, 1971; Abrahams & Neumann, 1973). The Navy Vocational Interest Inventory has also been shown to predict reenlistment of enlisted personnel when they had been properly placed in a vocational area based on test results (Lau, Lacey, & Abrahams, 1969).

Job/Career Characteristics

The most consistent relationship emerging from both the civilian and military literatures is that the probability of turnover is inversely associated with job challenge (autonomy and responsibility): The greater the challenge, the less turnover in an organization. The rest of the civilian literature also tends to support expected relationships for work unit size, task repetition, and autonomy and challenge; in short, the larger the work unit, the more task repetitiveness, and the lower the degree of challenge and autonomy, the higher the turnover rate. In the civilian realm, higher turnover tends to be associated with unclear role definitions. In the military realm, early studies are split in their conclusions regarding the contribution of job factors to turnover, while later studies emphasize their importance, especially the constructive contribution of challenge and autonomy.

Civilian

Work Unit Size. Studies indicated that there is a positive relationship between work unit size and turnover for blue collar workers. This relationship has not been demonstrated utilizing white collar workers. Indik and Seashore (1961); Kerr, Koppelmeier, and Sullivan (1951); Mandell (1956); and Oldham (1987) all found a significant, positive relationship between work unit size and turnover. Porter and Steers (1973) suggested that this is due to the fact that increases in work group size lead to lower group cohesion, higher task specialization, and poorer communications. A study by Argyle, Gardner, and Cioffi (1958) did not support the positive relationship between these two variables. The impact of work unit size on absenteeism has also been investigated. Again, the positive relationship between these two variables has been documented among blue collar workers only (Acton Society Trust, 1953; Baumgartel & Sobol, 1959; Hewitt & Parfitt, 1953; Indik & Seashore, 1961; Kerr, Koppelmeier, & Sullivan, 1951; Metzner & Mann, 1953; Revans, 1958). One study found a curvilinear relationship between work unit size and absenteeism, with lower absence rates found among middle-sized groups (Argyle *et al.*, 1958). A sample of white collar workers was utilized in only one study reviewed, and no relationship between unit size and absenteeism was found (Metzner & Mann, 1953). Porter and Steers (1973) discuss the lack of conclusive results supporting the relationship between work unit size and withdrawal among white collar workers. They state that increases in unit size may produce dissatisfaction with the availability of intrinsic rewards. Dissatisfaction might then lead to withdrawal. White collar

workers, unlike blue collar individuals, have more autonomy on the job so they are better able to search for and discover alternative ways of obtaining intrinsic rewards.

Task Repetitiveness. Task repetitiveness has demonstrated a positive relationship with turnover among samples of nurses and assembly line, factory, and retail store workers (Bartel, 1982; Guest, 1955; Lefkowitz & Katz, 1969; Marsh & Manari, 1977; Price & Mueller, 1981; Taylor & Weiss, 1969a, 1969b; Wild, 1970). Only one study reviewed showed no relationship between these two variables (Kilbridge, 1961). However, this study did reveal a positive relationship between repetitiveness and absenteeism. Kilbridge (1961) suggests that maybe the withdrawal process is too complex for task repetitiveness to play a major role in its explanation. Instead, the results of Kilbridge's study indicate that task repetitiveness may be instrumental in predicting milder forms of withdrawal, like absenteeism. It appears there is a relationship between task repetitiveness and withdrawal, but too few studies have been conducted to consider these results conclusive.

Role Clarity. Three separate studies have indicated that there is a negative relationship between role clarity and turnover (Lyons, 1968; Lyons, 1971; Telly, French, & Scott, 1971). Lyons (1972) found that among a group of nurses this relationship held only for those individuals who were high in need for clarity. For those low in need for clarity, role clarity was unrelated to turnover. Although all of the studies reviewed point to a negative association between clarity and turnover, the number of studies conducted is rather small, which makes it difficult to reach reliable conclusions.

Job Autonomy and Responsibility. The relationship between autonomy and turnover appears to be consistently negative. Studies have shown that individuals who feel they have control over their work are less likely to turn over (Guest, 1955; Walker & Guest, 1952). This has also been demonstrated by Ross and Zander (1957), using a sample of female skilled workers. Results showed that individuals who left the organization indicated that their autonomy needs had not been met. Leavers indicated this lack of met expectations more often than individuals who stayed. Two studies of clerical workers found that those individuals who perceived greater responsibility and autonomy were more likely to stay (Waters & Roach, 1971; Waters & Roach, 1973). This same relationship has been demonstrated among retail store employees (Taylor & Weiss, 1972). The relationship between autonomy and absenteeism has also been investigated. Turner and Lawrence (1965) found a strong, positive relationship between job responsibility and job attendance. Results obtained by Hackman and Lawler (1971) offer additional support for the relationship between job autonomy and absenteeism.

Using items drawn from the Job Diagnostic Survey, Oldham (1986) found that individuals who felt disadvantaged in terms of job complexity had poorer performance and higher absenteeism and turnover than individuals who felt equitable or advantaged on this dimension.

Job Type. Thompson and Terpening (1983) discovered that job type modifies the relationship between various factors involved in the intention-to-leave process. This study made a distinction between primary and secondary job types. Primary job types are characterized by high individual growth and advancement potential, high skill levels, and greater expectations of job autonomy and responsibility. Secondary job types are characterized by just the opposite. In these jobs there is low potential for individual growth and advancement, poor wage rates, low skill levels, and low

expectations of autonomy and responsibility. The findings provided support for the importance of job satisfaction and community participation in the intent to leave-turnover relationship for individuals in both primary and secondary job types. However, external career opportunities were more important for individuals in the primary group than for the secondary group when determining intent-to-leave. The groups also differed when rating the importance of various job content factors. The results of this study suggest that knowing the type of job an individual holds can provide information as to which factors are important to individuals in determining their intent to leave.

Military

Reviewers have come to a variety of conclusions regarding the importance of job factors in the prediction of turnover variables. There tends to be a pattern in which those reviewing early studies are split in their opinion of the importance of such predictors and those reviewing later studies emphasize their importance.

Hand *et al.* (1977) concluded that "the military literature has shown that minimal evidence exists that job content is strongly related to withdrawal behavior (and intentions)" (p. 57). This conclusion was based on the size of the strength-of-association statistics reported in the studies. Hand *et al.* had reviewed Mobley *et al.* (1977); Stoloff (1971); Haber, Ireland, and Solomon (1974); and Lindsay and Cousey (1969) as studies that found a significant relationship between job content and turnover (intentions or behavior). In contrast, Hand *et al.* (1977) listed Grace, Holter, and Soderquist (1976); Mobley *et al.* (1977); and Nelson and Berry (1968) as studies in which relationships were insignificant for job content variables. In addition, they described Carlisle (1975) who found that intention to reenlist for Marines was related to intrinsic job conditions, such as the work itself, sense of accomplishment, and recognition, but not to extrinsic conditions such as working conditions, supervisors, and peers.

In another early review, Ramsey (1974) concluded that "research findings have not illustrated a clear cut relationship between job factors and retention" (p. 19). He drew this conclusion from Cantrell, Bryce, and Lewis (1967) and Nealy (1972). In the Cantrell study, only one of several job factors (quality of supervision) predicted a turnover criterion. Nealy found that the value of job factors as predictors varied as a function of ship type and speculated that particular characteristics of ships (group cohesiveness, ship's mission, etc.) might interact with job factors.

In a third early review, La Rocco *et al.* (1977) presented a variety of studies implicating job factors as important correlates of reenlistment variables. These studies implicated factors such as satisfaction with peers, supervisors, work group cohesiveness, lower level influence, group process, leadership consideration, and nature of work. The studies they presented were Bowers (1973, 1975); Bruni, Jones, and James (1975); Cantrell *et al.* (1967); Drexler and Bowers (1973); Stehle & Grace (1971); Stoloff, Lockman, Allbritton, and McKinley (1972); and Wilcove (1973).

In a fourth early review, Sterling and Allen (1983, p. 2) noted that job characteristics were shown to be related to organizational commitment, which in turn was related to career intentions (Steers, 1977; Koch & Steers, 1978; Farrell & Rusbult, 1981). They also focused on the Bonette and Norstine Study (1979), where job content was identified as the most important issue for first-termers when considering the continuance decision.

In a fifth early review, Vernez and Zellman (1987, p. 58) reanalyzed data from the 1979 DoD Survey of Personnel and found that job-related reasons (e.g., unable to practice job skills, boredom with job, decline in personnel quality) were rated either first or second in importance if they had seriously considered leaving the service. This result held for both officers and enlisted personnel across the four services.

Reviewers concentrating on later studies were consistently impressed by the importance of job factors, especially job challenge and utilization of skills. For example, Bruce and Burch (1988) called attention to Martinsen and Hansen (1988) who discovered that utilization of talents and meaningful flying were important considerations for aviators. Bruce and Burch also keynoted Hayden (1985) who reported that challenging work and work schedules are important considerations for Army enlisted personnel regarding the continuance decision. Bruce and Burch themselves confirmed among naval pilots that job challenge was a better predictor of turnover behavior than were organizational commitment or career satisfaction.

Wood (1988, p.23), in his summary of the literature, referred to Dalton (1988) who characterized Air Force pilots who were intending on staying in the service as most motivated by job challenge and a feeling of accomplishment. All pilots were demotivated by nonflying duties and erratic and overly lengthy work schedules.

Wood also quoted Admiral Cressey (1988, pp. 20-21), who was Director of Aviation Manpower and Training, as pinpointing forced reductions in flying hours as a major culprit in the exodus of naval aviators to the civilian airlines.

In terms of the upcoming NAVPERSRANDCEN study, the authors believe that job factors may indeed be a very important set of variables that need to be examined longitudinally as causative factors of continuance among naval aviators.

Social Environmental Factors--at Work

Generally speaking, the civilian literature corroborates a relationship between turnover and both supervisory style and satisfaction with co-workers, although the form of the relationship (linear or curvilinear) has not been conclusively determined. Concerning supervisory style, a considerate style has been shown to be related to lower turnover than are task-oriented and authoritarian styles. Various elements of supervisor-subordinate relationships have been examined (communication, feedback, opportunity to voice dissatisfaction, etc.) with expected results; for example, lower turnover is related to quality and consistency of communication and feedback and the opportunity to voice dissatisfactions. The military research has not focused on these types of variables, except as part of omnibus studies, making it difficult to draw conclusions.

Civilian

Supervisory Style. A review of the research on supervisory style by Muchinsky and Tuttle (1979) indicates that turnover in organizations is positively related to task-oriented and

authoritarian leader styles and negatively related to leaders' consideration and human-relations ability (Ley, 1966; Lundquist, 1958; Ronan, Latham, & Kinne, 1973; Saleh *et al.*, 1965; Sheridan, & Vredenburg, 1978). A study conducted by Fleishman and Harris (1962) supported these findings, showing that individuals who rated their superiors low in consideration were more likely to turn over. The relationship was determined to be curvilinear, though. Consideration seemed to be important up to a critical level, but beyond that point consideration had no impact on turnover. A study of factory workers by Skinner (1969) provided additional support for a curvilinear relationship between these two variables.

Aside from studies looking at leadership style, many studies have looked more specifically at the leader-member exchange. Telly *et al.* (1971) found that among a group of hourly production workers, turnover was highest among individuals who rated the inequity with which they were treated by superiors as greater. Several studies have also pointed to the importance of performance feedback and communication concerning job goals. Ross and Zander (1957) found that individuals who left an organization, unlike those who remained, were more likely to say that their recognition and feedback needs were not being met. Additional support for these findings was obtained on a sample of engineers at General Electric Company (General Electric Company, 1964a). Comparisons were made between engineers who stayed with the organization and those who left. It was found that engineers who left indicated greater dissatisfaction with amount of performance feedback received from supervisor, and more disagreements with supervisor over job goals.

Walsh, Ashford, and Hill (1985) looked specifically at obstruction of feedback sources and the impact on turnover intent. This study revealed that there is a significant relationship between feedback obstruction and turnover intentions, and that this effect is greatest for self- and supervisory-feedback obstruction. Similar findings were obtained by Ferris (1985) and Graen (1976). In both these studies, there was a strong negative relationship between quality of supervisor-subordinate interactions and turnover. However, an attempt by Vecchio (1985) to replicate the findings of Graen (1976) revealed no significant relationships between leader-member exchanges and turnover. Spencer (1986) found a strong positive association between employee opportunity to voice dissatisfaction and retention among a sample of nurses. A study by Bassett (1967) investigated the impact of managerial experience on turnover. Results showed that turnover was greatest among those individuals whose managers had less than 5 years of managerial experience.

Co-worker Relationships. Peer group interactions and the influence of these interactions on turnover has been investigated. Gidron (1984) found that among samples of stayers and leavers drawn from community center volunteers, knowing an individual's relationship with the other volunteers was a significant variable in discriminating these two groups. Evan (1963) found that turnover was lowest among management trainees who were assigned to departments of two or more individuals instead of to departments by themselves or with one other person. Looking at scientists and engineers, Farris (1971) found negative relationships between employees' perceived inclusion in the organization and turnover, as well as between turnover and perceived group cohesiveness. Based on this research, it appears that social support and social interaction with co-workers are important variables in understanding the turnover process.

Job Stress. Bhagat, McQuaid, Lindholm, and Segovis (1985) found that measures of job stress could be used to predict various organizational outcomes and withdrawal behaviors. This study

makes a distinction between positive job stress (e.g., a promotion) and negative job stress (e.g., work overload). The findings indicate that negative job stress is a stronger predictor of various organizational outcomes, including satisfaction with work, organizational commitment, job alienation, turnover intentions, and absenteeism than is positive job stress.

Military

It was impossible to cull out this category from results that were given for Job Characteristics.

Social Environmental Factors--Nonwork (Family)

This group of factors was shown in both the civilian and military literatures to be related to turnover. The civilian literature is limited, however, and has done only preliminary work regarding family life variables and personal life stress. In contrast, military personnel research has been fairly extensive and has focused on spousal support, family life, personal freedom, and separation from family. Spousal support and personal freedom variables have yielded the highest correlations (i.e., low turnover is related to spousal support and the belief that the service member's and the family's personal freedom are not materially curtailed by military service). The conclusions of military personnel researchers vary markedly regarding the impact of family separation on turnover, with some researchers viewing this variable as relatively unimportant and other researchers viewing it as a key variable for understanding turnover.

Civilian

Family Life. Among samples of male and female ex-members of the Royal Canadian Mounted Police, some of the main reasons for resignation included the effects of the job on personal and family life, and difficulty in arranging shifts compatible with those of a spouse (Linden, 1985). Thus far, few studies exist which examine the relation between nonwork factors and turnover. However, more recent models of the turnover process have emphasized the inclusion of these variables when conducting future tests of the models (Mobley, et. al, 1979; Steers & Mowday, 1982).

Personal Life Stress. Bhagat, McQuaid, Lindholm, and Segovis (1985) found that measures of personal life stress could be used to predict various organizational outcomes and withdrawal behaviors. Again, Bhagat, *et al.* (1985) made a distinction between positive personal life stress (e.g., disruptive pleasure for the individual), and negative personal life stress (e.g., events producing excessive constraints or demands on the individual). The results showed that negative personal life stress was associated with work dissatisfaction, a lack of organizational commitment, job strains, job alienation, and absenteeism. Positive personal life stress was associated with an intention to remain in the organization.

Military

Family Separation. Conclusions of reviewers regarding family separation varied from viewing this factor as critical in the turnover decision, to not as important as previously thought, to not being an important factor at all. For example, Ramsey (1974, p. 18) stated: "One of the more significant problems of military life involves family separation due to overseas deployment of personnel." Ramsey, in reaching this conclusion, had reviewed May (1963) who found that separation from the family was given by Navy enlisted personnel as second only to pay as a cause of turnover. He also reviewed Muldrow (1970) who reported that family separation was one of the top four factors cited by enlisted personnel for not making the Navy a career.

Vernez and Zellman (1987, p. 33) examined a study by Szoc (1982) whose findings also strongly suggested that separation from family was a key factor in turnover. For example, he found that 17 percent of enlisted personnel separated when they felt they were gone on deployments "hardly any," and 30 percent when they felt they were gone "around 75 percent of the time." When queried, enlisted personnel ranked family separation second in importance when considering the stay-or-leave decision; officers, first. Whether enlisted or officer, spouse's opinion was the most important consideration in the separation decision and family separation was one of the main factors correlated with spouse opinion. Interestingly, the perception of time away from family, and not actual time, was the key variable. In fact, stayers had been away on deployments slightly more time than had leavers.

Boesel and Johnson (1984, pp. 20-25) took a middle-of-the-road position (i.e., that family separation and other "location" and "relocation" variables have "some effect" on reenlistment decisions, but not nearly as much as economic factors). They reviewed varied results. For example, evidence for the importance of family separation was marshalled (1) from the Army's (1981) survey results, where "being separated from spouse" ranked third as a contributor to retention decisions, and (2) from an ongoing Navy survey where "dislike family separation" ranked first or second from 1981 to 1984. Boesel and Johnson discounted the Navy's results somewhat because only leavers were surveyed. In addition, they stated that multivariate studies (e.g., Hiller, 1982) report a weaker relationship between family separation and reenlistment than is typical in univariate studies. Finally, Boesel and Johnson advanced the conclusion of Chow and Polich (1980) as the most extreme:

It appears that ... working in a rotation-imbalanced specialty, family separations, (and) stationing outside the United States ... have very little detrimental effect on reenlistment rates.

Bruce (1986) analyzed surveys from over 3,000 pilots and also concluded that family separation had been accorded too much emphasis in attempts to explain pilot turnover. He contended that spousal support, the challenge of the assignment, and satisfaction with billet were much more critical than family separation. While family separation was related to spousal support, it was only one of several correlates that focused on family issues (e.g., health care benefits, commissary services, job locator assistance, etc.). In addition, Bruce argued that "retention leadership" (the effective influence of the squadron commanding officer (CO) on continuance decisions) is often lacking in squadrons.

Our position in the present report is that the final chapter has not been written on family separation as a possible cause of turnover, and thus it is imperative that this variable be included in any conceptual model and tested empirically.

Spousal Support. In addition to family separation, the literature also addresses other social-environmental issues. For example, all the reviewers conclude that spousal support is consistently found in the literature as an important correlate or cause of the continuance decision. Specifically, Striffler (p. 31) referred to Grace, Steiner, and Holoter (1976) and Mohr, Holzbach, and Morrison (1981) as studies showing that the wife's support or lack of support for her husband's career is a strong correlate of his final continuance decision.

Rakoff *et al.* (1987, p. 8) concluded that ... "numerous studies find spouse support and orientations toward military service to be important factors affecting military personnel" (Bowen, 1985; Orthner & Bowen, 1982; Orthner & Pittman, 1984; Szoc, 1982; Stoloff, Lockman, Allbritton, & McKinley, 1972; Lund, 1978; Grace & Steiner, 1978; Hunter, 1982). Rakoff *et al.* (1987) saw two limitations in many of these studies, however: (1) the focus in these studies was on statistical significance and not strength of association, and (2) intention to remain in the military, rather than actual behavior, served as the dependent variable in the vast majority of cases.

Bruce (1986) found that the Navy pilot's perception of spousal support had both a direct and indirect effect (the latter through career intention) on actual reenlistment behavior. His focus on actual behavior thus rectified one of the criticisms of Rakoff *et al.* (1987) and added increased weight to the importance of the spousal-support variable.

Family Life. The research consistently implicated family life experiences in the military as an important set of variables in the continuance decision. For example, Vernez and Zellman (1987) cited Farkas and Durning (1982), Jones and Bulter (1980), Grace *et al.* (1976), and Szoc (1982) as studies indicating that family pressures resulting from military life are correlated with the wife's attitude toward her husband's career and her support for it.

Striffler (1982, p. 27) highlighted the results of Derr (1980), which found that family issues were given by naval junior officers as the primary reasons for their resigning their commissions. In other studies reviewed by Striffler (1982), McCubbin, Dahl, and Hunter (1976) evaluated family-related research in the military from 1940 to 1975 and, in one of their major conclusions, stated that "the two social institutions, the military and the family, compete for the same resource, the serviceman." Further, Derr (1979) noted that ... "many junior officers (in the Navy) found their seniors unsympathetic ... to family oriented values." Estabrooks (1981), according to Striffler, found that family values had replaced work values among naval officers.

Personal Freedom. This social-environmental factor has not been investigated very often in the literature. In those instances where it has been, however, it has been shown to be a powerful explanatory variable. For example, Bowers and Bachman (1974) found it to be the most important variable in an enlisted man's satisfaction with the Navy and a key variable in their reenlistment decisions. In addition, Wilcove (1973) found correlations of .61 and .42, respectively, between the item "the Navy interferes with my personal life" and satisfaction with the Navy and career motivation (N = 630). Rakoff *et al.* (1987, p. 12), in presenting the results of the 1985 DoD Survey,

mentioned that personal freedom was among the top two sources of dissatisfaction for enlisted personnel who had been in the Navy for 1 to 6 years.

Organizational Characteristics and Practices

Civilian research in this area has been limited, although military personnel research is quite extensive. Civilian research has primarily concentrated on job previews, and results have generally supported the notion that individuals who have been briefed on both the positive and negative aspects of an organization tend not to attrite. There is reason to believe that some individuals, having received a preview, select themselves out of becoming a member of an organization. Research done in the military tends to support a negative relationship between organizational characteristics and turnover (the more favorable the perceptions of the service members, the lower the turnover rate). A variety of factors have been examined (e.g., emphasis on human resources, the assignment process, policies regarding living conditions), and they have been found to apply to both enlisted and officer personnel, the latter of whom include the surface warfare and aviation warfare officers.

Civilian

Organizational Size. Only one study was identified which looked at the size of an organization and its impact on turnover. Ingham (1970) investigated eight British firms of varying sizes. Results showed that the size of the organization was highly correlated with absenteeism, but only weakly correlated with turnover. Ingham (1970) offered an explanation for these findings. He suggested that individuals initially choose to join either a small or large firm based on their own preferences. For example, individuals who join large firms are more interested in the economic environment and less concerned with noneconomic rewards. The exact opposite would be true for individuals who join small firms. Since the needs of both these types of individuals would be met, there should be no difference in turnover based on whether they are in a small or large organization. According to Ingham (1970), the situation is different for absenteeism. Ingham states that absenteeism is a function of the degree of employee identification with the organization. Because large firms are so impersonal and bureaucratic, employees' identification with the company is reduced and absenteeism would increase. There is no empirical evidence to support these statements, but they are possible explanations of the data given by Ingham (1970).

Job Previews. Efforts to provide prospective employees with "on the job experience," or realistic descriptions of various positions has received much research attention. A meta-analysis on job preview experiments, conducted by Premack and Wanous (1985), revealed that providing realistic job previews to individuals lowers initial job expectations and increases self-selection, organizational commitment, job satisfaction, performance, and retention. Colarelli (1984) found that job previews decreased turnover, but had no impact on job outcomes, self-selection, or commitment to choice. Dean and Wanous (1984) found that providing a specific job preview as opposed to a general preview or no preview, lowered initial job expectations but had no influence on initial attitudes toward the organization, job performance, or overall job survival rates. Weitz (1956) mailed half the applicants for the position of life insurance salesman a job preview, which

outlined the responsibilities and duties of the job. The second half of the applicant pool did not receive the booklet. Results showed that those individuals receiving the preview booklet were less likely to turnover. Similar results were obtained by Youngberg (1963), using a sample of insurance salesmen, and by Suszko and Breugh (1986), using a sample of individuals applying for an inventory taker job. Additional support for the effectiveness of job previews has been obtained from studies providing military cadets with booklets and information on military training camp (Ilgen & Seely, 1974; Macedonia, 1969). Turnover was lower among those cadets who received the booklet. A study conducted by Miceli (1985) did not support these findings. The findings indicated that task satisfaction and performance were positively related to job previews, but no significant relationship between turnover and job previews was found. A meta-analysis conducted by McEvoy and Cascio (1985) investigated both job enrichment and realistic job previews as ways of reducing turnover. This analysis revealed that job enrichment was twice as effective as realistic job previews at reducing turnover.

Increased training and the use of job previews among samples of sewing machine operators resulted in decreased turnover from the organization (Farr, O'Leary, & Bartlett, 1973; Lefkowitz, 1970), but the use of a work sample tests given to black and white sewing machine operators produced decreases in turnover for white individuals only. Wanous (1973) administered job preview films to prospective telephone operators. Half the applicants saw the traditional preview film, while the other half saw an experimental film, which identified the positive and negative aspects of the job. Turnover was not actually measured, but a measure of behavioral intent was obtained. It was found that those individuals who saw the experimental film had fewer thoughts of quitting the job than employees watching the traditional film. It is suggested that job previews are helpful because individuals are provided with information concerning what is expected of them. Therefore, if the expectations are not in line with their goals then they can select themselves out of the applicant pool. On the other hand, those individuals who continue to pursue the position will know what their responsibilities are and probably won't experience feelings related to unmet expectations after accepting the position.

Military

As with job characteristics, Hand *et al.* (1977) concluded that there was little evidence relating organizational characteristics to turnover variables (intentions and behavior). This conclusion was forthcoming because of what the authors believe were faulty research designs or a modicum amount of criterion variance accounted for.

The rest of the reviewers uniformly agreed that perceptions of organizational characteristics and practices are important correlates (and, in some cases, causes) of turnover variables. Most, however, were selective in the characteristics they identified, La Rocco *et al.* (1977) being an exception--they identified a number of organizational characteristics and practices from the literature that seemed to be associated with turnover variables, such as the perceived emphasis on human resources, personal autonomy, living conditions, decision making practices, communication flow, time spent in homeport, organizational image, recruiting techniques, career counseling practices, educational and training opportunities, sea-shore rotation practices, and policies regarding length of sea time. La Rocco *et al.*'s (1977) review centered on many of the same studies cited above under job characteristics (e.g., Bowers, 1973, 1975; Drexler & Bowers, 1973; Stoloff *et al.* 1972). It also included Broedling (1970); Holter, Bloomgren, Dow, Provenzano,

Stehle, and Grace (1971); Lockman and O'Neill (1973); Lockman, Stoloff, and Allbritton (1972); Stephan (1971); and Stoloff (1971).

Ramsey (1974) summarized a study by Braunstein (1970) in which naval enlisted personnel rated "opportunity for more training" as the single most important factor in continuing to make the Navy a career. First-termers also selected, as equal in importance, opportunity for travel and off-duty education. Ramsey also noted Deputy (1964) who showed that housing policies were an important factor in the career decisions of military personnel. Deputy (1966) reported that nearly half of the personnel were critical of government bachelor housing. Shipboard living conditions were also criticized in the Deputy study and found by Broedling (1970) to be a detriment to reenlistment. Ramsey viewed Wilcove's (1971) results as a third line of evidence showing that living and housing conditions are important considerations when military personnel evaluate organizational policies.

The last study presented by Ramsey (1974) was Githens (1966), who found that prediction of retention hinges on the discrepancy for naval officers between areas of importance to them and their subjective expectation of satisfaction. He found, for example, that such discrepancies were important when considering the intelligence of the policies promulgated by the organization and the extent to which an officer could succeed on their ability alone (vs. political factors).

Several studies identified officer perceptions of assignment policies and practices as important predictors of turnover behavior in the military. For example, Striffler (1982, p. 25) named Estabrooks (1981); Holzbach, Morrison, and Mohr (1980); Holzbach (1979); Derr (1980); and Arima. The common thread among these studies was that the officer's satisfaction with the assignment process and the attractiveness of the billet received are both correlated with turnover variables. Regarding the assignment process, informal notification of the service's billet decision is the primary component that correlates with retention, while location is the primary issue involved in billet attractiveness.

Other studies have also focused on the assignment process. For example, Arima (1981) reported that officer perceptions of the assignment process are related to their desire to continue in the Navy. Stolzenberg and Winkler (1983, p. 50), however, were unimpressed with the size of the reported relationship. Rakoff *et al.* (1987, p. 9) presented the findings of Szoc (1982) in which "promises of duty assignment" was an important consideration for individuals planning to remain in the service.

Wilcove (1988) analyzed written comments from 500 surface warfare officers and 500 aviation warfare officers regarding the factors influencing their decision to stay in the Navy or leave. The top problem or obstacle, according to aviators, was the assignment process, while surface officers placed this problem second. In the same study, surface personnel identified quality of management as the top problem, and promotional policies, procedures, and opportunities as the third most pressing problem. Behind assignment process, aviators identified (in order) career path, promotion policies, and quality of management as the primary drawbacks when considering their continuance decision.

The rest of the literature on organizational characteristics does not collectively focus on a particular area; instead, each study seems to have its own area of interest. For example, Rakoff *et*

al. (1987) emphasized that the 1985 DoD Survey implicated job training as a powerful influence on continuance decisions (i.e., it was among the top four or five sources of dissatisfaction for individuals who had been in the service for 1 to 3 years, 4 to 6 years, and 7 to 10 years). Bruce (1989) cited the Gregory and Rosenbach (1985) Study, which highlighted the apparent impact that the Air Force's personnel management policies had on individuals. Wood (1988) quoted Admiral Cressey who believed that the manner in which peacetime deployments are handled is a key factor in continuance decisions of naval aviator officers.

Wood also mentioned Dalton (1988) who underscored the dissatisfaction that Air Force leavers have with the promotion system. Golightly (1988) is a fighter pilot and believed, based on his experience, that two factors contribute to the exodus of Navy pilots: (1) the illusion of responsibility, and (2) the illusion of excellence. The first factor concerned his belief that junior pilots expect to be given responsibility commensurate with being a branch or department head upon completing advanced training as pilots. Instead, they find that these responsibilities are given to those above them in the chain, because they, as junior officers, have received little formal managerial or leadership training. Illusion of excellence referred to the junior officer's expectation that he will be required to learn tactics theory, supported in that effort by his superiors, and held accountable for such knowledge operationally. Instead, according to Golightly, they find that administrative demands are the top priority in the Navy.

In summary, despite Hand *et al.* (1977) rejection of the importance of organizational factors, we believe that they are of sufficient merit to include in any attempted explanation of aviation turnover.

Job Performance and Evaluations

The issue raised in the civilian and military literatures is whether good performers are the ones leaving for greener pastures. Many civilian researchers have concluded that no clear-cut answer is available at the present time. They suspect that the inconsistent results found thus far reflect when the data were collected (i.e., before or after individuals have made their turnover decisions). In the military, studies are scarce, although available data suggest that good performers decide to stay rather than leave.

Civilian

The studies looking at performance and turnover came about mainly due to the assumption that all turnover is bad for an organization because the best performers will leave. Investigators challenged this idea by conducting studies that looked at differences in performance level between those who left and those who stayed in the organization (Abelson & Baysinger, 1984; Dalton & Todor, 1982; Jackofsky, 1984). The real issue is whether organizations are losing a large number of good performers as opposed to poor performers (Hollenbeck & Williams, 1986). Numerous studies have investigated the relationship between performance and turnover and the relationships have been inconsistent. Some studies have identified a positive relationship between these variables, with good performers leaving the organization (Martin, Price, & Mueller, 1981). Other

studies have found a negative relationship (Cope, Grossnickle, Covington, & Durham, *et al.* 1987; Jackofsky, & Slocum, 1987; Keller, 1984; Lowery & Jacobsen, 1984; Sheridan, 1985). Jackofsky, Ferris, and Breckenridge (1986) found a curvilinear relationship between these two variables with the highest and lowest performers having the greatest turnover rates.

Many have stated that no clear cut answer is available at the present time (Dreher, 1982; Mobley, 1982; Stumpf & Dawley, 1981). Kanfer, Crosby, and Brandt (1988) found a relationship between performance and turnover but this relationship depended upon job tenure. Poor performance by leavers was found for individual's with 6-12 months tenure, but no differences in performance were found for individuals with 2-5 months tenure or over 12 months tenure. This study also revealed that leavers with more than 6 months but less than 12 months job tenure were absent more than individuals who stayed with the organization.

A meta-analysis, conducted by McEvoy and Cascio (1987), revealed that good performers are less likely to leave an organization than are poor performers. This study also determined that type of turnover, time span of measurement, and level of unemployment moderated the performance-turnover relationship. Voluntary, involuntary, and total turnover all had a negative relationship with performance, but involuntary turnover had the highest negative relationship. The second moderator concerns when in time the performance measure is collected. The meta-analysis offered support for the hypothesis that performance is only weakly related to turnover if performance is measured before individuals decide to leave the organization. If the performance measure is collected after the decision has been made, then the negative relationship between these variables is strengthened.

Modest support was also found for level of unemployment as a moderator of this relationship, *although the direction of this relationship was not as predicted.* It was expected that when jobs were plentiful, the negative relationship between performance and turnover would be even stronger. It was assumed that for good performers the job market is unimportant, because they would be able to find a job at anytime. For poor performers, though, a favorable job market with lots of opportunities is needed. Just the opposite results were obtained. Either good performers leave the organization more often when conditions are favorable, or poor performers leave more often when conditions are unfavorable.

Military

Little research has been done in the military on the relationship between the quality of an individual's performance and their continuance decision and behavior. Szoc (1982) found that enlisted personnel who decided to stay were of a higher quality in terms of performance than those who had left. While Szoc's analysis was post hoc, Bruce (1989) found that promotability was predictive of actual continuance behavior. La Rocco *et al.* (1977) found similar results, although actual correlations were not as large as in the Bruce study. In brief, no definitive conclusions can be drawn regarding performance because of the paucity of studies, although existing results suggest that it would be unwise to ignore this variable entirely in the aviator model.

Economic Environment--Internal

Civilian studies consistently find a negative relationship between pay and promotion and turnover, such that the higher the pay and the greater the perceived probability of promotion, the lower the probability of turnover. Other civilian studies examining incentive programs and the financial success of organizations find results in the expected direction, but too few studies have been conducted to draw definitive conclusions. Military personnel researchers identify pay and promotion as the primary factors affecting turnover decisions, although a few studies suggest that nonpecuniary factors such as job and organizational characteristics are more important.

Civilian

Pay and Promotion. Numerous studies report a negative relationship between either pay or promotion and turnover (Conference Board, 1972; Friedlander & Walton, 1964; Hulin, 1968; Knowles, 1964; Patchen, 1960; Ronan, 1967; Saleh, Lee, & Prien, 1965). Aside from this, much of the research on pay and promotion has looked at not only the idea that these variables affect withdrawal, but how they affect it. Patchen (1960) conducted a study based on expectancy/valence theory (Porter & Lawler, 1968; Vroom, 1964). This study looked at the relationship between perceived equity of compensation and organizational withdrawal. Using a sample of oil refinery workers, the results showed that the amount or rapidity of pay and promotion was less important in predicting absenteeism than the perceived fairness of these actions. However, in predicting *turnover among hourly production workers*, Telly, French, and Scott (1971) found perceived inequity of both pay and promotion was not significantly related to turnover. Also, Knowles (1964) found that for a sample of factory workers, whether or not they obtained their "expected wage" was more important than the actual amount of the wage in determining who would resign. Overall, Price (1977) claims that the data support a fairly well established negative relationship between pay and turnover. However, he claims that the strength of the relationship between promotion and turnover is low, although it has been consistently negative.

Incentive Programs. Two studies have been conducted that look at company incentive programs and their influence on reducing absenteeism. Lawler and Hackman (1969) had three autonomous work groups develop and implement their own incentive program to reward good attendance. Company supervisors then imposed this same system on other work groups within the company. Two work groups served as controls and participated in no incentive program. A significant decrease in absenteeism was found in those groups that planned the incentive program, but a 1-year follow-up showed that the program had been eliminated in two of the three original participative groups (Schefflen, Lawler, & Hackman, 1971). Attendance was lower in these two groups than before program implementation; whereas, attendance in the third group remained high. It was suggested that the removal of a plan by the company, which received mutual support from the workers, served to destroy the positive effects on attendance that were acquired. These studies point to the importance of employee participation in development of these programs in order to ensure commitment.

Organizational Performance. Only one study reviewed investigated the relation between performance of the organization and turnover. Wagner, Pfeffer, and O'Reilly (1984) found that turnover among managers in Fortune 500 companies was negatively related to the firm's financial performance. Performance was measured by obtaining the difference between the firm's return on investment and the industry median return on investment. Results showed that the worse the firm's performance, the higher the proportion of managers who left.

Military

Two issues are addressed in the literature: (1) are economic factors, such as pay, bonuses, and benefits important considerations when military personnel consider staying or leaving? and (2) If they are important, are economic considerations more or less important than nonpecuniary factors. Regarding the first, almost all researchers subscribed to Boesel and Johnson's (1984) conclusion that (p. 12):

Not surprisingly, there is almost universal agreement among researchers that compensation is a major, if not the major, factor in reenlistment decisions... The question is not whether pecuniary incentives affect retention, but how much they affect it.

The only dissenters were Hand *et al.* (1977). Their opinion was that (1) pay and other economic variables accounted for relatively little criterion variance, (2) many of the studies suffered from faulty research designs, and (3) researchers did not take into consideration the performance quality of individuals in their designs. The studies they reviewed were Enns (1975), Haber and Stewart (1975), Kleinman and Shughart (1974), Massell (1976), McCall and Wallace (1969), Nelson (1970), Quigley and Wilburn (1969), Carlisle (1975), Fisher and Morton (1967), Holter, Bloomgren, Dow, Provenzano, Stehle, and Grace (1973), Army Office of Personnel Operations (1969), Schneider (1973), Stoloff, Lockman, Allbritton, and McKinley (1972), Frey, Goodstadt, Korman, Romanczak, and Glickman (1974), and Plag (1969).

The Hand *et al.* (1977) conclusion notwithstanding, the position taken in the present report is that these authors "threw out the baby with the bath water" (i.e., yes, there were features of the studies that could have been improved, but that is true of most studies). The fact that the results were found across samples, at varying times, and were consistent suggests that pay and other economic variables are due additional consideration. The rest of the research literature seemed to support this conclusion. For example, Kissler (1980), citing Enns (1977), Guthrie, Lakota, and Matlock (1978), Haber and Stewart (1975), and Kohen (1977), viewed first-term enlisted personnel as less likely to attrite the more favorable their perceptions of pay and the opportunity for advancement. Further, La Rocco *et al.* (1977, p. 25) evaluated some of the same studies as Hand *et al.* (1977) and underscored the importance of pay and incentives to reenlistment intentions and behavior (Quigley & Wilburn, 1969; Lockman *et al.* 1972; Stoloff 1971; Stoloff *et al.* 1972; Wilcove, 1973).

Stolzenberg and Winkler (1983) cited military personnel research showing that pecuniary factors influence a person's decision to stay or leave. They also believed that studies showed that nonpecuniary factors equal or exceed the influence of pecuniary factors. As we shall see later, some reviewers came to the opposite conclusion regarding relative rank. While Stolzenberg and Winkler (1983) recognized the value of pay, they also felt that attrition could be lowered by educating

personnel on the real economic value of their military pay and benefits, by paying lump sum bonuses more often than other forms, and by allowing more freedom of choice on the type of remuneration. These recommendations were reached on the basis of studies such as the *Report of the President's Commission on Military Compensation* (1978), *Wall Street Journal* (1982), Perry (1977), Ens (1975, 1977), Air Force Human Resources Laboratory (1974), Fletcher and Giesler (1981), Kleinman and Zuhosky (1980), Gotz and McCall (1979, 1980a, 1980b), Chipman and Mumm (1979), Warner and his associates (1978, 1979a, 1979b, 1979c, 1979d), Chow and Polich (1980), Burright, Grissmer, and Doering (1982), Hiller (1982), Cohen and Reedy (1979), and Grace (1978).

Ramsey (1974) tended to concentrate on the Braunstein studies of the early 1970s, which dealt with a variety of incentives. Braunstein (1970, 1972) and Braunstein and Muldrow (1972) revealed from survey results that first-term Navy enlisted personnel did not rate highly any economic incentives when considering reenlistment. However, in the study with Muldrow, noncareer motivated personnel (enlisted and officer) indicated that their continuance behavior would be enhanced if pay, allowances, and retirement benefits were made equal to civil service and industry. Braunstein's (1970) survey results also showed that the Variable Reenlistment Bonus was the most influential of all incentives, both monetary and nonmonetary. Further, 54 percent of the reenlistees in the Braunstein study claimed that Proficiency Pay influenced their decisions to remain in the Navy. As expected, both Braunstein and Frey, Goodstadt, Korman, Romanczuk, and Glickman (1974) found that retirement benefits were strong motivators of continuance intentions and behavior for senior enlisted and officer personnel.

Sterling and Allen (1983) disagreed with Stolzenberg and Winkler (1983) and agreed with Boesel and Johnson (1984) on the importance of economic variables relative to other types of incentives and satisfactions. That is, they inferred from the literature (Owen, 1969; Woelfel, 1976; Goldman & Worstine, 1977) that job and organizational characteristics are more important to continuance than are economic variables. Boesel and Johnson (1984, p. 27), on the other hand, contended that pecuniary variables (pay, allowances, and bonuses) carry more weight than do nonpecuniary variables (job characteristics and the assignment process). Boesel and Johnson's (1984) contribution was to interpret the literature in terms of elasticity calculations; for example, an elasticity of 2.5 means that if there were a 10 percent increase in pay, it is then predicted that reenlistment rates would increase 25 percent. Boesel and Johnson's review of elasticity studies included Warner (1981), Chow and Polich (1980), Warner and Simon (1979), Goldberg and Warner (1982), Enns (1977), and Hiller (1982). As an example, Chow and Polich estimated a reenlistment pay elasticity of 3.9 for first-term reenlistment, which means that an increase of 10 percent in base pay would result in an increase of 39 percent in reenlistment rates (from .225 to .312).

Our conclusion is that studies have not included internal economic and noneconomic variables in the same design often enough to draw firm conclusions. Thus, when reviewers evaluate existing studies, they may come to different conclusions based on their own biases. Our bias is that economic variables are more important than noneconomic variables for lower-level personnel who are undecided about their career plans or are leaning towards leaving the service. Conversely, first-term individuals who have reenlisted are expected to be more concerned with nonpecuniary variables than with pecuniary variables.

Economic Environment--External

Preliminary results in the civilian sphere suggest that turnover is related to the availability of attractive jobs outside one's current organization and low unemployment rates. However, researchers are still attempting to: (1) identify the actual chain of events involved (e.g., some studies suggest that external economics affect retention intention, which then affects behavior) and (2) clarify dependent variables (e.g., whether results pertain to individual turnover decisions or decisions aggregated across individuals). Military personnel research has suggested that military-civilian pay differential is not important in the turnover decision except for naval aviators, but that perceived job alternatives, benefits, and a person's perception of their own marketability are important considerations.

Civilian

Perceived Alternatives. Most studies looking at the economic environment and its contribution to explaining turnover have focused mainly on the internal environment. As discussed above, this includes pay, promotions, and incentives. Other research has looked at the external environment, but this has been geared mostly toward determining the influence of availability of jobs, vacancy levels, and turnover rates on withdrawal. Very few studies have looked at individuals' perceptions or evaluations of available jobs. Dansereau *et al.* (1974) found that individuals' expectancies of finding alternative employment moderates the attitude-turnover relationship. Mobley, Horner, and Hollingsworth (1978) found that perceived alternatives did not influence turnover directly; but rather, it was positively related to intent to turn over, which, in turn, is significantly and positively related to actual turnover. Stumpf and Hartman (1984) also found perceived opportunities of obtaining alternative employment as a primary antecedent of turnover behavior.

Larson and Fukami (1985) investigated the relationship between perceived ease of movement and various withdrawal behaviors. Their findings showed that perceived ease of movement was significantly related to excused absenteeism among a sample of nurses and a sample of blue-collar workers, but was not related to unexcused absenteeism for either sample. There was a significant positive relationship between perceived ease of movement and lateness for the sample of blue-collar workers.

Unemployment Rate. Past research indicates that there is a significant negative relationship between unemployment rates and turnover (Cotton & Tuttle, 1986; Woodward, 1975-1976). Studies by Blau and Kahn (1981) and Farber (1980) have failed to support these findings. However, these two studies looked at individual turnover decisions as opposed to aggregate measures of labor movements within an industry. It was suggested that unemployment rate is a better predictor of aggregate behavior instead of individual behavior (Cotton & Tuttle, 1986). A study by Carsten and Spector (1987) found that unemployment rate moderated the relationship between job satisfaction and turnover, as well as the relationship between intention to quit and turn over. The relationship between these two variables and turnover is low during times of high unemployment and limited employment opportunity, but is high during times of low unemployment and expanded

opportunity. Hulin, Roznowski, and Hachiya (1985) found that job opportunities influence job satisfaction directly, as well as turnover directly.

Union Presence. Union presence has also been found to influence turnover behavior. Freeman (1980) found a strong negative relation between these two variables. The results of this study indicate that unionism provides a "voice" alternative for dissatisfied employees so that exiting the organization isn't always necessary. The author argues that the grievance system provided by union presence plays an important role in reducing turnover, which, in turn, reduces costs and raises productivity. A review of the turnover literature by Cotton and Tuttle (1986) also supports the strong negative relation between these variables.

Military

Boesel and Johnson (1984, p. 18) examined studies with two sets of variables: civilian-military pay differential and civilian unemployment rates (Army Department of Personnel Management Development, 1973; Faris, 1984; Szoc, 1982; Cohen & Reedy, 1979; Chow & Polich, 1980; Hiller, 1982). First, these studies indicated that pay differential was not an important correlate of reenlistment decisions and behavior. Second, some of these same studies and others (e.g., Baldwin & Daula, 1985b) found that civilian unemployment rates were important. For example, Szoc found that some individuals who had intended to leave the service subsequently remained, and it appeared that high civilian unemployment rates, and high interest rates, were the deciding factors.

Vernez and Zellman (1987, p. 36) cited studies (Meola & Koechel, 1983; Flores, 1984) detecting that perceived job alternatives and the individual's perceptions of his own marketability are correlated with reenlistment intentions and behavior. Rakoff *et al.* (1987, p. 9), like Boesel and Johnson (1984), drew on Szoc, but in this case, to point out that he found that civilian job opportunities and civilian job benefits were key factors for those who were intending to leave the service.

Woods (pp. 17-24) reviewed literature specific to military aviation research, with results that sometimes contradicted the more general research presented above on the impact of pay differential. For example, he found that naval retention was directly related to this variable and that the relationship was greatest following the completion of the minimum service requirement. On another issue, Kleinman and Zuhoski (1980) examined the relationship between airline hiring initiatives and loss of naval pilots for FYs 1963 through 1978. They found a direct relationship, such that: (1) naval pilot retention increased when airline hirings decreased, and (2) when airline hirings increased by 12,000, naval retention rates decreased by 8 to 10 percent compared to when there was little or no change in airline hiring rates. For every three naval pilots hired by civilian airlines, the Navy lost five pilots. And, in contrast to the above studies on pay differential, Kleinman and Zuhoski found that naval retention was directly related to this variable and that the relationship was greatest following the completion of the minimum service requirement.

Cressey (1988)(Director, Aviation Manpower and Training) wrote that the airlines hirings had been over 5,000 per year since 1985 and were expected to stay at this level to the year 2007. In addition, by the turn of the century, according to the *Future Aviation Professionals of America* (FAPA), more than 2,000 airline pilots will be eligible to retire. That estimate exceeds the number

of military pilots who would be completing their first obligation, meaning that the airlines would be able to hire all military pilots who were interested (Dalton, 1987).

Kriegal (1986) compared the earning potential of the airline pilot with the naval pilot. He concluded, based on his calculations, that over the lifetime of a pilot's career, an individual would earn more by remaining in the Navy until retirement at 20 years and then transferring to the airlines than by working as an airline pilot over the entire length of his career.

Affective Responses

Both civilian and military researchers have found consistent, and, in some cases, strong negative relationships between "affective" responses and intended and actual turnover. Affective responses are defined in the literature as a strong liking or disliking for an object, person, or group based on positive or negative evaluations. Three affective measures, in particular, have been found to be effective predictors: job satisfaction, organizational commitment, and met expectations. It is presumed with respect to the last that expectations reflect an opinion on what "should be" and that met expectations give rise to strong positive emotional reactions, and unmet expectations, strong negative reactions. Some research has suggested that organizational commitment is a better predictor than job satisfaction, although in either case, it is assumed that they directly (as opposed to indirectly) affect turnover behavior. Other research has suggested that all affective response-turnover relationships are indirect (i.e., affective responses affect the intention to remain in or leave the organization, which, in turn, affects actual turnover behavior)

Civilian

Job Satisfaction. The majority of studies looking at the relationship between job satisfaction and intent to leave or actual turnover have reported a strong, negative relationship between these variables (Cotton & Tuttle, 1986; Dougherty, Bluedorn, & Keon, 1985; Hulin, 1966; Hulin, 1968; Lee & Mowday, 1987; Mikes & Hulin, 1968; Mobley, Griffeth, Hand *et al.*, 1977; Meglino 1979; Mobley, Horner, & Hollingsworth 1978; Muchinsky, & Tuttle 1979; Newman 1974; Porter & Steers 1973; Schuh 1967; Taylor & Weiss, 1969a, 1969b; Waters & Roach, 1971, 1973; Waters, Roach, & Waters 1976; Weitz & Nuckols, 1955; Wild, 1970). Futrell and Parasuraman (1984) and Orpen (1986) found a significant negative relationship between job satisfaction and turnover, but only for poor performers. The relationship between job satisfaction and absenteeism has also been investigated. There appears to be a weak, negative relationship between these two variables (Talachchi, 1960; Waters & Roach, 1971; Vroom, 1964).

Some studies have also looked at satisfaction with specific facets of the job, including the work itself, pay, promotion, and co-workers. The majority of these studies have employed the Job Descriptive Index (Smith, Kendall, & Hulin, 1969), which measures various characteristics or aspects of the job. Most studies have found a negative relationship between satisfaction with pay and turnover and/or turnover intentions (Cotton & Tuttle, 1986; Hellriegel & White, 1973; Koch & Rhodes, 1981; Leigh, Lucas, & Woodman, 1988; Mangione, 1973; Muchinsky & Tuttle, 1979;

Porter & Steers, 1973), although some studies have found no relationship (Waters, Roach, & Waters, 1976) or a weak relationship between these two variables (Mobley, Griffeth, Hand *et al.*, 1977; Meglino, 1979). Motowidlo (1983) looked at the effects of pay satisfaction, pay expectation (the perceived probability of receiving more satisfying pay in another job), age, tenure, nonpay satisfaction, and amount of pay received on intentions to quit. Pay satisfaction explained variance in intentions to quit beyond that explained by these other factors. In addition, intentions to quit and pay satisfaction were the only factors having a significant relationship with actual turnover.

Zaccaro and Stone (1988) found that job facet satisfaction mediated the relationship between job characteristics and intent to leave. Support for a negative relationship between satisfaction with supervision and turnover has been found (Cotton & Tuttle, 1986; Hellriegel & White, 1973; Hulin, 1968; Ilgen & Dugoni, 1977; Mobley, Griffeth, Hand *et al.*, 1977; Meglino, 1979; Muchinsky & Tuttle, 1979; Porter & Steers, 1973), as well as between satisfaction with co-workers and turnover (Cotton & Tuttle, 1986; Mobley, Griffeth, Hand *et al.*, 1977; Meglino, 1979; Muchinsky & Tuttle, 1979; Porter & Steers, 1973). Taylor and Weiss, (1969a, 1969b) and Waters, Roach, and Waters (1976) found no relationship between satisfaction with supervision and turnover. Waters, Roach, and Waters (1976) also found no relationship between satisfaction with co-workers and turnover. Overall, there appears to be a weak, negative relationship between turnover and satisfaction with supervisors and co-workers.

A review of the studies looking at the relationship between satisfaction with promotion and turnover indicates that there is a weak, negative relationship between these two variables (Cotton & Tuttle, 1986; Hulin, 1968; Kraut, 1975; Mobley, Griffeth, Hand *et al.*, 1977; Meglino, 1979; Porter & Steers, 1973), although no relationship between these variables was found among a sample of female clerical workers (Waters, Roach, & Waters (1976). Several studies have supported a strong, negative relationship between turnover and satisfaction with the work itself (Cotton & Tuttle, 1986; Mobley, Griffeth, Hand *et al.*, 1977; Meglino, 1979; Muchinsky, & Tuttle, 1979; Waters, Roach, & Waters, 1976) Using The Job Descriptive Index, Mobley, Horner, and Hollingsworth (1978) found a negative relationship between satisfaction with the work itself and turnover among a sample of hospital employees. Additional variables, such as satisfaction with peer-group interactions (Evan, 1963; Farris, 1971) and need satisfaction (Ross & Zander, 1957) have also been negatively related to turnover.

Organizational Commitment. Although job satisfaction has demonstrated a strong relationship with turnover, researchers have investigated the possibility that other affective responses may prove to be better predictors of turnover. Organizational commitment, which is considered a more global attitude toward the organization, has received much research attention. Several studies have supported a strong negative relationship between organizational commitment with both intent to leave and actual turnover (Cotton & Tuttle, 1986; Dougherty, Bluedorn, & Keon, 1985; Porter, Crampon, & Smith, 1976; Porter, Steers, Mowday, & Boulian, 1974; Sheridan & Abelson, 1983; Steers 1977). Pierce and Dunham (1987) found strong relationships between organizational commitment and intent to leave, and between intent to leave and actual turnover. The relationship with organizational commitment was negative; whereas, the association between intent to leave and turnover was positive.

Porter, Crampon, and Smith (1976), Porter, Steers, Mowday, and Boulian (1974), and Steers (1977) all found that organizational commitment was more strongly related to turnover than was

job satisfaction. Studies by Marsh and Mannari (1977) and Mowday, Steers, and Porter (1979) report only weak or moderate correlations between organizational commitment and turnover. Chelte and Tausky (1986) found that the relationship between organizational commitment and turnover intent varied depending on employee rank. Several other studies have found that organizational commitment influences turnover indirectly via its influence on intentions to quit (Bluedorn, 1982; Michaels & Spector, 1982; Mowday, Koberg, & McArthur, 1984). Mirvis and Lawler (1977) found that one aspect of organizational commitment, organizational involvement, had a significant negative relationship with turnover.

Met Expectations. Several researchers have found that individuals join an organization with certain expectations, and that if these expectations are not met, they will be more likely to leave the organization (Cotton & Tuttle, 1986; Dunnette, Arney, & Banas, 1973; Katzell, 1968; Linden, 1985; Porter & Steers, 1973; Ross & Zander, 1957) In each of these studies, the individuals did not differ in expectations when hired, but stayers and leavers were significantly different when met expectations were measured after withdrawal. The concept of met expectations is closely related to the organizational practice of "realistic job previews" discussed earlier. Job previews are supposed to provide the individual with realistic expectations about the position they are taking. The greater the concordance between expectations and actual experience, the less likely it is that the individual will leave. The concordance between these two aspects is considered the degree of met expectations.

Other studies have used techniques to experimentally induce differences among groups in degree of realistic expectations. These studies have found that those individuals who had more realistic expectations initially were more likely to remain (Macedonia, 1969; Weitz, 1956; Youngberg, 1963). Ilgen and Dugoni (1977) found no relationship between met expectations and satisfaction or turnover.

Military

Studies frequently confirmed the relationship between affective responses and turnover variables. Most reviewers reported negative relationships between overall satisfaction of various kinds and turnover variables (i.e., the more satisfied an individual, the less likely they were to want to leave, or actually leave, the service). The reviewers and some of the studies they examined were as follows:

1. Kissler (1980, p. 6):

Greenberg *et al.* (1977); Hand *et al.* (1977); Hulin (1977); Mobley, Griffith, *et al.* (1977); and Mobley, Hand, *et al.* (1978).

2. Stolzenberg and Winkler (1983):

Fletcher and Giesler (1981) and Greenberg *et al.* (1977).

3. Boesel and Johnson (1984, p. 25):

Perry (1977).

4. Vernez and Zellman (1987, p. 35):

Kohen (1984); Lakhani, Hyder, *et al* (1985), Allen (1981), and Szoc (1982).

5. Rakoff *et al.* (1987, p. 8):

Royle and Robertson (1980), Farkas and Durning (1982), and Szoc (1982).

6. Bruce and Burch (1989):

Martinsen and Hansen (1985), Watson and Appel (1986), and Bruce (1989).

In contrast to others, Hand *et al.* (1977) were generally unimpressed when reviewing the relationships between satisfaction and turnover variables reported in the research literature (Bruni *et al.* 1975; LaRocco *et al.* 1975; Stoloff, 1971; Bowers, 1973; Carlisle, 1975; Drexler, 1975; Stoloff *et al.* 1972).

In addition to satisfaction, organizational commitment has been shown to correlate significantly with turnover variables (see Sterling and Allen (1983) in the "Job Characteristics" section).

In their reviews, Ramsey (1974), Kissler (1980), and Stolzenberg and Winkler (1983) found that enlisted personnel were reported as attriting less often and reenlisting more often when their preconceptions or expectations regarding military service were confirmed by their actual experiences. Put another way, personnel were more likely to remain in the service if their positive expectations proved to be realistic. This finding was reported whether or not expectations were brought to the military situation as a result of an individual's personal background or as information received from the recruiter. It was also found that personnel better tolerate negative conditions if they have been appraised honestly of them before embarking on a military career.

Some of the studies cited by Ramsey (1974, p. 19) were Glickman (1961, 1973), Weitz (1956), and Wanous (1972). Kissler (1980), who focused on first-term attrition, identified (p. 7) Greenberg, Murphy, & McConeghy (1977); Mobley, Hand *et al.* (1977); Baker, & Meglino (1978); and, Wiskoff (1977). Stolzenberg and Winkler (1983, p. 51) referred to findings by Landau and Farkas (1978), the Advanced Research Resources Organization (1979), Lau (1979), Goodstadt, Yedlin, and Romanczuk (1978), Goodstadt and Yedlin (1979), and Guinn (1975).

Behavioral Intentions

Both the civilian and military literatures indicate a strong relation between intention to quit and actual turnover behavior. Most researchers seem to agree that this relationship is the primary one, with other variables, such as economics, being indirectly related to turnover through the retention intention.

Civilian

Fishbein and Ajzen (1975) were first to introduce the idea that an individual's intention to perform a certain behavior is the best single predictor of actual behavior. Subsequent to this, much research has been conducted that investigates the cognitive antecedents of turnover, namely

intention to quit (Hom, Katerberg, & Hulin, 1979; Kraut, 1975; Mobley, Griffeth, Hand *et al.*, 1977; Meglino, 1979; Price & Mueller, 1981). Many studies surfaced that supported the notion that affective responses, such as job satisfaction, did not influence turnover directly but rather indirectly through intentions (e.g., Dalessio, Silverman, & Schuck, 1986). Most of the research has proceeded in this direction.

A review of the literature by Steel and Ovalle (1984) shows that many researchers have incorporated turnover intent as an integral part of models predicting turnover (e.g. Birkenbach, 1983; Bluedorn, 1982; Mobley, 1977; Mobley, Griffeth, Hand *et al.*, 1977; Meglino, 1979; Mobley *et al.*, 1978; Price, 1977; Steers & Mowday, 1981). These studies differ in some respects, but they all postulate that affective responses lead to intentions which subsequently lead to turnover.

In their meta-analysis, Steel and Ovalle compared the strength of the relationship between behavioral intentions and turnover with the strength of the relationships between several affective responses and turnover. The results showed that intention to turnover had a much stronger association with turnover than did either overall job satisfaction, work satisfaction, or organizational commitment. It was concluded that intentions are stronger antecedents of turnover than are affective responses. The possibility that there are factors which moderate the intent-turnover linkage was also investigated. It was found that the time interval between collection of the individuals' behavioral intentions and the collection of the actual criteria, moderated the intent-turnover linkage. The shorter the interval, the stronger the relationship. Whether the samples were blue or white collar workers or military or civilian personnel had no significant moderation effects on the relationship between intention to quit and turnover.

Military

Intention to leave was consistently found in the military literature to correlate significantly with actual behavior. The reviewers cited the following studies: Kissler, 1980, p. 6; Alley & Gould, 1975; Hand *et al.* 1978; Hoene, 1986, p. 10; Mobley, 1982; Hulin, Miller, & Katerberg, 1979; Steel & Ovalle, 1984; Mobley *et al.* 1979; Smith, 1988, p. 4; Hom & Hulin, 1981; Motowidlo & Lawton, 1984; Bruce, 1989, p. 4; Cook & Morrison, 1985; Sheposh, White, Magnusson, & Harvey, 1980; Wood, 1988, p. 22; Cook, 1979.

Withdrawal Behaviors

Civilian research suggests that withdrawal behaviors such as absenteeism, declining behavior, and turnover all reflect the same underlying psychological process and that the individual often shows a progression from one behavior to the next. Military studies examining these kinds of issues are lacking.

Civilian

Wolpin and Burke (1985) looked at the absenteeism-turnover relationship. They concluded that the relationship between these two factors varies greatly depending on the time period, people, situations, and measures that are collected. Sheridan (1985) investigated a cusp-catastrophe model

of turnover, which views "the behavioral outcomes of withdrawal as discontinuous changes in employee behavior rather than as continuous linear responses to socio-psychological withdrawal." This study looked at three different types of withdrawal: (1) declining performance disregard, (2) absenteeism, and (3) turnover. The results supported the contention that declining job performance, absenteeism, and turnover could all be viewed as different outcomes of the same withdrawal phenomenon. The author suggests that future studies would do well to incorporate catastrophe models, as opposed to linear models, which view behaviors as progressive outcomes along a continuum.

Farrell and Petersen (1984) looked at the withdrawal process in terms of a progression of events. This study revealed that both decreases in level of commitment and increases in absenteeism were significant factors in predicting turnover. Commitment level was a slightly better predictor than absenteeism.

Jackofsky and Peters (1983) tested the March and Simon participation hypothesis using two dependent measures: job turnover and organizational turnover. The study revealed that the participation hypothesis involving ease of movement and desirability of movement was better supported when job turnover was the dependent measure instead of organizational turnover.

CIVILIAN REFERENCES

- Abelson, M. A., & Baysinger, B. D. (1984). Optimal and dysfunctional turnover: Toward an organizational level model. *Academy of Management Review*, 9, 331-341.
- Action Society Trust. (1953). *Size and morale*. London: Author.
- Argyle, M., Gardner, G., & Cioffi, I. (1958). Supervisory methods related to productivity, absenteeism, and labor turnover. *Human Relations*, 11, 23-40.
- *Arnold, H. J., & Feldman, D. J. (1982). A multivariate analysis of the determinants of job turnover. *Journal of Applied Psychology*, 67(3), 350-360.
- *Bartel, A. P. (1982). Wages, nonwage job characteristics, and labor mobility. *Industrial and Labor Relations Review*, 35, 578-589.
- *Barton, K., & Catell, R. B. (1972). Personality factors related to job promotion and turnover. *Journal of Counseling Psychology*, 19, 430-435.
- Bassett, G. A. (1967). *A study of factors associated with turnover of exempt personnel*. Crotonville, NY: Behavior Research Service, General Electric Company.
- *Baumcartel, H., & Sobol, R. (1959). Background and organizational factors in absenteeism. *Personnel Psychology*, 12, 431-443.
- Bernardin, H. J. (1977). The relationship of personality variables to organizational withdrawal. *Personnel Psychology*, 30, 17-27.
- Bhagat, R. S., McQuaid, S. J., Lindholm, H., & Segouis, J. (1985). Total life stress: A multimethod validation of the construct and its effects on organizationally valued outcomes and withdrawal behaviors. *Journal of Applied Psychology*, 70, 202-214.
- Birkenback, X. C. (1983). An empirical application of a model of employee turnover in a sample of hospital nurses. *Humanities Journal for Research in the Human Sciences*, 9, 255-264.
- *Blau, G. J. (1987). Locus of control as potential moderator of the turnover process. *Journal of Occupational Psychology*, 60, 21-29.
- Blau, F. D., & Kahn, L. L. (1981). Race and sex differences in quits by young workers. *Industrial and Labor Relations Review*, 34, 563-577.
- *Bluedorn, A. C. (1982a). The theories of turnover: Causes, effects, and meaning. In S. Bacharach (Ed.), *Research in the sociology of organizations* (Vol. 1, pp. 75-128). Greenwich, CT: JAI Press.
- Bluedorn, A. C. (1982b). A unified model of turnover from organizations. *Human Relations*, 35, 135-153.
- *Boyd, J. B. (1961). Interests of engineers related to turnover, selection, and management. *Journal of Applied Psychology*, 45(3), 143-149.

- Brown, C. W., & Ghiselli, E. E. (1947). Factors related to the proficiency of motor coach operators. *Journal of Applied Psychology*, 31, 477-479.
- *Carsten, J. M., & Spector, P. E. (1987). Unemployment, job satisfaction, and employee turnover: A meta-analytic test of the Muchinsky model. *Journal of Applied Psychology*, 2, 374-381.
- Chelte, A. F., & Tausky, C. (1986). A note on organizational commitment: Antecedents and consequences among managers, professionals, and blue-collar workers. *Work and Occupations*, 13, 553-561.
- Cleland, C. C., & Peck, R. F. (1959). Psychological determinants of tenure in institutional personnel. *American Journal of Mental Deficiency*, 64, 876-888.
- Conference Board. (1972). *Salesmen's turnover in early employment*. New York: Author.
- Cooper, R., & Payne, R. (1965). Age and absence: A longitudinal study in three firms. *Occupational Psychology*, 39, 31-43.
- Cope, J. G., Grossnickle, W. F., Covington, K. B., & Durham, W. W. (1987). Staff turnover as a function of performance in a public residential facility. *American Journal of Mental Deficiency*, 92, 151-154.
- *Cotton, J. L., & Tuttle, J. M. (1986). Employee turnover: A meta-analysis and review with implications for research. *Academy of Management Review*, 11, 55-70.
- *Dalessio, A., Silverman, W. H., & Schuck, J. R. (1986). Paths to turnover: A re-analysis and review of existing data on the Mobley, Horner, and Hollingsworth turnover model. *Human Relations*, 39, 245-263.
- Dalton, D. R., & Todor, W. D. (1982). Antecedents of grievance filing behavior: Attitude/behavioral consistency and the union steward. *Academy of Management Review*, 25, 158-169.
- Dansereau, F., Jr., Cashman, J., & Graen, G. (1974). Expectancy as a moderator of the relationship between job attitudes and turnover. *Journal of Applied Psychology*, 59, 228-229.
- De La Mare, G., & Sergean, R. (1961). Two methods of studying changes in absence with age. *Occupational Psychology*, 35, 245-252.
- Dean, R. A., & Wanous, J. P. (1984). Effects of realistic job previews on hiring bank tellers. *Journal of Applied Psychology*, 69, 61-68.
- *Downs, S. (1967). Labour turnover in two public service organizations. *Occupational Psychology*, 41, 137-142.
- Dreher, G. F. (1982). The role of performance in the turnover process. *Academy of Management Journal*, 25, 137-147.
- Dunnette, M. D., Arvey, R. D., & Banas, P. A. (1973). Why do they leave? *Personnel*, 50, 25-38.
- Ekpo-Ufot, A. (1976). Self-perceived abilities: Relevant in the task (SPARTO): A potential predictor of labor turnover in an industrial work setting. *Personnel Psychology*, 29, 405-416.

- Evan, W. M. (1963). Peer-group interaction and organizational socialization: A study of employee turnover. *American Sociological Review*, 28, 436-440.
- Farber, H. S. (1980). Unionism, labor turnover, and wages of young men. In R. E. Ehrenberg (Ed.), *Research in labor economics* (Vol. 3, pp. 33-53). Greenwich, CT: JAI Press.
- Farr, J. L., O'Leary, B. S., & Bartlett, C. J. (1973). Effect of work sample test upon self-selection and turnover of job applicants. *Journal of Applied Psychology*, 58, 283-285.
- *Farrell, D., & Petersen, J. C. (1984). Commitment, absenteeism, and turnover of new employees: A longitudinal study. *Human Relations*, 37, 681-692.
- *Federico, J. M., Federico, P., & Linqvist, G. W. (1976). Predicting women's turnover as a function of event of met salary expectations and diodemographic data. *Personnel Psychology*, 29, 559-566.
- Ferguson, L. W. (1958). Life insurance interest, ability, and termination of employment. *Personnel Psychology*, 11, 189-193.
- Ferris, G. R., & Rowland, K. M. (1987). Tenure as a moderator of the absence-intent to leave relationship. *Human Relations*, 40, 255-266.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitudes, intention, and behavior*. Reading MA: Addison-Wesley.
- *Fleishman, E. A., & Berniger, J. (1960). One way to reduce office turnover. *Personnel*, 37(3), 63-69.
- *Fleishman, E. A., & Harris, E. F. (1962). Patterns of leadership behavior related to employee grievances and turnover. *Personnel Psychology*, 15, 43-56.
- Freeman, R. B. (1980). The exit-voice tradeoff in the labor market: Unionism, job tenure, quits, and separations. *Quarterly Journal of Economics*, 94, 643-673.
- Friedlander, F., & Walton, E. (1964). Positive and negative motivations toward work. *Administrative Science Quarterly*, 9, 194-207.
- *Futrell, C. M., & Parasuraman, A. (1984). The relationship of satisfaction and performance to salesforce turnover. *Journal of Marketing*, 48, 33-40.
- General Electric Company, Behavioral Research Service. (1964). *Attitudes associated with turnover of highly regarded employees*. Crotonville, NY: Author.
- Guest, R. H. (1955). A neglected factor in labour turnover. *Occupational Psychology*, 29, 217-231.
- *Hackman, J. R., & Lawler, E. E., III. (1971). Employee reactions to job characteristics. *Journal of Applied Psychology*, 55, 259-286.

- Hakkinen, S., & Toivainen, Y. (1960). Psychological factors causing labour turnover among underground workers. *Occupational Psychology*, 34, 15-30.
- Hellriegel, D., & White, G. E. (1973). Turnover of professionals in public accounting: A comparative analysis. *Persone! Psychology*, 26, 239-249.
- Hewitt, D., & Parfitt, J. (1953). A note on working morale and size of group. *Occupational Psychology*, 27, 38-42.
- Hill, J. M., & Trist, E. L. (1955). Changes in accidents and other absences with length of service: A further study of their incidence and relation to each other in an iron and steel works. *Human Relations*, 8, 121-152.
- *Hines, G. H. (1973). Achievement motivation, occupations, and labor turnover in New Zealand. *Journal of Applied Psychology*, 58, 313-317.
- *Hollenbeck, J. R., & Williams, C. R. (1986). Turnover functionality versus turnover frequency: A note on work attitudes and organizational effectiveness. *Journal of Applied Psychology*, 71, 606-611.
- *Hom, P. W., Katerberg, R., & Hulin, C. L. (1979). Comparative examination of three approaches to the prediction of turnover. *Journal of Applied Psychology*, 64, 280-290
- *Hulin, C. L. (1966). Job satisfaction and turnover in a female clerical population. *Journal of Applied Psychology*, 50, 280-285.
- *Hulin, C. L. (1968). Effects of changes in job satisfaction levels on employee turnover. *Journal of Applied Psychology*, 52, 122-126.
- *Hulin, C. L., Roznowski, M., & Hachiya, D. (1985). Alternative opportunities and withdrawal decisions: Empirical and theoretical discrepancies and an integration. *Psychological Bulletin*, 97, 233-250.
- Ilgen, D. R., & Seely, W. (1974). Realistic expectations as an aid in reducing voluntary resignations. *Journal of Applied Psychology*, 59, 452-455.
- Ilgen, D. R., & Dugoni, B. L. (August 1977). *Initial orientation to the organization: Its impact on psychological employees*. Kissimee, FL: Academy of Management.
- Indik, B., & Seashore, S. (1961). *Effects of organization size on member attitudes and behavior*. Ann Arbor: University of Michigan, Survey Research Center of the Institute for Social Research.
- *Jackofsky, E. F. (1984). Turnover and job performance: An integrated process model. *Academy of Management Review*, 9, 74-83.
- *Jackofsky, E. F., Ferris, K. R., & Breckenridge, B. F. (1986). Evidence for a curvilinear relationship between job performance and turnover. *Journal of Management*, 12, 105-111.

- *Jackofsky, E. F., & Peters, L. H. (1983). Job turnover versus company turnover: Reassessment of the March and Simon participation hypothesis. *Journal of Applied Psychology*, 68, 490-495.
- Jackofsky, E. F., & Peters, L. H. (1983). The hypothesized effects of ability in the turnover process. *Academy of Management Review*, 8, 46-59.
- *Jackofsky, E. F., & Slocum, J. W. (1987). A causal analysis of the impact of job performance on the voluntary turnover process. *Journal of Occupational Behavior*, 8, 263-270.
- *Kanfer, R., Crosby, J. V., & Brandt, D. M. (1988). Investigating behavioral antecedents of turnover at three job tenure levels. *Journal of Applied Psychology*, 73, 331-335.
- *Katzell, M. E. (1968). Expectations and dropouts in schools of nursing. *Journal of Applied Psychology* 52, 154-157.
- *Kelleher, E. J., Kerr, W. A., & Melville, N. T. (1968). The prediction of subprofessional nursing success. *Personnel Psychology*, 21, 379-388.
- Keller, R. T. (1984). The role of performance and absenteeism in the prediction of turnover. *Academy of Management Journal*, 27, 176-183.
- Kephart, N. C. (1948). Visual skills and labor turnover. *Journal of Applied Psychology*, 32, 51-55.
- Kerr, W., Koppelmeier, G., & Sullivan, J. (1951). Absenteeism, turnover, and morale in a metals fabrication factory. *Occupational Psychology*, 25, 50-55.
- Kilbridge, M. (1961). Turnover, absence, and transfer rates as indicators of employee dissatisfaction with repetitive work. *Industrial and Labor Relations Review*, 15, 21-32.
- *Kirchrier, W. F., & Dunnette, M. D. (1957). Applying the weighted application blank technique to a variety of office jobs. *Journal of Applied Psychology*, 41, 206-208.
- Knowles, M. C. (1964). Personal and job factors affecting labour turnover. *Personnel Practice Bulletin*, 20, 25-37.
- *Koch, J. L., & Rhodes, S. R. (1981). Predictors of turnover of female factory workers. *Journal of Vocational Behavior*, 18, 145-161.
- Koslowsky, M. (1987). Antecedents and consequences of turnover: An integrated systems approach. *Genetic, Social, and General Psychology Monographs*, 113, 269-292.
- *Kraut, A. I. (1975). Predicting turnover of employees from measured job attitudes. *Organizational behavior and Human Performance*, 13, 233-243.
- *Kriedt, P. H., & Gadel, M. S. (1953). Prediction of turnover among clerical workers. *Journal of Applied Psychology*, 37, 338-340.
- Larson, E. W., & Fukami, C. V. (1985). Employee absenteeism: The role of ease of movement. *Academy of Management Journal*, 28, 464-471.

- *Lawler, E. E., III, & Hackman, J. R. (1969). Impact of employee participation in the development of pay incentive plans: A field experiment. *Journal of Applied Psychology*, 53, 467-471.
- *Lee, T. W., & Mowday, R. T. (1987). Voluntarily leaving an organization: An empirical investigation of Steers and Mowday's model of turnover. *Academy of Management Journal*, 30, 721-743.
- Lefkowitz, J. (1970). Effect of training on the productivity and tenure of sewing machine operators. *Journal of Applied Psychology*, 54, 81-86.
- Lefkowitz, J., & Katz, M. L. (1969). Validity of exit interviews. *Personnel Psychology*, 22, 445-455.
- Leigh, J. H., Lucas, G. H., & Woodman, R. W. (1988). Effects of perceived organizational factors on role stress-job attitude relationships. *Journal of Management*, 14, 41-58.
- *Ley, R. (1966). Labor turnover as a function of worker differences, work environment, and authoritarianism of foreman. *Journal of Applied Psychology*, 50, 497-500
- Linden, R. (1985). Attrition among male and female members of the RCMP. *Canadian Police College Journal*, 9, 86-103.
- *Lowery, B. J., & Jacobsen, B. S. (1984). On the consequences of overturning turnover: A study of performance and turnover. *Nursing Research*, 33, 363-367.
- Lucas, G. H., Parasuraman, A., Davis, R. A., & Enis, B. M. (1987). An empirical study of sales-force turnover. *Journal of Marketing*, 51, 34-59.
- Lundquist, A. (1958). Absenteeism and turnover as a consequence of unfavorable job adjustment. *Acta Sociologica*, 119-131.
- Lyons, T. F. (1968). *Nursing attitudes and turnover*. Ames, IA: Iowa State University, Industrial Relations.
- *Lyons, T. F. (1971). Role clarity, need for clarity, satisfaction, tension, and withdrawal. *Organizational Behavior and Human Performance*, 6, 99-110.
- Macedonia, R. M. (1969). *Expectation-press and survival* (Unpublished doctoral dissertation). New York: New York University, Graduate School of Public Administration.
- MacKinney, A. C., & Wolins, L. Validity information exchange. *Personnel Psychology*, 13, 443-447.
- Mandell, M. (1956). *Recruiting and selecting office employees*. American Management Association.

- Mangione, T. W. (1973). Turnover: Some psychological and demographic correlates. In R. P. Quinn and T. W. Mangione (Eds.). *The 1969-70 survey of working conditions* (pp. 335-371). Ann Arbor: Survey Research Center.
- *Marsh, R., & Mannari, H. (1977). Organizational commitment and turnover: A predictive study. *Administrative Science Quarterly*, 22, 57-75.
- Mayeske, G. W. (1964). The validity of Kuder Preference Record scores in predicting forester turnover and advancement. *Personnel Psychology*, 17, 207-210.
- *McEvoy, G. M., & Cascio, W. F. (1987). Do good or poor performers leave? A meta-analysis of the relationship between performance and turnover. *Academy of Management Journal*, 30, 744-762.
- *McEvoy, G. M., & Cascio, W. F. (1985). Strategies for reducing employee turnover: A meta-analysis. *Journal of Applied Psychology*, 70, 342-353.
- Metzner, H., & Mann, F. (1953). Employee attitudes and absences. *Personnel Psychology*, 6, 467-485.
- Meyer, H., & Cuomo, S. (1962). *Who leaves? A study of background characteristics of engineers associated with turnover*. Crotonville, NY: General Electric Company, Behavioral Science Research.
- *Miceli, M. P. (1985). The effects of realistic job previews on newcomer behavior: A laboratory study. *Journal of Vocational Behavior*, 26, 277-289.
- *Michaels, C. E., & Spector, P. E. (1982). Causes of employee turnover: A test of the Mobley, Griffeth, Hand, and Meglino model. *Journal of Applied Psychology*, 67, 53-59.
- *Mikes, P. S., & Hulin, C. L. (1968). Use of importance as a weighting component of job satisfaction. *Journal of Applied Psychology*, 52, 394-398.
- *Mirvis, P. H., & Lawler, E. E., III. (1977). Measuring the financial impact of employee attitudes. *Journal of Applied Psychology*, 62, 1-8.
- Mobley, W. H. (1977). Intermediate linkages in the relationship between job satisfaction and employee turnover. *Journal of Applied Psychology*, 62, 237-240.
- Mobley, W. H. (1982). *Employee turnover: Causes, consequences, and control*. Reading, MA: Addison-Wesley.
- *Mobley, W. H., Horner, S. O., & Hollingsworth, A. T. (1978). An evaluation of precursors of hospital employee turnover. *Journal of Applied Psychology*, 63, 408-414.
- *Mobley, W. H., Griffeth, R. W., Hand, H. H., & Meglino, B. M. (1979). Review and conceptual analysis of the employee turnover process. *Psychological Bulletin*, 36, 493-522.

- Motowidlo, S. J. (1983). Predicting sales turnover from pay satisfaction and expectation. *Journal of Applied Psychology*, 68, 484-489.
- *Mowday, R. T., Koberg, C. S., & McArthur, A. W. (1984). The psychology of the withdrawal process: A cross-validated test of Mobley's intermediate linkages model of turnover in two samples. *Academy of Management Journal*, 27, 79-94.
- Mowday, R. T., Porter, L. W., & Stone, E. F. (1978). Employee characteristics as predictors among female clerical employees in two organizations. *Journal of Vocational Behavior*, 12, 321-332.
- Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organization commitment. *Journal of Vocational Behavior*, 14, 224-247.
- *Muchinsky, P. M., & Tuttle, M. L. (1979). Employee turnover: An empirical and methodological assessment. *Journal of Vocational Behavior*, 14, 43-77.
- Naylor, J. E., & Vincent, N. L. (1959). Predicting female absenteeism. *Personnel Psychology*, 12, 81-84.
- Newman, J. E. (1974). Predicting absenteeism and turnover: A field comparison of Fishbein's model and traditional job attitude measures. *Journal of Applied Psychology*, 59, 610-615.
- Oldham, G. R., et al. (1986). Relations between job facet comparisons and employee reactions. *Organizational Behavior and Human Decision Processes*, 38, 28-47.
- Oldham, G. R., & Fried, Y. (1987). Employee reactions to workspace characteristics. *Journal of Applied Psychology*, 72, 75-80.
- Opren, C. (1986). The effect of job performance on the relationship between job satisfaction and turnover. *Journal of Social Psychology*, 126, 277-278.
- *Parasuraman, S. (1982). Predicting turnover intentions and turnover behavior: A multivariate analysis. *Journal of Vocational Behavior*, 11, 111-121.
- Patchen, M. (1960). Absence and employee feelings about fair treatment. *Personnel Psychology*, 13, 349-360.
- Pierce, J. L., & Dunham, B. R. (1987). Organizational commitment: A pre-employment propensity and initial work experiences. *Journal of Management*, 13, 163-178.
- Porter, L. W., & Lawler, E. E., III. (1968). *Managerial attitudes and performance*. Homewood, IL: Irwin.
- Porter, L. W., & Steers, R. M. (1973). Organizational, work, and personal factors in employee turnover and absenteeism. *Psychological Bulletin*, 80(2), 151-176.
- *Porter, L. W., Crampon, W. J., & Smith, F. J. (1976). Organizational commitment and managerial turnover: A longitudinal study. *Organizational Behavior and Human Performance*, 15, 87-98.

- *Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. V. (1974). Organizational commitment, job satisfaction, and turnover among psychiatric technicians. *Journal of Applied Psychology*, 59, 603-609.
- Price, J. L. (1977). *The study of turnover*. Ames, IA: Iowa State University Press.
- Price, J. L., & Mueller, C. W. (1981). A causal model of turnover for nurses. *Academy of Management Journal*, 24, 543-545.
- Revens, R. (1958). Human relations, management, and size. In E. M. Hugh-Jones (Ed.), *Human relations and modern management*. Amsterdam: North-Holland Publishing.
- Robbins, J. F., & King, D. C. (1961). Validity information exchange. *Personnel Psychology*, 14, 217-219.
- *Robinson, D. D. (1972). Prediction of clerical turnover in banks by means of a weighted application blank. *Journal of Applied Psychology*, 56, 282.
- Ronan, W. W. (1967). A study of some concepts concerning labour turnover. *Occupational Psychology*, 41, 193-202.
- *Ronan, W. W., Latham, G. P., & Kinne, S. B., III. (1973). Effects of goal setting and supervision on worker behavior in an industrial setting. *Journal of Applied Psychology*, 58, 302-307.
- Ross, I. C., & Zander, A. (1957). Need satisfactions and employee turnover. *Personnel Psychology*, 10, 327-338.
- *Rosse, J. B. (1987). Job-related ability and turnover. *Journal of Business and Psychology*, 1, 326-336.
- Saleh, S. D., Lee, R. J., & Prien, E. P. (1965). Why nurses leave their jobs: An analysis of female turnover. *Personnel Administration*, 22, 25-28.
- Scheflen, K. C., Lawler, E. E., III, & Hackman, J. R. (1971). Long-term impact of employee participation in the development of pay incentive plans: A field experiment revisited. *Journal of Applied Psychology*, 55, 182-186.
- Scholl, C. E., Jr., & Bellows, R. M. (1952). A method for reducing employee turnover. *Personnel Psychology*, 29, 234-236.
- Schuh, A. (1967). The predictability of employee tenure: A review of the literature. *Personnel Psychology*, 20, 133-152.
- *Schuh, A. J. (1967a). Application blank items and intelligence as predictors of turnover. *Personnel Psychology*, 20, 59-63.
- Schuh, A. J. (1967b). The predictability of employee tenure: A review of the literature. *Personnel Psychology*, 20, 133-152.

- *Sheridan, J. E. (1985). A catastrophe model of employee withdrawal leading to low job performance, high absenteeism, and job turnover during the first year of employment. *Academy of Management Journal*, 28, 88-109.
- Sheridan, J. E., & Abelson, M. A. (1983). Cusp catastrophe model of employee turnover. *Academy of Management Journal*, 26, 418-436.
- *Sheridan, J. E., & Vredenburg, D. J. (1978). Usefulness of leadership behavior and social power variables in predicting job tension, performance, and turnover of nursing employees. *Journal of Applied Psychology*, 63, 89-95.
- Shott, G. L., Albright, L. E., & Glennon, J. R. (1963). Predicting turnover in an automated office situation. *Personnel Psychology*, 16, 213-219.
- Skinner, E. (1969). Relationships between leadership behavior patterns and organizational situational variables. *Personnel Psychology*, 22, 489-494.
- Sinea, A. K. P. (1963). Manifest anxiety affecting industrial absenteeism. *Psychological Reports*, 13, 258.
- Smith, P. C., Kendall, L. M., & Hulin, C. L. (1969). *The measurement of satisfaction in work and retirement*. Chicago: Rand McNally.
- Snow, A. J. (1927). Intelligence in labor turnover in the taxicab industry. *Industrial Psychology*, 2, 191-195.
- Spector, P. E., & Michaels, C. E. (1986). Personality and employee withdrawal: Effects of locus of control on turnover. *Psychological Reports*, 59, 63-66.
- *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.
- Steers, R. M. (1977). Antecedents and outcomes of organizational commitment. *Administrative Science Quarterly*, 22, 46-56.
- Stone, T. H., & Athelstan, G. T. (1969). The SVIB for women and demographic variables in the prediction of occupation tenure. *Journal of applied Psychology*, 53, 408-412.
- Stumpf, S. A., & Dawley, P. K. (1981). Predicting voluntary turnover and involuntary turnover using absenteeism and performance indices. *Academy of Management Journal*, 24, 148-163.
- *Stumpf, S. A., & Hartman, K. (1984). Individual exploration to organizational commitment or withdrawal. *Academy of Management Journal*, 27, 308-329.
- Suszko, M. K., & Breugh, J. A. Talacchi, S. (1960). Organization size, individual attitudes, and behavior: An empirical study. *Administrative Science Quarterly*, 5, 398-420.

- Taylor, K., & Weiss, D. (October 1969a). *Prediction of individual job termination from measured job satisfaction and biographical data* (Res. Rep. No. 30). Minneapolis: University of Minnesota, Work Adjustment Project.
- Taylor, K., & Weiss, D. (May 1969b). *Prediction of individual job turnover from measured job satisfaction* (Res. Rep. No. 22). Minneapolis: University of Minnesota, Work Adjustment Project.
- Taylor, K. E., & Weiss, D. J. (1972). Prediction of individual job termination from measured job satisfaction and biographical data. *Journal of Vocational Behavior*, 2, 123-132.
- Thompson, K. R., & Terpening, W. D. (1983). Job-type variations and antecedents to intention to leave: A content approach to turnover. *Human Relations*, 36, 655-681.
- Tiffin, J., & Phelan, R. F. (1953). Use of the Kuder Preference Record to predict turnover in an industrial plant. *Personnel Psychology*, 6, 195-204.
- Turner, A. N., & Lawrence, P. R. (1965). *Industrial jobs and the worker: An investigation of response to task attributes*. Boston: Harvard University Press, Division of Research.
- Viteles, M. S. (1924). Selecting cashiers and predicting length of service. *Journal of Personnel Research*, 2, 467-473.
- Vroom, V. (1964). *Work and motivation*. New York: John Wiley.
- Walker, C. R., & Guest, R. H. (1952). *The man on the assembly line*. Cambridge: Harvard University Press.
- Wagner, W. G., Pfeffer, J., & O'Reilly, C. A. (1984). Organizational demography and turnover in top-management groups. *Administrative Science Quarterly*, 29, 74-92.
- *Walsh, J. P., Ashford, S. J., & Hill, T. E. (1985). Feedback obstruction: The influence of the information environment on employee turnover intentions. *Human Relations*, 38, 23-46.
- Wanous, J. P. (1973). Effects of a realistic job preview on job acceptance, job attitudes, and job survival. *Journal of Applied Psychology*, 58, 327-332.
- *Wanous, J. P., Stumpf, S. A., & Bedrosian, H. (1979). Job survival of new employees. *Personnel Psychology*, 32, 561-662.
- Waters, L. K., & Roach, D. (1971). Relationship between job attitudes and two forms of withdrawal from the work situation. *Journal of Applied Psychology*, 55, 92-94.
- Waters, L. K., & Roach, D. (1973). Job attitudes as predictors of termination and absenteeism: Consistency over time and across organizational units. *Journal of Applied Psychology*, 57, 341-342.
- *Waters, L. K., Roach, D., & Waters, C. W. (1976). Estimates of future tenure, satisfaction, and biographical variables as predictors of termination. *Personnel Psychology*, 29, 57-60.

- Weitz, J. (1956). Job expectancy and survival. *Journal of Applied Psychology*, 40, 245, 247.
- Weitz, J., & Nuckols, R. C. (1955). Job satisfaction and job survival. *Journal of Applied Psychology*, 39, 294-300.
- *Werbel, J. D., & Gould, S. (1984). A comparison of the relationship of commitment to turnover in recent hires of tenured employees. *Journal of Applied Psychology*, 69, 587-690.
- Wild, R. (1970). Job needs, job satisfaction, and job behavior of women manual workers. *Journal of Applied Psychology*, 54, 157-162.
- Wolpin, J., & Burke, R. J. (1985). Relationships between absenteeism and turnover: A function of the measures. *Personnel Psychology*, 38, 57-74.
- Woodward, N. (1975-1976). The economic causes of labour turnover: A case study. *Industrial Relations Journal*, 6, 19-32.
- Youngberg, C. F. (1963). *An experimental study of "job satisfaction" and turnover in relation to job expectancies and self expectations* (Unpublished doctoral dissertation). New York: New York University.
- *Zaccaro, S. J., & Stone, E. F. (1988). Incremental validity of an empirically based measure of job characteristics. *Journal of Applied Psychology*, 73, 245-252.

MILITARY REFERENCES

- Abrahams, N. M., & Neumann, I. (1971, October). *The assessment of career motivation among NROTC applicants with the Strong Vocational Interest Blank (Res. Rep. SRR 72-9)*. San Diego: Naval Personnel Training Research Laboratory.
- Abrahams, N. M., & Neumann, I. (1973, February). *The validation of the Strong Vocational Interest Blank for predicting Naval Academy disenrollment and military aptitude*. (Tech. Bulletin STB 73-3). San Diego: Naval Personnel Training and Research Laboratory.
- Advanced Research Resources Organization. (1979, March). *Voluntary separation for attrition management*. Washington, DC.
- Air Force Human Resources Laboratory, Air Force Systems Command (1974, July). *The attractiveness of Air Force non-monetary benefits (AFHRL-TR-74-68)*. Brooks Air Force Base, TX.
- Allen, J. P. (1981, June). *Military biographical and demographic correlates of Army career intentions* (Tech. Rep. 518). Harrison, IN: U. S. Army Research Institute for the Behavioral and Social Sciences.
- *Alley, W. E., & Gould, R. B. (1975, October). *Feasibility of estimating personnel turnover from survey data: A longitudinal study*. Brooks Air Force Base, TX: Air Force Human Resources Laboratory.
- Arima, J. K. (Ed.). (1981, July). *Career planning: Individual and organizational perceptives* (NPS Tech. Rep. 54-81-009). Monterey, CA: Naval Postgraduate School.
- Atwater, D. C., Skrobiszewski, M., & Alf, E. F., Jr. (1976, May). *Preliminary selection of biographical items for predicting recruit attrition (TN-76-6)*. San Diego: Navy Personnel Research and Development Center.
- Bachman, J. G. (1974). *Values, preferences, and perceptions concerning military service* (Tech. Rep., Part II). Ann Arbor, MI: The University of Michigan, Institute for Social Research.
- Boesel, D., & Johnson, K. (1984, April). *Why service members leave the military: Review of the literature and analysis (DMDC/MTB/TR 84-3)*. Alexandria, VA: Defense Manpower Data Center.
- Bonette, J., & Worstine, D. A. (1979, March). *Job satisfaction, unit morale, and reenlistment intent/decision for Army enlisted personnel*. Alexandria, VA: Military Occupational Development Division.
- Bowen, G. L. (1985). Toward a model of the relationship between family factors and the retention decision making process of military members. In G. M. Croan (Ed.), *A framework for research on career decision-making and the military family*. Washington, DC: Army Research Institute, C1-C80.

- Bowers, D. G. (1973). *Organizational practices and the decision to reenlist* (Tech. Rep.). Ann Arbor, MI: The University of Michigan, Institute for Social Research.
- Bowers, D. G. (1975). Work related attitudes of military personnel. In N. Goldman and D. R. Segal (Eds.), *Proceedings of research conference on the social psychology of military service*. Chicago, IL: The University of Chicago.
- Bowers, D. G., & Bachman, J. G. (1974, October). *Military manpower and modern values*. Ann Arbor, MI: University of Michigan, Institute for Social Research. (AD-A787 826)
- Braunstein, C. (1970, July). *Report of enlisted findings, Navy personnel survey NPS 69-1: Attitudes and experiences of enlisted Naval personnel relating to career incentives, retention, education, personal services and duties, and conditions of Navy life* (WSR 71-1). Washington, DC: Naval Personnel Research and Development Laboratory
- Braunstein, C. (1970, November). *Report of officer findings, Navy personnel survey NPS 69-1: Attitudes and experiences of naval officers relating to career incentives, retention, education, personal services and duties, and conditions of Navy life*. (WSR 72-1). Washington, DC: Naval Personnel Research and Development Laboratory.
- Braunstein, C., & Muldrow, T. W. (1972, February). *Report of officer findings: Naval personnel survey* (NPS 70-1). Washington, DC: Naval Personnel Research and Development Laboratory.
- Broedling, L. A. (1970). *The opinions of Navy personnel regarding shipboard living conditions* (WSR 71-1). Washington, DC: Navy Personnel Research and Development Laboratory.
- Bruce, R. (1986). The family separation catchall. *U.S. Naval Institute Proceedings*, 112, 110-111.
- *Bruce, R. A., & Burch, R. L. (1989, June). *Officer career development: Modeling married aviator retention* (NPRDC-TR-89-11). San Diego: Navy Personnel Research and Development Center.
- Bruni, J. R., Jones, A. P., & James, L. R. (1975). *Correlates of first term reenlistment behavior aboard Navy ships* (Tech. Rep. 75-8). Forth Worth, TX: Texas Christian University, Institute of Behavioral Research.
- Buddin, R. (1981, November). *The role of service experience in post-training attrition in the Army and Air Force* (R-2682-MRAL). Santa Monica, CA: The Rand Corporation.
- Burright, B. K., Grissmer, D. W., & Doering, Z. D. (1982, October). *A model of reenlistment decisions of Army National Guardsmen* (R2866-MRAL). Santa Monica, CA: The Rand Corporation.
- Cantrell, G. K., Bryce, O. H., & Lewis, S. S., Jr. (1967, February). *The effect of selected variables on job-satisfaction and intent to reenlist* (TR 67-12). Brooks Air Force Base, TX: USAF School of Aerospace Medicine, Aerospace Medical Division.

- Carlisle, R. H., Jr. (1975, March). *An investigation into the job factors affecting the reenlistment of Marines in the telecommunications fields*. Monterey, CA: Naval Postgraduate School. (AD-A007 465)
- Chipman, M. D., & Mumm, H. (1979, November). *Forecasting naval enlisted occupational retention behavior under alternative retirement systems* (NPRDC-TR-80-3). San Diego: Navy Personnel Research and Development Center.
- Chow, W. K., & J. M. Polich. (1980, September). *Models of the first-term reenlistment decision* (R-2648-MRAL). Santa Monica, CA: The Rand Corporation.
- Cohen, L., & Reedy, D. E. (1979, December). The sensitivity of first term Navy reenlistment to changes in unemployment and relative wages. *Naval Research Logistics Quarterly*, 26, 4, 695-709.
- Cook, V. G., Jr. (1979, June). *Naval aviator retention: Predicting retention and identifying related variables*. Monterey, CA: Naval Postgraduate School
- Cooper, M. (1979, December). *Enlisted attrition in the Army: A broad conceptual framework and analysis*. Washington, DC: Advanced Research Resources Organization.
- Cressy, P. H. (1988, Spring). The gathering pilot retention crisis. *Wings of Gold*, pp. 20-21.
- Dalton, P. (31 August 1987). Pilots who stay cite challenge, accomplishment as main factors. *Air Force Times*. p. 11.
- *Derr, C. B. (1980, January). *Junior officer retention: Another perspective* (NPS Tech. Rep. 54-80-002). Monterey, CA: Naval Postgraduate School.
- Derr, C. B. (1979, July). *Marriage/family issues and wife styles across naval officer career stages: Their implications for career success*. Monterey, CA: Naval Postgraduate School.
- Drexler, J. A., Jr. (1975, June). *Enlisted skill ratings, draft motivation, and the decision to reenlist*. Ann Arbor: MI. Institute for Social Research, The University of Michigan. (AD A013 080)
- Drexler, J. A., & Bowers, D. G. (1973). *Navy retention rates and human resources management* (Tech. Rep.). Ann Arbor, MI: The University of Michigan, Institute for Social Research.
- Dupuy, H. J. (1965, April). *Attitudes toward dependents' housing and their relationships with career intention* (Report II). Washington, DC: Naval Personnel Research Laboratory.
- Dupuy, H. J. (1966, April). *Opinions of military personnel concerning bachelor housing*. Washington, DC: Naval Personnel Research Laboratory.
- Estabrooks, J. O. (1981, June). *Effects of the U.S. Navy billet assignment process on line officer's career intentions* (Masters Thesis). Monterey, CA: Naval Postgraduate School.

- Enns, J. N. (1975, June). *Effect of the variable reenlistment bonus on reenlistment rates: Empirical results for FY 1971* (TR 1502 ARPA). Santa Monica, CA: The Rand Corporation. (AD-A013 058)
- Enns, J. H. (1977, September). *Reenlistment bonuses and first-term retention* (R-1935-ARPA). Santa Monica, CA: The Rand Corporation.
- Erwin, F. W., & Herring, J. W. (1977, August). *The feasibility of the use of autobiographical information as a predictor of early Army attrition* (Tech. Rep. TR-77-A6). Washington, DC: Richardson, Bellows, and Company, Inc.
- Faris, J. H. (1984). Economic and non-economic factors of personnel recruitment and retention in the all volunteer force. *Armed Forces and Society*, 10(2), 251-275.
- *Farkas, A. J., & Durning, K. P. (1982). *Characteristics and needs of Navy families: Policy implications* (SR-83-1). San Diego: Navy Personnel Research and Development Center.
- *Farrell, D., & Rusbult, C. (1981). Exchange variables as predictors of job satisfaction, job commitment, and turnover: The impact of rewards, costs, alternatives, and investments. *Organizational Behavior and Human Performance*, 27, 78-95.
- Fisher, F. M., & Morton, A. S. (1967). Reenlistments in the U.S. Navy: A cost effectiveness study. *American Economic Association*, 57, 32-38.
- Frank, B. A., & Erwin, F. W. (1978, July). *The prediction of early Army attrition through the use of autobiographical information questionnaires*. Washington, DC: Richardson, Bellows, Henry, and Company.
- Frey, R. L., Jr., Goodstadt, B. E., Korman, A. K., Romanczak, A. P., & Glickman, A. S. (1974, June). *Reenlistment incentives: More is not better in the fleet either* (Tech. Rep. No. 4). Washington, DC: American Institutes for Research. (AD-A786 487)
- Fletcher, J. W., & Giesler, K. L. (1981, September). *Relating attitudes toward Navy life to reenlistment decisions*. Alexandria, VA: Center for Naval Analyses.
- Githens, W. H. (1966, January). *The values of junior officers Part 1: Importance, obtainability, and comparability of various career values* (Res. Rep. SRR 66-11). San Diego: U.S. Naval Personnel Research Activity.
- Githens, W. H., Abrahams, N. M., & Neumann, I. (1968, July). *The measurement of Navy career motivation in NROTC applicants* (Res. Rep. SRR 69-2). San Diego: U.S. Naval Personnel Research Activity.
- Goldberg, M. S., & Warner, J. T. (1982, December). *Determinants of Navy reenlistment and extension rates*. Alexandria, VA: Center for Naval Analyses.

- Goldman, L. A., & Worstine, D. A. (1977, May). *Job satisfaction and reenlistment intent for first term personnel*. Alexandria, VA: U.S. Army Military Personnel Center, Military Occupational Development Division, Personnel Systems Directorate.
- Goodstadt, B. E., & Glickman, A. S. (1975, November). *The current status of enlisted attrition in the U.S. Navy and in the U.S. Marine Corps and the search for remedies* (AIR-54500-11/75-FR). Washington, DC: American Institute of Research.
- Goodstadt, B. E., Yedlin, N. C., & Romanczuk, A. P. (1978, June). *Post-training enlisted attrition process in the U.S. Army*. Washington, DC: Advanced Research Resources Organization.
- Goodstadt, B., & Yedlin, N. C. (1979, June). *A review of state-of-the-art research on military attrition: Implications for policy and future research and development*. Washington, DC: Advanced Research Resources Organization.
- Gordon, L. V., & Medland, F. F. (1964, March). *Values associated with military career motivation* (Tech. Res. Note 143). Washington, DC: U.S. Army Personnel Research Office.
- Gotz, G. A., & McCall, J. J. (1979, October). *A sequential analysis of the Air Force officer's retirement decision* (N-1013-1AF). Santa Monica, CA: The Rand Corporation.
- Gotz, G. A., & McCall, J. J. (1980a, June). *Estimating military personnel retention rates: Theory and statistical method* (R-2541-AF). Santa Monica, CA: The Rand Corporation.
- Grace, G. L. (1978, December). Techniques for increasing retention of Navy personnel. In R. V. L. Cooper (Ed.), *Defense manpower policy: Presentations from the 1976 Rand Conference on Defense Manpower* (R-2396-ARPA). Santa Monica, CA: The Rand Corporation.
- Grace, G. L., Holoter, H., & Soderquist, (14 May 1976). *Career satisfaction as a factor influencing retention* (TR 4). Santa Monica, CA: System Development Corporation. (AD-A025 810)
- Grace, G. L., & Steiner, M. B. (1978). Wives' attitudes and retention of Navy enlisted personnel. In E. J. Hunter and D. S. Nice (Eds.), *Military families: Adaptation to change*, 42-54. New York: Praeger.
- Greenberg, M. G., Murphy, J., & McConeghy, G. (1977, September). *Exploratory development research of U.S. Navy Marine Corps personnel, phase 1, factors affection attrition*. Bethesda, MD: Booz, Allen, and Hamilton.
- Gregory, R., & Rosenbach, E. (1985). *Officer retention in the United States Air Force* (Unpublished manuscript). Colorado Springs, CO: United States Air Force Academy.
- Guinn, N. (1977). USAF attrition trends and identification of high-risk personnel. In Sinaiko, H. W. (Ed.), *First term enlisted attrition*, pp. 360-381. Washington, DC: Smithsonian Institution.
- Guinn, N., Johnson, A. L., & Kantor, J. E. (1975, May). *Screening for adaptability to military service* (AFHRL-TR-75-30). Lackland Air Force Base, TX: Personnel Research Division.

- Guthrie, R. V., Lakota, R. A., & Matlock, M. W. (1978, July). *Voluntary release pilot program: Effects on attrition of general detail personnel* (NPRDC-TR-78-27). San Diego: Navy Personnel Research and Development Center.
- Haber, S. E., Ireland, T., & Solomon, H. (10 June 1974). *Manpower policy and the reenlistment rate* (TR-1201). Washington, DC: The George Washington University, Graduate School of Arts and Sciences, Econometric Research on Navy Manpower Problems. (AD-A786 777)
- Haber, S. E., & Stewart C. T., Jr. (5 May 1975). *The responsiveness of reenlistment to changes in Navy compensation* (TR-1254). Washington, DC: The George Washington University, Graduate School of Arts and Sciences. (AD-A012 437)
- *Hand, H. H., Griffeth, R. W., & Mobley, W. H. (1977, December). *Military enlistment, reenlistment, and withdrawal research: A critical review of the literature*. Columbia, SC: University of South Carolina.
- *Hayden, L. (1985). *Factors influencing the career orientation of junior officers in the United States Army*. Monterey, CA: Naval Postgraduate School. (AD-A156 564)
- *Hiller, J. R. (1982, September). *Analysis of second-term reenlistment behavior* (R-2884-MRAL). Santa Monica, CA: The Rand Corporation.
- Hoene, P. F. (1986, September). *A longitudinal investigation of the process by which Air Force enlisted personnel monitor and evaluate the civilian labor markets prior to reenlistment/separation decisions* ((Masters Thesis). Wright-Patterson Air Force Base, OH: Thesis presented to Air University.
- Hoiberg, A., Hysham, C. J., & Berry, N. H. (1977, March). *Predictors related to premature attrition of Navy recruits* (Tech. Rep. No. 73-48). San Diego: Naval Health Research Center.
- Holzbach, R. L., Morrison, R. F., & Mohr, D. A. (1980, February). *Surface warfare junior officer retention: The assignment process* (NPRDC-TR-80-13). San Diego: Navy Personnel Research and Development Center.
- Holzbach, R. L. (1979, August). *Surface warfare junior officer retention: Problem diagnosis and a strategy for action* (NPRDC-TR-79-29). San Diego: Navy Personnel Research and Development Center.
- Hom, P. W., & Hulin, C. L. (1981). A competitive test of the prediction of reenlistment by several models. *Journal of Applied Psychology*, 66, 23-39.
- Hulin, C. L. (1977, April). Individual, organizational, and environmental influences on turnover. In H. W. Sinaiko (Ed.). *First term enlisted attrition*. Leesburg, VA: Smithsonian Institute.
- Hunter, E. J. (1982). *Families under the flag: A review of military family literature*. New York: Praeger Publishers.

- Jones, A. P., & Butler, M. C. (1980, May). A role transition approach to the stresses of organizationally induced family role disruption. *Journal of Marriage and the Family*, 367-376.
- Kissler, G. D. (1980, October). *First-term Navy attrition research: A study on ongoing and future research directions* (NPRDC-TN-81-2). San Diego: Navy Personnel Research and Development Center.
- Kleinman, S. D., & Shughart, W. F., II. (1974, September). *The effects of reenlistment bonuses*. Arlington, VA: Center for Naval Analyses, Institute of Naval Studies. (AD-A009 794)
- Kleinman, S. D., & Zuhoski, C. (1980, February). *Navy pilot attrition: Determinants and economic remedies*. Alexandria, VA: Center for Naval Analyses.
- *Koch, J., & Steers, R. (1978). Job attachment, satisfaction, and turnover among public sector employees. *Journal of Vocational Behavior*, 12, 119-128.
- Kohen, A. I. (1984, June). *Attrition from military and civilian jobs: Insights from the National Longitudinal Survey* (Tech. Rep. 638). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Kohen, A. I. (1977, April). Job changing behavior of young men in the civilian labor market. In H. W. Sinaiko (Ed.). *First term enlisted attrition*. Leesburg, VA: Smithsonian Institute.
- Kriegel, D. A. (1986, March). *An examination and comparison of airline and Navy pilot career earnings*. Monterey, CA: Naval Postgraduate School.
- Kotula, L. J., & Anderson, A. A. (1973, January). *Evaluation of personality tests to predict Army reenlistment* (Res. Memo. 63-2). Washington, DC: Army Department, Personnel Research Office.
- Lakhani, H., Thomas, S. A., Anderson, J. W., Gilroy, C., & Capps, C. P. (1985, February). *Army European Tour Extension: An interdisciplinary approach* (Tech. Rep. 667). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Landau, S. B., & Farkas, A. J. (1978, December). *Selective retention: A longitudinal analysis. I. Factors related to recruit training attrition* (NPRDC-TR-79-5). San Diego: Navy Personnel Research and Development Center.
- *La Rocco, J. M., Pugh, W. M., & Gunderson, E. K. E. (1977). Identifying determinants of retention behavior. *Personnel Psychology*, 30, 199-215.
- Lau, A. W. (1979, March). *Personal and organizational determinants of enlisted attrition* (NPRDC-TR-79-11). San Diego: Navy Personnel Research and Development Center.
- Lau, A. W., Macey, L. A., & Abrahams, N. M. (1969, June). *An analysis of the Navy Vocational Interest Inventory as a predictor of career motivation* (Res. Rep. SRR 69-27). San Diego: Naval Personnel Research Activity.

- Lindsay, W. A., Jr., & Causey, B. D. (1969, March). *A statistical model for the prediction of reenlistment*. McLean, VA: Research Analysis Corporation. (AD-A684 908)
- Lockman, R. F. (1976, September). *A model for predicting recruit losses* (Professional Paper No. 163). Arlington, VA: Center for Naval Analyses.
- Lockman, R. F. (1977a, February). *Success chances of recruits entering the Navy (Screen)* (Tech. Rep. CNS-1086). Alexandria, VA: Center for Naval Analyses.
- Lockman, R. F. (1977b, December). *Predicting survival of Navy men from pre-service characteristics after one, two, and three years of service* (Memorandum CNA 77-1755). Alexandria, VA: Center for Naval Analyses.
- Lockman, R. F., & O'Neill, D. M. (1973). *Report on accession and retention factors and models for policy evaluation* (Summary Rep. 2). Arlington, VA: Center for Naval Analysis, Institute of Naval Studies.
- Lockman, R. F., Stoloff, P. H., & Allbritton, A. S. (1972). *Motivational factors in accession and retention behavior* (Res. Contribution 201). Washington, DC: Department of the Navy, Institute of Naval Studies, Office of Naval Research.
- Lund, D. A. (1978). Junior officer retention in the modern volunteer Army: Who leaves and who stays? In E. Hunter and D. Nice (Eds.), *Military families: Adaptation in change*, pp. 32-41. New York: Praeger.
- Martinsen, L., & Hansen, J. (1985). *What makes the difference. . .? The 1985 COMMATVA-QWINGPAC aviation officer retention study* (Unpublished manuscript). Whidbey Island, WA: Naval Air Station, Whidbey Island, Organizational Effectiveness Center.
- Massell, A. P. (1976, February). *Reservation wages and military reenlistments*. Springfield, VA: Distributed by National Technical Information Service, U.S. Department of Commerce. (AD-A026 652)
- *Matthews, W. T. Quality of Marine test scores, personal data, and performance.(1977). In Sinai-ko, H. W. (Ed.), *First term enlisted attrition*, pp. 419-474. Washington, DC: Smithsonian Institution.
- May, R. V., Jr. (1963, August). *Results of survey to identify factors affecting reenlistment* (Rep. No. 217). San Diego: U.S. Naval Personnel Research Activity.
- McCall, J., & Wallace, N. (1969). A supply function of first-term reenlistees to the Air Force. *The Journal of Human Resources*, IV, 3, 293-310.
- McCombs, B. L., Doll, R. E., Baltzley, D. R., & Kennedy, R. S. (1986, December). *Predictive validities of primary-motivation scales for reenlistment decision-making* (EOTR 87-1). Denver: Denver Research Institute.

- McCubbin, H., Dahl, B. B., & Hunter, E. J. (Eds.). (1976). *Families in the military system*. Beverly Hills: Sage Publications.
- Mobley, W. H., Hand, H. H., Baker, R. L., & Meglino, B. M. (1978, February). *An analysis of recruit training attrition in the U.S. Marine Corps* (USC Tech. Rep. No. 5). Columbia, SC: University of South Carolina, Center for Management and Organizational Research
- Mobley, W. H., Hand, H. H., & Logan, J. E. (1977). *A longitudinal study of enlisted personnel attrition in the U.S. Marine Corps: Preliminary recruit training results*. In Sinaiko, H. W. (Ed.), *First term enlisted attrition*, pp. 155-203. Washington, DC: Smithsonian Institution.
- Mohr, D. A., Holzbach, R. L., & Morrison, R. F. (1981). *Surface warfare junior officer retention: Spouses' influence on career decisions* (TR-81-17). San Diego: Naval Personnel Research and Development Command.
- *Motowidlo, S. J., & Lawton, G. W. (1984). Affective and cognitive factors in soldiers' reenlistment decisions. *Journal of Applied Psychology*, 69, 157-166.
- Muldrow, T. W. (1970, July). DK's, IM's, PN's, and YN's perceptions of conditions of naval service, satisfaction with rating, duty assignment, and training (WSR 71-2). Washington, DC: Naval Personnel Research and Development Laboratory.
- Nealy, S. M. (1972, May). *Importance of job factors to Navy personnel* (Contract N00014-67-A-0229-0011). Fort Collins, CO: Colorado State University.
- Nelson, G. R. (1970, June). *An economic analysis of first-term reenlistments in the Army*. Arlington, VA: Institute for Defense Analyses. (AD-A711 609)
- Nelson, P. D., & Berry, N. H. (1966, May). *Attitudes of Marines during first enlistment* (Tech. Rep. No. 66-21). San Diego: U.S. Navy Medical Neuropsychiatric Research Unit.
- Neumann, I., & Abrahams, N. M. (1972, August). *The Strong Vocational Interest Blank as a predictor of retention in the NOAA Officer Corps* (Res. Rep. SRR 73-5). San Diego: Naval Personnel and Training Research Laboratory.
- Oganesoff, B. J. (1982, May). Women in the military: Part III, Women, the mission, and combat: The difficult question. *Government Executive*, 14(5), 50-56.
- Orthner, D. K., & Bowen, G. L. (1982). *Families in blue: Insights from Air Force families in the Pacific*. Greensboro, NC: Family Development Press.
- Orthner, D. K., & Pittman, J. F. (1984, October). *Family contributions to work commitment*. Paper presented at the annual meeting of the National Council on Family Relations, San Francisco, CA.
- Owen, A. G. (1969). Job satisfaction and re-engagement among Australia's regular Army soldiers. *Australian Journal of Psychology*, 21, 137-144.

- Perry, W. D. (1977, October). *First-term reenlistment intentions of avionics technicians: A quantitative analysis* (R-2152-ARPA). Santa Monica, CA: The Rand Corporation.
- Plag, J. A. (1969). *Predicting the military effectiveness of enlistees in the U.S. Navy* (TR 69-23). San Diego: Navy Medical Neuropsychiatric Research Unit. (AD-A700 875)
- Plag, J. A., Goffman, J. M., & Phelan, J. D. (1970, December). *Predicting the effectiveness of new mental standards enlistees in the U.S. Marine Corps* (TR 71-42). San Diego: Navy Medical Neuropsychiatric Research Unit.
- Quigley, J. M., & Wilbur, R. C. (1969). *An economic analysis of first term reenlistment in the Air Force* (Personnel Analysis Project Report No. 69-017). Washington, DC: Personnel Research and Analysis Division, Directorate of Personnel Planning, Headquarters, U.S. Air Force.
- Rakoff, S. H., Adelman, L., & Mandel, J. S. (1987, December). *A quantitative model of the considerations determining enlistment and reenlistment behavior* (TR 773). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Famsey, G. (1974, December). *Retention of military personnel: Significant findings and recommendations for further effort* (Unpublished manuscript). San Diego: Navy Personnel Research and Development Center.
- Report of the President's Commission on Military Compensation*. (1978, April). Washington, DC: U.S. Government Printing Office.
- Royle, M. H., & Robertson, D. W. (1980, December). *Job satisfaction measures as predictors of retention for Navy enlisted personnel* (TR-81-2). San Diego: Navy Personnel Research and Development Center.
- Sands, W. A. (1978). Enlisted personnel selection for the U.S. Navy. *Personnel Psychology*, 31, 63-70.
- Sands, W. A. (1977, June). *Screening male applicants for Navy enlistment* (NPRDC-TR-77-34). San Diego: Navy Personnel Research and Development Center.
- Schneider, J. (1973, May). *Prince: Personnel reactions to Incentives, naval conditions, and experiences: A longitudinal research study. Report No. 4: The Grass is Greener: A comparison of the Navy work environment with a major alternative* (TR 73-28). Washington, DC: Naval Personnel Research and Development Laboratory. (AD-A761 612)
- Sinaiko, H. W., Chatelier, P. R., Cook, C. A., Hosek, J. R., & Sicilia, G. T. (Eds.). (1981, October). *Military personnel attrition and retention: Research in progress* (Tech. Rep. 10). Arlington, VA: Office of Naval Research, Manpower Research and Development Program.
- *Singer, A., & Morton, A. S. (1969). A study of enlisted Navy retention. *Personnel Psychology*, 22, 19-31.

- *Smith, A., Jr. (1988, June). *A multivariate analysis of determinants of reenlistment: A decision-making model for enlisted personnel* (TR 797). Alexandria, VA: Research Institute for the Behavioral and Social Sciences.
- Stephan, R. A. (1971). *The effects of shipboard living conditions on first-term retention rates, and a model for the allocation of funds among habitability improvements* (Contribution No. 194). Arlington, VA: Center for Naval Analyses, Institute of Naval Studies Research.
- Sterling, B., & Allen, J. (1983, July). *Relationships among organizational attitudes, work environment, satisfaction with human resource programs and benefits, and Army career intentions* (TR 572). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Striffler, P. (1982, December). *The effects of dual career households and family responsibilities on surface warfare officer's career intent* (Masters Thesis). Submitted to the Naval Postgraduate School, Monterey, CA.
- Stoloff, P. H. (1971). *An exploratory study of job satisfaction, retention, and performance of Navy enlisted men* (Res. Contribution 177). Arlington, VA: Center for Naval Analysis, Institute of Naval Studies.
- Stoloff, P. H., Lockman, R. F., Allbritton, A. S., & McKinley, H. H. (1972). *An analysis of first-term intentions* (Research contribution 232). Arlington, VA: Center for Naval Analyses, Institute of Naval Studies.
- Stolzenberg, R. M., & Winkler, J. D. (1983, May). *Voluntary terminations from military service* (R-3211-MIL). Santa Monica, CA: The Rand Corporation.
- Szoc, R. (1982, November). *Family factors critical to the retention of Navy personnel: Final report* (NMPC-66). USN-Personnel Research and Development Center.
- Teplitzky, M. L., Hedlund, M., & Nogami, G. (1987, June). *Case studies of officer and enlisted single parents in the Army: Performance, retention, and quality of life* (TR 749). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Vernez, G., & Zellman, G. L. (1987, August). *Families and mission: A review of the effects of family factors on Army attrition, retention, and readiness* (N-2624-A). Santa Monica, CA: The Rand Corporation
- Wall Street Journal*, Who gives up 8% mortgages? Many do if terms are right, 18 August 1982, p. 27.
- Warner, J. T. (1981, December). *Issues in Navy manpower research and policy: An economist's perspective* (Professional Paper (CNA) 322). Alexandria, VA: Center for Naval Analyses.
- Warner, J. T., & Simon, B. (1979, December). *An empirical analysis of pay and Navy enlisted retention in the AVF: Preliminary results*. (Memorandum (CNA) 79-1878). Alexandria, VA: Center for Naval Analyses.

- Warner, J. T., & Simon, B. (1979d, December). *An empirical analysis of pay and Navy enlisted retention in the AVF: Preliminary results* (Memorandum CNA 79-1878). Alexandria, VA: Center for Naval Analyses.
- Warner, J. T. (1979a, July). *Models of retention behavior* (Working Paper CNA 79-1139). Alexandria, VA: Center for Naval Analyses.
- Warner, J. T. (1979c, September). *Alternative military retirement systems: Their effects on enlisted retention*. Alexandria, VA: Center for Naval Analyses.
- *Watson, T., & Appel, V. (1986). *Implications of the results of recent turnover research for Air Force policy* (AFHRL Tech. Rep. 86-5). Brooks Air Force Base, TX: Manpower and Personnel Division, Air Force Human Resources Laboratory.
- Wilcove, G. L. (1973, June). *Need satisfaction among junior enlisted men and junior officers* (WSR 73-3). Washington, DC: Naval Personnel Research and Development Laboratory.
- Wilcove, G. I. (1971, December). *Enlisted men's and officers' opinions of recent policy changes implemented through Z-grams* (WSR 72-5). Washington, DC: Naval Personnel Research and Development Laboratory.
- Wilcove, G. L., Thomas, P. J., & Blankenship, C. (1979, September). *The use of preenlistment variables to predict the attrition of Navy female enlistees* (NPRDC-SR-79-25). San Diego: Navy Personnel Research and Development Center.
- Woelfel, J. C. (1976, September). *The effects of selected Army experiences on marital satisfaction, job satisfaction, and intention to remain in the Army*. Paper presented at the meeting of the American Psychological Association, Washington, DC.
- Wood, R. F. (1988, October). *A study of naval aviator retention factors and turnover in naval aviation squadrons under the command of commander, light attack wing, U.S. Pacific Fleet, Naval Air Station, Lemoore, CA* (Masters Thesis). Submitted to the University of San Francisco.
- Yellen, T. M. I. (1975, August). *Validation of the delinquent behavior inventory as a predictor of basic training attrition* (NPRDC-TR-76-3). San Diego: Navy Personnel Research and Development Center.

APPENDIX B

EXAMPLES FROM ANNOTATED BIBLIOGRAPHY

**Aileen M. Conroy
Reginald A. Bruce**

EXAMPLES FROM ANNOTATED BIBLIOGRAPHY

Problem

While there has been a plethora of research in the areas of employee retention and turnover, there are few detailed compilations of research findings. This situation has resulted in researchers continually having to repeat the literature search and review process.

Purpose

The purpose of this effort was to provide researchers, policy makers, and others interested in human resources management with a readily accessible listing of references on retention and turnover research. The bibliography focuses on both civilian and military research.

Approach

References for the bibliography were identified through: (1) the authors' knowledge regarding retention research, (2) computerized literature searches using the Lockheed DIALOG retrieval system, (3) the Manpower and Training Research Information System (MATRIS), and (4) contacts with other research organizations regarding their work in this arena.

Results

A few examples from the annotated bibliography are presented in this appendix. The entire bibliography is contained on diskettes, which also contain the references grouped by: (1) intent, (2) satisfaction, (3) commitment, (4) leadership, (5) performance, (6) compensation, (7) biodemographics, and (8) family issues. The diskettes are available upon request.

Catalog No.: 2500006
Last Update: 89/07/17 09:39
Year: 1984
Authors: Abelson, M. A., & Baysinger, B. D.
Title: Optimal and dysfunctional turnover: Toward an organizational level model
Publ. Details: *Academy of Management Review*, 9(2), 331-341
Identifiers: dysfunctional turnover, personal characteristics, organizational climate, extra organizational factors, cost analysis
Comments: Dysfunctional turnover is defined here as the level that produces a divergence between the organization's optimal balance of costs associated with turnover and the costs associated with retaining employees. Under this approach, the optimal level of aggregate turnover for most organizations will be (1) greater than zero and (2) variable across organizations contingent on particular factors influencing retention costs and quit propensities. The model presented posits that individual, organizational, and environmental attributes influence individual quit propensities of employees and, hence, expected turnover rates for the organization.

Catalog No.: 4400006
Last Update: 89/06/29 11:13
Year: 1979
Authors: Advanced Research Resources Organization
Title: Voluntary separation for attrition management
Publ. Details: (ARRO-3022-FR) Washington, DC: Advanced Research Resources Organization
Identifiers: military, enlisted, Navy, voluntary turnover
Comments: An innovative program of attrition management through an early voluntary release option has been instituted on a trial basis for Navy enlisted personnel. An evaluation of the effectiveness of this program is required in order to assess whether or not attrition rates and attitude toward the Navy is affected. A comprehensive structured interview was conducted with 234 enlisted personnel who previously had been in the Voluntary Release Program or in a matched control group not having the option to leave. Comparisons between groups were made in terms of propensity toward attrition and perceptions of Navy life. The propensity toward attrition was much lower for the voluntary release group than for the control group. The voluntary release group also showed more favorable attitudes toward the Navy than did the control group. The Voluntary Release Pilot Program exerted a beneficial impact upon its participants in the middle and later stages of their first enlistment and merits further study as a means of effective attrition management.

Catalog No.: 4300001
Last Update: 89/07/13 08:44
Year: 1983
Authors: Air Command and Staff College
Title: Retention of USAF OB/GYN
Publ. Details: (AD-A194 893) Alexandria, VA: Defense Logistics Agency
Identifiers: medical personnel, Air Force, military, physicians, OB/GYN
Comments: Recent reports show that the manning shortfalls, of several USAF hospitals, are now establishing very costly local contracts for OB/GYN services. The report examines the factors that have caused the OB/GYN retention problem. It then uses these factors, along with other elements of the health care process, to recommend solutions to the retention problem. These solutions will be superior to the current practices of setting up expensive local contracts for OB/GYN services.

Catalog No.: 4400001
Last Update: 89/07/18 14:07
Year: 1975
Authors: Alley, W. E., & Gould, R. B.
Title: Feasibility of estimating personnel turnover from survey data: A longitudinal study
Publ. Details: (AFHRL-TR-75054). Brooks Air Force Base, Texas: Air Force Human Resources Laboratory
Identifiers: military, Air Force, enlisted, gender, male, intent, aptitude, employee attitude, tenure, career decisions, years of service
Comments: The problems associated with excessive personnel turnover are costly in terms of the time and money necessary to train replacements and occasionally in the loss of organizational effectiveness. In the Air Force, turnover in first-term enlisted personnel is typically between 75 and 80 percent and, while the overall occupational structure is designed to operate within these constraints, periodic shortages occur in certain career specialties while in others, overages are more commonplace. Responses from more than 50,000 Air Force enlisted personnel surveyed as part of Occupational Research Program (Christal, 1974) were selected for analysis. Data used were from surveys conducted during the period from September 1955 to November 1971. Respondents, who ranged in age from 17 to 25 years, were predominantly male and were serving in their first 4-year enlistment term at the time of the survey. In the questionnaire, respondents were asked to indicate whether or not they intended to reenlist at the end of their current obligated service commitment. They were also rated on their present job in terms of the interest and perceived utilization training and talent associated with it. Frequency and percentage distributions characterizing item responses and career decisions of the sample are given. Relationships between career intent/job attitude responses and actual reenlistment decisions were studied using multiple linear regression techniques. Job attitudes were found to be substantially related to career decisions but did not provide unique contributions to predictions of career decisions when used in conjunction with career intent statements. A model-seeking exercise identified a second-degree polynomial model with career intent and time-in-service interaction vectors as the most appropriate prediction.

APPENDIX C
REFEREE BIBLIOGRAPHIC DATABASE MANAGER

REFEREE BIBLIOGRAPHIC DATABASE MANAGER

Use on a Zenith 248 Personal Computer

The format for the following instructions is as follows:

- Any actions you must take will be numbered in the order you must perform them.
- All commands you must enter will be shown in **bold type**.
- The computer's responses and any explanations will be typed in regular print.

To install REFEREE database (See enclosure 1 at the end of this appendix.)

1. Turn on the computer

C:\>

2. Insert diskette labeled "Batch File" (blue label) into "A" drive.

3. Type **A:**

strike **enter**

Your prompt will change to the "A" prompt

A:\>

4. Type **Install**

strike **enter**

- This will invoke the batch file, which will create a new directory named "Referee."
- From this point on, the computer will prompt you through the installation process.
- It will instruct you to insert (in numerical order) volume numbers 1-5 of the green labeled Referee/Retention floppies.
- When the installation process is complete, the following message will appear:

Insert disk with batch file and press any key when ready.

5. Reinsert "Batch file" diskette

strike **enter**

- The following DOS prompt will appear:

C:\REFEREE>

6. Type **referee**

strike **enter**

- The referee banner will flash by and the database screen will appear.

Enter name of main database: RETENTN

If you do not completely remove the retention database and the referee directory from your computer before turning it off, returning to the database is a simple process.

1. Turn on the computer.

C:\> (remain at the C:\> prompt)

2. Type **cd referee**

strike **enter**

This will put you into the referee directory, your prompt will change to

C:\REFEREE>

3. Type **referee**

strike **enter**

The database screen SHOULD appear.

ENTER RETENTN IN HIGHLIGHTED AREA.

To completely eradicate the Retention database and the Referee directly from your computer, follow these instructions.

Enter the Referee program using either the installation process or the process outlined for reinvoking the software.

1. Select **F7 UTILITIES** from the main menu.

Select **F2 REMOVE** from the utilities menu.

The computer will beep at you and flash a warning and prompt you to press y (for yes) if you wish to delete the retention database.

2. strike **Y**

Referee will respond that the database has been removed--strike any key.

3. strike **esc** (twice)

The computer will return you to the DOS prompt

C:\REFEREE>

4. Type **cd**

strike **enter**

Your prompt will change to

C:\>

5. Type **rd referee**

strike **enter**

It's gone! If you'd like to check, you can type **cd referee** and the computer should respond with a message telling you the directory is invalid.

EPA/600/8-87/052a
October 1987

REFEREE

Bibliographic Database Manager

by

Slate Raymond
Northrop Services, Inc — Environmental Sciences

Contract No. 68-02-4198

Project Officer
F. Vandiver Bradow
Technical Services Section
Environmental Criteria and Assessment Office
Research Triangle Park, NC 27711

U S ENVIRONMENTAL PROTECTION AGENCY
Office of Research and Development
Office of Health and Environmental Assessment
Environmental Criteria and Assessment Office
Research Triangle Park, North Carolina 27711

nclosure 1

TECHNICAL REPORT DATA		
<i>(Please read instructions on the reverse before completing)</i>		
REPORT NO. EPA/SW/DK-88/04/a EPA/600/8-87/052a	PB89-200787	
TITLE AND SUBTITLE REFEREE: Bibliographic Database Manager Documentation	7. REPORT DATE October 1987	8. PERFORMING ORGANIZATION CODE
AUTHOR(S) Slaté Raymond	9. PERFORMING ORGANIZATION REPORT NO.	
PERFORMING ORGANIZATION NAME AND ADDRESS Northrop Services, Inc.--Environmental Sciences P.O. Box 12313 Research Triangle Park, NC 27709	10. PROGRAM ELEMENT NO.	11. CONTRACT/GRANT NO. 68-02-4198
12. SPONSORING AGENCY NAME AND ADDRESS Environmental Criteria and Assessment Office Office of Health and Environmental Assessment U.S. Environmental Protection Agency Research Triangle Park, NC 27711	13. TYPE OF REPORT AND PERIOD COVERED	
	14. SPONSORING AGENCY CODE EPA-600/23	
15. SUPPLEMENTARY NOTES For Diskette, see: PB88-200779.		
16. ABSTRACT This publication is the user's manual for 3.xx releases of REFEREE, a general-purpose bibliographic database management program for IBM-compatible microcomputers. The REFEREE software also is available from NTIS. The manual has two main sections-- <u>Quick Tour</u> and <u>References Guide</u> --and a glossary, three appendixes, and an index. <u>Quick Tour</u> provides information sufficient to enable a new user to install and experiment with the program. <u>Reference Guide</u> provides detailed information about REFEREE databases, records, and fields; the primary command available to the user; and the most common sources of unexpected program behavior.		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS-OPEN ENDED TERMS	c. COSATI Field Group
18. DISTRIBUTION STATEMENT RELEASE TO PUBLIC	19. SECURITY CLASS (This Report) UNCLASSIFIED	21. NO OF PAGES 61
	20. SECURITY CLASS (This paper) UNCLASSIFIED	22. PRICE

EPA Form 2226-1 (Rev. 4-77)

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
SPRINGFIELD, VA 22101

TABLE OF CONTENTS

SECTION	PAGE
Quick Tour	
What's in This Manual	1
What REFEREE Can Do	1
What You Need	2
Installing REFEREE	3
Running REFEREE	4
Routine Operations	6
Questions and Answers	8
Reference Guide	
Fundamentals	11
Commands on the Main Menu	
F1 BROWSE	17
F2 SEARCH	19
F3 EDIT	25
F4 SORT	27
F5 LIST	29
F6 TRANSFER	35
F7 UTILITIES	37
F8 SYSTEM	39
Commands on the Utilities Menu	
F1 PACK	41
F2 REMOVE	43
F3 REINDEX	45
F4 CONFIG	47
Basic Troubleshooting	49

TABLE OF CONTENTS

SECTION	PAGE
Glossary	53
Appendix A - ASCII Characters Used in REFEREE Databases ...	57
Appendix B - Converting REFEREE 2.X Databases to 3.X Format	59
Appendix C - Uploading REFEREE Data to an IBM 5520 Office Automation System	61
Index	63

APPENDIX D

IDENTIFIERS NEEDED FOR COMPUTERIZED ANNOTATED BIBLIOGRAPHY

Aileen M. Conroy

IDENTIFIERS NEEDED FOR COMPUTERIZED ANNOTATED BIBLIOGRAPHY

ability

absenteeism

ACB-61 (Army Classification Battery)

accountants

active duty

administrative personnel

affect

affective orientation

affective/cognitive

AFQT (Armed Forces Qualification Test)

age

Air Force (USAF)

alternative employment

American/Japanese turnover rates

anonymous questionnaires

anonymous/signed questionnaires

anxiety

aptitude

Armed Forces Qualification Test (AFQT)

Armed Services Vocational Aptitude Battery (ASVAB)

Army

Army Classification Battery (ACB-61)

assembly workers

ASVAB (Armed Services Vocational Aptitude Battery)

attitude/behavior
attitudes
attitudes/attributions
attributes
attributions
attributions/attitudes
authoritarianism
autonomy
bank tellers
banking personnel
battalion commander
behavior
behavior/attitude
behavior/economic model
behavior/intent
behavioral intentions model
benefits
biodemographics
blue collar workers
bonuses
burnout (use stress)
business personnel
cadets
career advancement (use promotions)
career aspirations

career counseling (use counseling)
career decisions
career development
career facilitation
career history
career intentions (use intent)
career level
career mobility (use mobility)
career opportunities
career path
career planning (use career decisions)
career satisfaction (use satisfaction)
Cattel's Sixteen Personality Factor Questionnaire
central life interest
children (use dependents)
civil service personnel
civilian
civilian job market
clerical personnel
co-worker relations
cognition
cognitive orientation
cognitive/affective
commitment
command tour

command tour length
commercial airline personnel
commercial airlines
communication
communication networks
communication systems (use communication networks)
comparative referents
compensation
compliance
content/process model
contractors
cost analysis
counseling
co-worker relations
creativity
credit union personnel
dependents/number of and ages of
desertion
dieticians
direct questionnaires
direct/indirect questionnaires
draft
dual career (households)
duty assignment
economic factors

economic model
economic/behavior model
education
educational level (use education)
efficiency (use performance)
ego-defensive biases
egocentric biases
employee attitudes
employee attributes
employee characteristics (use personal characteristics)
employee expectations (use expectations)
employee participation (use employee voice)
employee voice
employment applications
employment history--civilian (x-ref: service history)
End of Recruit Training Questionnaire
engineers
enlistment
enlisted
entrepreneurs
equity theory
exit interviews
expectations
experience level
external factors

extrinsic factors
extrinsic motivation
factory workers (use industrial personnel)
family
family relations (use family)
family responsibilities (use family)
feedback
female
financial impact (use cost analysis)
Fishbein's model
food service personnel (fast food restaurants)
formal education (use education)
gender
gender/female
gender/male
geographical location
goal setting
government personnel
group behavior (use group characteristics)
group characteristics
group cohesion
group performance
group size
health care personnel
Herzberg's dual factor theory

hospital personnel
housing
identification
identification
incentive programs
income
indirect questionnaires
indirect/direct questionnaires
industrial personnel
inefficiency (use performance)
innovation
insurance agents
insurance personnel
intent
intent to leave (use intent)
intent to look for a new job (use intent)
intent to quit (use intent)
intent to transfer (use intent)
intent/behavior
internal factors
internalization
intrinsic factors
intrinsic motivations
investment
involuntary turnover

Involvement Questionnaire

Japanese/American turnover rates

job attributes (use job characteristics)

job characteristics

job classification

job commitment (use commitment)

job complexity

job content (use job characteristics)

job enrichment (use job characteristics)

job facets (use job characteristics)

job market

job opportunities (use alternative employment or labor market)

job preference

job satisfaction (use satisfaction)

job scope

job security

job skills

job stability (use job security)

job stress (use stress)

job tension (use stress)

job title

labor grievances (use employee voice)

labor market

labor mobility (use mobility)

leadership

leadership behavior
leadership characteristics
leadership characteristics "Consideration"
leadership characteristics "Structure"
lifetime commitment model
locus of control
logit model
male
management personnel
manufacturing personnel
Marine Corps
Marines
marital status
marital support (use spousal support)
marketing personnel (professionals only--use sales for retail)
MCOG (Military Career Commitment Gradient)
Medical Corps
medical personnel
mental health personnel
meta-analysis
methodological artifacts
military
Military Career Commitment Gradient (MCOG)
mobility
Moblely's model

models

morale (military)

motivation

Muchinsky's model

National Guard

naval flight officers (NFOs)

Naval Recruit Questionnaire

Navy

new hires (use recent hires)

NFOs (naval flight officers) (military)

non-union

nurses

nursing aides

nursing students

OAI (Occupational Attitude Inventory)

occupation (as a biodemographic variable)

Occupational Attitude Inventory (OAI)

Occupational Commitment Questionnaire (OCQ)

occupational level (use seniority or status)

occupational mobility (use mobility)

occupational specialty--military (x-ref: job title or occupation)

OCI (Organizational Change Inventory)

OCQ (Occupational Commitment Questionnaire)

officer accession programs

officers

oil refinery workers
Omnibus Personality Inventory
optical services personnel
Organizational Change Inventory (OCI)
organizational characteristics
organizational climate
organizational commitment
organizational commitment model
organizational environment (use organizational characteristics)
organizational level (use seniority or status)
organizational ability (use mobility)
organizational size
organizational structure
organizational systems
part-time employees
pay
pay grade--military (i.e., 0-1, 0-2, . . .)
pay increases
peer counseling (use counseling)
perceived alternate employment (use alternative employment)
perceived alternative employment (use alternative employment)
performance
personnel characteristics
petty officers
pharmaceutical personnel

physicians
pilots
Porter's model
post termination interviews
potential
power
pre-employment expectations (use expectations)
pre-selection
preference
Price's model
process models
productivity
professionals
proficiency
promotion
prosocial behavior
psychiatric technicians
psychological attachment
push/pull models
quality of life
quality of service
quality of worklife
questionnaires
race
rank (applies to officers only--see rate for enlisted men)

rate (enlisted men's status level)
realistic job preview
reassignment
recent hires
recruit
recruit training (use recruit or training)
recruit training site
recruiting
reference group
relocation
research and development personnel
reserve duty
Reserves residence (location)
residence/housing
restaurant personnel
retail
retired
retired/employed
retirement
rewards RJP (see realistic job previews)
role
role adjustment (use role)
role clarity (use role)
role conflict (use role)
role integration (use role)

role interaction (use role)
role orientation (use role)
routinization
salary (use pay)
sales personnel
satisfaction
sea duty
selection utility models
self-employed
seniority
service commitment
service history-military (x-ref: employment history)
shift schedules
signed questionnaires
signed/anonymous questionnaires
skill level
social support (use co-worker relations)
social work personnel
socioeconomic status
spousal support
status (organizational level)
stress
Strong Vocational Interest Blank (SVIB)
students
subordinate morale

subordinate/superior relationship

superior/subordinate relationship

Supervisory Behavior Description Questionnaire

support programs

SVIB (Strong Vocational Interest Blank)

tardiness

task identity

task interdependence

task structure

teachers

technical workers

technicians

telephone company personnel

temporal factors

temporary personnel

tenure

termination (involuntary turnover)

time employees

total life stress (use stress)

trainees

training

transfer

turnover costs (use cost analysis)

turnover frequency

turnover functionality

two career households (use dual career)

U.S. Military Academy

unemployment rates

union

university employees

unrestricted line officers

USAF (Air Force)

visa status

vocational interests

voluntary enlistment

voluntary turnover

volunteers

wages (use pay)

white collar workers

wholesale

withdrawal

withdrawal behavior

withdrawal cognitions

Wonderlic Personnel Test (WPT)

work environment

work groups

working conditions

workspace characteristics

WPT (Wonderlic Personnel Test)

years of service

DISTRIBUTION LIST

Distribution:

Office of Chief of Naval Research (ONT-20), (ONT-222)
Director, Office of Naval Research (OCNR-10)
Defense Technical Information Center (2)

Copy to:

Deputy Chief of Naval Operations (PERS-23D2)
• Deputy Assistant Secretary of the Navy (Manpower)
Assistant for Planning and Technical Development (PERS-01JJ)
• Commander, Headquarters Lackland Air Force Base, TX (AFMTC/XR)
Superintendent, Naval Postgraduate School