

Research Note 84-88

AVIATION WARRANT OFFICER RETENTION:
A SUMMARY OF PAST, PRESENT, AND PROJECTED RESEARCH
BY THE ARMY RESEARCH INSTITUTE

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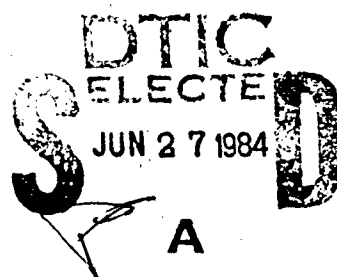
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INTRODUCTION

Since 1974, the Army Research Institute (ARI) Field Unit at Fort Rucker, Alabama has had within its purview the requirement to: (a) provide training research, human resources research, and technical advisory support to Army aviation worldwide through direct participation with the United States Army Aviation Center (USAAVNC); (b) execute an advanced development research program in support of Army aviation; and (c) develop a technology-based research program to provide future benefits to Army aviation (Everhart & Sanders, 1981). To meet these requirements, the Fort Rucker Field Unit conducts research in the areas of aviation training, aviation systems, and aviation personnel.

In 1979, as a part of its aviation personnel research, ARI initiated an ongoing program of research on retention of aviation warrant officers (AWOs). The retention research is sponsored by Warrant Officer Division, United States Army Military Personnel Center (MILPERCEN).¹

ARI's initial research consisted of a worldwide survey of Army aviators.² The survey was designed to identify the factors that

¹ MILPERCEN operates under the Deputy Chief of Staff for Personnel (DCSPER), Department of the Army (DA).

² In 1966, the Human Resources Research Organization (HumRRO) conducted an extensive survey that yielded information about AWO retention (Boyd & Boyles, 1968; 1969). However, since the survey was conducted during the Vietnam conflict, ARI personnel judged that the findings could not be extrapolated to current peacetime conditions.

contributed to a high rate of AWO attrition in Fiscal Year (FY) 1979. The factors identified by the survey subsequently became the focus of a series of initiatives designed by MILPERCEN to enhance retention of AWOs.

Under the continued sponsorship of MILPERCEN, ARI currently is developing a separation questionnaire that will be completed by all AWOs who leave the Army. The questionnaire will provide a mechanism for obtaining current information about the number and types of AWOs who leave the Army and the factors that influence the AWOs' decisions to attrite. The information will be used to implement and maintain a continuous information feedback system that will enable MILPERCEN to monitor retention of AWOs.

While the separation questionnaire is designed to obtain information about AWOs who leave the Army, a complete retention program also requires information about the AWOs who choose to remain in the Army. To meet the Army's need for this additional information, ARI has designed the separation questionnaire so that it can easily be adapted for use in obtaining information from AWO retainees.

Projections for future retention research include development and implementation of methods for expanding the data base of information about aviator retention. The methods that are being considered emphasize expansion of the research program to include assessment of

commissioned officer aviators and assessment of aviators who remain in the Army.

Interaction with representatives of Army agencies concerned with personnel retention indicates that knowledge of ARI's retention research frequently is limited. This lack of knowledge is due, in part, to the absence of a single report that describes all facets of ARI's AWO retention research. Thus, the need exists for a comprehensive overview of ARI's AWO retention research program--past, present, and future. The present report meets this need by addressing the following major topics:

- MILPERCEN's request for ARI support in investigating AWO retention,
- AWO retention research completed to date by ARI,
- warrant officer retention initiatives emanating from ARI's research,
- current status of AWO retention,
- AWO retention research currently being conducted by ARI, and
- projections for future research on aviator retention.

REVIEW OF AWO RETENTION RESEARCH

MILPERCEN's REQUEST FOR ARI's INVESTIGATION OF AWO RETENTION

In October 1979, the Chief, Warrant Officer Division, MILPERCEN, requested that ARI provide research support to investigate an apparent trend toward increased attrition of AWOs. The request stemmed from in-house studies that showed a marked decline in second-tour retention of AWOs who completed flight training in FY 1976 and who were eligible to leave the Army in FY 1979. This section describes the state of events within Army aviation that prompted MILPERCEN to request ARI's assistance in identifying the factors that contribute to AWO attrition.

Table 1 shows the retention data that MILPERCEN provided ARI at the time of the request for research support. The data documented a significant decrease in retention of first-term AWOs. These AWOs were leaving the Army at the end of the three-year obligation incurred by attending the Army's Initial Entry Rotary Wing (IERW) flight training program. This career point represents the first opportunity for AWOs to separate from the Army following completion of flight training.³

³The initial obligation was changed from three to four years effective 1 October 1978.

Table 1
AWO Retention Rates

FLIGHT SCHOOL COMPLETION	PERCENT OF AWOs RETAINED AT END OF 1ST YEAR OF ACTIVE DUTY	PERCENT OF AWOs RETAINED AT END OF 2ND YEAR OF ACTIVE DUTY	PERCENT OF AWOs RETAINED AT END OF 3RD YEAR OF ACTIVE DUTY
FY 73	93.96	87.40	66.40
FY 74	99.45	96.20	60.16
FY 75	100.00	99.47	65.62
FY 76	99.61	96.52	45.17
FY 77T	98.37	91.05	47.15
FY 77	100.00	95.69	

Source: briefing presented to ARI by COL A. D. Bills, Chief, Warrant Officer Division, MILPERCEN,
October 1979.

Table 1 shows that for AWOs who completed training during the period FY 1973 through FY 1975, retention beyond initial obligation remained relatively stable at approximately 65 percent. However, for AWOs who completed training during FY 1976 and FY 1977⁴, retention rate at the same career point had declined to approximately 45 percent.

MILPERCEN was concerned that the increased rate of AWO separation might signal the onset of the aviator retention problem that already was troubling the other services. MILPERCEN also was concerned that a continued high rate of AWO attrition might seriously reduce the Army's aviation readiness and combat effectiveness. The problem was exacerbated by the following conditions (Everhart & Sanders, 1981):

- prominent role of AWOs in the operational aspects of Army aviation,
- increasing cost of aviator replacement,
- increasing aviator force structure requirements,
- limitations in the number of aviators that are programmed to be trained each year, and
- decrease in the size of the manpower pool from which aviator replacements are recruited.

⁴Beginning with FY 1977, the fiscal year was changed from 1 July through 30 June to 1 October through 30 September. FY 1977T represents the period 1 July 1976 through 30 September 1976 during which the transition to the new fiscal year concept occurred.

These conditions and their relevance to the AWO attrition problem that surfaced in FY 1979 are discussed in the following paragraphs.

Role of AWOs in Army Aviation

In FY 1979, AWOs comprised more than one-half of the Army's total active aviator authorizations and inventory. Table 2 shows the authorizations and inventory of both commissioned officer aviators and AWOs that MILPERCEN projected for the period FY 1981 through FY 1987. The projections of a deficit in AWO inventory during the out-years reflect the potential impact of a continued high rate of AWO attrition.

Full comprehension of the impact that a deficient AWO inventory may have on aviation readiness requires consideration of the primary responsibilities that AWOs assume within the units. The responsibilities encompass such key roles as pilot-in-command, standardization instructor pilot, instructor pilot, instrument flight examiner, aviation safety officer, and aviation maintenance technician.

Cost of Aviator Replacement

The cost of replacing an AWO who leaves the Army is derived from the cost of training a new aviator to a comparable level of proficiency. Table 3 shows the estimated costs of IERW training and additional on-the-job training required to maintain and refine flight proficiency during succeeding years of active duty.

Table 2
Aviator Authorization and Inventory Profile

AVIATION WARRANT OFFICERS				COMMISSIONED OFFICER AVIATORS ^a			
FISCAL YEAR	INVENTORY ^b	AUTHORIZATION ^c	DIFFERENCE	FISCAL YEAR	INVENTORY ^b	AUTHORIZATION ^c	DIFFERENCE
81	5409	6301	-892	81	4633	3789	+844
82	5520	6394	-874	82	4699	3944	+755
83	5731	6433	-702	83	4709	3919	+790
84	5856	6447	-591	84	4710	3915	+795
85	5883	6624	-741	85	4697	3915	+782
86	5926	6805	-879	86	4647	4033	+614
87	6028	6818	-790	87	4583	4033	+550

^aThe reported figures reflect the totals for both company grade and field grade commissioned officer aviators.

^bThe inventory figures indicate the personnel strength that is projected to be available to the Army each fiscal year.

^cThe authorization figures indicate the total number of personnel spaces that are projected to be authorized by the Personnel Structure and Composition System (PERSACS) for each fiscal year.

Source: Briefing presented to the Deputy Assistant Secretary of Defense for Military Personnel Policy by COL G. A. Morgan, Chief, Warrant Officer Division, MILPERCEN, December 1980.

Table 3
Estimated Cost of Training a UH-1 Aviator^a

YEARS OF ACTIVE DUTY AS AWO	COST OF IERW	CUMULATIVE COST ^b OF PROFICIENCY TRAINING	CUMULATIVE COST ^c OF ALL TRAINING
1	\$121,431	\$19,740	\$141,171
2	121,431	39,480	160,911
3	121,431	59,220	180,651
4	121,431	78,960	200,391
5	121,431	98,700	220,131

^aThe figures reflect proficiency training requirements and estimated training costs effective 1 October 1980.

^bThe estimated cost of proficiency training is based on the Aircrew Training Manual (ATM) minimum requirement of 84 flight hours per year for a Flight Activity Category (FAC) 1 aviator and an estimated flight cost of \$235 per hour.

^cThe figures do not include the additional \$21,065 estimated for the UH-1 Instructor Pilot (IP) course.

Source: Briefing presented to the Deputy Assistant Secretary of Defense for Military Personnel Policy by COL G. A. Morgan, Chief, Warrant Officer Division, MILPERCEN, December 1980.

As of 1 October 1980, a UH-1 pilot who left the Army at the end of his initial obligation represented a training investment of \$180,651. This value does not include an additional \$21,065 for the UH-1 Instructor Pilot (IP) course that many AWOs attend. The additional costs incurred for transition training and flight proficiency training in advanced aircraft make replacement of aviators who are qualified in aircraft other than the UH-1 even more costly. The problem of aviator replacement costs becomes an even more critical issue when the effects of spiraling inflation and increased training requirements are considered.

Aviation Requirements and Training Rates

Figure 1 depicts MILFERCEN's projections of AWO force structure authorizations and inventory for the period FY 1980 through FY 1986. The authorizations projections are based on FY 1979 PERSACS data; the inventory projections assume a continuation of the high rate of AWO attrition prevalent in FY 1979.

The curves reveal both an increasing need for AWOs and a continuing deficit in the AWO inventory. To compensate for the effect of the high rate of attrition on the projected inventory of AWOs, DA substantially increased the annual training output of AWOs in FY 1981. Since that time, DA has recognized that the increase would be insufficient to close the gap between projected needs and projected inventory, given a continuing high rate of attrition. Consequently, the projected annual training output of active Army

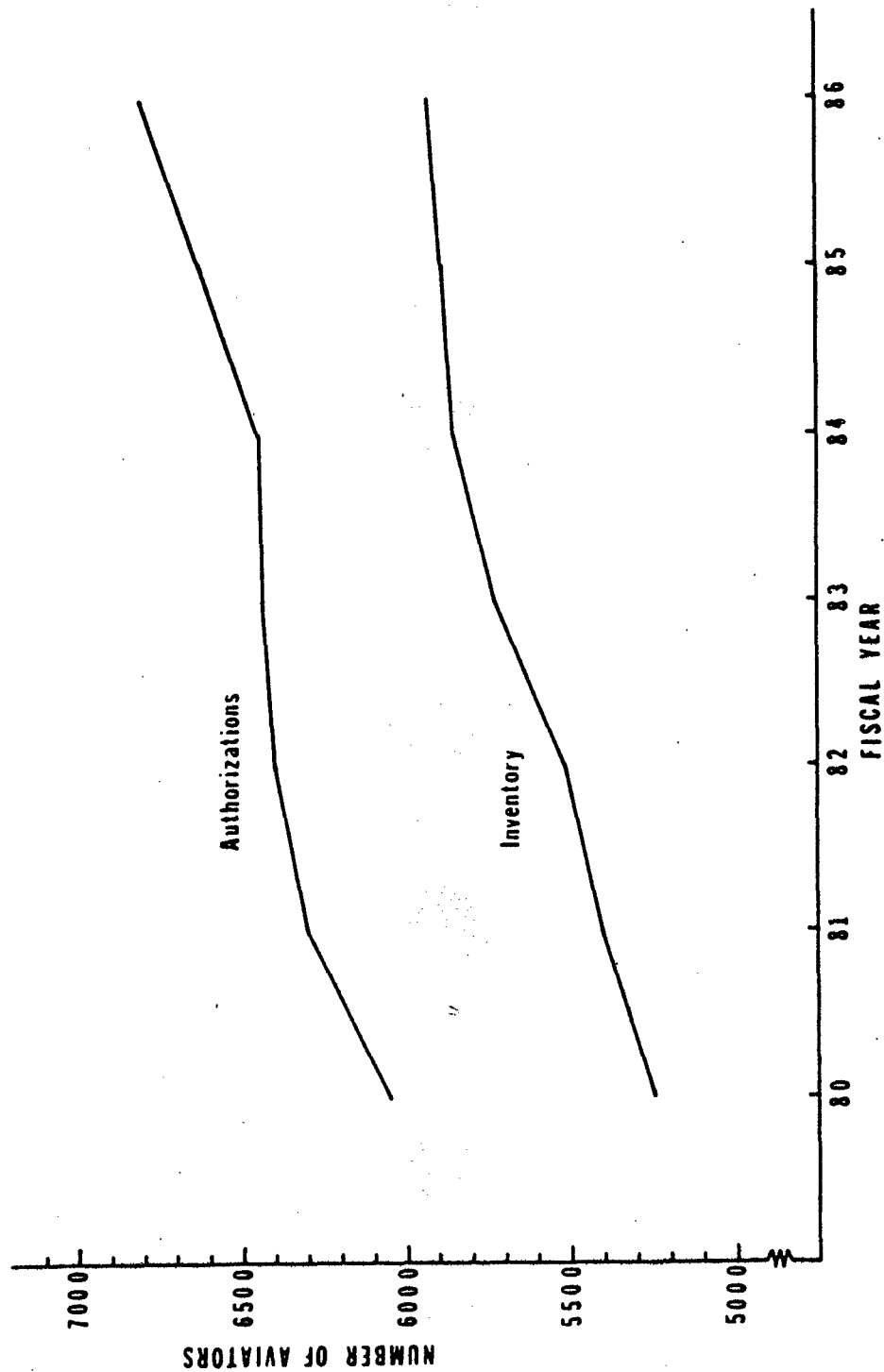


Figure 1. AWO force structure.

Source: Briefing presented to ARI by COL A. D. Bills, Chief, Warrant Officer Division, MILPERCEN, October 1979.

AWOs for FY 1983 has been raised to 868, with a further increase to 1000 per year in FY 1984. The actual number of AWOs in all categories who were trained each year from FY 1975 through FY 1982 is depicted in Figure 2.

Decrease in Size of Manpower Pool for Recruitment of Aviators

A downward trend in population size exists in the United States. The magnitude and persistence of this trend are of major importance to the Army in meeting its future personnel requirements. Although many AWOs are recruited from enlisted personnel, the positions which these individuals vacate also must be filled by new recruits from the civilian population.

A model for projecting Army enlistments in an all-volunteer force was developed by Fernando (cited in Lenz, Chen, Skerl, Newman, Anderson, & Warner, 1981). The model uses the non-prior service male population between 17 and 21 years of age as the basis for predicting Army accessions. Lenz et al. (1981) adapted the model to 1980 Census data to predict the size of the eligible population pool through 1990. Table 4 shows the estimated number of 17-21 year-old males qualified to be trained as Army helicopter pilots. The data reveal that, by 1985, the 17-21 year-old male population is projected to be only 89 percent of the 1980 pool. It is predicted that, by 1990, the population will decrease to 85 percent of the 1980 pool.

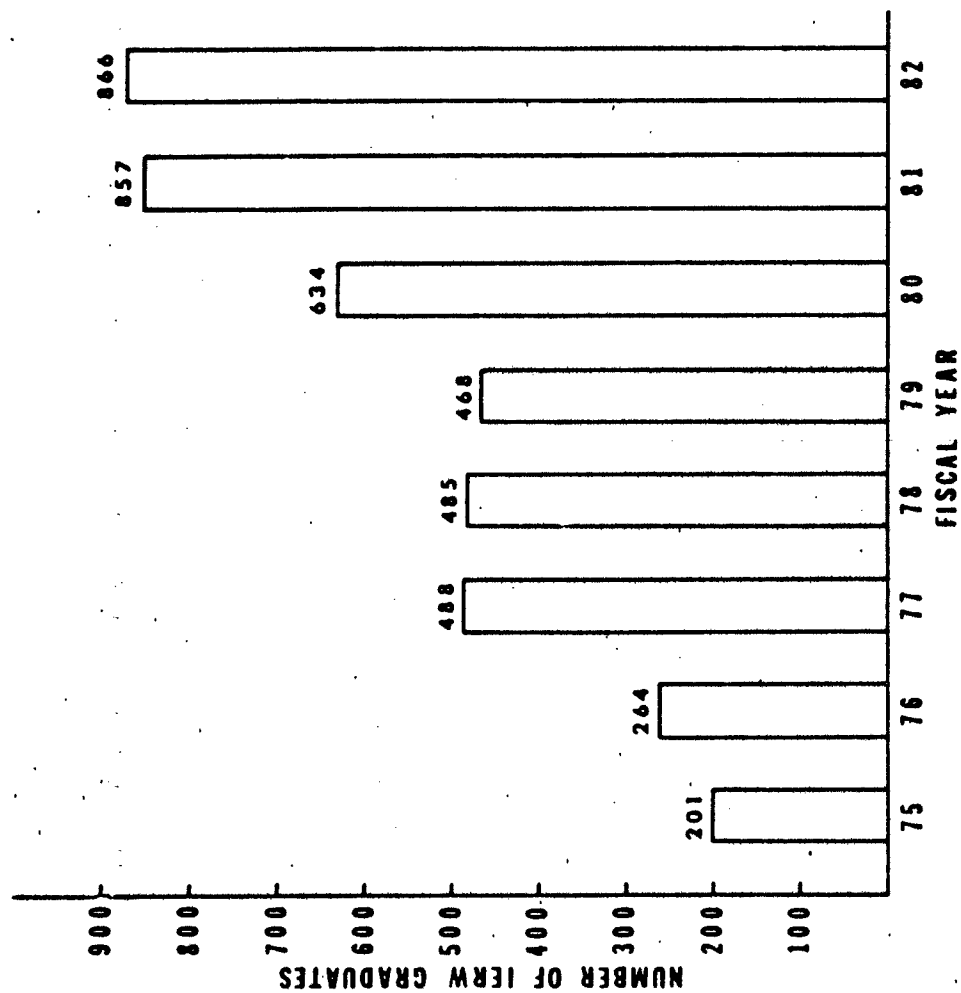


Figure 2. Number of AWO graduates from IERW flight training by fiscal year.

Source: Student Management Office, Operations Branch, Department of Flight Training, USAAVNC, Sep 1982.

Note. The training output figures include Active Army, National Guard, and Army Reserve AWOs.

Table 4
Estimation of the Number of Males, Aged 17-21 Years, Who Are Qualified
to be Trained as Army Helicopter Pilots

YEAR	POPULATION IN THOUSANDS						PERCENTAGE OF QUALIFIED POOL EXTRACTED AT TRAINING RATES U. 1000 PER YEAR		
	AGE					TOTAL 17-21		MENTAL CATEGORIES CAT. I & II 35%	PHYSICAL QUALIFICATION 81%
	17	18	19	20	21				
1980	2095	2080	2013	1960	1861	10009	3503	2837	.03525
1981	2064	2049	1975	1980	1845	9913	3470	2811	.03557
1982	1973	2019	1945	1943	1866	9746	3411	2763	.03619
1983	1871	1930	1917	1914	1879	9511	3329	2696	.03709
1984	1818	1829	1832	1887	1801	9167	3208	2598	.03849
1985	1782	1778	1738	1803	1776	8877	3107	2517	.03973
1986	1805	1743	1689	1711	1697	8645	3026	2451	.04080
1987	1850	1766	1656	1663	1610	8545	2991	2423	.04127
1988	1887	1810	1677	1630	1566	8570	3000	2430	.04115
1989	1731	1845	1719	1651	1535	8481	2968	2404	.04160
1990	1640	1692	1753	1691	1554	8330	2916	2362	.04234

Note. From "A Forecast of Army Aviation Training Research and Development Requirements for the Period 1985 to 2000, Vol I, II" by Lenz, R. C., Chen, K. L., Skerl, J. A., Newman, R. L., Anderson, L. A., & Warner, R. L., University of Dayton, August 1981. Prepared for the Army Research Institute Field Unit, Fort Rucker, Alabama, under contract MDA 903-80-C-0229.

The problem of declining accessions is exacerbated by two additional considerations: (a) an increase in aviation personnel requirements, and (b) an increase in competition for accessions. While the population pool for accessions is shrinking, the number of AWOs who must be trained is increasing (see Figures 1 and 2). Moreover, the abilities required to fly increasingly complex aircraft may further restrict the number of individuals in the population pool who meet the prerequisites for training. The Army is certain to encounter severe competition for eligible personnel from the other services and from private industries. This competition, in turn, will increase the cost of aviators, so that those organizations that pay less will procure fewer personnel or less qualified personnel (Lenz et al., 1981).

ARI's AWO RETENTION SURVEY

The conditions described above prompted MILPERCEN to request ARI's assistance in compiling data to aid in understanding and countering the factors associated with AWO attrition. In response to the request, ARI conducted a worldwide survey of Army aviators.

A questionnaire, constructed by ARI, was used to identify the demographic characteristics of AWO attritees and the factors that were influencing the AWOs' decisions to leave the Army. Input from the following major sources was used to design the content and format of the items that appeared on the final version of the questionnaire (Everhart & Sanders, 1981):

- reviews of contemporary research on aviator attrition,
- communications with Air Force and Navy retention representatives,
- feedback from preliminary in-house analyses, and
- input from the five Major Army Commands (MACOMs).

The following sections describe the survey respondents and the survey questionnaire.

Survey Respondents

Members of the ARI research team administered the questionnaire to approximately 900 AWOs and 300 commissioned officer aviators. Table 5 summarizes selected demographic data on the two groups of aviators. The survey respondents were located at the installations shown in Table 6. The installations were chosen because of their high concentration of aviators and their diversity of command, geographic location, and/or mission.

A number of criteria were used to select the individuals who participated in the survey. The AWOs were selected because (a) their social security numbers end in one of the digits 3, 6, or 8, or (b) they had given written or verbal notice to their chain of command that they intended to leave the Army. The commissioned officers who participated were selected because they were responsible for the supervision of AWOs at the time of the survey. The commissioned officers were aviation company commanders, aviation

Table 5
Selected Demographic Data on Survey Respondents

SAMPLE	CHARACTERISTIC	<u>n</u>	X	SD	RANGE
WARRANT OFFICERS	Age	853	31.23	5.61	20 - 49
	Total Years Active Military Service	854	10.65	5.37	1 - 29
	Total Months Enlisted Status	853	41.10	35.27	0 - 216
	Total Military Flight Hours	848	2097.13	1480.55	175 - 8,000
COMMISSIONED OFFICERS	Age	296	31.24	3.84	23 - 45
	Total Years Active Military Service	297	9.40	4.11	1 - 20
	Years in Aviation Unit	297	4.93	3.18	0 - 15
	Total Flight Hours	297	1218.97	915.97	175 - 5,500

Source: AWO Retention Survey, Canyon Research Group, Inc./ARI, Fort Rucker, Alabama, 1981 (unpublished draft report).

Table 6
Installations and Major Commands of Survey Respondents

INSTALLATION	MAJOR COMMAND
Fort Bragg (North Carolina)	FORSCOM
Fort Campbell (Kentucky)	FORSCOM
Fort Rucker (Alabama)	TRADOC
Germany (14 Installations)	USAREUR
Fort Lewis (Washington)	FORSCOM
Fort Ord (California)	FORSCOM
Fort Hood (Texas)	FORSCOM
Korea (8 Installations)	EUSA
Hawaii	WESTCOM

Source: AWO Retention Survey, Canyon Research Group, Inc./ARI,
Fort Rucker, Alabama, 1981 (unpublished draft report).

platoon commanders, aviation section leaders, or aviation team leaders.

The AWO respondents were subsequently identified as either attritees or retainees. The distinction was based on stated career intentions as indicated by responses to the items reproduced in Figure 3. Intentions were used as the criterion for actual behavior since research has shown that expressed intentions to stay in or to leave the Army reliably predict actual behavior of military personnel (Alley & Gould, 1975; Boyd & Boyles, 1968; Shenk & Wilbourne, 1971). The use of stated intentions as a substitute for actual attrition behavior also avoids the difficulties inherent in obtaining data from aviators who already have left the military.

Attritees were defined as AWOs who selected a response option that indicated that they planned to leave the Army at some time prior to retirement. Retainees were defined as AWOs who selected a response option that indicated that they planned to stay in the Army beyond their current commitment. The response options that defined the career intentions categories are shown in Table 7. The table indicates that AWOs who selected the "undecided" response options within each category were treated separately.

Survey Questionnaire

As previously described, the questionnaire was designed specifically to identify (a) the demographic characteristics of AWOs

31. If you are an obligated volunteer (OBV) officer, what are your intentions? (check one)
- ☐ a. Not applicable (I am voluntary indefinite or RA)
 - ☐ b. 30 year career
 - ☐ c. 20 year career
 - ☐ d. serve beyond current commitment but probably short of 20 years
 - ☐ e. I plan to get out at my ETS date
 - ☐ f. Undecided (probably stay in)
 - ☐ g. Undecided (probably get out)
 - ☐ h. Other (specify): _____
32. If you are a volunteer indefinite or RA officer, what are your career intentions? (Check one)
- ☐ a. Not applicable (I am Obligated Volunteer Officer).
 - ☐ b. 30 year career
 - ☐ c. 20 year career
 - ☐ d. serve beyond current commitment but probably short of 20 years
 - ☐ e. I plan to get out as soon as possible/eligible but I have not submitted a request for release from active duty.
 - ☐ f. I have initiated a request for a release from active duty.
 - ☐ g. Undecided (probably stay in)
 - ☐ h. Undecided (probably get out)

Figure 3. Questionnaire items used to determine the career intentions of AWO survey respondents.

Source: AWO Retention Survey, Canyon Research Group, Inc./ARI, Fort Rucker, Alabama 1981 (unpublished draft report).

Table 7
Stated Career Intentions of AWO Retainees and Attritees

AWO CATEGORY	STATED CAREER INTENTIONS
Retainee	30 year career 20 year career Serve beyond current commitment but probably short of 20 years
Undecided	Undecided (Probably stay in)
Undecided	Undecided (Probably get out)
Attritee	I plan to get out at my ETS date. I plan to get out as soon as possible/ eligible but I <u>have not</u> submitted a request for release from active duty. I have initiated a request for release from active duty.

Source: Briefing presented to DCSPER by Dr. M. G. Sanders, Technical Team Leader, U. S. Army Research Institute Field Unit, Fort Rucker, Alabama, August 1982.

who were separating from the Army, and (b) the type and importance of factors that were influencing the AWOs' decisions to leave the Army. Questionnaire items designed to achieve these objectives were organized into two sections: a personal data section and a career factors sections. Items in the personal data section were designed to provide information about the demographic characteristics, assignments, and career intentions of the respondents. Items in the career factors section were designed to determine the amount of influence that each of 46 factors had on AWOs' decisions to leave the Army. The factors were rated on a scale ranging from 0, which indicated "No Influence on Decision to Leave," to 100, which indicated "Most Influence on Decision to Leave."

Slightly different versions of the questions and/or instructions were used for the three groups of respondents--i.e., AWO attritees, AWO retainees, and commissioned officer aviators. The questionnaires completed by attritees and retainees were identical with two exceptions. First, the attritees responded to five additional items concerning their decisions to separate. Second, the attritees were instructed to rate the career factors to indicate the amount of influence that each factor had on their own decisions to separate. Retainees were instructed to rate the same career factors to indicate how much they judged each factor to influence the decisions of AWOs who separated from the Army.

The commissioned officer questionnaire contained a different set of demographic items pertaining specifically to commissioned officers

and did not contain items relating to career intentions or assignments. The commissioned officers, like the AWO retainees, were instructed to rate the career factors to indicate how much they judged the factors to influence AWOs who separated.

Survey Results

The primary focus in analyzing the survey data was the identification of demographic characteristics and career factors that are related to AWO attrition. The analyses and results are described below.

Demographic characteristics. Demographic characteristics were analyzed by comparing the responses that AWO attritees and AWO retainees made to the demographic items. In making the comparisons, emphasis was given to items that were judged to yield relevant information for Army personnel and policy decisions. The following paragraphs present a summary of the results of the analyses of these items. A more detailed description of the findings can be found in U. S. Army Aviation Digest articles by Everhart and Sanders (1981) and by Sundy, Ruffner, and Wick (1981).

Comparisons of the personal characteristics of AWO attritees and retainees show that:

- Retainees are older.
- Retainees have a higher civilian education.

- Retainees are more likely to be married.
- Retainees have more dependents.

Analyses of the military characteristics of the AWOs provided the following information about retention:

- Retention rate increases with rank.
- Retention rate is highest among fixed-wing pilots (MOS 100 Q/R) and lowest among utility/observation rotary wing pilots (MOS 100B).
- Retention rate increases significantly once AWOs become voluntary indefinite (VI)⁵ and/or are assigned to a specific career track.
- For the installations that were surveyed, retention was highest for AWOs stationed in Germany and lowest for AWOs stationed at Fort Ord, California.
- The three most desired installations are Fort Carson, Colorado; Fort Lewis, Washington; and Fort Rucker, Alabama.
- The three least desired installations are Fort Bragg, North Carolina; Fort Campbell, Kentucky; and Fort Hood, Texas.
- Sixty-two percent of all AWOs indicated that their present assignment influenced their career intentions to some extent.

⁵Voluntary indefinite (VI) status refers to an extension of active duty beyond the initial tour of obligated service.

- Thirty-seven percent of all AWOs would accept a direct commission.
- Fifty-four percent of the AWOs who would accept a commission indicated that they would accept a rank no less than captain.
- Retention rate was comparable for AWOs who entered IERW from civilian status and AWOs who entered from prior enlisted status.
- Twenty-five percent of the AWO attritees had firm job offers awaiting their separation.
- Of the 50 AWO attritees who had firm job offers, 25 were leaving for civilian aviation positions and 6 more were leaving for civilian aviation-related positions.
- Of the 150 AWO attritees who did not have firm job offers, 128 stated that they intended to seek civilian aviation employment when they left the Army.
- Forty-eight percent of the AWOs who had firm job offers indicated that their annual salary would be between \$22,000 and \$28,000; an additional 22 percent indicated that their annual salary would be more than \$28,000.

Career factors. As previously described, AWO attritees were instructed to rate the career factors to indicate how much the factors influenced their own decisions to separate from the Army. AWO retainees and commissioned officer aviators were instructed to rate the

factors according to how much they judged the factors to influence the decisions of AWOs who separated. The different sets of rating instructions provided three sources of information about the factors that influence AWO attrition: AWO attritees (self-reports), AWO retainees (peer perceptions), and commissioned officer aviators (supervisor perceptions) (Rogers & King, 1981).

Mean ratings assigned to each factor by each group of respondents were computed. The group averages, in turn, were used to rank order the career factors according to amount of influence on AWOs' decisions to leave the Army. The 30 factors that AWO attritees rated as having the most influence on their decisions to leave the Army are listed in Table 8. Table 8 also shows the rank order of each of the factors as they were rated by AWO retainees and commissioned officer aviators.

An examination of the ranks assigned to each factor by the respondents reveals a generally high degree of consistency in the perceptions of the three groups. Comparisons of mean ratings for all of the factors show the following:

- The greatest degree of consistency among the groups occurs on the pay and benefits factors.
- The AWO groups agree more closely than either the attritee and commissioned officer groups or the retainee and commissioned officer groups.

Table 8
Rank Order of Factors Influencing AWOLs' Decisions to Leave the Army

FACTORS	The top 30 factors as ranked by:		
	AWO ATTRITEES	AWO RETAINÉES	COMMISSIONED OFFICERS
Unequal flight pay (warrant officer flight pay versus commissioned officer flight pay)	1	1	1
Lack of concern for the individual	2	5	10*
Low pay (all pay and allowances)	3	2	2
Erosion of benefits	4	4	5
Lack of competence in aviation matters by chain of command	5	7	17
Lack of professional respect and recognition from commissioned officers	6	9	37*
Lack of opportunity for desirable installation assignment	7	6	13
Lack of leadership	8	10	23*
Potential for higher paying aviation related position outside of Army	9	8	4
Lack of predictability of future in the Army	10	11	12
Dissatisfaction with career management by Warrant Officer Division	11	15	6
Too much family separation	12	14	11
Dissatisfaction with current duty (PCS) assignment	13	17	15
Too many additional duties (nonflying)	14	16	19
Having to work with unqualified enlisted personnel who are allowed to remain in the Army	15	23	28
Limited availability of advanced aircraft transitions	16	13	8
Long duty hours	17	24	25
Installation policies which discriminate against aviators relative to other groups (i.e., Infantry, Artillery, Armor)	18	21	20
Lack of career progression in assignments	19	12	7
Low quality of personnel service provided by Warrant Officer Division	20	31	21
Lack of predictability of day-to-day work schedule	21	29	32
Lack of confidence in the promotion system	22	19	24
Low quality of the community environment surrounding military installations	23	33	35
Too frequent moves (family dislocation)	24	18	16
Little incentive to remain after reaching higher grade levels (early professional peak--CW4 in 14 years of warrant officer service)	25	26	18
Unrealistic training in combat skills	26	27	27
Insufficient civilian schooling opportunities	27	35*	29
Lack of influence over career track selection	28	20	9
Repetitive "Divisional" or "Cav" assignments	29	3*	3*
Potential for higher pay outside of Army (not aviation related)	30	22	14

*Factors that were rated in a manner that was significantly different (statistically) from the attritee group.

Note: From "Aviation Warrant Officer Retention: the Factors Which Influence the Decision to Leave," by Rogers, G. L. and King, O. T., U. S. Army Aviation Digest, September 1981, 27(9).

- The greatest difference between commissioned officer and AWO ratings occurs on the leadership and supervision factors.
- Compared to AWOs, commissioned officers perceive leadership and supervision to be less influential on the decision to leave.

A more detailed discussion of the career factors is presented by Rogers and King (1981).

Additional analyses indicated that the top ten factors identified by AWO attritees encompass three major issues: pay and benefits (factors 1, 3, 4, 9), leadership and supervision (factors 2, 5, 6, 8), and assignment and career management (factors 7, 10). These issues subsequently became the focus of a series of warrant officer retention initiatives that were developed to reduce attrition of AWOs. The initiatives are discussed in the following section.

MILPERCEN's WARRANT OFFICER RETENTION INITIATIVES

The ARI aviation warrant officer survey identified specific issues that affected AWOs' decisions to leave the Army. These issues, in turn, became the thrust of a series of initiatives that were developed and implemented by Warrant Officer Division and Aviation Plans and Programs, MILPERCEN, in coordination with the Office of the DCSPER. Major components of the initial program, entitled "Warrant

Officer Retention Initiatives" are listed in Table 9 and are briefly described below. A more detailed description of the initiatives can be found in a U. S. Army Aviation Digest article by Morgan and Johnson (1981), from which much of the following information was derived.

Pay and Benefits

The initiatives that most directly address the pay and benefits issue include (a) equalization of flight pay and (b) increased base pay. An abbreviated description of each of these initiatives is presented in the following paragraphs.

Equalization of flight pay. Inequality in flight pay, referred to as Aviation Career Incentive Pay (ACIP), emerged as the single major influence cited by AWOs as their reason for leaving the Army. This inequality has existed since the inception of the AWO program.

Figure 4 depicts the ACIP scale for AWOs and commissioned officer aviators that existed at the time the ARI survey was initiated. The figure also depicts the projected equalization of this flight pay scale. It can be seen that the most extreme case of inequality was approximately \$55 per month. It was judged by MILPERCEN personnel that the emotional significance of the inequity exceeded the significance of the actual monetary difference (Morgan & Johnson, 1981). Nevertheless, the credibility of the retention effort dictated that one of the first initiatives should be directed toward resolving the flight pay inequality. Following staffing through the Department

Table 9
Warrant Officer Retention Initiatives

CAREER FACTORS	RETENTION INITIATIVES
Pay and Benefits	Equalization of flight pay Increased pay and benefits
Leadership/Assignment and Career Management	Reorganization of aviation assignments branch Expansion of professional development branch
Leadership/Concern and Respect for the Individual	Concurrent travel Field grade housing Presidential appointment Single promotion system Graded positions Expanded grade structure Provisions for direct commission Expanded opportunity for career development

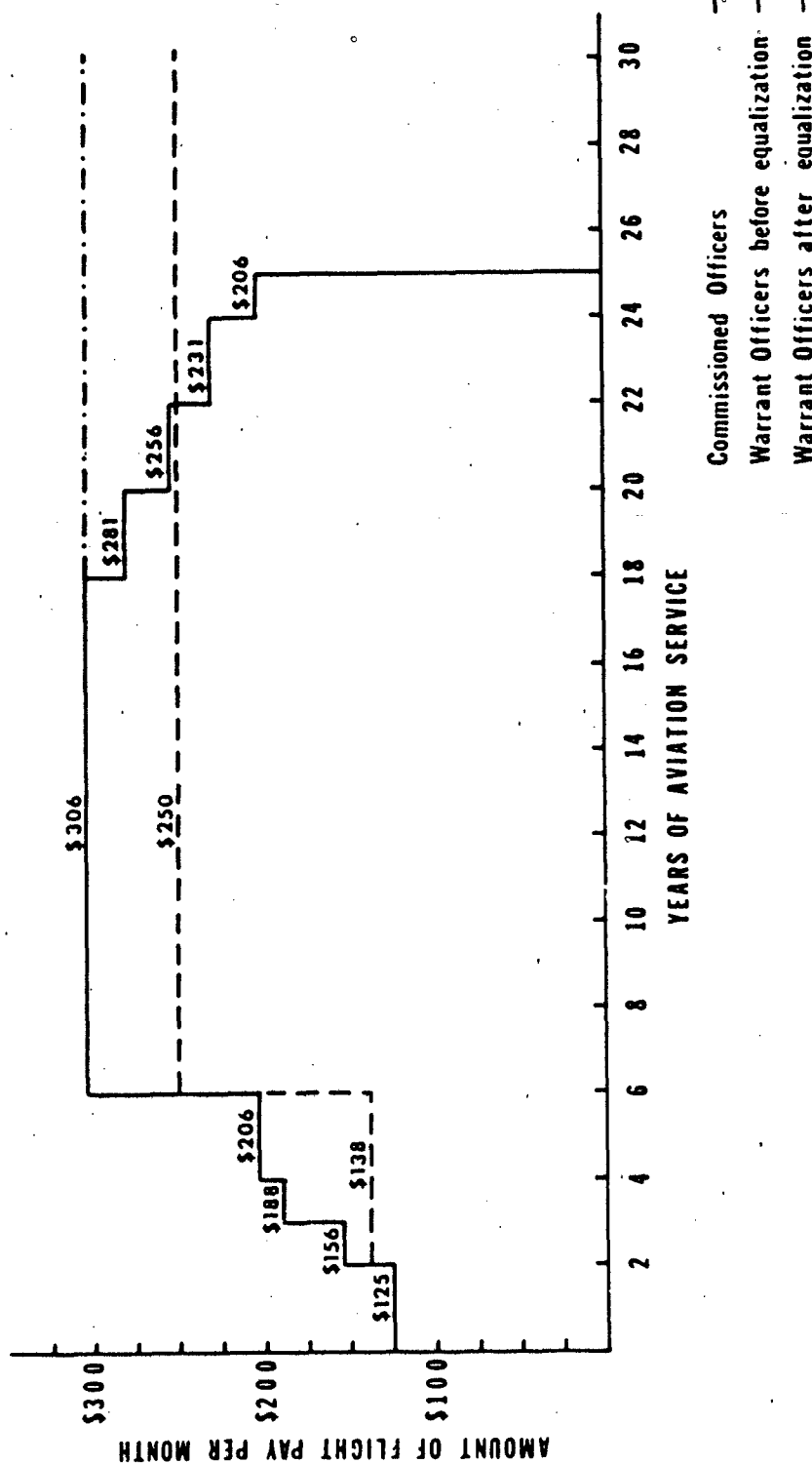


Figure 4. Aviation career incentive pay for warrant officers and commissioned officers in fiscal year 1979.

Source: Adapted from a briefing presented to the Deputy Assistant Secretary of Defense for Military Personnel Policy by COL G. A. Morgan, Chief, Warrant Officer Division, MILPERCEN, December 1980.

of Defense, the Army's proposal for ACIP equalization was included in the Jepsen-Exxon Military Pay Bill that became law 1 October 1981.

Increased pay and benefits. Inadequate pay (all pay and allowances) also emerged as a major influence on AWO attrition. The factors within the top ten list that address this issue are:

- low pay (all pay and allowances),
- erosion of benefits, and
- potential for higher paying aviation-related position outside of the Army.

At the time the ARI survey was conducted, the military as a whole had experienced a prolonged period during which pay increases failed to keep pace with increases in the cost of living. The pay increases for the period FY 1977 through FY 1982 are shown in Figure 5.

The Nunn-Warner Military Pay Bill, enacted 1 October 1980, and the Jepsen-Exxon Military Pay Bill, enacted 1 October 1981, address the issue of inadequate military pay. The provisions of the Nunn-Warner bill include the following:

- an 11.7 percent increase in base pay for all grades,
- a 25 percent increase in ACIP pay for all grades, and
- a variable housing allowance.

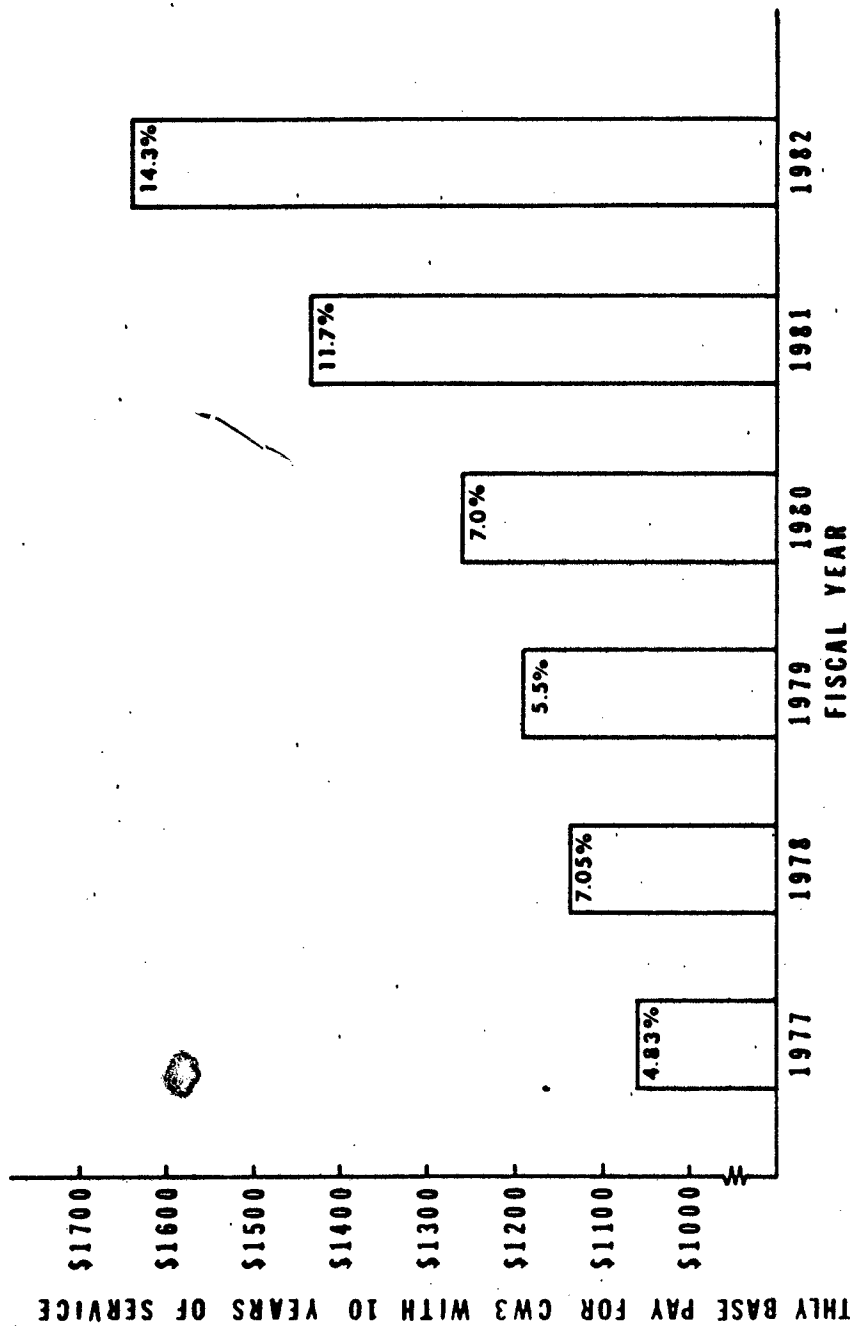


Figure 5. Amount and percent of base pay increases for warrant officers by fiscal year.

Source: Briefing presented by CW4 M. C. Broome, Academic Instructor, Warrant Officer Career College, USAAVNC, to Warrant Officer Candidates. Data prepared by Professional Development Branch, MILPERCEN.

The Jepsen-Exxon bill, which raised AWO flight pay to the same level paid to commissioned officer aviators, provided an additional 14.3 percent increase in the base pay of warrant officers (Morgan & Johnson, 1981).

The pay increases instituted in FY 1981 and FY 1982 were intended to make the income of AWOs more competitive with that of civilian employment, thus indirectly addressing the influence of civilian aviation-related opportunities on attrition of AWOs. Mobley and associates (e.g., Mobley, Hand, Griffeth, & Meglino, 1979) have emphasized the role that opportunity for alternative employment plays in determining whether dissatisfaction with job factors leads to actual separation from the job.

Leadership/Assignment and Career Management

One of the major factors that contributed to attrition of AWOs was dissatisfaction with assignment and career management. These concerns were expressed in such factors as the following:

- lack of opportunity for desirable installation assignment,
- lack of predictability of future in the Army,
- dissatisfaction with career management by Warrant Officer Division, and
- low quality of personnel service provided by Warrant Officer Division.

Additional feedback from individuals in the field indicated that these issues reflected a general lack of confidence in the management practices and policies of Warrant Officer Division. Thus, one of the major initiatives to enhance AWO retention was a reorganization of Warrant Officer Division's Aviation Assignments Branch and an expansion of the Professional Development Branch. These changes were implemented in February 1981 (Morgan & Johnson, 1981).

Reorganization of Aviation Assignments Branch. The Aviation Assignments Branch was changed so that assignments are controlled by MOS of the individual. Prior to the reorganization, assignments were managed by geographical location of the installation to which the individual was assigned. To orient assignments even more toward the individual instead of the installation, MILPERCEN now selects assignment managers with extensive experience within the MOS for which assignments are made. This action reflects MILPERCEN's belief that the understanding that experienced assignment officers possess concerning problems unique to an AWO's particular MOS adds credibility to the assignment decisions (Morgan & Johnson, 1981).

Expansion of Professional Development Branch. The second major change within Warrant Officer Division consists of an expansion in the role that Professional Development Branch plays in the career development of AWOs. Prior to the change, the function of the Professional Development Branch was restricted primarily to the management of civilian and military schooling opportunities for warrant officers. The new concept tasks the Professional Development Branch

with long-term planning for the Warrant Officer Corps. To meet this goal, the Professional Development Branch currently is developing a continuation model for monitoring and projecting the warrant officer inventory (Laubach, 1982).

To help the Professional Development Branch fulfill its expanded obligations, a position was created on the staff of DCSPER for a member of Warrant Officer Division. Since 1980 this position has been held by the Chief of Professional Development Branch, who serves as a spokesman for the Warrant Officer Corps. The action was undertaken to give the needs of the warrant officer greater visibility at DA level and to permit evaluation of Army policies in terms of their specific impact on warrant officers (Washer, 1982a).

Leadership/Concern and Respect for the Individual

Perceptions by AWOs that there is a lack of concern for them as individuals and a lack of respect for them as officers were identified as major contributors to AWO attrition. Some of the initiatives that were developed to address the factors contributing to these perceptions are discussed in the following paragraphs. Unless otherwise noted, the information that is presented is extracted from a U. S. Army Aviation Digest article by Morgan and Johnson (1981).

Concurrent travel and field grade housing. Concurrent travel for CW3(P)s and CW4s en route to Europe was approved in May 1981. This policy more closely aligns the entitlements of senior warrant

officers with those of senior commissioned officers and top enlisted grades.

A related change involves the availability of field grade housing for CW3(P)s and CW4s. Since July 1981, senior warrant officers at most installations have been eligible for housing shared by senior noncommissioned officers and field grade commissioned officers. Senior warrant officers are more similar in age and life style to these individuals than to the junior commissioned officers who live in company grade housing.

Presidential appointment. A long-standing irritant to Army warrant officers is the distinction that exists between them and warrant officers in the Navy, Marine Corps, and Coast Guard. Warrant officers in the Army are appointed by the Secretary of the Army, while their counterparts in the other services are appointed by the President. This procedure entitles warrant officers in the other services to privileges that are denied warrant officers in the Army. These privileges include the right to administer oaths, swear people into service, and serve as commanders with Uniform Code of Military Justice authority. To eliminate this irritant, a legislative proposal has been drafted to provide for the Presidential appointment of Army warrant officers.

Single promotion system. Other major irritants to AWOs involve additional distinctions between them and commissioned officers. One major distinction is exclusion of the Army warrant officers from the

Defense Officer Personnel Management Act (DOPMA). This action created a single promotion system for commissioned officers and retained a dual promotion system involving temporary and permanent grades for warrant officers. The feasibility of adopting a single promotion system for Warrant Officer Corps is currently being studied.

Graded positions. Another major distinction between Army warrant officers and commissioned officers is the absence of graded positions for warrant officers. Studies conducted on the feasibility of grading warrant officer positions indicate that the disadvantages of graded positions outweigh the advantages. The major disadvantages include (a) strict limits on grade authorizations, thus restricting promotion to senior ranks, and (b) inequities in overseas assignments for senior and junior warrant officer ranks.

The primary issues in graded positions are recognition and use of the training and experience of senior warrant officers. To address these issues, MILPERCEN has proposed that the Additional Skill Identifier (ASI) assigned to Warrant Officer Senior Course (WOSC) graduates be used as a basis for assigning senior warrant officers to the more demanding and prestigious positions. Positions requiring an ASI have been identified and are currently being reviewed. Assignments under the new system are scheduled to begin in FY 1983 (Broome, 1982).

Expanded grade structure. One of the primary adjuncts to both the inadequate pay issue and the limited promotion potential issue is the desire for an expanded grade structure to include CW5 and CW6 ranks for warrant officers. Under the present grade structure, AWOs generally are promoted to CW4 at approximately the 14-year point. This leaves the Regular Army (RA)⁶ aviator with no promotion potential during the 6 years until retirement eligibility or the 16 years until mandatory retirement.

Despite the possible retention incentive offered by an expanded warrant officer grade structure, additional grades are seen as impractical for the following reasons:

- Time in grade for promotion would increase in order to avoid exceeding grade authorizations.
- The additional grades would not benefit nonrated warrant officers, who represent 57 percent of the total Warrant Officer Corps. Nonrated warrant officers have an average of over 8 years of prior enlisted service. Given normal career progression under increased time-in-grade requirements, the typical nonrated warrant officer would not be eligible for CW5 promotion until 26 or 27 years of total service and would have no opportunity for CW6 promotion prior to mandatory retirement at 30 years (Carothers, 1981).

⁶Regular Army (RA) status refers to the permanent army that is maintained in peace as well as in war.

As an alternative to an expanded grade structure, MILPERCEN has proposed that additional pay step increases be provided for CW4s with more than 20 years of active federal service. The proposal is currently being reviewed by DA staff (Washer, 1982b).

Provisions for direct commission. An additional restriction on career progression for AWOs is the limit imposed by the 10/20 rule for a direct commission. This rule requires that an individual be able to fulfill 10 years of commissioned officer service prior to reaching the 20 years of total active federal service required for retirement eligibility. Due to the surplus of commissioned officer aviators during the post-Vietnam period, the Army did not permit direct commissioning of AWOs from FY 1973 through FY 1977. Beginning in FY 1978, a limited number of AWOs were commissioned to alleviate the Army's company grade commissioned officer aviator shortage that resulted from restricted training rates. A number of highly qualified AWOs were denied the opportunity for direct commissioning because they did not meet the requirements of the 10/20 rule (Borland, 1981).

To address this issue, MILPERCEN developed a program that permitted direct commissioning of 50 AWOs excluded by the 10/20 rule in FY 1981 and FY 1982. In addition to augmenting the AWOs' chances for career progression, the program helped prevent the loss of qualified aviators and simultaneously reduced the Army's company level commissioned officer aviator shortage.

Expanded opportunity for career development. Other factors pertaining to career development that were cited as major influences on AWO attrition are:

- inadequate training for additional duties,
- limited opportunity for advanced aircraft transitions,
- limited opportunity to attend the Warrant Officer Advanced Course (WOAC), and
- limited opportunity for obtaining a baccalaureate degree.

Major initiatives that address these issues are discussed in the following paragraphs.

A number of revisions in WOAC were proposed as a means for addressing some of the career development issues. A proposed revision in the Program of Instruction (POI) for WOAC will provide advanced training for AWOs in all MOSs. In addition, an increase in funding is currently being considered that will permit warrant officers to attend WOAC on a Temporary Duty (TDY) basis involving either a return to home station or a Permanent Change of Station (PCS). WOAC currently is funded only as TDY en route to a PCS. This procedure limits attendance to only 50 percent of those who meet the course prerequisites (Washer, 1982b).

Other opportunities for advanced training also have been expanded. The expansions include the following:

- The Warrant Officer Associate Degree Program has been expanded to include funding for 100 degree completions per fiscal year.
- The eligibility requirements for participation in civilian education programs have been modified to include RA warrant officers with up to 25 years of active federal service.
- The eligibility requirements for WOSC have been modified to include CW3(P)s and CW4s. CW3(P)s and CW4s were previously excluded from the zone of consideration for selection to attend WOSC.
- The single aircraft track policy has been modified to increase the opportunity for transitions into other aircraft.

The initiatives that have been described in this section represent actions taken by MILPERCEN to counter the factors that contribute to AWO attrition. The initiatives ". . . are not static [changes], providing an end unto themselves, but rather are part of an ongoing effort to improve the Warrant Officer Corps" (Morgan & Johnson, 1981, p. 31). The next section of this report describes the present status of this ongoing effort.

OVERVIEW OF CURRENT AWO RETENTION RESEARCH

As was previously stated, information provided by ARI's worldwide survey of Army aviators played a major role in the development of a series of initiatives designed to enhance retention of AWOs. One of the main objectives of the ARI follow-on research is to develop a mechanism that will facilitate assessment of the impact that such initiatives have on retention of AWOs in the future. This section of the report describes both the current status of AWO retention and the AWO retention research presently being conducted by ARI. It also discusses constraints in completing this research within the projected timeframe.

CURRENT STATUS OF AWO RETENTION

When ARI was first requested to investigate AWO retention (October 1979), retention of first-term AWOs was approximately 45 percent. In contrast, during the three years prior to the request, retention of AWOs at this same career point had remained relatively constant at approximately 65 percent. Table 10 shows the percentage of AWOs who were retained beyond initial obligation for each year from FY 1976 through FY 1982. The table also lists specific retention-related events that occurred during this period.

Inspection of Table 10 reveals that retention rate for first-term AWOs has increased steadily since the initiation of the overall retention effort. Retention rate in FY 1980 increased to

Table 10
Retention of First-Term AWOs

CALENDAR YEAR LINK FOR CRITICAL EVENTS	END OF INITIAL OBLIGATION	PERCENTAGE ^a OF AWOs RETAINED BEYOND INITIAL COMMITMENT	CUMULATIVE RETENTION
	FY 1976	66.40	
	FY 1977	60.16	
	FY 1978	65.62	
	FY 1979	45.17	
	JUL-SEP 1979	47.15	
Oct 1979 - MILPERCEN Request for ARI Support	FY 1980	53.89	
Sep-Dec 1980 ARI Retention Survey	FY 1981		
1 Oct 1980 - 11.7% Base Pay Increase and 25% Flight Pay Increase	1st Qtr	54.8	
	2nd Qtr	63.3	58.4 (End of 2nd Qtr)
	3rd Qtr	58.1	58.3 (End of 3rd Qtr)
	4th Qtr	60.6	58.95 (End of Year)
Aug 1981 & Sep 1981 Aviation Digest Articles on Results of ARI Survey	FY 1982		
1 Oct 1981 - Flight Pay Equalization and 14.3% Pay Increase	1st Qtr	54.7	
Nov 1981 - Aviation Digest Article on Results of ARI Survey	2nd Qtr	51.2	52.8 (End of 2nd Qtr)
Dec 1981 - Aviation Digest Article on Initiatives	3rd Qtr	71.8	59.25 (End of 3rd Qtr)
1 Aug 1982 - Begin Year of No Eligibility for Attrition of First-Term AWOs	4th Qtr	67.6	60.05 (End of Year)

^aData are provided by MAJ J. J. McDonnell, Chief, Personnel Actions Branch, Warrant Officer Division, MILPERCEN, July 1982.

approximately 54 percent. This increase coincides with the initial request for research support and growing awareness of the retention effort. A further increase in AWO retention occurred in FY 1981. Retention rate, for first-term AWOs during this period was approximately 59 percent. Since a number of events occurred in FY 1981 that might have had a positive impact on AWO retention, retention rates are shown for each quarter of this period. The events include: (a) completion and publication of the results of ARI's retention survey (Everhart & Sanders, 1981; Rogers & King, 1981), and (b) implementation of an 11.7 percent increase in base pay and a 25 percent increase in flight pay (Morgan & Johnson, 1981).

Quarterly retention rates also are shown for first-term AWOs who were eligible to leave the Army in FY 1982. Overall retention of AWOs during FY 1982 was approximately 60 percent. Retention rates of approximately 72 percent and 68 percent during the third and fourth quarters, respectively, suggest a trend toward even higher retention.⁷ Feedback derived by MILPERCEN from individuals in the field supports the conclusion that the continued increase in AWO retention is due largely to the retention initiatives that were enacted during FY 1982.

In general, the increases in retention that have occurred since the initiation of the AWO retention effort correspond with specific

⁷ Due to the transition from a 3-year to a 4-year initial commitment for AWOs who entered flight school after 1 October 1978, first-term retention rates for the fourth quarter of FY 1982 are based on a very limited sample of AWOs. Retention rates for the first three quarters of FY 1983 also will be affected by the transition.

events aimed at identifying and/or addressing the major contributors to attrition. One of these events is a series of retention initiatives that address specific factors in the areas of pay and benefits, career and assignment management, and leadership (Morgan & Johnson, 1981).

Although there is a concurrent correlation between retention rate and the introduction of the retention initiatives, caution must be exercised in concluding that a cause-effect relationship exists. Since the research to date has no mechanism to provide continuous feedback about the influence of specific factors, caution also must be exercised in attributing the increase in retention to any specific event, such as equalization of flight pay.

Confounding effects of economic factors further preclude isolation of the increase in retention that is attributable to specific initiatives. Research shows that retention tends to be inversely related to perceived availability of other job opportunities (e.g., Mobley et al., 1979). The decline in the economy during recent years has limited the availability of civilian jobs. The decreased chances of finding a civilian job might have encouraged retention of AWOs who would have chosen to leave the Army. The relationship between the economy and job retention makes it difficult to determine the specific impact of the initiatives on AWO retention, independent of the effects of the economic decline and other factors external to the Army.

AWO RETENTION RESEARCH IN PROGRESS

To meet the need for assessing the impact of specific initiatives on AWO retention in the future, ARI currently is developing a separation questionnaire that will be administered to all AWOs who leave the Army. ARI was tasked by MILPERCEN to develop the questionnaire as a follow-on to the retention survey. The questionnaire will be used to provide continuous feedback about the number and types of AWOs who leave the Army and about the impact that specific factors have on AWOs' decisions to leave. The following sections describe in detail the research tasks that must be accomplished to develop the questionnaire and discuss the anticipated use of the questionnaire.

Development of the Separation Questionnaire

A number of technical tasks must be performed to develop the separation questionnaire. The major technical tasks are listed below and are described in the following paragraphs:

- review relevant retention literature,
- identify information requirements for the questionnaire,
- design and compile items to form the preliminary version of the questionnaire,
- conduct a field test of the preliminary questionnaire,
- analyze the field test data to form the final version of the questionnaire, and

- develop and implement a data analysis plan for use of the questionnaire.

Figure 6 is a task flow diagram that shows the interrelationship of the tasks.

Review retention literature. An extensive search for relevant research on retention was conducted as the initial step in developing the AWO separation questionnaire. The major objectives of the literature review were to identify the factors that historically have been related to attrition and to identify theoretical models that might contribute to the understanding of attrition behavior. Since the separation questionnaire is concerned only with attrition of AWOs, the literature review focused on studies that address retention of military aviators.

The literature review was completed in January 1982. The review revealed a number of research findings that have had a major influence on the technical approach used to develop the questionnaire. The most relevant of these findings are summarized below.

- Aviator attrition has been a recurring problem for all three major branches of the military (Boyd & Boyles, 1968, 1969; Knudsen, 1978; Millard, 1978).
- A recent review of factors influencing attrition of military personnel has been conducted (Hand, Griffeth, & Mobley, 1977).

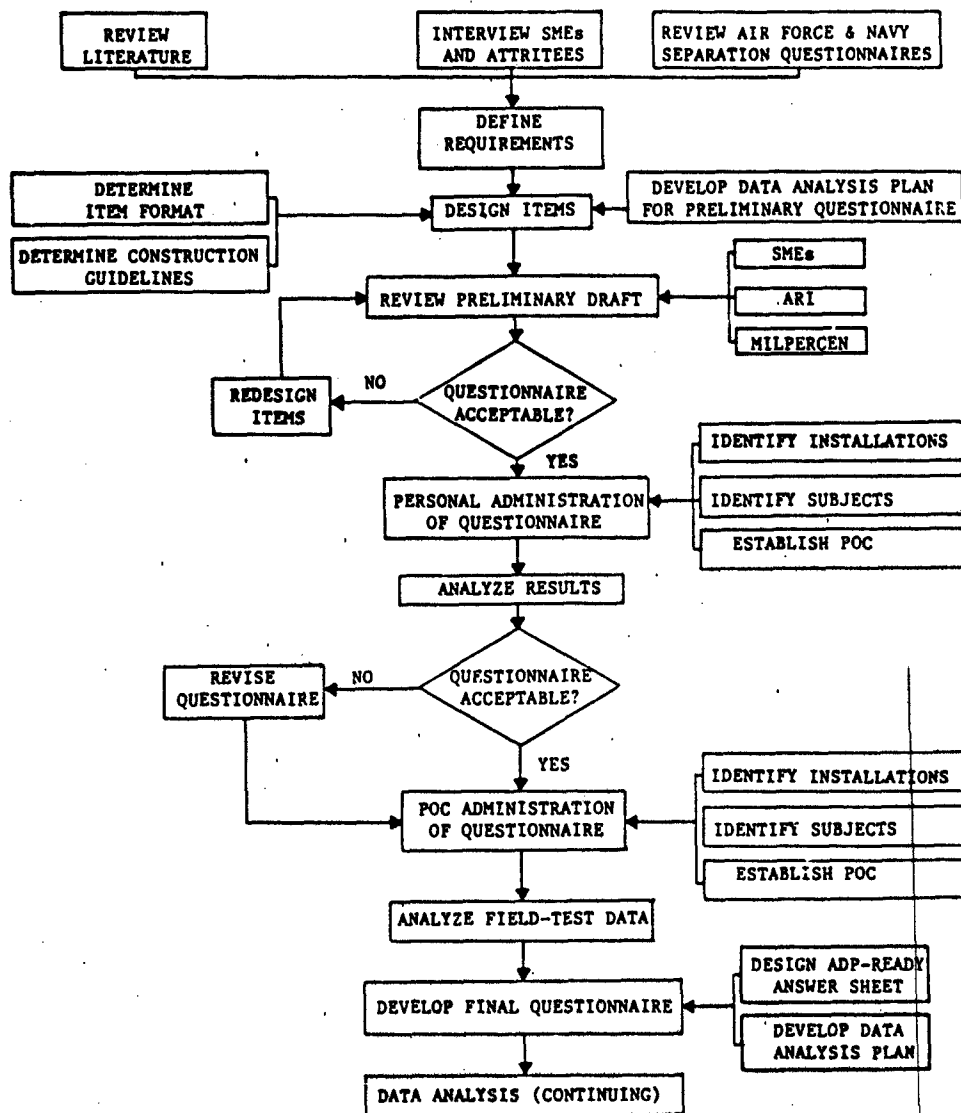


Figure 6. Technical task flow chart for development of the AWO separation questionnaire.

- The single variable that most often has been investigated in relation to attrition in both civilian and military organizations is overall job satisfaction. However, job satisfaction accounts for only a small percentage of the total variance in attrition behavior (Porter & Steers, 1977).
- Recent trends in attrition research stress a multivariate approach employing a broad spectrum of predictor variables (Hand et al., 1977).
- Research on military retention/attrition indicates that verbally stated intentions to remain in or to leave the service consistently predict actual behavior (e.g., Boyd & Boyles, 1968; Shenk & Wilbourne, 1971). Thus, most contemporary investigations of retention relate predictor variables to intentions rather than to actual behavior (e.g., Knudsen, 1978; Millard, 1978).
- A number of investigations report significant differences between the demographic and/or attitudinal traits of aviators who intend to remain in the military and those of aviators who intend to leave (e.g., Boyd & Boyles 1969; Millard, 1978).

The broad objectives of the literature review have been fulfilled as follows:

- A conceptual model of attrition (Mobley et al., 1979)⁸ has been adopted as a potential basis for understanding attrition behavior.
- The major categories of items to be included on the separation questionnaire have been identified.

Because of its importance as a conceptual basis for this research, the Mobley model is briefly summarized in the next paragraph. The information content of the questionnaire is described in the following section.

The Mobley model represents a multivariate approach to the investigation of attrition that is similar to the approach used in ARI's AWO retention survey. The rationale underlying Mobley's model is as follows. Many factors, both personal and job-related, influence the level of overall job satisfaction or dissatisfaction. Job dissatisfaction leads to thoughts of quitting, which, in turn, result in an intention to quit. Intention to quit is the immediate precursor of attrition behavior. The probability that job dissatisfaction and intention to quit will result in actual attrition is affected by visibility and attractiveness of alternative job opportunities, as well as by the perceived likelihood of obtaining the jobs. The model is thus consistent with the findings of the ARI retention survey, previously described.

⁸The Mobley model is compatible with several more general models of work satisfaction/motivation that have provided a theoretical basis for contemporary retention research.

Define information requirements. The purpose of this task is to compile a comprehensive list of the types of information that the separation questionnaire must yield in order to fulfill the objectives of the project. Four criteria were established as guidelines for identifying information requirements for the questionnaire. Information categories were selected that: (a) demonstrate a significant relationship to attrition--as revealed by the review of contemporary investigations of military aviator attrition, including ARI's AWO retention survey; (b) are relevant to the theoretical models that have been used in attrition research, especially Mobley's model; (c) are identified during interviews of AWO attritees and subject matter experts (SMEs) as potential contributors to attrition; and/or (d) are included on existing Air Force and Navy separation forms.

Application of the guidelines has resulted in the identification of requirements for the classes of information listed in Table 11. The task of identifying information requirements was completed in February 1982.

Design specific items. Once the information requirements had been defined, an exhaustive inventory of representative items for each information category was compiled to form the preliminary version of the questionnaire. Guidelines derived from reviews of available literature (e.g., Dyer, Matthews, Wright, & Yudowitch, 1977; Guilford, 1954; Nunnally, 1967) concerning questionnaire

Table 11
Information Requirements for the AWO Separation Questionnaire

DEMOGRAPHIC

Personal

Examples: Age
Marital Status

Military

Examples: MOS
Number of Flight Hours

ORGANIZATIONAL

Pay and Benefits

Examples: Base Pay
Medical Benefits

Leadership

Examples: Chain-of-Command Support for Aviation
Supervisor's Concern for the Individual

Career and Personnel Management

Examples: Assignment of Career Tracks
Warrant Officer Division Counseling

Assignment Policies and Procedures

Examples: Consideration Given to Experience
Unaccompanied Tours

Promotion Policies and Procedures

Examples: Number of Warrant Officer Ranks
10-20 Rule for Direct Commission
OER System

Training Policies and Procedures

Examples: Opportunity for Advanced Aircraft Transition
Military Programs for Civilian Education

IMMEDIATE WORK ENVIRONMENT

Examples: Work Schedule
Aviation Support

-continued-

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Table 11
Information Requirements for the AWO Separation Questionnaire

JOB CONTENT

Intrinsic Satisfaction

Examples: Sense of Accomplishment
Amount of Responsibility

Job Characteristics

Examples: Opportunity to Fly
Additional Non-flying Duties

EXTERNAL FACTORS

Examples: Civilian Aviation-Related Employment
Family Attitudes

construction methodology were used to design items that would yield the requisite information.

Items on the preliminary questionnaire are arranged in four major parts. Part I contains demographic items that are designed to determine the personal and military characteristics of the respondents. Parts II and III contain career factor items that, historically, have been related to attrition. Parts II and III differ only in the rating task that the respondent is required to perform. Part IV contains questions designed to obtain written feedback about the questionnaire's content and format. The item format for each section of the questionnaire is described in the following paragraphs.

The multiple choice format and the completion format are used for the demographic items in Part I. The multiple choice format is used when it is possible to define, beforehand, all, or nearly all, possible responses to an item. A completion format is used to obtain information, such as age, that is not subject to errors of recall by the respondent. The completion format also is used to derive specific information, such as number of flight hours, that would be lost in categorical multiple choice response alternatives.

A numerical rating scale is used to obtain information about the respondent's assessment of the career factors contained in Parts II and III. Respondents to the questionnaire are required to rate each career factor on two separate dimensions. In Part II, respondents rate the career factors to reflect their opinion of the factor's

influence on job satisfaction. Ratings for this task are based on a 7-point continuum ranging from "1" representing "Very Dissatisfied" to "7" representing "Very Satisfied." In Part III of the questionnaire, the respondents rate each career factor to reflect the factor's influence on their decisions to remain in or to leave the Army. Ratings for this task are based on a 7-point continuum ranging from "1" representing "Very Strongly Encourages Me to Leave" to "7" representing "Very Strongly Encourages Me to Stay."

The opinion ratings represent an assessment of the impact that each factor has on job satisfaction, while the influence ratings represent an assessment of the impact that each factor has on career decision. The two types of ratings are necessary to yield information about both the respondents' affective reactions to the factors and the behavioral effects of the factors. Comparisons of the ratings may show that certain factors about which AWOs have strong feelings have no effect on actual decisions to remain in or to leave the Army.

Once the items for the preliminary version of the separation questionnaire were written and compiled, the questionnaire was submitted for review and processing by ARI headquarters. The preliminary questionnaire was approved in March 1982 for field test data collection.

Conduct field test. The preliminary version of the questionnaire is currently being field tested. The purpose of the field test is to obtain feedback from AWOs about the questionnaire's content and

format. The feedback is used to refine the preliminary version of the questionnaire.

Although the ultimate purpose of the questionnaire is to provide continuous feedback about AWOs who leave the Army, it was decided at the outset to design the questionnaire so that it also could be administered to AWOs who remain in the Army. Therefore, both attritees and retainees will participate in preliminary field testing. Attritees are defined as:

- AWOs of Obligated Volunteer (OBV)⁹ status whose Expiration Term of Service (ETS) dates fall within the period specified for field test data collection and who indicate that they intend to separate from the Army, and
- AWOs of VI or RA status who have made a request to be released from active duty (REFRAD) during the period specified for field test data collection.

Retainees are defined as:

- AWOs whose original ETS dates fall within the period specified for field test data collection and who have extended beyond their initial obligation--i.e., AWOs in the fifth year of warrant officer service, and

⁹ Obligated volunteer (OBV) status refers to the initial tour of active duty, which is the four years of service obligation incurred by completion of IERW flight training.

- AWOs of VI or RA status who are similar to the REFRAD attritees in years of service as an aviator--i.e., AWOs with 6 to 20 years of warrant officer service.

AWOs who meet the selection criteria are identified from lists provided by MILPERCEN. Installations that have the largest number of AWO respondents within each criterion group, as indicated by the lists, are then chosen as the sites for field testing.

Once the AWOs and the installations are identified, two methods of field test data collection are used. The first method involves personal administration of the questionnaire and personal interviews of the AWOs by the project director. The second method involves on-site administration of the questionnaire by a local point of contact (POC) established at each installation where a sufficient number of AWOs who meet the selection criteria are located.

A large part of the initial phase of field testing has been completed. The project director personally administered the questionnaire to AWOs located at Fort Riley, Kansas and Fort Bragg, North Carolina. Data were collected at these installations during the period 15-19 March 1982 and 3-7 May 1982, respectively. Additional data currently are being collected from AWOs at Fort Rucker, Alabama.

Once the preliminary questionnaire has been refined on the basis of direct feedback to the project director, the second phase of field

testing will be initiated. The second phase involves direct, on-site administration of the questionnaire by local POCs. Through direct participation with MILPERCEN, the AWO Assignment Officer at each of the designated installations will serve as the POC.

Lists of potential field test respondents and copies of the questionnaire will be mailed to the POC at each installation. The POC will administer the questionnaire to AWOs who are found to meet the selection criteria for field test data collection. Each respondent will be instructed to seal the completed questionnaire in a preaddressed envelope and return it to the POC; the POC will mail the sealed envelopes to the project director.

The POC method of questionnaire administration represents an alternate form of data collection that is designed to increase the number of AWOs who respond to the questionnaire. A number of factors make it essential that a method of data collection be used that maximizes the number of AWO respondents to the questionnaire. These factors include:

- a limited population pool of AWOs who meet the selection criteria, due primarily to the transition from a 3-year to a 4-year initial obligation,
- limited availability of AWOs who are selected from the population pool, due to relocation and/or duties within the unit, and

- limited acceptability of a direct mail-out procedure, due to a low return rate and possible bias in the returned questionnaires.

Analyze the preliminary questionnaire data. The primary purpose of field testing is to provide feedback for refining the preliminary version of the questionnaire. Refinement of the questionnaire will be based on two major types of feedback data: direct verbal feedback provided in oral or written form by the respondents, and statistical analyses of responses to the questionnaire items. The potential refinements to be accomplished include:

- modification of instructions to clarify task requirements,
- rewording of specific items to reduce ambiguity and/or misinterpretation,
- addition of specific items to increase comprehensiveness of the questionnaire, and
- identification of specific items to be retained on the final questionnaire.

The criteria to be considered in deciding whether to delete or retain specific items include: item consistency, comprehensiveness of the item set, redundancy of the item set, item interpretability, the item's capacity to discriminate between retainees and attritees, and the operational value of the item as judged by MILPERCEN representatives.

Implement a data analysis plan for use of the questionnaire.

When the final version of the separation questionnaire has been developed, a plan for collecting, analyzing, and reporting the data yielded by the questionnaire must be implemented. Since the questionnaire is designed to be administered to all AWOs who leave the Army, it is recommended that the questionnaires be mailed to the Separation/Transfer Activity Points at the installations where AWOs separate. Administration of the questionnaire can then be conducted as a part of the AWOs' general out-processing from the Army.

Responses to the questionnaire items will be scored by ARI and used to establish a continuous, closed-loop feedback system that will provide current information about AWO attrition. The information will be reported in the form of quarterly and annual reports routinely prepared for MILPERCEN.

Use of the Separation Questionnaire Information

Once the separation questionnaire becomes operational, it will provide current information about (a) the number and types of AWO losses, and (b) the type and importance of factors that influence AWOs to leave the Army. Major users of this information include MILPERCEN, DCSPER, and USAAVNC.

Information about AWO losses will be reported in the form of frequency and percentage of AWO losses within each demographic category. This information, in turn, will assist DA in determining its

aviator replacement needs, assessing its training requirements, and projecting its AWO inventory.

The separation questionnaire also will provide information about factors that influence AWOs' decisions to leave the Army. Information about the factors will be reported in the form of mean ratings and rank orders. This information, in turn, will help DA identify the major factors contributing to current AWO losses. The information also will permit assessment of the impact that specific policies and events have on retention of AWOs.

Constraints in Developing the Separation Questionnaire

The dates that originally were projected for performance of each task outlined in the research plan are shown in Figure 7. A number of constraints exist that preclude the completion of some tasks within the projected timeframe. These constraints are discussed in this section.

One of the technical tasks for developing the separation questionnaire is field test data collection. The procedures for selecting the respondents and administering the preliminary questionnaire during this phase of development have already been described.

Figure 7 shows that the completion date for field test data collection was initially projected to be 30 September 1983. Since

the initiation of the project, a number of constraints have emerged that impose severe restrictions on the number of AWO attritees who are available for field testing during the period originally specified. The constraints are: (a) an increase in retention of first-term AWOs; (b) a period of ineligibility for first-term AWO attrition, due to the transition from a 3-year to a 4-year initial obligation; and (c) problems in identifying AWOs who meet the selection criteria, due to errors in recorded ETS dates. Each of these factors is discussed below.

Increase in retention of AWOs. At the time the AWO retention research was initiated in 1979, retention rate for first-term AWOs was approximately 45 percent. This high rate of attrition contributed to the annual voluntary separation of approximately 500 AWOs. An additional 100 AWOs retired each year. Projections based on these data indicated that a sufficient number of AWOs would be available to respond to the preliminary questionnaire during the period specified for field test data collection.

Data collection by the project director began in March 1982. Due to travel requirements inherent in this method of data collection, only the installations with the heaviest concentration of AWO attritees were visited. The increase in retention rate to 60 percent, compared to the earlier rate of 45 percent, contributed to a smaller number of AWO attritees at all installations than originally had been projected.

Year of ineligibility for first-term AWO attrition. Data collection by the POCs was scheduled to begin in July 1982 and extend through September 1983. It was predicted on the basis of FY 1979 and FY 1980 training rates that a large number of first-term AWOs would be eligible to leave the Army in FY 1982 and FY 1983. In addition, on the basis of prior retention rates it was predicted that approximately half of these AWOs would leave the Army at the end of their initial obligation.

Two factors preclude availability of the projected number of AWO respondents for the second phase of field testing: an increase in retention of first-term AWOs and a year of ineligibility for attrition of first-term AWOs. The impact that the increase in retention has on data collection was discussed above. The following paragraphs describe the period of ineligibility and its impact on field test data collection.

Prior to 1 October 1978, AWOs incurred only a 3-year obligation upon graduation from flight training. However, AWOs who began IERW flight training on, or after, 1 October 1978 incurred a 4-year obligation upon completion of flight training. Since completion of flight training requires approximately ten months, the AWOs who began flight training on, or before, 30 September 1978 completed flight training on, or before, 30 July 1979 and were eligible to leave the Army on, or before, 30 July 1982. On the other hand, the AWOs who began flight training on, or after, 1 October 1978 graduated from flight training on, or after, 1 August 1979. Since these individuals

incurred a 4-year obligation, they are not eligible to leave the Army until 1 August 1983, or later.

With few exceptions, the AWOs who incurred a 3-year commitment and who left the Army at the end of their initial obligation separated from the Army no later than 1 August 1982. Similarly, with few exceptions, the AWOs who incurred a 4-year commitment are ineligible to leave until 1 August 1983. Thus, during the period from 1 August 1982 to 1 August 1983, no first-term AWOs are eligible to leave the Army. Since first-term AWOs historically represent the majority of the AWO attritees, the number of AWO attritees available in FY 1983 is severely restricted. Only 50 potential attritees have been identified to date.

Errors in ETS dates of AWOs. Another difficulty encountered in field testing the questionnaire is the problem of identifying AWOs who meet the selection criteria. The problem is created by errors in the ETS dates recorded on the Officer Record Briefs (ORBs) of AWOs who entered flight training after the transition to a 4-year initial obligation.

As previously indicated, one of the major criteria for selecting field test respondents is the AWOs' original ETS dates. Respondents who meet the selection criteria are identified from lists, provided by MILPERCEN, that indicate the AWO's career status (OBV, VI, RA) and original ETS date.

In most cases, the reported ETS dates for individuals who began flight training after 1 October 1978 reflect an initial obligation of 3 years rather than the correct 4-year obligation. The inaccurate ETS dates preclude identification of AWOs who meet the operational definition of either attritee or retainee. Of the approximately 200 AWOs who were originally reported to have FY 1983 ETS dates, only 50 are actually eligible to leave the Army in FY 1983. The remaining 150 AWOs are ineligible to leave until FY 1984. Thus, field test data collection must be extended to include first-term AWOs who are eligible to leave the Army in FY 1984. This extension precludes implementation of the questionnaire until late FY 1984, at the earliest.

PROJECTIONS OF FUTURE AVIATOR RETENTION RESEARCH

The retention data reported in Table 10 show that retention of AWOs has increased since initiation of the AWO retention program. The most significant increase occurred during the second half of FY 1982. The increase followed implementation of a series of initiatives that were designed to address the factors identified as major contributors to AWO attrition.

The increased retention rate has alleviated the critical shortage of AWOs that emerged in FY 1979 and that was projected to continue. Nevertheless, retention of AWOs remains a major concern to the Army. The primary reasons for this continued concern include the following:

- The FY 1982 retention rate of 60 percent for first-term AWOs indicates that a large number of AWOs still leave the Army at the first available opportunity.
- A large portion of the AWOs who entered the Army during the Vietnam era are approaching 20-year retirement eligibility. The predicted loss of 36 percent per annum of these aviators is expected to be a major contributor to a deficit in the total AWO inventory¹⁰ by FY 1987 (Washer, 1982a).

¹⁰The inventory deficit predicted in FY 1987 is based on projected PERSACS authorizations.

A need clearly exists, therefore, for maintaining an ongoing program of aviator retention research.

The AWO retention survey previously conducted by ARI and the AWO separation questionnaire currently being developed by ARI have been described in previous sections of this report. This section describes ARI's projections for future retention research. The projections include the development and implementation of methods for expanding the system of feedback on aviator retention.

There are a number of ways the feedback system about retention can be made more complete. Several ways are listed below and are discussed in the paragraphs that follow:

- development of a separation questionnaire for commissioned officer aviators,
- implementation of a program for longitudinal assessment of all Army aviators, and
- establishment of an Army aviation retention team to monitor retention of aviators.

Representatives from MILPERCEN and DCSPER have expressed interest in each of these avenues for expanding the retention program.

SEPARATION QUESTIONNAIRE FOR COMMISSIONED OFFICER AVIATORS

Table 2, presented previously, shows that AWOs represent approximately one-half of the Army's total aviator force structure. The other half of the aviator authorizations and inventory are commissioned officers.

Retention of commissioned officer aviators historically has not been a problem for the Army. At the time the AWO retention research was initiated, retention of commissioned officer aviators beyond initial obligation was 79 percent--in contrast to 45 percent for AWOs. Nevertheless, a mechanism for monitoring retention of commissioned officer aviators, as well as warrant officer aviators, would provide a more complete picture of Army aviation personnel.

A separation questionnaire designed specifically for commissioned officer aviators would provide continuous feedback about the number and types of commissioned officers who separate from the Army and about the factors that influence their decisions to leave. The integration of this information with the information provided by the AWO separation questionnaire would aid in the development of more effective programs for enhancing the Army's total aviation strength. Thus, future research is being considered that will include development and implementation of a separation questionnaire for commissioned officer aviators.

LONGITUDINAL ASSESSMENT OF AVIATORS

The ARI retention survey provided a cross-section of information about AWO retention--i.e., a "snapshot" of retention and the factors that influenced retention at a given time. The administration of the separation questionnaire to AWOs who leave the Army also represents a cross-sectional approach in the sense that information is derived from each AWO once, and only once. Moreover, the single instance of data collection is at the moment when the AWO is separating from the Army.

A number of contemporary investigators (e.g., Hand et al. 1977) recommend a longitudinal vs. a cross-sectional analysis of retention. This procedure involves repeated assessment of individuals throughout their military careers. Feedback derived from longitudinal data permits comparisons, at different career points, of both career intentions and factors that influence these intentions. The data also facilitate the identification of critical career points for decision-making. These career points might then become the primary targets for intervention with retention initiatives. Thus, one project under consideration would develop a questionnaire that can be administered periodically to all aviators. Data provided by the questionnaire would be used to establish a longitudinal data base of information about career intentions, career expectations, and attitudes of aviators throughout their careers.

ESTABLISHMENT OF A RETENTION TEAM

In briefing the results of the initial AWO retention survey to MILPERCEN, ARI recommended that a formal aviation retention team be established. A retention team is still recommended as a means for expanding the overall retention program. The major objectives to be accomplished by the team include:

- monitor retention of aviators,
- establish optimal retention goals concerning the number and types of aviators to be retained,
- assist in the development of models to forecast the aviator force strength,
- develop initiatives to address factors contributing to attrition of aviators, and
- coordinate with representatives of retention at DA level, as well as with representatives from the other military branches.

As a consequence, research should be initiated to determine the criteria for selection of team members.

SUMMARY

Since 1979, the ARI Field Unit at Fort Rucker, Alabama has been engaged in an ongoing program of research on AWO retention. The current report presents an overview of this research program. The overview contains a review of past research, a description of research currently in progress, and a projection of the orientation for future research.

ARI's initial research consisted of an extensive survey that identified the factors contributing to a significant increase in AWO attrition in FY 1979. Information provided by the survey played a major role in the development of a series of warrant officer retention initiatives. Since the research effort was initiated and the initiatives were enacted, a substantial increase in retention of AWOs has occurred.

As a follow-on to the survey, ARI currently is developing a separation questionnaire for AWOs. Information provided by the questionnaire will be used to establish a feedback system that will yield current information about (a) the number and types of AWO losses, and (b) the type and importance of factors that influence AWOs to leave the Army. Constraints in field testing the preliminary version of the questionnaire, however, preclude completing the development of the feedback system until late FY 1984.

A potential avenue for future aviation retention research is the longitudinal study of all aviators. This approach necessitates development of a questionnaire to assess retention and attrition of commissioned officer aviators as well as AWOs. An aviation retention team is suggested as a means for coordinating all retention-related research.

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