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(6) THE CAUSES OF ATTRITION IN INITIAL ENTRY ROTARY WING TRAINING.

by

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U.S. ARMY RESEARCH INSTITUTE
for the BEHAVIORAL and SOCIAL SCIENCES
5001 Eisenhower Avenue
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Army Project Number 2Q263743A722 Aviator Selection

This is a report on an advanced development research project designed to meet military management requirements for research on a specific management problem. [redacted].

FOREWORD

The research reported here is one of a series of efforts designed to improve the quality of incoming Initial Entry Rotary Wing Training (IERW) students and conducted under the sponsorship of the Army Research Institute Field Unit, Fort Rucker, Alabama. Other efforts focus on psychomotor skills, attention span, time sharing, and task loading. This effort focuses on social, personality and biographic factors which might be predictive of success in IERW and later in a career in Army aviation. The work was performed by Applied Science Associates, Inc. (ASA) of Valencia, Pennsylvania under contract to the Army Research Institute (Contract No. DAHC19-77-C-0038, during the period 1 August 1977 through March 1978). Robert McMullen of the ARI Field Unit was the COTR.

Thomas K. Elliott of ASA was the principal investigator. He was assisted by Reid P. Joyce and George R. Purifoy, Jr. Dr. John K. Hawley, Director of ASA's computer center, contributed substantially to the data analysis effort.

While excellent cooperation was received from all with whom they interacted at Fort Rucker, the authors would like especially to express their gratitude to Mr. Cope and Ms. Andrews of the School's Directorate of Evaluation and Standardization, and to Captain Olsen and Mr. Popowitch at the 62nd WOC Company for the assistance they provided.

JOSEPH ZEISNER
Technical Director

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THE CAUSES OF ATTRITION IN INITIAL ENTRY
ROTARY WING TRAINING

BRIEF

REQUIREMENT

In recent years Initial Entry Rotary Wing Training (IERW) has had a relatively high attrition (washout) rate. While current figures show a reduction in the rate, losses still represent a large dollar investment in the student in training and in allocated but unused resources when the student washes out or resigns. In addition, setbacks, some of whom eventually wash out, add to training costs.

A study of the causes of washouts and setbacks which identifies factors not currently incorporated in student selection and recruitment would provide the basis for improving student input. This improvement would increase throughput and reduce training cost per graduate.

PROCEDURE

All setbacks and eliminations occurring in the past two years were analyzed in terms of frequency by cause and by course segment, separately for officers and warrant officers. These data were further subdivided into pre- and post-175/40 (the current IERW curriculum), and into pre- and post-Warrant Officer Candidate Military Development (WOCD)--a new course segment added midway through 1976 at the front of IERW for Warrant Officer Candidates (WOCs) only.

Through interviews with all participants in the attrition process, a complete description of that activity was developed and all decision points examined to shed light on possible causes of attrition. The scientific literature on aviation candidate selection was reviewed, school records were examined, and many students and school personnel who had contact with students were interviewed to gain further insights into attrition causes.

Based on the foregoing activities, a data-collection process was developed and administered to 26 attritees and 53 non-attritees during the period October 1977 - January 1978. The objective was to see if there were historical or self-descriptive characteristics of students which were predictive of difficulty with the parts of IERW where most attrition occurs. The data-collection process is limited to paper-and-pencil questionnaires to assure low cost administrative feasibility should the process be incorporated into IERW candidate selection procedures.

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FINDINGS

Over the period that the study's data cover, most attrition has been associated with warrant officers and with causes which are not addressed by present selection procedures.

The selection procedures which take place before the student arrives at Fort Rucker do a relatively poor job of screening out people who will not be able to adapt for reasons of character, personality, social development, or occupational preference to the military environment and/or the responsibilities of a warrant officer.

If attrition attributable to the military development activities in which WOCs, but not officers, are involved is subtracted from WOC attrition, officers and WOCs have very similar attrition rates.

Since WOCD was instituted in a very effective action by the school, there has been both earlier attrition and less attrition by WOCs, both leading to lower attrition costs.

Criteria for elimination from IERW are excessively vague with the result that it is often difficult for those whose job it is to recommend elimination to know whether to or how to in such a way as to avoid reversal.

There is no evidence to suggest that 175/40 has had any strong effect on attrition for either WOCs or officers. The data on this point are at present scanty however because of the small number of classes which have started IERW under 175/40.

Efforts to collect data enabling identification of people who will have a higher than normal probability of attrition were begun in this study. Highlights: Attritees tend to be younger and have less previous military experience than non-attritees. They are more often single, or geographical bachelors than are non-attritees. They have been set back more often, did not as often feel they were educationally prepared for the program, and had significantly lower peer ratings. Attritees and non-attritees did not differ significantly in AFQT or FAST test scores. On personality tests, attritees scored lower on measures related to willingness to complete things they start and lower on interest and occupational preference scales related to military officer jobs.

UTILIZATION OF FINDINGS

Preliminary findings based on very limited data from the above efforts suggest these efforts will be fruitful if continued. If they are, implementation of the findings in a program to screen applicants for IERW before they come to Fort Rucker can significantly reduce attrition costs.

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INTRODUCTION

The effort herein described was aimed at identifying causes of attrition at the U.S. Army Aviation Center. More specifically, it focused on Initial Entry Rotary Wing (IERW) training where the necessary cost of aircraft, the highly tutorial method of instruction, and the length of the course make the cost consequences of attrition particularly severe.

In a study done by the Center's Directorate of Evaluation and Standardization in late 1976,[1] it was found that the student costs alone for "self-initiated eliminations" (resignations) was $1,132,717.00. The study covered 218 students who had resigned over a two-year period. The cost figure does not include overhead, nor does it include the cost of aircraft, instructors, facilities, etc. for which the Army received no benefit. Moreover, the study did not address the cost of attrition for reasons other than resignation such as flight or academic deficiency, medical or military development problems, or administrative reasons. The total cost of all attrition must, therefore, be substantially higher than that reported on the one category the above-mentioned study examined.

Approaches to reduction of attrition costs are as numerous as the reasons for attrition and the factors which tend to increase the cost of attrition events. Students fail to complete IERW training for a wide variety of social, health, personality, economic, aptitude, character, and motivational reasons. The cost of a student loss late in the course is much higher than that of an early loss. Parenthetically, the study mentioned earlier noted this and made recommendations, on which the school has acted, which have the potential for early identification and elimination of people who would probably fail. Later in this report, some measures of how well that has worked are presented.

Relaxation of standards is not acceptable. It would only move the costs from the school to the field and probably increase them. Modification of the curriculum content or length to make it possible for less capable people to succeed in meeting current standards is not without cost--probably great cost.

The approach the effort reported here has taken is to attempt to develop the means to identify people who are less likely to succeed in the present IERW course before they come to Fort Rucker. The effort

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[1] Jinks, D. M. Cost analysis of attrition by Self-Initiated-Elimination (SIE) for Initial Entry Rotary Wing courses. Fort Rucker, AL: Evaluation Division, Directorate of Evaluation and Standardization, 7 January 77.

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focused on student characteristics not presently stressed in current applicant selection processes and not presently under investigation in other Army Research Institute efforts; namely, personality, social, occupational preference, and biographic characteristics.

OVERVIEW OF THE APPROACH

The first step was to collect data on the characteristics of attrition in IERW in the recent past--in what course segments it occurred and how it was classified by the school as to major categories of causes. The analyses performed on these data also addressed the effects on attrition of the introduction of a Warrant Officer Military Development (WOCD) course segment and the change from the 180/20 curriculum to the 175/40 curriculum.

At the same time, the process by which attrition is accomplished was examined for clues to underlying causes.

This was followed by a search for potential predictors of the major categories of attrition identified through the above efforts. The search tapped several sources:

1. The considerable literature on aviation candidate selection was reviewed.

2. Many school personnel from flight line instructors up through the organization chain to high-level managers and decision-makers were interviewed. Representatives of all categories of staff who had contact with students either as trainers or elimination board members were interviewed. The interviewers were themselves pilots. This permitted in-depth discussion of all aspects of the student's relationship with the school.

3. School records of student progress and performance and of the circumstances surrounding eliminations were examined.

4. Students and some eliminees were interviewed.

Finally, a self-administered paper-and-pencil data collection instrument was developed and administered to about 75 students, about a third of whom had recently been eliminated or resigned from IERW. The instrument seeks to obtain data on hypothesized underlying causes of attrition derived from the above-mentioned investigations. The data are expected to be useful in building a predictive model which can be used to identify applicants who are likely to have difficulty completing IERW.

BACKGROUND

The literature on aviation candidate selection is extensive. Pilot trainee selection has been of great concern since World War II, and continues to be one of the most difficult of all selection problems if success is measured by predictive validities of selection instruments and attrition rates in flight schools. Not surprisingly, much of it is oriented toward aviation job content, fixed-wing oriented, old, and done by the Air Force or Navy on populations much more like IERW's officer students than its Warrant Officer Candidates (WOCs).

An excellent summary of the literature was done in 1977 for ARPA by McDonnell Douglas.[2] The literature search done within the present effort used that work, supplemented by a Defense Documentation Center search and contacts at the Air Force Human Resources Laboratory and at the Army Research Institute field unit at Fort Rucker. Very few relevant documents beyond those identified by the McDonnel Douglas report were found. All of those believed to be relevant to the present effort are listed in the Reference Section of this report.

Four major classes of variables were of interest to the present effort: biographical, motivational, personality, and occupational preference. A number of studies have been done involving each of these classes.[3]

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[2] McDonnell Douglas Astronautics Company - East. Feasibility study to predict combat effectiveness for selected military roles: Fighter pilot effectiveness. Final Report. Research supported by Defense Advanced Research Projects Agency under ARPA No. 3168, Contract No. MDA903 76 C 0169, April 1977.

[3] Bale, R. M., & Ambler, R. K. Application of college and flight background questionnaires as supplementary noncognitive measures for use in the selection of student naval aviators. Aerospace Medicine, 1971, 42, 1178-1181

DuBois, P. H. (Ed.). The classification program (AAF Aviation Psychology Program Research Report No. 2). Washington, DC: U.S. Government Printing Office, 1947.

Flanagan, J. C. (Ed.). The aviation psychology program in the Army Air Forces (AAF Aviation Psychology Program Research Report No. 1). Washington, D.C.: U.S. Government Printing Office, 1948.

Fleischman, H. L., Ambler, R. K., Peterson, F. E., & Lane, N. E. The relationship of five personality scales to success in naval aviation training (NAMI-968). Pensacola, FL: Naval Aerospace Medical Institute, May 1966.

Valentine, L. D. Air Force Academy selection variables as predictors of success in pilot training (ASD-TN-61-52). Lackland AFB, TX: Personnel Laboratory, Aeronautical Systems Division, Air Force Systems Command, September 1961. (NTIS No. AD-263 982)

They have found correlations ranging from .10 to .31 between biographic variables and such criteria as pass-fail, flight failure elimination, and voluntary withdrawal elimination. Biographic variables of interest were: school grades, rank, procurement source, and previous flight experience.

Studies of motivational variables have found correlations as high as .41 with the pass-fail criterion.[4] Variables of greatest promise are flying interest, need satisfaction, and the discrepancy between aptitude and achievement levels.

Many studies examined the utility of personality inventories such as MMPI, Taylor Manifest Anxiety Scale, and the Eysenck personality inventory. Though some success has been shown, occasionally great success (Melton, 1954, using MMPI scores was able to classify 85 percent of a sample of Navy cadets correctly into pass-fail categories),[5] these tests have severe problems in the area of administration, scoring, and interpretation costs. They tend, as well, to be fairly transparent. The risk exists therefore that while they may demonstrate fairly good concurrent validities, their predictive validities may be poor. A few studies have found great success with clinical assessment techniques based on personality measures such as those obtained from the Rorschach test. Because of the above problems, however, these approaches probably do not represent the best place to look first for improvement in selection procedures.

Only three studies were found which examined occupational preference data. The most recent of these[6] using the SVIB reported that, based on current (AF) attrition rates and costs, some $400,000 per year could be saved (about 14 percent of current attrition costs) by inclusion of SVIB data in the applicant screening processes.

One of the most significant findings to come out of the literature survey effort is that single-predictor/single-criterion studies have

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[4] Tupes, E. C., Bowles, J. W., & Torr, D. V. Predicting motivation for flying training among senior AFROTC cadets (AFPIRC-TN-55-18). Lackland AFB, TX: Air Force Personnel and Training Research Center, July 1955.

[5] Melton, R. S. Studies in the evaluation of the personality characteristics of successful Naval aviators. Journal of Aviation Medicine, 1954, 25, 600-604.

[6] Guinn, N., Vitola, B. M., & Leisey, S. A. Background and interest measures as predictors of success in undergraduate pilot training. Brooks Air Force Base, TX: Air Force Systems Command, Mar 1976. (AFHRL-TR-76-9, AD A025851)

frequently failed to find large or significant correlations, while multiple-predictor studies have more often succeeded. Multiple predictor studies are expensive. They require large data bases and complex analytic techniques. As a result they have rarely been done. It must be recognized, however, that failure in IERW can be (is) caused by a wide variety of factors acting alone and in conjunction. Under such circumstances, a study focusing on a single factor cannot hope to account for more than a small proportion of the criterion variance. And because of the enormous statistical "noise" created by the operation of the unmeasured factors, one is fortunate indeed to obtain statistical significance.

In sum, biographic, personality, motivational, and occupational preference variables have been found in previous work to be predictive of success in aviation training. The greatest predictivity has typically been found in studies using multiple predictors.

ORGANIZATION OF THE REPORT

The following section details the examination of attrition history in IERW over the past two years, discusses the underlying causes of attrition and describes the development and administration of the data collection instruments. Findings and recommendations are presented in the succeeding section.

The appendices contain supporting tables of attrition history data, the text of the questionnaire and detailed descriptions of other tests used. They also present a tabulation of all responses and scores separately for WOC eliminees and non-eliminees. Finally, a complete description of the process by which eliminations and setbacks are effected is presented.

SECTION 1

APPROACH

ATTRITION HISTORY

The first step in focusing on the underlying causes of attrition (elimination and setbacks) was to determine what categories of students have had what sort of attrition experience at what point in IERW, and how the reasons were classified by the school.

The school uses six categories of elimination causes as indicated below:

Academic	- Failure to master classroom subjects
Flight	- Failure to perform to standard in the aircraft
Medical	- Health-related condition preventing the student from keeping up with his class, or completing training
Resignation	- Student-initiated elimination from the program
Military Development	- Failure to exhibit officer behavior--an example might be "honor code" violations
Miscellaneous	- Hardship discharge, death in a training accident, etc.

The above categories (excluding resignation and miscellaneous) plus two more are used to classify the reasons for setbacks. The two are:

Slow Progress	- The student needs more time and/or additional training to meet standards
Administrative	- Not related to the student. Typically, weather unsuitable for flying or unavailability of equipment.

The data on eliminations and setbacks were provided by the school's Directorate of Evaluation and Standardization (DES). Part of their mission

is to develop quarterly reports of attrition in accordance with the attrition definition prescribed by AR 351-183, 20 July 1976:

$$\text{Attrition Rate} = \frac{\text{Total Losses}}{\text{Graduates + Total Losses}}$$

The base for the percentages reported here is all the people who began a course segment.

Eliminations, All Students. Table 1-1 summarizes the elimination history for classes beginning 23 Nov 75 through 4 Dec 77. The data is subdivided by course segments. To facilitate comparison of the 180/20 and 175/40 curricula,[7] Primary I and Primary II in 180/20 have been combined under "Primary." The two instrument segments of both curricula are combined under "Instrument;" and the final phase of IERW, though different in the two curricula, is called "Tactics" as it was in 180/20. While this may not be completely legitimate, it causes no problem as far as this investigation is concerned because only minuscule attrition occurs after instrument training in either curriculum.

The base for the reported percentages is all of the people who began a course segment. This base was used because each segment was viewed as an opportunity to reveal clues to underlying causes of attrition not revealed by previous segments. It was therefore desirable to compare the attrition experience of all segments on an equal basis. The "Total" column is the sum of the percentages of attrition in each course segment. It should not be interpreted as the number of people more than 100 which would have to be enrolled at the beginning of IERW to average 100 graduates. It is, in fact, a slight underestimate of that number as it tacitly assumes the same class size for all course segments. Actually, class size for the latter segments is smaller due to attrition in earlier segments. At the same time, it is a slight overestimate of total attrition as computed by loss divided by graduates plus loss. Attrition rate computed in the latter manner is even a greater underestimate of the number more than 100 which must be entered to produce 100 graduates. The latter number can be computed by:

$$\frac{\text{Loss}}{\text{Graduates}} \times 100, \text{ on a class-by-class basis.}$$

The segment totals in Table 1-1 differ for several reasons: Warrant Officer Candidate Development (WOCD) was introduced only recently; because of attrition early in the course, fewer students remain for later segments; and, finally, data are not available on the last several classes in the last segment because at the end of the data collection they had not completed it yet. Elimination data on those classes are, however, included in the earlier segments.

[7] The terms "180/20" and "175/40" refer to the number of flight and simulator hours respectively which characterize the two curricula. There are, however, many differences in the content, sequence, and allocation of hours to subject matters in the two; 175/40 is the current curriculum.

Table 1-1

ELIMINATIONS – ALL STUDENTS
23 Nov. 75 – 4 Dec. 77
STATED CAUSE OF ELIMINATION BY COURSE SEGMENT

STATED CAUSE OF ELIMINATION	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA	NA	(55) 3.40	(1) .06	(26) 1.71	–	5.17
Medical	(13) 2.57	(19) .97	(7) .43	(1) .06	(5) .33	(1) .08	4.44
Resignation	(41) 8.10	(48) 2.45	(32) 1.98	–	(11) .72	(1) .08	13.33
Academic	–	(4) .20	(5) .31	– –	–	–	.51
Military Development	(5) .99	(6) .31	(6) .37	(3) .18	(3) .20	–	2.05
Miscellaneous	(5) .99	–	(5) .31	(3) .18	(9) .59	(1) .08	2.15
Total Eliminations	(64) 12.65	(77) 3.93	(110) 6.81	(8) .49	(54) 3.55	(3) .23	27.65
Segment Totals	506	1961	1616	1632	1521	1292	

Discussion. The rate of eliminations in the "Contact" phase (5%) is lower than that in any earlier phase and almost nonexistent in the "Flight" and "Academic" categories. It jumps dramatically, however, in "Instruments." The latter phase of training involves the introduction of new material to the student and places qualitatively and quantitatively new demands on him. It would seem worthwhile to investigate increasing emphasis in "Contact" on skills common to both visual and instrument flight. Even if the only result were to move some of the attrition which occurs in "Instruments" into the "Contact" phase, costs would be saved. The very low attrition rate in "Contact" suggests that student skill acquisition capacity is undertaxed there.

A significant finding related to selection of input students is that only about 27 percent of all attrition is associated with reasons within the primary focus of the AFQT and the FAST--namely "Flight" and "Academic." The remainder is associated with either "Resignation" and "Military Development" where personality, motivational, social, morality matters, and occupational preference/readiness have their greatest impact; or with medical or miscellaneous causes which are for the most part not possible to preselect for.

Setbacks, All Students. Table 1-2 is compounded in the same way as Table 1-1, but displays setback experience. The "Flight" category in this table represents students who were recommended for elimination, withdrawn from their class, but reinstated in a later class as is the practice in such cases. They are equivalent in terms of "cause" to the "Slow Progress" group.

Discussion. Here again a very low rate of setbacks for academic reasons is seen, but the combination for "Flight" and "Slow Progress," the latter referring to progress in acquiring aircraft control skills, is high--indeed, the highest of all. Further, it can be speculated, because of the apparent correlation between "Slow Progress" and "Medical" setback rates across the course segments, that some of the medical setbacks are caused by difficulties in learning to fly. Students who believe they are falling behind, the speculation goes, take advantage of minor illnesses to get themselves set back, and in the process gain a little extra flight time and instruction which corrects the problem without a blemish on their records.

The setback history during "Contact" supports the notions presented in connection with eliminations during that course segment, i.e., that student skill acquisition capacity is undertaxed there.

The substantial proportion of setbacks accounted for by "Slow Progress," "Flight," and some subset of "Medical" which is hypothesized to be related to slow progress attests to the lack of psychomotor and divided attention components in the selection procedures. It is reasonable to suspect that the moral, occupational preference, social, and personality factors (also given insufficient attention in the selection process) are not reflected in the setback experience because they are

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Administrative		[illegible]	[illegible]					
Total Setbacks	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Segment Totals	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

independent of ability to learn and because they tend to be disqualifying even in the presence of a high level of ability. In other words, problems in these areas result in eliminations, not setbacks.

Multiple setbacks are not shown in the table. However, a study of them was made on data for 180/20 only. Fifty-eight percent of officers who were eliminated were not set back prior to elimination. An additional 25 percent were set back once. Seventy percent of WOC eliminees were never set back and an additional 24 percent were set back only once. Thus, 17 percent of officers and 6 percent of WOCs who were eliminated were set back more than once prior to elimination. It is reasonable to conclude, therefore, that the bulk of setbacks during 180/20 were not wasted on students who failed in spite of the extra training. Comparable data on 175/40 were not available in sufficient numbers to enable a similar comparison.

To provide a perspective on overall elimination and setback experience to date: to expect 100 graduates, on the average somewhat more than 128 students must be entered in the course. Through the course to graduation, there will be somewhat more than 28 eliminations and 33 setbacks. A single setback at some point in the course can be expected for each four or so entering students. Note, however, that this is based on a two-year average. The trend in both setbacks and eliminations during that period has been distinctly downward as shown below. Therefore, attrition can be expected if present trends continue, to be lower in the future than the average over the last two years. Most of the downward trend has been associated with an identifiable subset of the students. This point is addressed further below.

Eliminations. Officers and WOCs. Table 1-3 presents separate elimination figures for officers and WOCs before and after 175/40 and before and after institution of WOCD.

Discussion. It is clear that the bulk of attrition is accounted for by WOCs, their rate being nearly four times that of officers. Why should this be so? They must meet higher standards on the FAST to be selected for training and the course they take has exactly the same flight and academic content and standards as that taken by the officers. The major difference in the experience of the two groups during IERW is that WOCs in addition and in parallel with flight training also receive training which leads to warrant officer status on graduation. This training is concentrated in the course segments prior to "Contact." In the course segments from "Contact" on, there is little attrition in either WOC or officer groups, and the difference in elimination rates between the two groups is insignificant.

Another difference between WOCs and officers is that the officers have all been in the Army for some time and have been through several selection processes prior to arrival at Fort Rucker. These may include college, OCS, operational duties in Army units, and the testing required for admission to these experiences. Their adaptation to the Army environment and duties has been accomplished. Those who are unwilling or unable

Table 1-3

ELIMINATIONS--ALL STUDENTS (23 Nov 75 - 4 Dec 77)
COURSE SEGMENT BY OFFICER/WOC, 180/20 vs. 175/40, AND BEFORE/AFTER WOCD

	WARRANT OFFICER CANDIDATE DEVELOPMENT (WOCD)	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Officers:							
180/20 -- Number	NA	1	17	2	17	2	39
% of those Starting Course Segment		.22	3.79	.47	3.97	.47	8.92
N Starting Course Segment		446	449	427	428	422	NA
175/40 -- Number	NA	1	11	-	4	-	16
% of those Starting Course Segment		.36	5.14	-	2.09	-	7.60
N Starting Course Segment		275	214	254	191	179	NA
Warrant Officer Candidates:							
180/20 -- Number	20	71	78	3	29	1	202
% of those Starting Course Segment	10.93	7.92	10.14	.42	4.01	.15	33.57
N Starting Course Segment	183	896	769	722	723	691	NA
175/40 -- Number	44	5	3	3	4	-	59
% of those Starting Course Segment	13.62	1.45	1.63	1.31	2.24	-	20.25
N Starting Course Segment	323	344	184	229	179	-	NA
Before WOCD -- Number	NA	68	72	3	23	1	167
% of those Starting Course Segment		9.24	11.67	.52	3.99	.18	25.61
N Starting Course Segment		736	617	575	576	549	NA
After WOCD -- Number	64	7	10	3	10	-	94
% of those Starting Course Segment	12.65	1.39	2.98	.80	3.07		20.88
N Starting Course Segment	506	504	336	376	326	142	NA
All Officers:							
Number	NA	2	28	2	21	2	55
% of those Starting Course Segment		.28	4.22	.29	3.39	.33	8.52
N Starting Course Segment		721	663	681	619	601	NA
All Warrant Officer Candidates:							
Number	64	75	82	6	33	1	261
% of those Starting Course Segment	12.65	6.05	8.60	.63	3.66	.15	31.74
N Starting Course Segment	506	1240	953	951	902	691	NA

to function in a military context by and large have been eliminated from the population from which officer students come.

WOCs, on the other hand, may be either new recruits fresh from BCT or NCOs with some years of experience but who have never faced demands similar to those in the "Military Development" parts of the curriculum which only WOCs receive.

Warrant Officer Candidate Military Development (WOCD) and 175/40. In 1976, a new course segment, "WOCD," was instituted at the school. It was designed to separate some of the military development activities from the period of intensive flight training and to identify earlier the people who fail for unwillingness or inability to adapt to the military environment before expensive flight school costs were incurred. Experience to date indicates that total WOC attrition has dropped since that time and, perhaps most importantly, it has dropped significantly in the parts of the course after WOCD. While attrition is still substantially higher for WOCs than for officers overall, in the flight-oriented parts of the course--the course segments from preflight on--it would probably not be possible to detect a statistically significant difference between officer and WOC elimination rates, 8.52 percent versus 8.23 percent respectively, comparing rates for all officers with rates for WOCS after WOCD.

For eliminations from "Preflight" through "Tactics" for officers and WOCs during the 175/40 to date (the current curriculum and the most recent data), the following elimination rates are observed:

Officers: 7.60%

WOCs: 6.63%

a difference of .97 percentage points, with WOCs eliminated less frequently than officers.

Discussion. The above findings suggest strongly that little or none of the elimination rate difference between WOCs and officers is accounted for by a difference in ability to deal with flight and flight-related academic training. Some 68 percent of all WOC eliminations now occur in WOCD, and after WOCD, WOC elimination rates are very like those of officer students. That 68 percent represents 55 percent of all the attrition in both officer and WOC groups during 175/40 to date.

It must be noted that the foregoing is based on data on only 14 classes of officers and 13 classes of WOCs since 175/40 began, and at this writing some of those classes had not yet completed the final phase of training (Tactics). However, there is considerably more data (20 graduated classes) on which to base the before/after WOCD comparison and those data, mentioned earlier, support the same conclusion.

Elimination rates for both officers and WOCs trended downward during the period the data cover, the bulk of the trend being accounted for by the reduction in WOC attrition. Whether this is due to the beneficial effects of WOCD and 175/40 cannot be known with certainty. Changes in school policy, formal or informal, or change in the quality of the student input could produce a similar result. In the absence of data on such changes, the conclusion that WOCD and 175/40 are responsible is attractive. But it should be mentioned again that only limited data on 175/40 exist.

The Effect of "Snow Bird" Status. At the time 175/40 began, there resulted from the changeover to the new curriculum an increase in the number of students, particularly WOCs, who were at Fort Rucker waiting for assignment to a class, i.e., on Snow Bird status. There was also an increase in the length of waiting time Snow Birds experienced. The expected effect was an increase in WOC attrition. Questionnaire data to be presented later bear on this, but it should be noted here that all such attrition would be indicated as eliminations in WOCD. As shown in Table 1-3, WOC eliminations since WOCD was begun have occurred at a rate of 12.65 percent while the rate has been 13.62 percent since 175/40 started--a difference of less than one percentage point. This difference is about four people based on the number of WOCs who have begun WOCD since 175/40.

Discussion. The above does not affirm that Snow Bird status has little or no effect on attrition rate, though it does seem to suggest it. It is possible that the effect of Snow Bird status on eliminations was offset by changes in characteristics of student input or by reductions in attrition in later phases of WOCD. Unfortunately, no data on this point were collected beyond those obtained from the few eliminees who responded in the questionnaire. Those data are found in Appendix A. It is not unlikely, however, that many students who left as Snow Birds would have left in any case.

Setbacks. The beneficial effects of WOCD and 175/40 on elimination would be quite unequivocal were it not for the data on setbacks. Table 1-4 presents this data in the same way that Table 1-3 presented the elimination data. Clearly, 175/40 does not as yet show any effects on the overall rate of setbacks for officers. There is, however, some indication that the setback rate in "Instruments" might prove to be higher for officer students. Again, it should be noted that there is too little data available to make any case strongly.

With that warning, it is noted that the setback rate for WOCs in 175/40 is substantially lower than that for officers--14.43 percent versus 19.13 percent. If the setbacks in WOCD are removed from the comparison, the difference in rates grows from 4.70 to 6.87 percentage points. This means that under 175/40, WOCs are being set back at a rate only two-thirds of that for officers during the course segments after WOCD. Under 180/20, the setback rate for WOCs was twice that for officers in the comparable course segments.

Discussion. One explanation is that 12.65 percent elimination in WOCD is removing not only those WOCs who would be eliminated late in the

Table 1-4

SETBACKS--ALL STUDENTS (23 Nov 75 - 4 Dec 77)
COURSE SEGMENT BY OFFICER/WOC, 180/20 vs. 175/40, AND BEFORE/AFTER WOCD

	WARRANT OFFICER CANDIDATE DEVELOPMENT (WOCD)	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Officers:							
180/20 – Number	NA	–	38	6	34	6	84
% of those Starting Course Segment		–	8.46	1.41	7.94	1.42	19.23
N Starting Course Segment		446	449	427	428	422	NA
175/40 – Number	NA	–	16	3	20	–	39
% of those Starting Course Segment		–	7.48	1.18	10.47	–	19.13
N Starting Course Segment		275	214	254	191	179	NA
Warrant Officer Candidates:							
180/20 – Number	18	68	71	33	104	25	318
% of those Starting Course Segment	9.84	7.59	9.23	4.57	14.39	3.47	49.09
N Starting Course Segment	183	896	769	722	723	691	NA
175/40 – Number	7	10	1	1	15	–	34
% of those Starting Course Segment	2.17	2.91	.54	.44	8.38	–	14.43
N Starting Course Segment	323	344	184	229	179	–	NA
Before WOCD – Number	NA	64	58	29	88	2	261
% of those Starting Course Segment		8.70	9.40	5.04	15.28	.01	42.42
N Starting Course Segment		736	617	575	576	545	NA
After WOCD – Number	25	14	14	5	31	2	91
% of those Starting Course Segment	4.94	2.78	4.17	1.33	9.51	1.41	24.13
N Starting Course Segment	506	504	336	376	326	142	NA
All Officers:							
Number	NA	–	54	9	54	6	123
% of those Starting Course Segment		–	8.15	1.32	8.72	1.00	19.19
N Starting Course Segment		721	663	681	619	601	NA
All Warrant Officer Candidates:							
Number	25	78	72	34	119	24	352
% of those Starting Course Segment	4.94	6.29	7.56	3.58	13.19	3.47	39.03
N Starting Course Segment	506	1240	953	951	902	691	NA

course, but many of those who would be set back as well. As was reported earlier, only about 30 percent of the WOCs who were eliminated during 180/20 had been set back prior to elimination; 30% of 12.65% is 3.8%. This accounts for much but not all of the 6.86 percentage point difference between WOC and officer setback rates from Preflight on in 175/40. The rest may be accounted for by random variation, i.e., chance, or measurement error--remembering the limited data on 175/40--or by a change in the quality of WOC input or changes in school policy. It is simply not possible at the present time to know which. Again, however, it is very attractive to conclude that WOCD has had a beneficial effect on setback rates for WOCs and that 175/40 has done nothing to worsen setback rates for officers or WOCs.

THE UNDERLYING CAUSES OF ATTRITION

The focus of the investigation reported here is on factors other than aptitude for learning aircraft control and other flight-related skills. This is appropriate for several reasons. The former category is the single largest category of attrition. The latter is the second largest. Selection for these aptitudes appears to be working reasonably well, though there remains room for improvement. Efforts are underway in other programs to augment selection on these dimensions through development of screening techniques which focus on psychomotor skills, residual attention, and other aptitudes not now addressed by the AFQT and FAST.

Based on interviews with school personnel including the medical staff, it seems likely that some component (but probably a very small one) of medical setback and perhaps elimination is the result of people trying to get out of the program for a socially (or personally) acceptable reason--or people trying to get additional training/flying time through being set back. The bulk of medical attrition, however, is probably legitimate. This topic is addressed further in Appendix G which describes the process by which attrition occurs.

It is judged by the authors that, by and large, people are screened for medical problems as well as is practical prior to coming to Fort Rucker. Fewer than 50 students have been eliminated for medical reasons over the two years the data cover; and 34 of those have been associated with WOC military development prior to the addition of WOCD to the curriculum or in WOCD since then.

There is almost no attrition for academic reasons for WOCs or for officers.

Miscellaneous eliminations and administrative setbacks are not affected by student characteristics.

This leaves "Military Development" and "Resignation" as the dominant remaining cases wherein it is likely to be both possible and sensible to attempt to identify prospective students who will have trouble.

"Military [illegible] attrition has not previously been studied. "Resignation" has been. The data in Table 1-5 are taken from an analysis of 1976 resignations from IEFW.

Table 1-5

COMPARATIVE DATA ON SELF-INITIATED ELIMINEES (SIEs) REASONS FOR RESIGNING*

(Condensed from Jan 77 Army Cost Analysis Report on SIEs[8])

Reason	142 WOCs Preflight (percent)	48 WOCs Primary I (percent)	9 WOCs IQ, ADV (percent)	Combined Primary I IQ, ADV WOCs (percent)	Primary I IQ, ADV 19 Officers (percent)
Motivation	av. 68.5	56.3	44.4	54.-	47.5
Personal Problems	25.9	25.0	33.3	26.-	0
Program Misconception	23.8	10.4	11.1	10.-	5.3
Fear of Flying	.7	8.3	22.2	17.-	52.6
Poor Performance	9.1	58.3	44.4	57.-	57.9

*Columns don't add to 100 percent because of multiple responses.

As part of the present study, all letters of resignation by officers (a total of seven) and a random sample of 20 resignation letters by WOCs in 1977 were read. Excerpts are presented in Appendix I. The content of these letters closely parallel the reasons given by resignees in the previous study.

Fear. Fear and related syndromes in combination with flight skill related factors are heavily reflected by officers, and motivational and personal problems by the WOCs. It may be that failure is what the student really fears in those cases. It may also be that the student recognizes that his/her lack of skill puts him in real danger. The difference between officer and WOC students on the fear dimension seems explainable on the basis that it is more acceptable for officers (who have by and large come from a learning achievement background) to admit fear than for

[8] Jinks, D. M. Cost analysis of attrition by Self-Initiated Elimination (SIE) for Initial Entry Rotary Wing courses. Fort Rucker, AL: Evaluation Division, Directorate of Evaluation and Standardization, 7 January 77.

them to admit learning difficulty. Clearly, for officers, "fear of flying" is confounded with learning difficulty. In four out of seven cases both are mentioned. It is probably worth mentioning again that this is a small source of elimination involving only seven people in all of 1977.

Another possible explanation for the differences between officers and WOCs on the fear dimension is that the bulk of WOC elimination occurs before they have any contact with aircraft. This may eliminate many of the people who would later develop fear or anxiety.

Personal and Motivational Problems. Personal and motivational problems are the dominant causes of attrition for WOCs as reflected in resignations and military development eliminations and in the content of resignation letters. The rate of such elimination is higher for WOCs in WOCD alone than is the rate of officers for all causes over the whole course (Table 1-1 and Table 1-3). Why should WOCs have more personal and motivational problems than officers? Prior to initiation of WOCD they had to meet the same standards officers meet, but with a significant encumbrance, namely the "military development" activities which went on at the same time. Even since the initiation of WOCD, restrictions continue through "Primary." For WOCs, it is a tougher program. In addition, they have less money and less time to spend with their families--both of which foster marital difficulties.

This is not to say that the demands of WOCD are unreasonable. First, the vast majority of WOCs succeed. Second, at least some of the WOCs are people who are unlikely to adapt to a military occupation in any case. Such people are not found among officer students because they represent a population who has been preselected through being in the Army for some time. During that time, they may have been through OCS or other programs which have the capacity to eliminate some people. In the absence of other selection processes, WOCD must serve that function for those WOCs who have not had prior military service.

Poor Performance. As reflected in flight and academic elimination and slow progress, flight, and academic setbacks, poor performance is an important cause of attrition. It is undoubtedly often a component of attrition where the dominant cause is otherwise classified--resignation, fear, motivation, etc. The previously mentioned Army study reported this and this study's analysis of resignation letters support it. It is further supported by anecdotal data collected in interviews with school personnel. The focus of this effort, however, is on the other causes.

DEVELOPMENT AND ADMINISTRATION OF DATA COLLECTION INSTRUMENTS

Objectives. It must be recognized that the categories of attrition used by the school tend to focus on what is in each case the dominant reason for the attrition event. As such, the fact that there may be several contributing causes in addition to that named tends to be obscured.

It is not possible to know, for example, when a student resigns because he/she simply is "not motivated to continue," the extent to which this lack of motivation results from the fact that he/she is doing poorly. Nor is it any easier when the reverse is true. One of the objectives of the data collection effort, therefore, was to obtain information on the above sorts of relationships, i.e., to obtain a more detailed look at the antecedent conditions of attrition than is provided in the attrition history data collected by the school.

The primary objective of the data collection effort, however, was to obtain data which could be used to develop a predictive model focusing on the largest category of attrition, namely, resignation and military development by WOCs early in IERW. The evidence presented earlier in this report suggests that:

1. This sort of attrition is not attributable to factors presently stressed in selection procedures.

2. The underlying causes are more likely to be found in social, personality, biographic, and occupational preference factors than in flight aptitude factors because the bulk of this attrition occurs before flight is encountered.

3. The aviation candidate selection literature strongly suggests that the above factors are likely to have predictive value.

With such a predictive model in hand, it will be possible to build selection procedures which will result in significant reduction in attrition and, as a consequence, in attrition cost. Further, although it is not a completely unequivocal finding, the data show that as attrition early in the course goes up, the rate of setbacks goes down. This suggests that when higher quality students comprise the course input, not only eliminations but setbacks will be reduced.

Instruments. Three instruments were used: the SVIB-SCII, an occupational preference inventory; the 16PF, a personality inventory; and a questionnaire. The first two are described in detail in Appendices B and C respectively. The complete questionnaire is presented in Appendix A. In addition, AFQT and FAST scores as well as peer ratings were obtained for all to whom the other instruments were administered.

The instruments other than the questionnaire had all been developed and thoroughly validated prior to this effort. The questionnaire was developed as part of this effort. It was administered in the interview mode to the first 10 subjects, revised to make it self-administering and

so administered to the rest. It was designed to collect data on three classes of information:

1. Personal history and biography.

2. Reaction to IERW, including observations about supervisors and peers.

3. Self-descriptive factors found in the literature to have had predictive value in past studies.

Administration. Students completed the questions alone or in groups of two or three in the presence of an administrator. There was no time limit. Average time varied from two to four hours. Participation was voluntary.

The following section summarizes the findings.

SECTION 2

FINDINGS AND RECOMMENDATIONS

FINDINGS

Appendices A through F present a tabulation of all data separately for eliminees and non-eliminees, along with tests of statistical significance where performed.

Biographic Questionnaire

	Level of Statistical Significance
• The average eliminee (E) is about 2.4 years younger than the average non-eliminee (Non-E)	.01
• E's had about half as much prior service (in weeks) as Non-E's.	.001
• Two-thirds more Non-E's were married than E's.	.20
• Two-and-one-half times as many of the Non-E's spouses lived in the vicinity of Fort Rucker as those of E's.	.05
• E's had less education than Non-E's by about one year.	.01
• E's had more medical problems since they joined the Army.	.10
• Birth order showed little difference as did place of origin, living accommodations, size of community of origin, or parents' occupation.	NA*
• E's <u>did not</u> list as reasons for resigning (if they resigned):	NA

Peers — Army restrictions
Army discipline — Separation from family

*Not applicable

	Level of Statistical Significance
• Almost equal percentages of E's and Non-E's were on Snow Bird status, but E's were Snow Birds longer on the average. About half of those who [illegible] listed Snow Bird status as a reason.	NS**
• More Non-E's felt time spent on Snow Bird status was helpful to them.	.05
• It is more frequently found that parents of E's lived together.	.10
• E's more frequently participated in organized sports.	.05
• The desire to fly was the dominant reason for enlistment in the program for both groups.	NA*
• E's felt they did best in the physical fitness parts of the program, while Non-E's felt they did best in academics; only 14% of them selecting physical fitness as the part of the program they did best in.	NT***
• Almost three times as many E's were set back as Non-E's.	.01
• In seven out of eight cases when a superior recommended that a WOC resign, it was for a "military development" reason.	NT
• More Non-E's felt the tasks taught in WOCD would be found on the job after training.	.01
• E's first considered aviation as a career more recently than Non-E's.	NT
• Twice as many Non-E's as E's wanted flight training for reasons of adventure.	.05
• More E's than Non-E's had previous flight training, but Non-E's had more than twice as much.	.01

*Not Applicable
**Not Significant
***Not Tested

	Level of Statistical Significance
• More E's than Non-E's felt they were not educationally prepared for the program.	.15
• Only one E and one Non-E reported a recruiter suggesting he conceal information about himself in applying, and only one E reported assistance by a recruiter in passing a test.	NA*
• Significant numbers of both E's and Non-E's felt the program was misrepresented to them, but E's expressed this nearly twice as often.	NA
• More E's felt too much pressure was put on them.	.10
• More E's felt the program was misrepresented to them.	.10

Peer Ratings

E's differed substantially and statistically from Non-E's on this dimension.

E M = .80

Non-E M = .55

This means that the average eliminee was in the bottom 20 percent of his class and the average non-eliminee was in approximately the upper half. The differences are highly significant statistically (.01 level).

AFQT Scores

These scores show very small differences between E's and Non-E's. The differences are not statistically significant.

FAST Test Scores

These scores likewise show small and non-significant differences.

*Not Applicable

16PF

The 16PF is a set of 16 personality questionnaires arranged in omnibus form. It is designed to make available, in a minimum of testing time, information on the most dominant personality factors as defined by Cattell's[9] factor analytic research.

- On the Humble-Assertive dimension both E's and Non-E's tended to be assertive, but E's were more so, tending more toward the aggressive, stubborn and competitive. The difference was statistically significant at the .10 level.

- E's tended to be classed as more happy-go-lucky, less serious than Non-E's, significant again at the .10 level.

- E's tended to be somewhat less controlled and self-exacting than Non-E's. The difference was significant at the .01 level. A high score on this dimension is predictive of a willingness to complete things once started; a low score with laxness, lack of discipline and carelessness of social rules.

- Both groups made high scores on "intelligence." Non-E's scored higher, but the difference was not statistically significant. This score also correlates strongly with willingness to complete something once started.

SCII

The SCII is a combined sex version of the Strong Vocational Interest Blank.[10]

- Non-E's have consistently higher scores on the six occupational scales relating to military activities. The differences are not, however, statistically significant with 6 and 10 subjects in the two respective groups. With more subjects, it is possible that they would be.

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[9] Cattell, R. B., Eber, H. W., & Tatsuoka, M. M. Handbook for the sixteen personality factor questionnaire (16 PF). Champaign, IL: Institute for Personality and Ability Testing, 1974.

[10] Campbell, D. P. Manual for the SVIB-SCII Strong-Campbell interest inventory. (2nd Ed.) Standord, CA: Stanford University Press, 1977.

- Non-E's also score higher on "investigative," science, writing and teaching. These differences are statistically significant at the .01 - .15 level. Also statistically significant--E's score higher on "enterprising" than Non-E's.

RECOMMENDATIONS

1. The data collection effort should be continued. More data are needed to build the predictive model to the point where it will be a useful basis for the development of selection tools. A discussion of how this might be done is presented in the following section.

   The number of statistically significant and near significant findings to date suggests that improved selection on dimensions not stressed by current selection procedures is within reach. The "payoff" would be in reduction of what is currently the largest category of attrition in IERW. The data from the present effort also suggest that improved selection in this category might well also reduce attrition in other categories.

2. Appendix G presents a discussion of the administrative process by which attrition in IERW occurs. It is recommended that more specific criteria for elimination in particular be developed both to assure that the Army retains those who will ultimately succeed and to assure that those who should not become aviators and/or warrant officers are eliminated. Once improved criteria are developed, it is essential that there be complete understanding of these criteria up and down the chain of command.

3. Consideration should be given to increased use of the "Contact" phase of training to improve skills common to both visual and instrument flight. Attrition in "Contact" is consistently much lower than in "Instruments" which it immediately precedes suggesting that student skill acquisition capacity may be undertaxed in "Contact."

4. All of the data in the attrition history portion of the present study were collected by hand from paper records located in at least three different places on Fort Rucker. Many of the questions it might have been useful to address could not be because it would have meant searching by hand through tens of thousands of pages of student records filed by student name and class number. Such studies and many others as well would be greatly facilitated

if all student information were stored in a form suitable for computer processing as would virtually all of routine work that DES performs. This recommendation was made by the Army-performed study reported earlier. It is strongly supported by this effort as well.

SECTION 3

DIRECTIONS FOR FUTURE WORK

The purpose of a selection program is to predic who will and who will not succeed in the situation for which selection is developed. The objective of the present study is to determine the causes of attrition in IERW. The benefit of this knowledge is expected to be a reduction in the number of IERW student eliminees and setbacks through the ability to identify these people before the onset of instruction.

One point that is clear from the data the present study presents is that flight school candidates have difficulty for a number of different reasons.

The elimination category, "Resignation," for example, includes candidates who resign for reasons such as marital problems, financial difficulties, motivational and personality problems, failure to adapt, learning difficulty, and so forth.

Perhaps the easiest categories to screen out are the "Academic" and "Flight" eliminees. These are the areas where the majority of studies relating aptitude to performance have been concentrated. The school now uses the AFQT (Armed Forces Qualification Test) and the FAST (Flight Aptitude Selection Tests) to screen for aptitude. This is done with some success as evidenced by the current relatively low rates of eliminations for flight deficiency or academic failure. While there is still room for improvement of rates in these latter categories, other studies are underway with this as their focus.

The present study and others that have addressed the problem of identifying eliminees for other reasons have traditionally used instruments such as biographic questionnaires, personality inventories, vocational preference questionnaires. These other studies have generally achieved less success, i.e., accounted for less criterion variance, than those designed to screen potential academic and flight eliminees.

This lack of success has been in part attributable to the fact that the vast majority of studies have examined only a single predictor variable or variable set such as "anxiety," or "attitude" or "motivation." Studies using multiple predictors have been able to account for substantially greater proportions of criterion variance.

The dominant reason for the lack of success, however, is probably that attrition has typically been viewed as a homogeneous variable. Clearly, students in general and WOCs in particular have difficulty in IERW for a

variety of reasons. It seems quite likely, based on what we have learned to date, that the predictive indices of elimination in the several sub-categories of reasons are not the same. The result of lumping the sub-category groups and analyzing them together is to wash out any systematic variance in the predictive measures that is attributable to sub-category membership. In practical terms, the result is no significant relationship between the sets of predictive measures and eventual success in flight school.

The current study includes a sufficient number of the variables necessary to begin studying each of the elimination sub-categories separately. Further, the substantial number of statistically significant (and nearly so) differences observed in the data collected to date suggest potentially high discriminating power for the items under study. The existing data base does not however contain a sufficient number of subjects in the various sub-categories to reliably discriminate the groups. The problem is compounded by the necessity, at least in the beginning stages, to examine a large number of potential predictor variables. Using the same small subject pool in a series of analyses involving a large set of potential predictors allows for excessive capitalization on chance in the selection of the final predictor set.

To correct these difficulties, it is recommended that data collection be continued for approximately one more year. Flight school enrollment statistics and elimination rates indicate that data on roughly 175 to 200 WOC eliminees would be obtained during this time. Of these eliminees, 25 percent, or about 50, would be for flight or academic reasons; and 75 percent, or about 150, would be for others. To this group of approximately 200 eliminees must be added a comparison group of 150 to 200 randomly selected students who successfully complete flight school. These two groups together, 350 to 400 subjects, would be a large enough sample to separately treat the various sub-categories of eliminees.

If data on a sufficient number of subjects were not obtained in a one-year time frame, then data collection could continue until the required numbers were obtained. However, the practical realities of the situation, i.e., the necessity to produce some useful results in a reasonable time period, and the potential for historical effects which could change the composition of the subject pool, dictate that the purely data-collection phase of the effort not extend much beyond one year.

After the required student data sets have been obtained, the next step would be to use the information in an attempt to predict membership in specific criterion groups, using a discriminant analysis procedure. Discriminant analysis is a statistical technique which seeks to identify the basic ways in which groups differ. The method is similar to multiple regression except that the criterion is discrete (e.g., group membership) rather than continuous. In this case, the specific objective of the analysis is to predict membership in one of several groups: successful completion, elimination due to military development problems, or elimination due to resignation or to sub-categories within these.

[illegible]

[illegible]

[illegible] This is necessary [illegible] "Drift" [illegible] in the predictive efficiency of the [illegible] The drift is a result of historical [illegible] changes in the training [illegible] Hence the percentage of misses becomes unacceptably [illegible] the prediction scheme must be reevaluated and revised.

The [illegible] selection procedure alluded to in the previous paragraphs [illegible] constitute the second phase of the overall selection process. Phase [illegible] of the already established testing designed to screen potential flight aptitude failures. Given that candidates successfully [illegible] the aptitude criteria for admission to Warrant Officer candidacy, they would be allowed to proceed with the second phase of selection which is designed to screen potential eliminees due to other causes. Since [illegible] effective screening beyond the AFQT-FAST testing now takes place, the present population of flight students does constitute a representative sample of potential candidates in that they are the ones who would be admitted without further screening. Thus, selection validation carried out after the initial scholastic screening will not produce results that are biased by preselection except to the extent that there is a relationship between FAST test scores and other variables under study. Nothing has been

found to date which suggests such a relationship—nor is it reasonable to expect to find one. If such a relationship exists, however, it will be apparent and appropriate compensation can be made. Candidates who do not meet the scholastic requirements will not be admitted in any case; thus they need not be considered. The objective is to more adequately identify potential eliminees, for reasons of "personal difficulties," from among those who are otherwise qualified.

SECTION 4

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APPENDIX A

STUDENT QUESTIONNAIRE AND SUMMARY OF RESPONSES

The questionnaire, following, was presented after personal introduction to the students (and eliminees) with the following instructions:

> "We are interested in learning more about why people leave the program.
>
> I have two tests for you to complete and a questionnaire. The questionnaire pertains to your background and the WOC school. Some questions pertain only to those who are resigning. If you are still in the program, omit these questions.
>
> All responses will be strictly confidential.
>
> Your participation is voluntary.
>
> If you have any questions, please ask."

Three people declined to participate.

Immediately following the questionnaire will be found an item-by-item summary of the responses of the 26 eliminees and 54 students who were still in the program. Responses are presented separately for each group, i.e., eliminees and non-eliminees. The percentage of each group making each response is presented as well.

For many of the items, the level of statistical significance of the difference in responses of the two groups are presented. The number indicates the probability that the observed difference occurred by chance. "NA" means that a test of significance would not be meaningful. "NT" means that a test of significance was not performed. Many were not tested because the differences appeared to be too small to be of practical significance. "NS" means a test was performed but the probability of chance occurrence of the observed difference was greater than 0.20.

For categorical data, the chi-square statistic corrected for continuity was used with df=1. Where one of the scores was zero, the "Fisher exact test" was used. For continuous dimensions such as age, weeks of prior service, years of education, etc., the "t-test" was used.

It should be noted that all questions do not have the same number of respondents. This is for several reasons:

1. Students were free not to respond and a few simply elected to skip one or more questions.

2. Approximately one-third of the questions were added to the questionnaire at various times after data collection began.

3. Some questions apply to only subsets of the student population, e.g., those who resigned, or were "Snow Birds," or whose parents did not live together.

QUESTIONNAIRE

Interviewer's Name _____ Peer Rating: _____

Date of Interview _____

WOC _____

Graduate _____

Eliminee _____

Military Development _____

Academics _____

Flight _____

Resignation _____

Medical _____

(1) Name and Grade _____

(2) Age _____

(3) Class No. _____

(4) SSN _____

(5) Phase of Training _____

Days in this phase _____

(6) Prior Service (years) _____

MOS No. and Title _____

Rank prior to Ft. Rucker _____

(7) Marital Status:

single _____

married _____

divorced _____

widowed _____

(8) Years of Education _____

College Degree _____

QPA _____

(9) Which of the following groups includes your major subject of study in college?

I did not attend college _____

English, foreign languages, literature, drama, fine arts, etc. _____

Social or biological sciences (history, economics, medicine, psychology, etc.) _____

Education (teacher-training, etc.) or physical sciences (mathematics, engineering, etc.) _____

Business, journalism, industrial arts, physical education, agriculture, etc. _____

(10) For each school or college subject listed below, you are to choose one letter to tell how well you succeeded in that subject according to the following scale.

A - Exceptionally well
B - Well
C - Fairly well
D - Poorly
E - Never studied the subject

Foreign languages _____

Economics _____

History _____

Mechanical drawing _____

Physics _____

Shop work _____

(11) FAST Score _____

(12) Spouse living in vicinity of Ft Rucker?

yes _____ no _____

(13) Civilian Occupation _____

No. of years in last job _____

(14) Which of the following are similar to jobs you have held?

Airplane mechanic _____

Technical instructor _____

Technical inspector _____

Automobile mechanic _____

(15) Have you had any medical problems since you joined the Army?

yes _____ no _____

(16) Brothers and/or sisters older?

yes _____ no _____

Brothers and/or sisters younger?

yes _____ no _____

(17) Have any of the following ever been a licensed civilian pilot?

Your father or mother _____

Your brother or sister _____

Your uncle, aunt, cousin, or other relative _____

Your close personal friend (not in family) _____

(18) Which of the following United States areas were you born in?

Northeast _____ Southeast _____ South _____ Midwest _____

West Coast _____ Northwest _____ Outside U.S. _____

(19) Which of the following did your family live in most of the time?

House _____ Mobile Home _____

Apartment _____ Other _____

(20) During most of your life you have lived -

in a large city (over 100,000) _____

in a city (10,000 to 100,000) _____

in a small town (1,000 to 10,000) _____

in the country _____

(21) Occupation of father or head of household.

White collar (clerical, professional) _____

Blue collar (factory work, manual work, etc) _____

Military _____

(22) Were you living with the following prior to WOC training?

Wife _____

Alone _____

Parents (both) _____

Father only _____

Mother only _____

Other _____

NOTE: If you are married and lived with your wife at your parents' home, check "parents."

(23) Do both of your parents live together?

yes _____ no _____

(24) If "no" to above, why?

Widowed _____

Divorced _____

Separated _____

Living apart _____

Other _____

(25) How far in school did your father go?

Grade school (grade 8 or less) _____

Some high school (grades 9 to 12) _____

High school graduate _____

Some college, but did not graduate _____

College graduate _____

(26) How far in school did your mother go?

Grade school (grade 8 or less) _____

Some high school (grades 9 to 12) _____

High school graduate _____

Some college, but did not graduate _____

College graduate _____

(27) Your parents are (or were) -

very much in favor of your joining the Army _____

somewhat in favor of it _____

indifferent to it _____

somewhat opposed to it _____

very much opposed to it _____

(28) What tools were available in the home in which you grew up?

Well-equipped shop, machine tools _____

Work bench, good hand tools _____

A good number of hand tools _____

A few hand tools _____

None _____

(29) Did you participate in any organized sports at school or college?

yes _____ no _____

What type? _____

(30) Do you know how to swim?

yes _____ no _____

(31) Did you join any clubs, societies, etc., at school or college?

yes _____ no _____

What type? _____

(32) Which one of the following did you do most during your spare time while you were in high school and/or college?

Read books and magazines, and did homework _____

Went to dances, parties, club meetings, and visited with friends _____

Worked on and operated engines, cars, motorcycles, etc. _____

Participated in sports _____

Did not do any of the above activities while in school _____

(33) How have you spent most of your past school vacations?

Traveling _____

Engaging in sports _____

Working _____

Hunting or fishing _____

None of the above _____

(34) For each activity listed below, you are to choose one letter to tell how well you perform the activity according to the following scale.

A - Exceptionally well
B - Well
C - Fairly well
D - Poorly
E - Do not engage in this activity

diving or ski-jumping _____

marksmanship (rifle, pistol, trapshooting, etc.) _____

sailboating _____

auto racing, motorcycle racing, or motorboat racing _____

swimming _____

track (dashes or hurdles) _____

football, rugby, or soccer _____

(35) For each activity listed below, you are to choose one letter to indicate how often you have done it, according to the following scale.

A - Frequently
B - A number of times
C - Once or twice
D - Never, but could probably do it
E - Never, and doubt that I could

Built something by following printed directions and using a diagram or blueprint. _____

adjusted a carburetor _____

arranged a flower garden _____

found your way by using a compass _____

solicited contributions for a charity _____

arranged a club entertainment _____

repaired a radio set _____

made a backward dive from a diving board _____

wired a house or other building for electric lights _____

(36) What aspects of the program made you want to resign? (Omit if you didn't resign or are still in the program.)

Peers _____ Other (explain) _____

Army discipline _____

Army restrictions _____

Separation from spouse _____

(37) Were you on Snow Bird status?

yes _____ no _____

(38) If "yes," how many weeks?

1-2 _____

3-4 _____

5-6 _____

7+ _____

(39) Did you feel this time was helpful to you?

yes _____ no _____

(40) How did you spend your time as a Snow Bird?

_____

(41) If you were on the above status and resigned, was this a major cause of your resignation?

yes _____ no _____

(42) Which one of the following would you <u>most</u> prefer to do during your off-duty time?

play golf, tennis, or ride horseback _____

play on an organized baseball or other sport team _____

go night-clubbing _____

visit a public library or museum _____

go hunting or fishing _____

(43) What is your relationship with your superiors?

Good (virtually no trouble) _____

Average (about the same as peers) _____

Frequent conflict (more than peers) _____

Poor (continual conflict) _____

(44) What is your relationship with your peers?

_____

(45) What, primarily, made you enlist in WOC program?

Recruiter _____

Desire to fly _____

Desire for officer status _____

Salary offered _____

Status of being a pilot _____

(46) Before you joined the Army, had you considered an Army specialty other than being a pilot?

yes _____ no _____

(47) If yes, what type of program?

Maintenance--mechanical work, etc. _____

Non-maintenance--radio operator, clerk, infantry, etc. _____

(48) As an automobile driver, you are a -

good safe driver _____

good driver but inclined to drive too fast _____

fair but safe driver _____

poor driver _____

non-driver _____

(49) What kind of mechanical work have you done on a car?

Have never made mechanical repairs or serviced a car _____

Minor servicing operations (greased, changed tires, put on fan belts, or replaced spark plugs, etc.) _____

Minor overhauling (relined brakes, put on water pump, bled hydraulic brake lines, etc.) _____

Major overhauling (cleaned, adjusted, and installed major units such as starter, generator, carburetor, distributor; put in piston rings or rod bearings, ground valves, etc.) _____

(Cont'd)

Major rebuilding and modifying jobs (built a jalopy racer or hot rod from junk or new parts; rebuilt complete engines, reboring cylinders, turning crankshafts, etc.) _____

(50) What career are you considering now?

Army--mechanical _____ non-mechanical _____

Civilian--mechanical _____ non-mechanical _____

Army aviation _____

(51) What specific portions of training did you do best in?

Academics _____

Military development _____

Physical fitness _____

Flight training _____

(52) Were you ever set back for other than administrative reasons?

yes _____ no _____

How many times? _____

For what reason? _____

In what phase of the program? _____

(53) What specific portions did you dislike most? (Check one in "a" and one in "b" or "c")

a. Military development _____

Physical fitness _____

Inspections _____

Long hours _____

b. Harassment by superiors _____

Harassment by other WOCs _____

Academic pressures _____

c. Other _____

(54) Did any superior ever ask you directly if you'd like to resign?

yes _____ no _____

If recommended to resign by superior, for what reason?

Poor in military development _____

Poor performance _____

Poor academically _____

Other _____

(55) How long ago did you first consider aviation as a serious career?

Within the past two months _____

Two to six months ago _____

Six months to one year ago _____

One to three years ago _____

More than three years ago _____

(56) At what point, if any, did you lose interest in flying?

Prior to class assignment _____

Military development _____

Pre-flight _____

Did not lose interest _____

(57) If you are resigning, how do your family and friends feel about your resignation?

Glad _____ Want you to say in WOC program _____

Indifferent _____ Have not told them _____

(58) If you could have entered training at Preflight level instead of WOCD or Snow Bird, would it have changed your attitude toward flight training?

yes _____

no _____

(59) Had you any interest in being a pilot prior to the WOC program?

yes _____ no _____

(60) If "yes" to above, had you tried to enter any other branch of the Armed Forces to become a pilot?

yes _____ no _____

(61) Are you presently considering becoming a pilot trainee in any other program -- Air Force, Navy, civilian airline, etc.?

yes _____ no _____

(62) Do you have any civilian flight training?

yes _____ no _____

How many hours?

Fixed wing _____

Rotary wing _____

(63) Did you feel you were educationally prepared for the program?

yes _____ no _____

(64) What was your scholastic average prior to Ft. Rucker?

A _____ B _____ C _____ D _____

(65) What part of the following courses was most irritating to you?

	Snow Bird	WOCD	Preflight	Primary
Academics				
Flight line waiting				
Getting along with IP				
Getting along with Tac Officer				
Discipline and restrictions				

(66) Have you ever driven or ridden a motorcycle?

Have driven for over six months _____

Have driven for less than six months _____

Have ridden as a passenger frequently _____

Have ridden as a passenger sometimes _____

Have never driven a motorcycle _____

(67) Which one of these statements best applies to you?

I get a thrill out of traveling at high speeds _____

I do not like traveling at high speeds _____

(68) Do you now have any nervousness or anxiety associated with being in the aircraft?

yes _____ no _____

(69) Do you feel too much pressure was put on you in WOCD, preflight, or primary?

yes _____ no _____

(70) If so, what was the main area?

Academics _____

Flight instruction _____

Military development _____

(71) Do you feel the program was misrepresented to you?

yes _____ no _____

If "yes," by whom? _____

(72) Did recruiter assist you in passing any tests you took?

yes _____ no _____

(73) Did recruiter suggest you conceal any information about yourself?

yes _____ no _____

(74) What is your main feeling on being a pilot now?

Still want to be _____

Want to be, but don't like WOC training _____

No longer interested _____

(75) How long have you had a desire to fly?

Since beginning WOC only _____

One year or less _____

One to two years _____

Over two years _____

As long as I can remember _____

(76) How do you feel about other students in your class?

Helpful--concerned _____

Indifferent, but give help if needed _____

Completely indifferent

(77) How do you feel about resignees?

Program didn't meet their expectations _____

They were picked on by superiors _____

They have little or no interest in program _____

Didn't generally fit in with peers _____

Were generally discipline problems _____

Were generally unable to do what was expected of them _____

(78) Could anything be done to keep WOCs from resigning?

More aid from superiors _____

More aid from peers _____

Prevent from encountering delays--Snow Bird or flight line _____

Nothing - would have quit anyway _____

(79) Do you feel resignees get help when they need it? Explain.

yes _____ _____

no _____ _____

(80) Do you think that the tasks/responsibilities you are being taught in WOCD are likely to be present in your job after training?

yes _____ no _____

(81) Do you feel the program prepares you to accept officer responsibilities?

yes _____ _____

no _____ _____

(82) What do you think makes most students resign? (Check one or more.)

Can't adapt to Army development _____

Program is too difficult _____

Don't get along with others _____

Aren't interested in program _____

Conflict in personal life _____

Insufficient motivation _____

(83) From each pair, select the one activity you would prefer.

A. Keep a set of office files in order. _____

B. Keep a piece of machinery in order. _____

A. Work at something that you have known how to do for a long time. _____

B. Work at something you are just learning or have just learned to do. _____

A. Go to college when you leave the Army. _____

B. Continue working after you leave the Army at a job you learned in the Army. _____

A. Live in a group where discipline is not emphasized. _____

B. Live in a group where discipline is fair but strict. _____

(84) In which of the following activities or hobbies have you been so interested that you have spent considerable time, attention, and energy on them?

Building model planes _____

Reading fiction (stories and novels) _____

Reading non-fiction books and articles _____

Playing card games _____

Playing chess or checkers _____

Wordworking, cabinet-making _____

Sheet metal work _____

Metal working, machine shop _____

Automobile repairing or rebuilding _____

Creative writing, poetry, etc. _____

Journalism, school paper, etc. _____

Boy Scouts _____

Photography _____

Amateur motion pictures _____

(85) Please check the following events that may have happened to you prior to or during WOC:

Divorce _____

Marital separation _____

Marriage _____

Fired from work _____

Marital reconciliation _____

Addition to family _____

Change in number of family gatherings _____

Change in number of marital arguments _____

Minor violation of the law _____

Change in financial status _____

Mortgage or loan over $10,000 _____

Foreclosure of mortgage or loan _____

Trouble with in-laws _____

Spouse begins or stops work _____

Mortgage or loan under $10,000 _____

Failure in school _____

Broken engagement _____

(86) Which of the following have you done?

Built non-flying model planes _____

Built rubber or gas-powered model planes _____

Participated in model plane contests _____

Built or assisted in building a glider or plane _____

None of the above _____

(87) Why do you want flying training? (May check more than one.)

I like the adventurous life. _____

It is the best way to serve the nation. _____

I feel that I have an aptitude for flying. _____

I prefer flying duty to other types of military service. _____

The salaries are higher than for other military duty. _____

I expect to use flying training after leaving the Army. _____

I was persuaded by another person or persons. _____

To prove to myself that I can make good. _____

SUMMARY OF RESPONSES

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
WOC					NA
Not checked	16	62.	3	6.	
Checked	10	39.	52	95	
Graduate					NA
Not checked	26	100.	54	98.	
Checked		--	1	2.	
Eliminee					NA
Not checked	12	46.	53	100.	
Checked	14	54.			
Reason					NA
Military Development	7	39.		--	
Academics		--		--	
Flight	1	6.		--	
Resignation	10	56.		--	
Medical		--		--	
2. Age	22	M=22.2 SD= 4.2	55	M=24.6 SD= 8.1	<.01
5. Phase of Training					NA
Snow Bird	7	29.	7	13.	
WOCD.	12	50.	13	24.	
Preflight	2	8.	18	33.	
Primary	3	12.	16	29.	
Days in this phase	22	M=29.6	49	M=31.1	NA

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
6. Weeks of Prior Service	26	M= 63.6 SD=120.8	55	M=119.3 SD=141.8	<.001
Rank prior to Ft. Rucker					<.01
Enlistee	5	31.	4	10.	
Private	5	31.	3	8.	
Private First Class	2	12.	5	13.	
Specialist 4		—	13	34.	
Specialist 5	3	18.	5	13.	
Staff Sergeant	1	6.	7	18.	
Sergeant First Class		—	1	2.	
7. Marital Status					<.20
Single	17	65.	26	47.	
Married	8	30.	28	50.	
Divorced	1	3.	3	1.	
Widowed		—		—	
8. Years of Education	26	M=12.7 SD= 1.1	55	M=13.3 SD= 1.4	<.10
College Degree					
Not checked	25	96.	50	94.	NS
Checked	1	4.	3	6.	
QPA	25	M= 1.0 SD= 0.2	53	M= 1.1 SD= 0.2	<.01

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
9. Which of the following groups includes your major subject of study in college?					NT
I did not attend college	6	55.	9	64.	
English, foreign languages, literature, drama, fine arts, etc.		--	1	7.	
Social or biological sciences (history, economics, medicine, psychology, etc.)	4	36.	3	21.	
Education (teacher-training, etc.) or physical sciences (mathematics, engineering, etc.)	1	9.	1	7.	
Business, journalism, industrial arts, physical education, agriculture, etc.		--		--	
10. For each school or college subject listed below, you are to choose one letter to tell how well you succeeded in that subject according to the following scale:					NT
A - Exceptionally well					
B - Well					
C - Fairly well					
D - Poorly					
E - Never studied the subject					
Foreign languages					
A. Exceptionally well		--		--	
B. Well	2	17.	4	19.	
C. Fairly well	5	42.	10	48.	
D. Poorly	2	17.	2	10.	
E. Never studied the subject	3	25.	5	24.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Economics					
A. Exceptionally well	2	20.	3	15.	
B. Well	4	40.	4	20.	
C. Fairly well		--	3	15.	
D. Poorly		--		--	
E. Never studied the subject	4	40	10	50.	
History					
A. Exceptionally well	5	39.	7	33.	
B. Well	6	46.	12	57.	
C. Fairly well	2	15.	2	10.	
D. Poorly		--		--	
E. Never studied the subject		--		--	
Mechanical drawing					
A. Exceptionally well	1	11.	7	35.	
B. Well	2	22.	2	10.	
C. Fairly well	1	11.	2	10.	
D. Poorly		--		--	
E. Never studied the subject	5	56.	9	45.	
Physics					
A. Exceptionally well	1	11.	2	10.	
B. Well	2	22.	5	25.	
C. Fairly well	2	22.	4	20.	
D. Poorly		--	1	5.	
E. Never studied the subject	4	44.	8	40.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Shop Work					NT
A. Exceptionally well	6	60.	8	38.	
B. Well	2	20.	4	19.	
C. Fairly well	1	10.	1	5.	
D. Poorly		--		--	
E. Never studied the subject	1	10.	8	38.	
11. FAST Score	25	M=341.1 SD= 27.7	50	M=333.8 SD= 40.7	NS
12. Spouse living in vicinity of Ft. Rucker?					< .05
Yes	2	17.	19	59.	
No	10	83.	13	41.	
13. Civilian Occupation:					NT
No. of years in last job	10	M=3.0 SD=1.8	24	M=2.6 SD=1.6	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
14. Which of the following are similar to jobs you have held?					NT
Airplane mechanic					
Not checked	11	91.	13	72.	
Checked	1	8.	2	27.	
Technical instructor					
Not checked	11	91.	17	94.	
Checked	1	8.	1	5.	
Technical inspector					
Not checked	10	83.	16	89.	
Checked	2	17.	2	11.	
Automobile mechanic					
Not checked	7	54.	8	44.	
Checked	6	46.	10	56.	
15. Have you had any medical problems since you joined the Army?					< .10
Yes	8	38.	8	17.	
No	13	62.	38	83.	
16. Brothers and/or sisters older?					NS
Yes	16	67.	38	69.	
No	8	33.	17	31.	
Brothers and/or sisters younger?					NS
Yes	19	76.	43	81.	
No	6	24.	10	19.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
17. Have any of the following ever been a licensed civilian pilot?					NS
Your father or mother					
Not checked	12	92.	19	86.	
Checked	1	8.	3	14.	
Your brother or sister					
Not checked	12	92.	20	91.	
Checked	1	8.	2	9.	
Your uncle, aunt, cousin, or other relative					
Not checked	10	77.	12	57.	
Checked	3	23.	9	43.	
Your close personal friend (not in family)					
Not checked	9	69.	13	59.	
Checked	4	31.	9	41.	
18. Which of the following United States areas were you born in?					NT
Northeast	4	17.	12	22.	
Southeast	5	21.	7	13.	
South	8	33.	10	18.	
Midwest	5	21.	11	20.	
West Coast	2	8.	8	15.	
Northwest		—	2	4.	
Outside U.S.		—	5	9.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
19. Which of the following did your family live in most of the time?					NT
House	25	96.	54	98.	
Apartment	1	4.	1	2.	
Mobile Home		--		--	
Other		--		--	
20. During most of your life you have lived:					NT
In a large city (over 100,000). . . .	5	20.	21	39.	
In a city (10,000 to 100,000)	9	36.	10	19.	
In a small town (1,000 to 10,000) . .	7	28.	14	26.	
In a very small town (under 1,000). .	1	4.	4	7.	
In the country.	3	12.	5	9.	
21. Occupation of father or head of household:					NT
White collar (clerical, professional	11	42.	23	42.	
Blue collar (factory work, manual work, etc.)	12	46.	27	49.	
Military	3	12.	5	9.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
22. Were you living with the following prior to WOC training?					NT
Wife	7	27.	23	42.	
Alone	5	19.	14	26.	
Parents (both)	10	39.	14	26.	
Father only		--	1	2.	
Mother only		--	3	6.	
Other	4	15.		--	
23. Do both of your parents live together?					< .10
Yes	22	85.	36	67.	
No	4	15.	18	33.	
24. If "no" to above, why?					NT
Widowed		--	5	26.	
Divorced	5	83.	13	68.	
Separated	1	17.	1	5.	
Living Apart		--		--	
Other		--		--	
25. How far in school did your father go?					NT
Grade school (grade 8 or less)			4	18.	
Some high school (grades 9 to 12)	4	31.	2	9.	
High school graduate	2	15.	6	27.	
Some college, but did not graduate	1	8.	4	18.	
College graduate	6	46.	6	27.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
26. How far in school did your mother go?					NT
Grade school (grade 8 or less). . . .		--	4	18.	
Some high school (grades 9 to 12) . .	1	8.	3	14.	
High school graduate.	6	46.	9	41.	
Some college, but did not graduate. .	2	15.	3	14.	
College graduate.	4	31.	3	14.	
27. Your parents are (or were):					NT
Very much in favor or your joining the Army	5	39.	13	59.	
Somewhat in favor of it	2	15.	4	18.	
Indifferent to it	4	31.	2	9.	
Somewhat opposed to it	1	8.	3	14.	
Very much opposed to it	1	8.		--	
28. What tools were available in the home in which you grew up?					NT
Well-equipped shop, machine tools . .	4	31.	3	14.	
Work bench, good hand tools	5	39.	8	36.	
A good number of hand tools	4	31.	8	36.	
A few hand tools		--	3	14.	
None		--		--	
29. Did you participate in any organized sports at school or college?					$< .05$
Yes	24	92.	40	73.	
No	2	8.	15	27.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
30. Do you know how to swim?					NT
Yes	25	100.	51	96.	
No		--	2	4.	
31. Did you join any clubs, societies, etc.					NT
Yes	17	65.	31	56.	
No	9	35.	24	44.	
32. Which one of the following did you do most during your spare time while you were in high school and/or college?					NT
Read books and magazines, and did homework	3	25.	2	9.	
Went to dances, parties, club meetings, and visited with friends. .	2	17.	7	32.	
Worked on and operated engines, cars, motorcycles, etc.	4	33.	9	41.	
Participated in sports.	1	8.	1	5.	
Did not do any of the above activities while in school.	2	17.	2	9.	
More than one response		--	1	5.	
33. How have you spent most of your past school vacations?					NT
Traveling					
Not checked	6	46.	15	68.	
Checked	7	54.	7	32.	
Engaging in sports					
Not checked	12	92.	20	91.	
Checked	1	8.	2	9.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Working					
Not checked	7	54.	5	23.	
Checked	6	46.	17	77.	
Hunting or fishing					
Not checked	11	85.	19	86.	
Checked	2	15.	3	14.	
None of the above					
Not checked	13	100.	21	96.	
Checked		--	1	5.	

34. For each activity listed below, you are to choose one letter to tell how well you perform the activity according to the following scale: NT

A - Exceptionally well
B - Well
C - Fairly well
D - Poorly
E - Do not engage in this activity

Diving or ski-jumping					
A. Exceptionally well		—	1	5.	
B. Well	2	17.	3	14.	
C. Fairly well	1	8.	2	10.	
D. Poorly	2	17.	2	10.	
E. Do not engage in this activity. .	7	58.	13	62.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Marksmanship (rifle, pistol, trap-shooting, etc.)					
A. Exceptionally well	3	25.	11	50.	
B. Well	6	50.	7	32.	
C. Fairly well	3	25.	3	14.	
D. Poorly		--		--	
E. Do not engage in this activity...		--	1	5.	
Sailboating					
A. Exceptionally well	2	15.	1	5.	
B. Well	3	23.	1	5.	
C. Fairly well	1	8.	2	10.	
D. Poorly		--	1	5.	
E. Do not engage in this activity. .	7	54.	16	76.	
Auto racing, motorcycle racing, or motorboat racing					
A. Exceptionally well	4	31.	3	14.	
B. Well	3	23.	4	19.	
C. Fairly well	2	15.	2	10.	
D. Poorly		--		--	
E. Do not engage in this activity. .	4	31.	12	57.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Swimming					
A. Exceptionally well	2	15.	4	18.	
B. Well	8	62.	11	50.	
C. Fairly well	2	15.	4	18.	
D. Poorly	1	8.	1	5.	
E. Do not engage in this activity. .		--	2	9.	
Track (dashes or hurdles)					
A. Exceptionally well	1	8.	4	18.	
B. Well	7	54.	5	23.	
C. Fairly well	2	15.	6	27.	
D. Poorly	1	8.		--	
E. Do not engage in this activity. .	2	15.	7	32.	
Football, rugby, or soccer					
A. Exceptionally well	3	23.	4	18.	
B. Well	6	46.	10	46.	
C. Fairly well	3	23.	4	18.	
D. Poorly		--		--	
E. Do not engage in this activity. .	1	8.	4	18.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
35. For each activity listed below, you are to choose one letter to indicate how often you have done it, according to the following scale:					NT
A - Frequently B - A number of times C - Once or twice D - Never, but could probably do it E - Never, and doubt that I could					
Built something by following printed directions and using a diagram or blue print					
A. Frequently	5	42.	5	23.	
B. A number of times	5	42.	10	46.	
C. Once or twice	2	17.	6	27.	
D. Never, but could probably do it .		--	1	5.	
E. Never, and doubt that I could . .		--		--	
Adjusted a carburetor					
A. Frequently	4	31.	6	27.	
B. A number of times	3	23.	5	23.	
C. Once or twice	4	31.	6	27.	
D. Never, but could probably do it..	2	15.	5	23.	
E. Never, and doubt that I could . .		--		--	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Arranged a flower garden					
A. Frequently	1	8.		--	
B. A number of times	2	15.	1	5.	
C. Once or twice	5	39.	10	46.	
D. Never, but could probably do it .	4	31.	7	32.	
E. Never, and doubt that I could . .	1	8.		--	
Found your way by using a compass					
A. Frequently	2	15.	5	23.	
B. A number of times	5	39.	8	36.	
C. Once or twice	3	23.	7	32.	
D. Never, but could probably do it .	3	23.	2	9.	
E. Never, and doubt that I could . .		--		--	
Solicited contributions for a charity					
A. Frequently		--		--	
B. A number of times	4	31.	4	18.	
C. Once or twice	4	31.	15	68.	
D. Never, but could probably do it .	5	39.	2	9.	
E. Never, and doubt that I could . .		--	1	5.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Arranged a club entertainment					
A. Frequently	2	15.		--	
B. A number of times	2	15.	2	9.	
C. Once or twice	2	15.	9	41.	
D. Never, but could probably do it .	7	54.	9	41.	
E. Never, and doubt that I could . .		--	2	9.	
Repaired a radio set					
A. Frequently	1	8.		--	
B. A number of times	3	23.	4	18.	
C. Once or twice	3	23.	8	36.	
D. Never, but could probably do it .	4	31.	6	27.	
E. Never, and doubt that I could . .	2	15.	4	18.	
Made a backward dive from a diving board					
A. Frequently	2	15.	2	9.	
B. A number of times	4	31.	6	27.	
C. Once or twice	4	31.	5	23.	
D. Never, but could probably do it..		--	4	18.	
E. Never, and doubt that I could . .	3	23.	5	23.	
Wired a house or other building for electric lights					
A. Frequently	1	8.	1	5.	
B. A number of times	4	31.	4	18.	
C. Once or twice	3	23.	4	18.	
D. Never, but could probably do it .	4	31.	8	36.	
E. Never, and doubt that I could . .	1	8.	5	23.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
36. What aspects of the program made you want to resign? (Omit if you didn't resign or, are still in the program.)					NS
Peers					
Not checked	26	100.	55	100.	
Checked		--		--	
Army discipline					
Not checked	26	100.	55	100.	
Checked		--		--	
Army restrictions					
Not checked	25	96.	55	100.	
Checked	1	4.		--	
Separation from spouse					
Not checked	26	100.	54	98.	
Checked		--	1	2.	
Other					
Not checked	18	69.	51	93.	
Checked	8	31.	4	7.	
37. Were you on Snow Bird status?					NS
Yes	25	96.	54	98.	
No	1	4.	1	2.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
38. If "yes," how many weeks?					NS
1-2	3	13.	8	15.	
3-5	2	8.	3	6.	
5-6	4	17.	3	6.	
7+	15	63.	40	74.	
39. Did you feel this time was helpful to you?					< .05
Yes	6	50.	25	83.	
No	6	50.	5	17.	
41. If you were on the above status and resigned, was this a major cause of your resignation?					NT
Yes	4	40.		--	
No.	6	60.	1	100.	
42. Which one of the following would you most prefer to do during your off-duty time?					NT
Play golf, tennis, or ride horseback..	4	36.	5	21.	
Play on an organized baseball or other sport team	2	18.	5	21.	
Go night-clubbing		--	4	17.	
Visit a public library or museum . .	1	9.	3	13.	
Go hunting or fishing	4	36.	7	29.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
43. What is your relationship with your superiors?					NT
Good (virtually no trouble)	10	40.	30	56.	
Average (about the same as peers) . .	11	44.	21	39.	
Frequent conflict (more than peers) .	3	12.	3	6.	
Poor (continual conflict)	1	4.		--	
44. What is your relationship with your peers?					NT
Good	14	67.	39	72.	
O.K.	4	19.	11	20.	
Poor, Bad	3	14.	4	7.	
45. What, primarily, made you enlist in WOC program?					NT
Recruiter	1	4.	1	2.	
Desire to fly	19	73.	37	73.	
Desire for officer status	5	19.	9	18.	
Salary offered.		--	1	2.	
Status of being a pilot	1	4.		--	
More than one response		--	3	6.	
46. Before you joined the Army, had you considered an Army specialty other than being a pilot?					NT
Yes	18	69.	23	43.	
No	8	31.	30	57.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
47. If yes, what type of program?					NT
Maintenance--mechanical work	8	44.	16	67.	
Non-maintenance--radio operator, clerk, infantry, etc.	10	56.	8	33.	
48. As an automobile driver, you are a:					NT
Good safe driver	9	56.	11	50.	
Good driver but inclined to drive too fast	5	31.	8	36.	
Fair but safe driver		--	2	9.	
Poor driver	1	6.	1	5.	
Non-driver	1	6.		--	
49. What kind of mechanical work have you done on a car?					NT
Have never made mechanical repairs or serviced a car		--		--	
Minor servicing operations (greased, changed tires, put on fan belts, or replaced spark plugs, etc.)	3	23.	6	27.	
Minor overhauling (relined brakes, put on water pump, bled hydraulic brake lines, etc.)	3	23.	4	18.	
Major overhauling (cleaned, adjusted, and installed major units such as starter, generator, carburetor, distributor; put in piston rings or rod bearings, ground valves, etc.). .	3	23.	7	32.	
Major rebuilding and modifying jobs (built a jalopy racer or hot rod from junk or new parts; rebuilt complete engines, reboring cyclinders, turning crankshafts, etc.)	4	31.	5	23.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
50. What career are you considering now?					NT
Army--mechanical	1	5.		--	
Civilian--mechanical	4	19.		--	
Army aviation	13	62.	24	92.	
Army--non-mechanical		--	1	4.	
Civilian--non-mechanical	3	14.	1	4.	
51. What specific portions of training did you do best in?					NT
Academics	3	20.	19	49.	
Military development	2	13.	7	18.	
Physical fitness	8	60.	5	13.	
Flight training	1	7.	2	5.	
More than one response		--	6	15.	
52. Were you ever set back for other than administrative reasons?					< .10
Yes	7	35.	6	13.	
No	13	65.	42	88.	
How many times?					
One time	3	100.	1	50.	
Two times		--	1	50.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
53. What specific portions did you dislike most?					NT
a. Military development	3	25.	8	29.	
Physical fitness		--	4	14.	
Inspections	8	67.	5	18.	
Long hours	1	8.	11	39.	
b. Harassment by superiors	6	50.	4	17.	
Harassment by ther WOCs	4	33.	13	54.	
Academic pressures	2	17.	7	29.	
c. Other					
Not checked	6	38.	6	23.	
Checked	10	63.	20	77.	
54. Did any superior ever ask you directly if you'd like to resign?					NT
Yes	8	35.	3	15.	
No	15	65.	17	85.	
If recommended to resign by superior, for what reason?					NT
Poor in military development	7	70.	1	33.	
Poor performance		--		--	
Poor academically		--	1	33.	
Other	3	30.	1	33.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
55. How long ago did you first consider aviation as a serious career?					NT
Within the past two months		--		--	
Two to six months ago	1	8.		--	
Six months to one year ago	3	23	1	5.	
One to three years ago.	4	31.	9	43.	
More than three years ago	5	39.	11	52.	
56. At what point, if any, did you lose interest in flying?					NT
Prior to class assignment	2	12.		--	
Military development	1	6.		--	
Pre-flight		--		--	
Did not lose interest	14	82.	19	100.	
57. If you are resigning, how do your family and friends feel about your resignation?					NT
Glad	1	13.		--	
Indifferent	2	25.		--	
Want you to stay in WOC program . . .	4	50.	1	100.	
Have not told them	1	13.		--	
58. If you could have entered training at Preflight level instead of WOCD or Snow Bird, would it have changed your attitude towards flight training?					NT
Yes	15	75.	9	35.	
No	5	25.	17	65.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
59. Had you any interest in being a pilot prior to the WOC program?					NT
Yes	26	100.	52	95.	
No		--	3	6.	
60. If "yes" to above, had you tried to enter any other branch of the Armed Forces to become a pilot?					NT
Yes	7	27.	18	35.	
No	19	73.	34	65.	
61. Are you presently considering becoming a pilot trainee in any other program--Air Force, Navy, civilian airline, etc.?					NT
Yes	6	30.	3	14.	
No	14	70.	18	86.	
62. Do you have any civilian flight training?					NT
Yes	12	46.	17	31.	
No.	14	54.	38	69.	
How many hours?					
Fixed wing	M = 91.9 SD = 72.6		M = 190.1 SD = 241.4		< .10
Rotary wing	M = 20.0 SD = 0.0		M = 10.0 SD = 0.0		
63. Did you feel you were educationally prepared for the program?					< .15
Yes	19	83.	51	96.	
No	4	17.	2	4.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
64. What was your scholastic average prior to Ft. Rucker?					NS
A	2	8.	10	19.	
B	17	71.	30	58.	
C	5	21.	12	23.	
D		--		--	
65. What part of the following courses was most irritating to you?					NT
Snow-Bird:					
Academics		--		--	
Flight line waiting	3	33.	3	43.	
Getting along with IP	1	11.		--	
Getting along with Tac Officer . .	1	11.		--	
Discipline and restrictions	4	44.	4	57.	
WOCD:					
Academics	2	22.	3	13.	
Flight line waiting	1	11.		--	
Getting along with IP		--		--	
Getting along with Tac Officer . .	2	22.	1	4.	
Discipline and restrictions	4	44.	18	75.	
More than one response		--	2	8.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Preflight:					
Academics	1	25.	1	17.	
Flight line waiting		--		--	
Getting along with IP		--		--	
Getting along with Tac Officer . . .	1	25.		--	
Discipline and restrictions	2	50.	5	83.	
Primary:					
Academics	1	33.	2	22.	
Flight line waiting		--		--	
Getting along with IP	1	33	1	11.	
Getting along with Tac Officer. . . .		--	1	11.	
Discipline and restrictions	1	33.	5	56.	
66. Have you ever driven or ridden a motorcycle?					NT
Have driven for over six months . . .	8	73.	12	52.	
Have driven for less than six months	3	27.	6	26.	
Have ridden as a passenger frequently		--	2	9.	
Have ridden as a passenger sometimes		--	1	4.	
Have never driven a motorcycle . . .		--	2	9.	
67. Which one of these statements best applies to you?					NT
I get a thrill out of traveling at high speeds	10	83.	17	77.	
I do not like traveling at high speeds	2	17.	5	23.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
68. Do you now have any nervousness or anxiety associated with being in the aircraft?					NS
Yes	2	10.	2	10.	
No	18	90.	19	91.	
69. Do you feel too much pressure was put on you in WOCD, preflight, or primary?					< .10
Yes	6	27.	4	8.	
No	16	73.	46	92.	
70. If so, what was the main area?					NT
Academics		--	1	33.	
Flight instruction	1	17.	1	33.	
Military development	4	67.		--	
More than one response	1	17.	1	33.	
71. Do you feel the program was misrepresented to you?					< .10
Yes	13	54.	13	28.	
No	11	46.	33	72.	
72. Did recruiter assist you in passing any tests you took?					NT
Yes	1	5.		--	
No	18	95.	32	100.	
73. Did recruiter suggest you conceal any information about yourself?					NT
Yes	1	5.	1	3.	
No	18	95.	32	97.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
What is your main feeling on being a pilot now?					NT
Still want to be	16	70.	22	88.	
Want to be, but don't like WOC training	4	17.	3	12.	
No longer interested	3	13.		--	
How long have you had a desire to fly?					NS
Since beginning WOC only		--	2	4.	
One Year or less	2	8.	1	2.	
One to two years	4	15.	4	8.	
Over two years	6	23.	16	31.	
As long as I can remember	14	54.	29	56.	
How do you feel about other students in your class?					NT
Helpful--concerned	17	71.	32	62.	
Indifferent, but give help if needed	5	21.	17	33.	
Completely indifferent	2	8.	1	2.	
More than one response		--	2	3.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
77. How do you feel about resignees?					NT
Program didn't meet their expectations	13	59.	17	37.	
They were picked on by superiors . .	2	9.	2	4.	
They have little or no interest in program	4	18.	4	9.	
Didn't generally fit in with peers. .	1	5.	6	13.	
Were generally discipline problems. .		--	5	11.	
Were generally unable to do what was expected of them	2	9.	7	15.	
More than one response		--	5	11.	
78. Could anything be done to keep WOCs from resigning?					NT
More aid from superiors	8	33.	9	21.	
More aid from peers	3	13.	1	2.	
Prevent from encountering delays--Snow Bird or flight line	7	29.	12	28.	
Nothing--would have quit anyway . . .	5	21.	20	47.	
More than one response	1	4.	1	2.	
79. Do you feel resignees get help when they need it? Explain.					< .01
Yes	9	41.	35	78.	
No	13	59.	10	22.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
80. Do you think that the tasks/responsibilities you are being taught in WOCD are likely to be present in your job after training?					< .01
Yes	12	63.	40	80.	
No	7	37.	10	20.	
81. Do you feel the program prepares you to accept officer responsibilities?					NT
Yes	13	76.	31	67.	
No	4	23.	15	33.	
82. What do you think makes most students resign?					NS
Can't adapt to Army development					
Not checked	15	60.	31	60.	
Checked	10	40.	21	40.	
Program is too difficult					NS
Not checked	20	80.	47	90.	
Checked	5	20.	5	10.	
Don't get along with others					NS
Not checked	25	100.	47	90.	
Checked			5	10.	
Aren't interested in program					NS
Not checked	21	84.	38	73.	
Checked	4	16.	14	27.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Conflict in personal life					.05
Not checked	14	56.	44	85.	
Checked	11	44.	8	15.	
Insufficient motivation					< .05
Not checked	15	63.	20	40.	
Checked	9	38.	30	60.	
83. From each pair, select the one activity you would prefer.					NT
A. Keep a set of office files in order .		--	5	26.	
B. Keep a piece of machinery in order. .	11	100.	14	74.	
A. Work at something that you have known how to do for a long time.. . .	2	17.	5	27.	
B. Work at something you are just learning or have just learned to do	10	83.	14	74.	
A. Go to college when you leave Army . .	9	75.	12	55.	
B. Continue working after you leave the Army at a job you learned in the Army	3	25.	10	46.	
A. Live in a group where discipline is not emphasized	5	46.	6	30.	
B. Live in a group where discipline is fair but strict	6	55.	14	70.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
84. In which of the following activities or hobbies have you been so interested that you have spent considerable time, attention, and energy on them?					NT
Building model planes					
Not checked	7	54.	7	32.	
Checked	6	46.	15	68.	
Reading fiction (stores and novels)					
Not checked	9	69.	13	59.	
Checked	4	31.	9	41.	
Reading non-fiction books and articles					
Not checked	8	62.	11	50.	
Checked	5	39.	11	50.	
Playing card games					
Not checked	10	77.	14	64.	
Checked	3	23.	8	36.	
Playing chess or checkers					
Not checked	8	62.	12	55.	
Checked	5	39.	10	46.	
Woodworking, cabinet-making					
Not checked	9	69.	16	73.	
Checked	4	31.	6	27.	
Sheet metal work					
Not checked	12	92.	20	91.	
Checked	1	8.	2	9.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Metal working, machine shop					
Not checked	9	69.	18	82.	
Checked	4	31.	4	18.	
Automobile repairing or rebuilding					
Not checked	4	31.	7	32.	
Checked	9	69.	15	68.	
Creative writing, poetry, etc.					
Not checked	12	92.	18	82.	
Checked	1	8.	4	18.	
Journalism, school paper, etc.					
Not checked	11	85.	22	100.	
Checked	2	15.		--	
Boy Scouts					
Not checked	9	69.	13	59.	
Checked	4	31.	9	41.	
Photography					
Not checked	8	62.	18	82.	
Checked	5	39.	4	18.	
Amateur motion pictures					
Not checked	11	85.	22	100.	
Checked	2	15.		--	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
85. Please check the following events that may have happened to you prior to or during WOC:					NT
Divorce					
Not checked	23	89.	54	98.	
Checked	3	12.	1	2.	
Marital separation					
Not checked	26	100.	53	96.	
Checked		--	2	4.	
Marriage					
Not checked	24	92.	46	84.	
Checked	2	8.	9	16.	
Fired from work					
Not checked	26	100.	54	98.	
Checked		--	1	2.	
Marital reconciliation					
Not checked	26	100.	53	96.	
Checked		--	2	4.	
Addition to family					
Not checked	24	92.	51	93.	
Checked	2	8.	4	7.	
Change in number of family gatherings					
Not checked	25	96.	50	91.	
Checked	1	4.	5	9.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Change in number of marital arguments					
Not checked	25	96.	51	93.	
Checked	1	4.	4	7.	
Minor violation of the law					
Not checked	20	77.	42	76.	
Checked	6	23.	13	24.	
Change in financial status					
Not checked	21	81.	47	86.	
Checked	5	19.	8	15.	
Mortgage or loan over $10,000					
Not checked	25	96.	55	100.	
Checked	1	4.		--	
Foreclosure of mortgage or loan					
Not checked	26	100.	55	100.	
Checked					
Trouble with in-laws					
Not checked	25	96.	54	98.	
Checked	1	4.	1	2.	
Spouse begins or stops work					
Not checked	25	96.	48	87.	
Checked	1	4.	7	13.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Morgage or loan under $10,000					
Not checked	23	89.	48	87.	
Checked	3	12.	7	13.	
Failure in school					
Not checked	24	92.	55	100.	
Checked	2	8.		--	
Broken engagement					
Not checked	23	89.	49	91.	
Checked	3	12.	5	9.	
86. Which of the following have you done?					NT
Built non-flying model planes					
Not checked	5	39.	5	23.	
Checked	8	62.	17	77.	
Built rubber or gas-powered model planes					
Not checked	5	46.	12	55.	
Checked	7	54.	10	46.	
Participated in model plane contests					
Not checked	12	92.	20	91.	
Checked	1	8.	2	9.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
Built or assisted in building a glider or plane					
Not checked	11	85.	19	86.	
Checked	2	15.	3	14.	
None of the above					
Not Checked	10	77.	17	77.	
Checked	3	23.	5	23.	
87. Why do you want flying training?					
I like the adventurous life.					< .05
Not checked	9	69.	7	32.	
Checked	4	31.	15	68.	
It is the best way to serve the nation.					NS
Not checked	11	85.	17	77.	
Checked	2	15.	5	23.	
I feel that I have an aptitude for flying.					NS
Not checked	5	39.	10	46.	
Checked	8	62.	12	55.	

	ELIMINEES # and % Responding or Mean Score		NON-ELIMINEES # and % Responding or Mean Score		LEVEL OF STATISTICAL SIGNIFICANCE
[illegible] duty to other types [illegible] service.					< .25
Not checked	[illegible]	46.	6	27.	
Checked	7	54.	16	73.	
[illegible] are higher than for [illegible] military duty.					NS
Not checked	10	77.	16	73.	
Checked	3	23.	6	27.	
[illegible] use flying training [illegible] the Army.					NS
Not checked	2	15.	7	32.	
Checked	11	85.	15	68.	
I was persuaded by another person or persons.					NS
Not checked	12	92.	22	100.	
Checked	1	8.		--	
[illegible] to myself that I can [illegible] good.					NS
Not checked	11	85.	17	78.	
Checked	2	15.	5	23.	

APPENDIX B

STRONG-CAMPBELL INTEREST INVENTORY DESCRIPTION AND RESULTS

The Strong-Campbell Interest Inventory (SCII) is the current combined sex version of the Strong Vocational Interest Blank (SVIB). See Campbell, 1977, for a more complete description.[1] This series of vocational interest inventories was first issued in 1927; it is one of the most thoroughly researched sets of psychological tests currently in use.

Contrary to many psychological tests, the Strong interest inventories are empirical, atheoretical instruments. That is, the Strong tests are not derived from an underlying psychological theory, but rather are based upon an operational view of vocational preference. A subject's score on the Strong represents only the degree of similarity between his responses and those of workers in a particular occupation.

The SCII is structured as three hierarchical levels of scales. The first level consists of the six General Occupational Themes. These scales are described as follows:

1. Realistic (R): Persons of this type are robust, rugged, and practical. Realistic types prefer such occupations as mechanic, engineer, electrician, and various technical positions.

2. Investigative (I): This category includes those with a strong scientific orientation. Vocational preferences

[1]Campbell, D. P. Manual for the SVIB-SCII Strong-Campbell interest inventory. (2nd Ed.) Stanford, CA: Stanford University Press, 1977.

include astronomer, biologist, chemist, technical writer, and zoologist.

3. Artistic (A): Persons of this artistic type prefer free, unstructured situations with maximum opportunities for self-expression. Vocational preferences include artist, author, composer, writer, and musician.

4. Social (S): Persons of this type are sociable, responsible, humanistic, and religious. Vocational preferences include clinical psychologist, high school teacher, counselor, and speech therapist.

5. Enterprising (E): Persons of this type have verbal skills suited to selling, dominating, and leading. Vocational preferences include business executive, real estate sales, and retail merchandising.

6. Conventional (C): Conventional people prefer well-ordered environments and like systematic verbal and numerical activities. Vocational preferences include bookkeeper, clerical worker, financial analyst, and statistician.

Nested under the General Occupational Themes are the Basic Interest Scales. The Basic Interest Scales are representative of clusters of statistically related occupations. Table B-1 presents the Basic Interest Scales listed under their respective occupational themes.

Table B-1

SCII BASIC INTEREST SCALES

Realistic	Investigative	Artistic	Social
Agriculture	Science	Music/Dramatics	Teaching
Nature	Mathematics	Art	Social Service
Adventure	Medical Science	Writing	Athletics
Military Activities	Medical Service		Domestic Arts
Mechanical Activities			Religious Activities

Enterprising	Conventional
Public Speaking	Office Practices
Law/Politics	
Merchandising	
Sales	
Business Management	

The third level in the organization of the SCII is the Occupational Scales. There are 124 separate occupational scales ranging from Accountant to Vocational Agriculture Teacher. In the interest of parsimony, only five of the most relevant occupational scales are included in the present study. These scales are as follows:

1. Air Force Officer
2. Army Officer--A (Realistic-Investigative-Conventional)
3. Navy Officer
4. Merchant Marine Officer
5. Army Officer--B (Realistic-Enterprising)

Responses are presented separately for each group, i.e., eliminees and non-eliminees.

For many of the items, the level of statistical significance of the difference in responses of the two groups are presented. The number

[illegible] the probability that the observed difference occurred by chance. [illegible] means that a test of significance would not be meaningful. "NT" means [illegible] of significance was not performed. Many were not tested be- [illegible] the differences appeared to be too small to be of practical signifi- [illegible]. "NS" means a test was performed but the probability of chance [illegible] the observed difference was greater than 0.20.

[illegible] categorical data, the chi-square statistic corrected for con- [illegible] was used with df=1. Where one of the scores was zero, the [illegible] exact test" was used. For continuous dimensions such as age, [illegible] of prior service, years of education, etc., the "t-test" was used.

SVIB-SCII PROFILE	Number Responding, Mean Score, and Standard Deviation: ELIMINEES	NON-ELIMINEES	LEVEL OF STATISTICAL SIGNIFICANCE
Realistic	6 M=61.7 SD=10.6	10 M=63.8 SD= 9.6	NT
Investigative	6 M=52.8 SD=10.7	10 M=59.8 SD= 7.7	< .15
Artistic	6 M=50.8 SD= 4.0	10 M=53.3 SD=10.4	NT
Social	6 M=55.8 SD= 5.4	10 M=56.2 SD= 9.0	NT
Enterprising	6 M=56.3 SD= 3.9	10 M=48.5 SD=10.3	< .10
Convention	6 M=51.7 SD=8.0	10 M=52.4 SD=9.3	NT
Agriculture	6 M=55.3 SD=9.7	10 M=58.6 SD= 7.8	NT
Nature	6 M=54.2 SD= 9.2	10 M=56.2 SD= 5.2	NT
Adventure	6 M=65.7 SD= 5.0	10 M=62.7 SD= 8.5	NT
Military Activities	6 M=61.5 SD=13.4	10 M=67.8 SD= 8.8	NS
Mechanical Activities	6 M=57.3 SD=10.9	10 M=62.4 SD= 8.7	NS
Science	6 M=53.0 SD= 9.9	10 M=61.9 SD= 8.7	< .10
Mathematics	6 M=50.7 SD=12.5	10 M=54.2 SD= 8.8	NT
Medical Science	6 M=57.7 SD= 8.7	10 M=56.0 SD=13.8	NT
Medical Service	6 M=58.8 SD= 5.2	10 M=54.1 SD= 9.7	NT
Music/Dramatics	6 M=50.3 SD= 8.4	10 M=51.5 SD= 9.2	NT

	Number Responding, Mean Score, and Standard Deviation		LEVEL OF STATISTICAL SIGNIFICANCE
	ELIMINEES	NON-ELIMINEES	
Art	6 M=52.3 SD= 4.0	10 M=52.0 SD=10.2	NT
Writing	6 M=4[illegible].7 SD= 4.7	10 M=52.4 SD= 9.9	< .10
Teaching	6 M=4[illegible].7 SD= 7.6	10 M=56.2 SD=12.0	< .15
Social Service	6 M=52.3 SD= [illegible].8	10 M=52.4 SD=10.4	NT
Athletics	6 M=59.1 SD= [illegible].4	10 M=58.2 SD= 9.0	NT
Domestic Arts	6 M=43.7 SD= 6.2	10 M=46.7 SD=10.2	NT
Religious Activities	6 M=[illegible]8.0 SD= [illegible].1	10 M=51.2 SD=10.6	NS
Public Speaking	6 M=53.3 SD= 8.6	10 M=55.6 SD= 8.1	NT
Law/Politics	6 M=52.0 SD=10.1	10 M=54.7 SD= 8.2	NT
Merchandising	6 M=54.0 SD= 5.1	10 M=46.1 SD=11.2	NT
Sales	6 M=55.0 SD= 7.2	10 M=46.8 SD= 6.6	NS
Business Management	6 M=51.8 SD=4.4	10 M=48.0 SD=10.8	NT
Office Practices	6 M=46.0 SD=6.2	10 M=44.8 SD=10.6	NT
A.F. Officer (RIE)	6 M=37.7 SD=16.5	10 M=41.7 SD=10.5	NS
Army Officer (RIC)	6 M=36.5 SD=11.4	10 M=40.3 SD= 8.0	NS

	Number Responding, Mean Score, and Standard Deviation		LEVEL OF STATISTICAL SIGNIFICANCE
	ELIMINEES	NON-ELIMINEES	
Navy Officer (RI)	6 M=37.7 SD=14.1	10 M=43.2 SD= 8.3	NS
Merch. Mar. Officer (RI)	6 M=44.2 SD= 8.4	10 M=46.9 SD= 5.9	NS
Army Officer (RE)	6 M=43.0 SD= 6.1	10 M=46.2 SD= 5.7	NS

APPENDIX C

16PF DESCRIPTION AND RESULTS

The 16PF is a set of 16 personality questionnaires arranged in omnibus form. It is designed to make available, in a minimum of testing time, information on the most dominant personality factors as defined by Cattell's[1] factor analytic research. In the 16PF test, a subject is asked to select a response to a series of 187 questions, most self-descriptive, such as "I am often brought almost to tears by having things go badly," or "My friends probably think it is hard to get to know me really well."

An experimenter is able to use the 16PF information in either a clinical or a psychometric manner. That is, the information can be presented in profile form and clinically interpreted, or the scores can be used purely as numeric or statistical indices of individual personality functioning.

The 16 personality scales of the 16PF and a brief description of each scale are presented in Table C-1. In each case, a bipolar description of the scale is provided. "Bipolar" refers to a behavioral description for low and high scores. In using the behavioral description, it should be remembered that personality is a multidimensional construct. The 16 scale components do not exist in isolation; each is modified by the levels of the remaining members of the set.

The differences in scores on the above scales for Eliminees and Non-Eliminees were small. In previous work with the 16PF, scores on Scales B and Q_3 have been found to relate to willingness to complete something started.

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[1] Cattell, R. B., Eber, H. W., & Tatsuoka, M. M. Handbook for the sixteen personality factor questionnaire (16PF). Champaign, IL: Institute for Personality and Ability Testing, 1974.

Table C-1

16PF SCALE DESCRIPTIONS

Factor	Low Score Description	High Score Description
A	Reserved, detached, critical, aloof, stiff	Outgoing, warmhearted, easygoing, participating
B	Less intelligent, concrete thinking	More intelligent, abstract thinking, bright
C	Affected by feelings, emotionally less stable, easily upset	Emotionally stable, mature, faces reality, calm
E	Humble, mild, easily led, docile, accommodating	Assertive, aggressive, stubborn, competitive
F	Sober, taciturn, serious	Happy-go-lucky, enthusiastic
G	Expedient, disregards rules	Conscientious, persistent, moralistic, staid
H	Shy, timid, threat-sensitive	Venturesome, uninhibited, socially bold
I	Tough-minded, self-reliant, realistic	Tender-minded, sensitive clinging, overprotected
L	Trusting, accepting conditions	Suspicious, hard to fool
M	Practical, "down-to-earth" concerns	Imaginative, bohemian, absent-minded
N	Forthright, unpretentious, genuine but socially clumsy	Astute, polished, socially aware
O	Self-assured, placid, secure, complacent, serene	Apprehensive, self-reproaching, insecure, worrying, troubled
Q_1	Conservative, respecting traditional ideas	Experimenting, liberal, free-thinking

Table C-1
(cont.)

Factor	Low Score Description	High Score Description
Q_2	Group-dependent, a "joiner" and a sound follower	Self-sufficient, resourceful, prefers own decisions
Q_3	Undisciplined self-conflict, lax, follows own urges, careless of social rules	Controlled, exacting will power, socially precise, compulsive
Q_4	Relaxed, tranquil, unfrustrated, composed	Tense, frustrated, driven, overwrought

Responses are presented separately for each group, i.e., eliminees and non-eliminees.

For many of the items, the level of statistical significance of the difference in responses of the two groups are presented. The number indicates the probability that the observed difference occurred by chance. "NA" means that a test of significance would not be meaningful. "NT" means that a test of significance was not performed. Many were not tested because the differences appeared to be too small to be of practical significance. "NS" means a test was performed but the probability of chance occurrence of the observed difference was greater than 0.20.

For categorical data, the chi-square statistic corrected for continuity was used with df=1. Where one of the scores was zero, the "Fisher exact test" was used. For continuous dimensions such as age, weeks of prior service, years of education, etc., the "t-test" was used.

16 PF Test, Form A	Number Responding, Mean Score, and Standard Deviation: ELIMINEES		NON-ELIMINEES		LEVEL OF STATISTICAL SIGNIFICANCE
A	13	M=4.3 SD=1.9	23	M=4.0 SD=1.8	NT
B	13	M=7.8 SD=1.3	23	M=8.1 SD=1.6	NT
C	13	M=6.0 SD=2.2	23	M=6.3 SD=1.5	NT
E	13	M=6.3 SD=1.7	23	M=5.3 SD=2.0	< .10
F	13	M=7.5 SD=2.8	23	M=6.2 SD=1.8	< .10
G	13	M=5.2 SD=2.4	23	M=6.0 SD=2.0	NS
H	13	M=6.5 SD=2.7	23	M=5.8 SD=1.9	NS
I	13	M=5.9 SD=2.1	23	M=5.7 SD=1.8	NT
L	13	M=5.5 SD=1.8	23	M=5.2 SD=1.9	NT
M	13	M=5.9 SD=2.6	23	M=5.7 SD=2.1	NT
N	13	M=3.1 SD=1.8	23	M=3.3 SD=1.5	NT
O	13	M=5.6 SD=2.2	23	M=5.3 SD=1.8	NT
Q_1	13	M=5.2 SD=1.9	23	M=4.9 SD=2.1	NT
Q_2	13	M=6.8 SD=1.8	23	M=6.5 SD=2.0	NT
Q_3	13	M=5.9 SD=2.8	23	M=7.3 SD=2.1	< .10
Q_4	13	M=5.8 SD=2.6	23	M=6.2 SD=1.9	NT

APPENDIX D

FLIGHT APTITUDE SELECTION TESTS (FAST) RESULTS

It will be noted that the mean composite FAST score is different than the mean reported in Question 11 of the questionnaire. The latter mean is based on 25 Eliminee and 50 Non-Eliminee students for which it was possible to obtain the composite.

The group reported here is a subset of the above group on which it was possible to obtain a breakdown of the subtest scores.

	Number Responding, Mean Score, and Standard Deviation				LEVEL OF STATISTICAL SIGNIFICANCE
	ELIMINEES		NON-ELIMINEES		
Flight Aptitude Selection Tests (FAST)					
Total A	15	M=81.9 SD= 9.6	21	M=84.1 SD= 5.9	*
Total B	14	M=84.1 SD= 4.0	21	M=84.1 SD= 5.9	*
Total C	14	M=47.4 SD=14.6	21	M=45.5 SD=11.1	*
Total D	14	M=54.9 SD= 8.5	21	M=56.7 SD= 9.9	*
Total E	14	M=57.5 SD=12.6	21	M=58.7 SD= 9.2	*
Total F	14	M=10.4 SD= 4.1	21	M=10.7 SD= 5.8	*
Rotary Wing Score	14	M=189.1 SD=20.5	21	M=188.0 SD=14.0	*
Fixed Wing Score	14	M=149.4 SD= 9.9	21	M=151.4 SD=13.4	*
Composite Score	14	M=338.4 SD=28.3	21	M=339.5 SD=22.1	*

*Not Significant

APPENDIX E

PEER RATINGS

Each week each WOC is rated by his peers on the following dimensions:

Adaptability	Force
Appearance	Integrity
Attention to detail	Initiative
Cooperation	Judgment
Decisiveness	Loyalty
Dependability	Moral Courage
Enthusiasm	Bearing
Expression	Self-discipline
Self-improvement	Stamina
Tact	Tenacity

The rating scale is:

Outstanding -	10 points
Satisfactory -	5 points
Marginal -	3 points
Unsatisfactory -	0 points

For each individual, the ratings on all dimensions are added together and the individual who has the highest score in the group is ranked #1; the next highest score, #2; and so on.

It should be emphasized that a pattern of low peer ratings is not by itself a cause for elimination. It can, however, contribute to the decision in the presence of other factors such as multiple failures of inspections, UCMJ or honor code violations, poor classroom performance, etc.

For purposes of analysis, the Rank Scale was transformed to provide a 100-point range with lower score representing higher ranking. The mean peer rating (based on the most recent one-week rating period) for the eliminee group was 80, i.e., on the average, the lower 20 percent of the group.

The mean for the non-eliminee group was 55. The difference was statistically significant (t-test) at the .01 level.

PEER RATINGS RESULTS

	Number Responding, Mean Score, and Standard Deviation				LEVEL OF STATISTICAL SIGNIFICANCE*
	ELIMINEES		NON-ELIMINEES		
Peer Ratings	15	M=80. SD=27.	40	M=55. SD=32.	.001

*t-test

APPENDIX F

AFQT RESULTS

Responses are presented separately for each group, i.e., eliminees and non-eliminees. For many of the items, the level of statistical significance of the difference in responses of the two groups are presented. The number indicates the probability that the observed difference occurred by chance. "NA" means that a test of significance would not be meaningful. "NT" means that a test of significance was not performed. Many were not tested because the differences appeared to be too small to be of practical significance. "NS" means a test was performed but the probability of chance occurrence of the observed difference was greater than 0.20.

For categorical data, the chi-square statistic corrected for continuity was used with df=1. Where one of the scores was zero, the "Fisher exact test" was used. For continuous dimensions such as age, weeks of prior service, years of education, etc., the "t-test" was used.

AFQT RESULTS

	Number Responding, Mean Score, and Standard Deviation				LEVEL OF STATISTICAL SIGNIFICANCE*
	ELIMINEES		NON-ELIMINEES		
GT	25	M=126.5 SD= 10.3	51	M=128.2 SD= 9.9	NS
GM	24	M=130.4 SD= 10.2	51	M=128.4 SD= 10.9	"
EL	25	M=129.7 SD= 10.7	51	M=126.3 SD= 11.6	"
CL	25	M=126.6 SD= 9.8	51	M=124.2 SD= 10.1	"
MM	24	M=128.8 SD= 11.3	51	M=136.2 SD= 68.8	"
SC	25	M=129.8 SD= 10.2	45	M=127.6 SD= 9.9	"
CO	25	M=129.9 SD= 12.6	46	M=128.5 SD= 11.1	"
FA	25	M=132.7 SD= 8.3	45	M=129.1 SD= 12.3	"
OF	25	M=131.6 SD= 11.7	45	M=126.9 SD= 18.3	"
ST	24	M=126.6 SD= 10.4	45	M=128.0 SD= 10.5	"

*t-test

APPENDIX G

THE ATTRITION PROCESS

The process of elimination and setback in the IERW program is well structured in the sense that most participants understand the mechanics, and know where the decision points are. In the final analysis, though, nearly all of the actual decisions are based upon subjective criteria, for which the system provides little or no guidance.

The present study used informal interviews and reviews of official documents (see Section 6) to assemble a description of the elimination/setback mechanism, as it presently operates through the undergraduate flight training program, and to note the presence or absence of decision criteria. No attempts were made to associate comments with commentors or to perform highly detailed analyses on the contents. The objective was simply to obtain a description of the system based on perceived consensus among interviewees.

The present program for both officers and WOCs includes:

1. Preflight
2. Primary (TH-55)
3. Contact (UH-1 transition)
4. Instruments (simulator and flight line)
5. Night Flight and Tactics

In addition to these phases of the program, WOCs (who may be either new recruits coming directly from BCT, or people with prior service, generally NCOs with several years in their enlisted specialties), have two additional phases in which the officers do not participate:

1. Snow Bird, a waiting period between arrival on post and beginning the first class; an indefinite period during which individuals' activities are highly structured, the waiting period for officers is unstructured.
2. A course in military development specifically for Warrant Officer Candidates (called WOCD).

Attrition statistics showed an exceptionally high rate of attrition, especially resignations, during WOCD. A closer examination revealed that

a large proportion of these resignations actually happened during the Snow Bird period, before individuals actually entered the training program. Appearance of their numbers in WOCD is a record-keeping artifact. Such resignations are processed administratively, i.e., without faculty board action, and resignees' records are handled as if they had resigned during the class to which they were assigned (but in which they never participated).

Additional investigation revealed that although substantial numbers of people were leaving the program before they started it, the size of the Snow Bird population and the length of its delay is shrinking and in a few months its contribution to attrition should be negligible. For this reason Snow Bird resignations were not pursued further.

MEDICAL ELIMINATIONS/SETBACKS

Although there are relatively few medical eliminations during the IERW course, those that do occur seem to be uniformly distributed across the program, except for the WOCD phase. During this period, there is a high proportion of the medical eliminations which are for musculoskeletal problems, mostly knee and back complaints, that the physicians feel are related to the large amount of running on hard surfaces in combat boots. Most such complaints are justified in the opinion of the physicians, and there are no grounds for suspecting the Aeromed Center people of being too lenient. In fact, they are alert for malingering, and generally unsympathetic when they see it. When medical eliminations occur later in the program, they are often for obvious reasons, e.g., injury in a car accident that will take several weeks to heal, and many such people are recommended for readmission to the program when they recover fully.

By far the most common causes of medical setbacks across all phases of IERW are colds and flu that strike during flight training. If a flight surgeon issues a temporary flight restriction of more than three days, it generally results in a setback, but it should be noted that the setback decision is strictly a school decision, not a medical one, and the physicians are not routinely informed of the impact of their restrictions on a student's progress in the course.

A medical elimination recommendation is transmitted from the flight surgeon to Student Personnel Operations Branch (SPOB), which process as an administrative elimination, without the need for a faculty board. (See Figure G-1.)

It was the study's conclusion that medical eliminations and setbacks would occur at about the present level in any similar program, and that the level is a reasonable one.

	Flight Surgeon	TAC Officer (WOC's Only)	Sr. TAC Officer (WOC's Only)	Company CO	Bn CO	Bde CO	Acad. Instructor	IP	Flt. Cdr.	SIF	CO	DUFT	SPOB	Faculty Board	DPCA	CG
WOCD and Preflight																
Resignation		C	C	C	C	C							A		E	
Elimination		C	C	C	C	C	R						F	B		E
All Other Resignations		C	C	C	C	C							F	B		E
Primary Elimination							R	U	P	P	C	C	F	B		E
Contact Elimination							R	U	P	P	C	C	F	B		E
Inst. Elimination							R	U	P	P	C	C	F	B		E
Night/Tactics Elimination							R	U	P	P	C	C	F	B		E
Medical Elimination	M												A		E	
Setbacks				S	S	S					S	S	N			S

A = Administrative Elimination
B = Faculty Board Proceeding
C = Counseling
E = Elimination Authority
F = Setup Faculty Board
M = Medical Elimination Recommendation
N = Notified of Setback
P = Prog. Ride
R = Report Academic Deficiency
S = Setback Authority
U = Three consecutive unsatisfactory rides, or three unsatisfactory out of five rides

Figure G-1. Individuals Involved in Elimination and Setback Proceedings

ATTRITION DURING WOCD AND PREFLIGHT

Although WOCD and preflight have academic components, there are practically no academic eliminations. The input individuals are bright, the academic material is not particularly difficult, and there is plenty of class time (but relatively little "homework time") to get the material mastered. There are, however, numerous resignations and eliminations that result from the non-academic "military development" component of the WOCD and preflight phases. Cited by students are a lack of discretionary time; frequent personal inspections, including inspection of quarters; heavy PT schedule, including lots of running; large numbers of unpleasant details; restriction to post; and unceasing harrassment by superiors which all add up to a moderately unpleasant eight-week period during which individuals have many opportunities to decide whether or not their personalities are compatible with military discipline.

During these two phases, as in all other phases, the incidence of academic elimination is practically nil. When an individual wants to resign, a chain of contacts is begun that consists primarily of counseling sessions that progress up through the chain of command, as depicted in Figure G-1.

At each step, in the case of resignation, the counseling individual may try to dissuade the potential resignee. If he is successful, the process simply stops. If not, the resignee is referred on up the chain. He composes a letter of resignation to the Comapny Commander which is first approved by the Senior TAC Officer. At each step, the letter may be revised at the counselor's request before his recommendation is added to the others and sent to the next step. If the Brigade Commander's decision is to accept the resignation, the student's records are forwarded to AG Student Personnel Operations Branch for "administrative elimination," i.e., without a faculty board, executed by the Director of Personnel and Community Activities (DPCA). Up through the Brigade CO, counseling guidelines are essentially nonexistent. Reasons for desire to resign may involve discouragement with the program or personal reasons unrelated to the program. In some cases, resignation is clearly in the best interest of both the program and the individual. In other cases, no one can elicit the true reason from the resignee. For all practical purposes, the institution offers no formal guidance to those acting as counselors.

When a resignation is referred to SPOB during WOCD or preflight, CR350-20 specifies administrative elimination, and approval by DPCA is automatic.

Involuntary eliminations during the WOCD and preflight follow essentially the same path, but this time each individual in the chain becomes a proponent of elimination, and each has at least some authority to discontinue the proceedings. Criteria for elimination recommendations are the most clearcut for the TAC (Trainer, Advisor, Counselor) officers. Any marginal or unsatisfactory rating requires counseling by the TO. If a man gets three pink slips (unsatisfactory ratings) in two weeks, or one

pink slip three weeks in a row, he is automatically referred to the Senior TO. The STO can recommend him for elimination directly, or can put him on "STO probation" for up to two weeks, if it is judged that the problem may be resolved. If it is resolved, the matter is dropped. If not, the STO recommends elimination to the Company CO. The STO's criteria include class standing, peer ratings, previous pink slips, and his own observations; but these are only dimensions that he considers: the system does not guide him in their application. The company CO can either recommend elimination, or he can set a man back, put him on STO probation, or simply put him back in class. The Bn and Bde commanders have all the same options.

If all agree on elimination, SPOB sets up a faculty board: formal for military development, misconduct, or honor code violations; informal for academic deficiencies or misconduct in which the student has already been tried and convicted in accordance with the UCMJ. The previously mentioned CR350-20 specifies the type of board required in each of these cases. The faculty board is composed of a single senior faculty member (COL or LTC) from the Department of Undergraduate Flight Training (DUFT), Department of Graduate Training (DGFT), Department of Advanced Training (DOAT), or Directorate of Evaluation and Standardization (DES). As required by CR350-20, the senior faculty member may or may not be flight-rated, but "should not be directly responsible for instruction in the subject areas for which the student is recommended for elimination (i.e., DUFT officers should not serve on boards considering IERW students for elimination due to flight deficiency)."

The informal board has only the senior faculty member and a representative of SPOB, who acts as recorder. It is, as its name implies, an informal hearing, with findings and recommendations forwarded to the CG in writing. The formal board, conducted in accordance with AR15-6, allows the student to be represented by counsel, and permits both the student and the proponents of his elimination to call witnesses. Findings and recommendations are prepared in the required formats and are forwarded to the CG.

Each case is assigned a faculty member by SPOB, generally on the basis of availability. Arrangements and necessary forms are provided by SPOB. The only guidance to board members comes when an individual is added to the list of those eligible to sit on a board. At that time, SPOB shows him a notebook containing CR350-20, examples of all the forms, and procedures to be followed in the conduct of the board, in the form of "scripts" of introductory statements, explanations of the purpose of the board, etc. The book remains the property of SPOB, although a potential board member could copy it on his own, if he were so inclined. Beyond introduction to the book, the board member receives no guidance in making his decision or recommendation on the case.

The board's findings and recommendations (for or against elimination) are forwarded to the CG, who has the authority to eliminate or retain the individual, regardless of the board's recommendation. There are no guidelines to help the CG in making this decision. As Figure G-1 shows, each time a board produces a product, the CG passes a judgment on the student

involved, either returning him to the program or eliminating him, and if eliminating, recommending either for or against consideration for readmission at a later date. This action by the board and the CG is the same regardless of the events that preceded the board.

ATTRITION DURING FLIGHT PHASES OF IERW

When an individual moves on into the flight phases of the program, a change occurs in the process of handling his resignation: there is no longer the "automatic" administrative elimination. If his letter of resignation makes it as far as SPOB, an informal board follows, and final acceptance of the resignation must be made by the CG at the CG's option.

During all phases of flight training, the process of elimination or setback is essentially the same regardless of phase. The following description is valid for Primary, Contact, Instruments, Night, and Tactics. Each time a student flies, his instructor grades him. An unsatisfactory ride yields a pink grade slip. If a student gets three pink slips in a row, or three in five rides, this results in an automatic "prog" ride (progress check) with the flight commander, and probably an IP change. If the flight commander's prog ride is passed, the student simply continues with the course. If not, the student flies another prog ride, this time with a military standardization/evaluation pilot (SIP). If he "busts" this ride, he is removed from the class and is counseled by the Commanding Officer within a day. As a result of this counseling session, the CO either:

1. Recommends elimination,

2. Sets the individual back (he must negotiate space with an earlier class), or

3. Arranges for up to five additional hours of dual instruction (i.e., five more than his current classmates will have) to "iron out" the problem.

Many of the individuals who work within the system described in the preceding discussion feel that the system has a number of defects. The two complaints heard most frequently are:

1. Many of the decisions regarding elimination or setback are difficult ones, and the system provides no guidelines to aid the decision-making process.

2. Individuals who recommend elimination frequently (they feel) find the recommendations reversed by someone higher in the chain of command, but there is seldom any feedback to lower levels indicating the reason for the reversal.

Unable to obtain guidance in making their decisions initially, and in the absence of feedback about apparent defects in their decisions, many individuals become frustrated and discouraged.

Beginning at the WOC company responsible for candidates during WOCD and preflight, it appears that a number of factors contribute to reversals of recommendations for elimination. Although it is true that the TAC officers and Senior TAC officers who generally initiate elimination recommendations have relatively few guidelines on which to base these recommendations, it is also true that the manner in which they communicate the recommendations can influence later decisions. A review of student records reveals that written statements of charges against an individual are often vague or incompletely stated; they often fail to present a clear and compelling case for elimination. If the charges against an individual are inadequately presented to begin with, by the time they have been filtered up through a couple of levels in the chain, they can begin to appear to be substantially more benign than they really are, leading to a decision in favor of leniency. To assist individuals who must make elimination recommendations, it is suggested that some formal guidance be prepared and disseminated at all levels to assist in preparing clear and complete statements, in the proper format.

Another factor that clearly influences the reversal of elimination recommendations is the fact that information conveyed by the student in a counseling session with his/her CO may be qualitatively and quantitatively different from information previously conveyed to a TAC officer or Senior TAC officer. For example, students are often reluctant to confide in their TAC officers about personal problems that may be influencing their behavior and progress in the course. When a student is being counseled by his/her TAC officer, the student may realize that he/she is in trouble but not necessarily in danger of being dropped from the program. As the student moves up the chain in the elimination process, though, it becomes increasingly clear to him/her that revealing mitigating circumstances may be his/her only chance to remain in the program. The students have a number of opportunities to plead their cases, at increasing distances from the TAC-officer level, and it appears that a substantial number of students are able to convince someone up the line that they deserve another chance.

Unfortunately, when a student is reinstated in this way, there is considerable potential for a morale problem in the WOC company. An individual suspended from the class and entered into elimination proceedings is highly visible to his/her peers. They are generally keenly aware of the offense committed by the suspended individual, and they are often sympathetic with efforts to eliminate him/her. An individual set back or returned to his/her original class is also highly visible to his/her peers, who may be unaware of the mitigating circumstances that caused him/her to be retained. The apparent seriousness of his/her offense is consequently reduced in their eyes, and they begin to question the integrity of the code that they try hard to meet, but that their colleague successfully violated. TAC officers, also frequently unaware of the real reasons for the setback (reinstatement), often view such an event and its effect on their students as seriously eroding their credibility and authority.

In the absence of feedback from higher level decision-makers on the reasons for elimination recommentation reversals, two problems arise:

1. To the person originating the recommendation, the reversal can appear arbitrary.

2. To the extent the reversal is not arbitrary but represents a discrepancy in perception of the particulars of the problem or of relevant standards between the originator and his/her superiors, the discrepancy continues and further reversals occur.

Both these problems could cause a tendency to err on the side of not recommending for elimination people who might be marginal aviators and/or officers. At best, one could expect such people to tend to be eliminated later in the program (when a stronger case had been built) and therefore at higher cost.

It would probably be possible to build a feedback feature into the elimination process, but there is a real danger of thereby creating a system that cannot respect the confidentiality of personal problems as the present system can. Because of this dilemma, it may be that the only reasonable solution to the problem is to provide the best possible guidance for individuals in their preparation of clear and complete elimination recommendations, which should reduce reversals resulting from technicalities or miscommunication. The system must decide whether an individual with personal problems but considerable potential is worth salvaging (while protecting the confidentiality of his/her problem), even at the cost of creating considerable temporary distress among his/her peers and immediate superiors. It might be possible to create a feedback feature that causes this whole dilemma to be explained to an individual who is set back and permits him/her to choose those to whom feedback may be transmitted and those from whom he/she would like it withheld.

During flight training phases of the program, problems are similar among instructor pilots, flight commanders, and SIPs. These individuals are tasked only to provide flight training, and they have little time to act as counselors in trying to get at the "deeper" problems underlying observed flight deficiencies. Consequently, these individuals tend to see only the effects of flight performance, and the CO or possibly someone at DUFT is often (but not always) the first person to whom the student even has an opportunity to explain a personal problem that may be interfering with his/her progress. Again, the absence of any kind of feedback scheme causes instructors and flight commanders to simply lose contact with students after he/she goes to the CO with a recommendation for elimination. Instructors and flight commanders stay with their own flight (class) through the entire Primary/Contact-Instruments-Tactics stage of the course, so if students are set back they are set back into some other flights with different sets of instructors and different flight commanders.

As a result, a flight commander who thinks he has eliminated an individual because of incompetency may some day encounter that same individual on the flight line a a member of another flight. If this encounter provides the first and onl indication to the flight commander that his previous recommendation was reversed, he may, like the TAC officers during WOCD, feel that his judgment and authority have somehow been subverted by the system. The options for a solution of this problem would appear to be the same as those for WOCD/preflight.

If an elimination action reaches the faculty board level, the board is the students' last opportunity to defend themselves if they so desire, and to receive thoughtful consideration by a faculty member. Although most COs are sincerely concerned with giving an individual a fair chance, it is clearly possible for various people in the chain to accord some cases only perfunctory attention before endorsing a recommendation. Although the faculty board does not have elimination authority, its findings and recommendations are intended to heavily influence the final decision by the CG. When SPOB begins to set up a formal board (if specified by CR350-20), one of the first steps is to notify the student of his/her right to waive the formal board in favor of an informal board. We were told that a number of individuals choose to exercise this option. Board case records over a period of approximately 10 months indicated that of the 96 boards that were convened, 86 were informal. It is possible that the students believe that they can more effectively plead their cases in the one-to-one environment of an informal board than they can in the adversary situation presented by the formal board.

Again, the board chairman suffers from the same lack of standardization of content and format of complaints as everyone else in the system. Because the system has not provided a detailed description of the kinds of people it wishes to retain and the kinds of people who are clearly undesirable, the board chairman has the same lack of guidance as everyone else, plus the added disadvantage of being at the end of a fairly long string of people who have each had an opportunity to attenuate, filter, or otherwise modify the original characterization of the problem. The board chairman does, however, have the opportunity to question the student involved, in what may be the least formal and least threatening environment of the whole series. Because his recommendation may be viewed by the CG as the most important one among the case records, the board chairman is under somewhat more pressure to provide a detailed justification of his recommendation, but even here guidelines for format and content of the recommendation are essentially nonexistent.

Because the faculty board is effectively the students' last recourse in their attempts to influence a decision that will significantly affect their careers, it is recommended that the school review and substantially supplement existing guidance to board chairmen, especially in the conduct of informal boards. In these boards, the chairman is solely responsible for accumulating and interpreting the facts, making a judgment, and being sure that the judgment and its justification are communicated clearly to the CG. Possibly a short course could be prepared for board members. Such a course could be self-instructional and could include numerous examples of

adequate and inadequate inputs and outputs that boards have received and produced in the past. Because the board does not have authority either to eliminate or set an individual back, the board chairman should have the responsibility to convey all of the details of the case as he knows them, including personal problems that the student may have expressed. Particularly if the board recommends against elimination, it has a clear responsibility to fully describe any mitigating circumstances that the CG should consider in his decision. It must be made clear to the student that entering such information in the official records is probably, at this point, his/her last possible chance for retention in the program.

APPENDIX H

ELIMINATION AND SETBACK DATA BY COURSE SEGMENT, FOR OFFICERS AND WARRANT OFFICERS: 175/40 AND 180/20, AND BEFORE WOCD AND AFTER WOCD

The figures which follow support Tables 1-1 through 1-4 in this report. Information is displayed in each case by cause and by course segment.

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STATED CAUSE OF ELIMINATION	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA		(13) 2.90		(9) 2.10		(22)
Medical	NA	(1) .22	(2) .45	(1) .23	(2) .47	(1) .24	(7)
Resignation	NA		(2) .45		(4) .94		(6)
Academic	NA						
Military Development	NA						
Miscellaneous	NA			(1) .23	(2) .47	(1) .24	(4)
Total Eliminations	NA	(1)	(17)	(2)	(17)	(2)	(39)
Class Totals	NA	446	449	427	428	422	

Figure H-1. Eliminations--Officers--180/20.
Stated Cause of Elimination by Course Segment

STATED CAUSE OF ELIMINATION	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA		(7) 3.27		(1) .52		(8)
Medical	NA	(1) .36	(1) .47				(2)
Resignation	NA						
Academic	NA						
Military Development	NA						
Miscellaneous	NA		(3) 1.40		(3) 1.57		(6)
Total Eliminations	NA	(1)	(11)		(4)		(16)
Class Totals	NA	275	214	254	191	179	

Figure H-2. Eliminations--Officers--175/40.
Stated Cause of Elimination by Course Segment

STATED CAUSE OF ELIMINATION	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA	NA	(34) 4.42		(16) 2.21		(50)
Medical	(4) 2.19	(13) 1.45	(4) .52		(2) .28		(23)
Resignation	(13) 7.10	(48) 5.36	(27) 3.51		(6) .83	(1) .15	(95)
Academic		(4) .45	(5) .65				(9)
Military Development	(1) .55	(6) .67	(6) .78	(3) .42	(3) .42		(19)
Miscellaneous	(2) 1.09		(2) .26		(2) .28		(6)
Total Eliminations	(20)	(71)	(78)	(3)	(29)	(1)	(202)
Class Totals	183	896	769	722	723	691	

Figure H-3. Eliminations--Warrant Officers--180/20.
Stated Cause of Elimination by Course Segment

STATED CAUSE OF ELIMINATION	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA	NA	(1) .54	(1) .44			(2)
Medical	(9) 2.79	(4) 1.16			(1) .56		(14)
Resignation	(28) 8.67		(3) 1.63		(1) .56		(32)
Academic							
Military Development	(4) 1.24						(4)
Miscellaneous	(3) .93			(2) .87	(2) 1.12		(7)
Total Eliminations	(44)	(4)	(4)	(3)	(4)		(59)
Class Totals	323	344	184	229	179		

Figure H-4. Eliminations--Warrant Officers--175/40.
Stated Cause of Elimination by Course Segment

STATED CAUSE OF ELIMINATION	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n)	NA	NA	(33)		(14)		(47)
%			5.35		2.43		
Medical	NA	(12)	(4)		(2)		(18)
		1.63	.65		.35		
Resignation	NA	(48)	(25)		(3)	(1)	(77)
		6.52	4.05		.52	.10	
Academic	NA	(4)	(4)				(8)
		.54	.65				
Military Development	NA	(4)	(4)	(3)	(3)		(14)
		.54	.65	.52	.52		
Miscellaneous	NA		(2)		(1)		(3)
			.32		.17		
Total Eliminations	NA	(68)	(72)	(3)	(23)	(1)	(167)
Class Totals	NA	736	617	575	576	549	

Figure H-5. Eliminations--Warrant Officers--Before Warrant Officer Candidate Development. Stated Cause of Elimination by Course Segment

STATED CAUSE OF ELIMINATION	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA	NA	(2) .60	(1) .27	(2) .61		
Medical	(13) 2.57	(5) .99			(1) .31		
Resignation	(41) 8.10		(5) 1.49		(4) 1.23		
Academic			(1) .30				
Military Development	(5) .99	(2) .40	(2) .60				
Miscellaneous	(5) .99			(2) .53	(3) .92		
Total Eliminations	(64)	(7)	(10)	(3)	(10)		(94)
Class Totals	506	504	336	376	326	142	

Figure H-6. Eliminations--Warrant Officers--After Warrant Officer Candidate Development. Stated Cause of Elimination by Course Segment

STATED CAUSE OF ELIMINATION	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n)	NA		(20)		(10)		(30)
%			3.02		1.62		
Medical	NA	(2)	(3)	(1)	(2)	(1)	(9)
		.28	.45	.15	.32	.17	
Resignation	NA		(2)		(4)		(6)
			.30		.65		
Academic	NA						
Military Development	NA						
Miscellaneous	NA		(3)	(1)	(5)	(1)	(10)
			.45	.15	.81	.17	
Total Eliminations	NA	(2)	(28)	(2)	(21)	(2)	(55)
Class Totals	NA	721	663	681	619	601	

Figure H-7. Eliminations--All Officers.
Stated Cause of Elimination by Course Segment

STATED CAUSE OF ELIMINATION	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA	NA	(35) 3.67	(1) .11	(16) 1.77		(52)
Medical	(13) 2.57	(17) 1.37	(4) .42		(3) .33		(37)
Resignation	(41) 8.10	(48) 3.87	(30) 3.15		(7) .78	(1) .15	(127)
Academic		(4) .32	(5) .53				(9)
Military Development	(5) .99	(6) .48	(6) .63	(3) .32	(3) .33		(23)
Miscellaneous	(5) .99		(2) .21	(2) .21	(4) .44		(13)
Total Eliminations	(64)	(75)	(82)	(6)	(33)	(1)	(261)
Class Totals	506	1240	953	951	902	691	

Figure H-8. Eliminations--All Warrant Officer Candidates. Stated Cause of Elimination by Course Segment

STATED CAUSE OF SETBACK	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA		(1) .22				(1)
Medical	NA		(15) 3.34	(2) .47	(9) 2.10	(3) .71	(29)
Academic	NA						
Military Development	NA						
Slow Progress	NA		(19) 4.23	(4) .94	(25) 5.84	(3) .71	(51)
Unclassified	NA						
Administrative	NA		(3) .67				(3)
Total Setbacks	NA		(38)	(6)	(34)	(6)	(84)
Class Totals	NA	446	449	427	428	422	

Figure H-9. Setbacks--Officers--180/20.
Stated Cause of Setback by Course Segment

STATED CAUSE OF SETBACK	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA		(1) .47				(1)
Medical	NA		(7) 3.27	(2) .79	(1) .52		(10)
Academic	NA		(1) .47				(1)
Military Development	NA						
Slow Progress	NA		(7) 3.27	(1) .39	(19) 9.95		(27)
Unclassified	NA						
Administrative	NA						
Total Setbacks	NA		(16)	(3)	(20)		(39)
Class Totals	NA	275	214	254	191	179	

Figure H-10. Setbacks--Officers--175/40.
Stated Cause of Setback by Course Segment

STATED CAUSE OF SETBACK	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA	NA	(3) .39		(4) .55		(7)
Medical	(8) 4.37	(14) 1.56	(26) 3.38	(20) 2.77	(25) 3.46	(7) 1.01	(100)
Academic	(2) 1.09	(3) .34	(3) .39		(1) .14		(9)
Military Development	(1) .55	(11) 1.23	(1) .13				(13)
Slow Progress	(7) .83	(21) 2.34	(36) 4.68	(13) 1.80	(48) 6.64	(12) 1.74	(137)
Unclassified					(25) 3.46	(5) .72	(30)
Administrative		(19) 2.12	(2) .26		(1) .14		(22)
Total Setbacks	(18)	(68)	(71)	(33)	(104)	(24)	(318)
Class Totals	183	896	769	722	723	691	

Figure H-11. Setbacks--Warrant Officers--180/20.
Stated Cause of Setback by Course Segment

STATED CAUSE OF SETBACK	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA	NA					
Medical	(2) .62	(1) .29	(1) .54		(3) 1.68		(7)
Academic							
Military Development							
Slow Progress	(5) 1.55	(9) 2.62			(12) 6.70		(26)
Unclassified				(1) .44			(1)
Administrative							
Total Setbacks	(7)	(10)	(1)	(1)	(15)		(34)
Class Totals	323	344	184	229	179		

Figure H-12. Setbacks--Warrant Officers--175/40.
Stated Cause of Setback by Course Segment

STATED CAUSE OF SETBACK	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA	NA	(3) .49		(4) .69		(7)
Medical	NA	(12) 1.63	(21) 3.40	(19) 3.30	(24) 4.17	(6) 1.09	(82)
Academic	NA	(3) .41	(1) .16		(1) .17		(5)
Military Development	NA	(11) 1.50	(1) .16				(12)
Slow Progress	NA	(19) 2.58	(30) 4.86	(10) 1.74	(47) 8.16	(11) 2.00	(117)
Unclassified	NA				(11) 1.91	(5) .91	(16)
Administrative	NA	(19) 2.58	(2) .32		(1) .17		(22)
Total Setbacks	NA	(64)	(58)	(29)	(88)	(22)	(261)
Class Totals	NA	736	617	575	576	549	

Figure H-13. Setbacks--Warrant Officers--Before Warrant Officer Candidate Development. Stated Cause of Setback by Course Segment

STATED CAUSE OF SETBACK	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA	NA					
Medical	(10) 1.98	(3) .60	(6) 1.79	(1) .27	(4) 1.23	(1) .70	(25)
Academic	(2) .40		(2) .60				(4)
Military Development	(1) .20						(1)
Slow Progress	(12) 2.37	(11) 2.18	(6) 1.79	(3) .80	(13) 3.99	(1) .70	(46)
Unclassified				(1) .27	(14) 4.29		(15)
Administrative							
Total Setbacks	(25)	(14)	(14)	(5)	(31)	(2)	(91)
Class Totals	506	504	336	376	326	142	

Figure H-14. Setbacks--Warrant Officers--After Warrant Officer Candidate Development. Stated Cause of Setback by Course Segment

STATED CAUSE OF SETBACK	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %	NA		(2) .30				(2)
Medical	NA		(22) 3.32	(4) .59	(10) 1.62	(3) .50	(39)
Academic	NA		(1) .15				(1)
Military Development	NA						
Slow Progress	NA		(26) 3.92	(5) .73	(44) 7.11	(3) .50	(78)
Unclassified	NA						
Administrative	NA		(3) .45				(3)
Total Setbacks	NA		(54)	(9)	(54)	(6)	(123)
Class Totals	NA	721	663	681	619	601	

Figure H-15. Setbacks--All Officers.
Stated Cause of Setback by Course Segment

STATED CAUSE OF SETBACK	WARRANT OFFICER CANDIDATE DEVELOPMENT	PRE-FLIGHT	PRIMARY	CONTACT	INSTRU-MENTS	TACTICS, ETC.	TOTAL
Flight (n) %			(3) .32		(4) .44		(7)
Medical	(10) 1.98	(15) 1.21	(27) 2.83	(20) 2.10	(28) 3.10	(7) 1.01	(107)
Academic	(2) .40	(3) .24	(3) .32		(1) .11		(9)
Military Development	(1) .20	(11) .89	(1) .11				(13)
Slow Progress	(12) 2.37	(30) 2.42	(36) 3.78	(13) 1.37	(60) 6.65	(12) 1.74	(163)
Unclassified				(1) .11	(25) 2.77	(5) .72	(31)
Administrative		(19) 1.53	(2) .21		(1) .11		(22)
Total Setbacks	(25)	(78)	(72)	(34)	(119)	(24)	(352)
Class Totals	506	1240	953	951	902	691	

Figure H-16. Setbacks--All Warrant Officer Candidates. Stated Cause of Setback by Course Segment

APPENDIX I

EXCERPTS FROM RESIGNATION LETTERS IN 1977

As part of the present study, all letters of resignation by officers and a random sample of 20 resignation letters by WOCs in 1977 were read. Excerpts are presented below.

WOCs

1. Wife said "Quit IERW or I'll get a divorce."

2. "Not aware of the demands and requirements."

3. "Don't want pilot responsibility."

4. "Too much strain on my home life due to restrictions."

5. Previous IERW student--didn't feel he should have to go through WOCD again.

6. No reason, no letter.

7. "Not aware of the requirements of the program. Don't believe I can cope with the stress."

8. "Don't want to be a pilot," would have to resign from his ANG job.

9. "Not prepared to endure long hours of study." "Difficulty with academic subjects."

10. "No desire to become an aviator." Orders came 18 months after application. Then faced a 10-week wait as "Snow Bird."

11. "Slow progress in flight line. Set back twice. IP feels he'll never make it."

12. "Financial problems." "Can't keep up with classmates."

13. "Been away two of the last four years. Wife desires a separation if he stays in the program."

14. "Lack of desire. Not enough self-motivation."

15. "Marital problem."

16. "Accepted at Air Force Academy."

17. "Lost motivation after seeing the requirements and regimentation of the program."

18. "Separation from family."

19. "Applied two years ago. Would have to extend to complete program."

20. No letter, no reason.

Officers

1. "Tense in the aircraft." (155 flight hours)

2. "Personal problems." "Difficulty with instruments, set back twice." (167 hours)

3. "Slow reactions, fear." (11.7 hours)

4. Fear (25.7 hours)

5. "Apprehension, nervousness, harassment, unfair grading." (132.4 hours)

6. "Slow reactions. Uncomfortable in aircraft." (22.1 hours)

7. "Fear developed after two forced landings." (126 hours)