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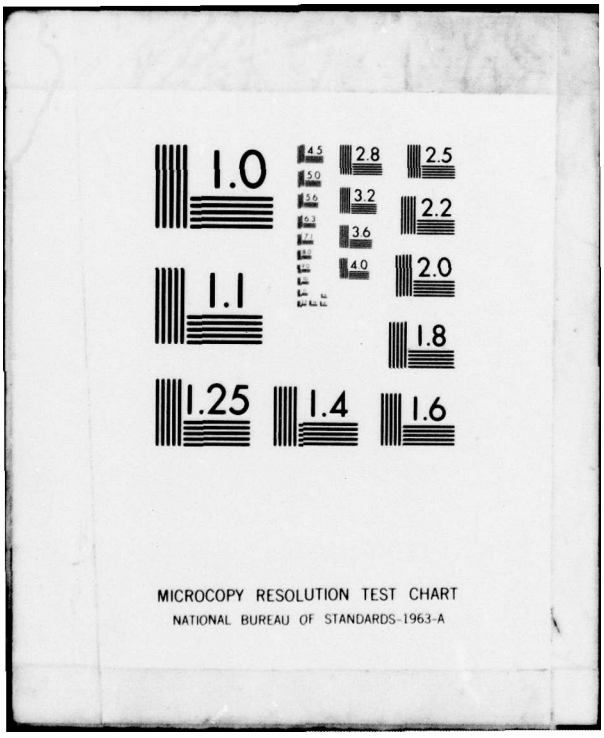
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TRAINING ANALYSIS AND EVALUATION GROUP

TAEG REPORT NO. 75

THE RELATIONSHIP OF PERSONALITY CHARACTERISTICS TO ATTRITION AND PERFORMANCE PROBLEMS OF NAVY AND AIR FORCE RECRUITS

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TRAINING ANALYSIS AND EVALUATION GROUP

ORLANDO, FLORIDA 32813

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THE RELATIONSHIP OF PERSONALITY CHARACTERISTICS TO ATTRITION AND PERFORMANCE PROBLEMS OF NAVY AND AIR FORCE RECRUITS

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for the

Training Analysis and Evaluation Group

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This research was supported jointly by the Defense Advanced Research Projects Agency and the U.S. Navy, Chief of Naval Education and Training.

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Three studies were conducted to assess the relationship of personality characteristics to attrition and performance problems of Navy and Air Force recruits. The findings suggest that measures of anxiety, curiosity, and anger are potentially useful in predicting performance problems of military recruits. Implications for intervention and behavior modification programs are provided.

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FOREWORD

Current high levels of attrition pose a serious threat to the capability of the U.S. military services to fulfill their assigned missions. A recent comprehensive review of enlisted attrition in the U.S. Armed Forces concluded that behavior and performance problems were a major cause of attrition during the first 2 years of service; an attrition rate of approximately 10 percent occurs during recruit training.

The main goal of the studies described in this report was to investigate the relation between attrition and the personality characteristics of Navy and Air Force recruits and the development of performance problems during basic recruit training. These studies were supported by a contract (MDA 903-77-C-0190) awarded by the Cybernetics Technology Office, Defense Advanced Research Projects Agency (DOD/ARPA) to C. D. Spielberger and W. D. Anton of the University of South Florida. Dr. A. F. Smode, Director of the Training Analysis and Evaluation Group (TAEG), served as the Contracting Officer's Technical Representative (COTR).

The studies of Navy apprentices and recruits were conducted at the Recruit Training Command, Naval Training Center, Orlando, Florida, with the support and assistance of the Chief of Naval Education and Training. The study of Air Force recruits was carried out at the Basic Military Training School, Lackland Air Force Base, San Antonio, Texas, in collaboration with personnel associated with the Air Force Medical Evaluation Testing (AFMET) Program.

ACKNOWLEDGMENTS

Many individuals have contributed to the three studies that are described in this technical report. We are especially grateful to Dr. H. F. O'Neil, Jr., formerly of the Cybernetics Technology Office, DOD Advanced Research Projects Agency, for his consultation throughout the course of this research; to Dr. A. F. Smode, Director of the Training Analysis and Evaluation Group (TAEG), who served as the Contracting Officer's Technical Representative (COTR); and to Dr. M. M. Zajkowski and Mr. D. R. Copeland of TAEG for their invaluable contributions to this report and to the studies on which it is based.

Dr. Smode, Dr. Zajkowski, Mr. Copeland, and other members of the TAEG staff met with us periodically to provide general guidance and consultation in formulating and reviewing the plans for the Navy studies and to assist us in their implementation and in the interpretation of the findings. We would also like to acknowledge the cooperation and support provided by CAPT E. H. Graffam, Commanding Officer, Recruit Training Command, Orlando, Florida, and members of his command. Special acknowledgments are due to CDR B. J. Suse (former Executive Officer), LCDR R. H. Coffin, LT J. L. Holzwroth, and LTJG C. G. Taylor who provided consultation and assistance in planning and implementing the Navy studies. ICCS R. J. DeVuyst and ICCS D. M. Bishop worked closely with us in making the arrangements for testing the Navy apprentices and recruits and in obtaining the performance evaluations.

The study at Lackland Air Force Base would not have been possible without the invaluable contributions of Col. J. C. Sparks, Maj. T. P. O'Hearn, Capt. E. R. Williams, Dr. W. Bloom, S/SGT C. Adkins, S/SGT W. Walker, and the officers and enlisted personnel associated with the Air Force Basic Military Training School and the Department of Mental Health, Wilford Hall, USAF Medical Center. Finally, we are indebted to Lynne Westberry, Tucker Fletcher, and Diane Ludington for their assistance in conducting the Navy studies and in analyzing the data and to Peggy McPherson and Jean Ann Goltermann for their contributions to the preparation of this report.

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SECTION I

INTRODUCTION

The current high levels of attrition of military manpower pose a major problem for the U.S. Armed Forces. At a recent conference on First Term Enlisted Attrition, co-sponsored by the Office of Naval Research and the Secretary of Defense, Martin (1977) noted that the attrition rate during the first 2 years of service had increased from 25 percent to an alarming 37 percent. The cost of attrition during the first enlistment was estimated to be approximately one billion dollars annually (Dempsey, Fast, & Sellman, 1977).

In order to reduce manpower and training costs in manning the Armed Forces, intensive efforts are urgently needed to determine the causes of enlisted attrition. New programs such as the Navy Counter-Attrition Task Force are developing approaches to finding solutions to the problem. Once the causes of attrition are better understood, it should be possible to improve initial selection and screening procedures and to develop effective remedial programs.

Since approximately 10 percent of all Department of Defense first-term enlistees fail to complete recruit training (Department of Defense, 1977), it would seem important to identify deficits in ability and personality characteristics that lead to attrition in recruits so that early corrective action can be taken. In the past, demographic factors, aptitude and ability, and number of years of education were found to be valid predictors of successful performance in recruit training (Gunderson & Bullard, 1956; Lockman, 1976; Plag & Goffman, 1966). However, with the advent of the All-Volunteer Force concept, the nature of the recruit population has changed and other factors may now be more important.

On the basis of a comprehensive review of attrition in the U.S. Armed Forces, Martin (1977) concluded that "behavior and performance" problems were the primary causes of attrition during the first 2 years of service. Ineptitude and marginal job performance, "defective attitudes," irresponsibility, drug abuse, motivational and adjustment problems, and personality disorders have been cited as important factors in attrition (Jenkins, 1977). The percentage of first-term enlistees discharged for these reasons has shown an alarming increase, from less than 15 percent in 1972 (the last year before the All-Volunteer Force) to a rate of almost 23 percent just 2 years later (Martin, 1977).

Since maladaptive personality traits that contribute to behavior and performance problems are amenable to modification, interventive programs could be developed to reduce the attrition of military personnel for these causes. However, before such programs can be undertaken, it will be necessary to identify the specific behavioral and personality deficits that contribute to attrition and poor military performance.

PURPOSE

The three studies described in this report investigated the extent to which individual differences in measures of anxiety, curiosity, anger, and social attitudes could contribute to identifying Navy and Air Force recruits who were at high risk for attrition, or who were likely to develop academic or disciplinary problems during basic training. In addition to identifying these high risk recruits, the data obtained in these studies may also prove useful in suggesting remedial programs to reduce attrition and diminish the number of academic and disciplinary problems that develop during recruit training.

ORGANIZATION OF THE REPORT

The procedures and the results of the three studies in which the relationship between personality variables and attrition and performance of military trainees were investigated are described in section II. In section III, the results of these studies are evaluated, and implications of the findings for recruit selection and early screening of recruits who are likely to develop academic and disciplinary problems are considered.

Throughout this report, a nontechnical presentation of the study findings is emphasized. Methodological details and statistical procedures are reported as Technical Notes in appendix A and referred to in the text by successive superscript numbers. Descriptions of the psychological tests that were used in the three studies and copies of the test materials and consent forms are reported in appendix B. Finally, the test scores of military recruits are compared with high school and college students in appendix C.

SECTION II

PROCEDURES AND RESULTS

Three studies were conducted. The initial work began with a study to evaluate the relationship between personality measures and the performance of Navy Apprentice Trainees. It also served as a pilot effort to determine the appropriateness of the test instruments for use with military populations. Study I investigated the relationships among personality measures, performance problems, and attrition for Navy recruits. Study II examined the extent to which measures of anxiety could identify Air Force recruits who were discharged or setback during basic training.

PILOT STUDY: NAVY APPRENTICE TRAINEES

This study investigated the relationship between individual differences in test anxiety, general anxiety, curiosity, and social attitudes and the academic and disciplinary problems experienced by Navy personnel assigned to an Apprentice Training program. The appropriateness of the test instruments for use with military populations was also evaluated. The criterion measures used in this study for defining academic and disciplinary problems, and those employed in the following study of Navy recruits, were developed in consultation with the staff of the Recruit Training Command, Orlando.

The participants in this study were 203 Apprentice Trainees (190 males; 13 females) who had recently graduated from Recruit Training. All seamen, airmen, and firemen apprentices scheduled to begin the Apprentice Training program at the time the study was initiated were included in the test group. This training is required for all Navy enlisted personnel who are not immediately assigned to technical schools.

TEST INSTRUMENTS AND PERFORMANCE MEASURES. The Test Anxiety Inventory (TAI), the State-Trait Anxiety Inventory (STAI), the State-Trait Curiosity Inventory (STCI), and the Social Attitude Scale (SAS) were administered to all participants. The TAI measures individual differences in anxiety proneness in test situations and also assesses worry and emotionality as major components of test anxiety. The STAI assesses the intensity of the experience of anxiety as an emotional state at a particular moment in time (S-Anxiety), and individual differences in anxiety proneness in a variety of stressful situations (T-Anxiety). The STCI assesses the intensity of curiosity at a specific time (S-Curiosity) and also provides a measure of individual differences in curiosity as a personality trait (T-Curiosity). Finally, the SAS provides a measure of the potential for an individual to engage in anti-social behavior. These tests are described in appendix B in which copies of the Test Forms that were used in this study may also be found.

Scores on the Arithmetic Reasoning (AR) and Word Knowledge (WK) tests of the Armed Services Vocational Aptitude Battery (ASVAB) were employed in this study as measures of ability. The ASVAB is briefly described in appendix A.[1] The ASVAB scores for each apprentice who participated in this study were obtained from official Navy records, and the participants' average grade on the two Apprentice Training Course examinations were used as the

criterion measure of academic performance.[2] Trainees who received failing grades on one or more examinations were classified as Academic Problems.

Performance problems that resulted in disciplinary action during the Apprentice Training Course are routinely recorded in a log maintained by the Training Officer responsible for the class. In the present study, trainees who were involved in two or more disruptive behavioral incidents, or in misbehaviors severe enough to warrant a Captain's Mast, were classified as Disciplinary Problems.

PROCEDURES. The four psychological tests were administered to large groups of apprentices at the Recruit Training Command, Naval Training Center, Orlando. At the beginning of the testing session, the trainees were informed that they would be given several questionnaires that inquired about the feelings and attitudes of Navy men and women. They were also told that the questionnaire results would provide information that might be helpful in improving the training program but would not in any way affect their individual Navy record. Participation in this study was voluntary.

In order to encourage accurate and candid responses to the psychological tests, the trainees were told that they would be given additional information about the study immediately after the completion of the Apprentice Training Course. The test booklets, answer sheets, and consent forms were then passed out, and the trainees were encouraged to ask questions about the study; those who did not wish to participate were given an opportunity to leave. All of the trainees agreed to take part in the study and signed the Consent Statement, which is included in appendix B. The test battery was then administered; details of the test administration procedures are described in appendix A.[3]

A group feedback session was held 2 weeks after the initial testing. In this session, the concepts of anxiety, curiosity, and social sensitivity were defined, and the influence of feelings and attitudes on learning and academic performance were discussed with the participants. Specifically, it was pointed out that reducing the tension and worry that are experienced during training might contribute to improvement in performance. In addition, the mean scores obtained on the psychological tests by the participants in this study were compared with the norms for high school and college students.

RESULTS OF THE STUDY OF NAVY APPRENTICES. Complete data on the personality, attitude, ability, and performance measures were available for all 203 trainees. Since there were only 13 females in the sample, none of whom were classified as Academic or Disciplinary Problems, it was not possible to make meaningful comparisons among female subjects with regard to the criterion variables. Therefore, the female trainees were not included in the data analyses.

The means and standard deviations for the personality and attitude measures of the trainees who were classified as Academic or Disciplinary Problems are compared in table 1 with the scores of trainees who had no problems during the Apprentice Training Course.[4] Trait curiosity was the only measure on which there was a statistically significant difference between the three groups; the Disciplinary Problems group scored higher than did either the Academic Problems or the No Problems groups, which did not

TABLE 1. MEANS AND STANDARD DEVIATIONS ON PERSONALITY AND ATTITUDE MEASURES FOR NAVY APPRENTICES CLASSIFIED AS ACADEMIC AND DISCIPLINARY PROBLEMS

Measure	No Problems (N=147)	Academic Problems (N=22)	Disciplinary Problems (N=21)	F
T-Anxiety				
Mean	40.41	41.68	39.67	<1.00
SD	9.25	11.15	10.36	
S-Anxiety				
Mean	39.15	41.23	36.81	1.02
SD	10.40	10.10	7.92	
TAI				
Mean	39.73	41.55	44.91	1.61
SD	12.00	15.59	14.37	
TAI/Worry				
Mean	14.57	15.69	17.43	2.40
SD	5.45	7.07	6.80	
TAI/Emotion				
Mean	16.84	16.91	18.67	<1.00
SD	5.52	5.96	6.41	
T-Curiosity				
Mean	45.67	44.00	48.57*	3.11**
SD	5.80	7.87	6.59	
S-Curiosity				
Mean	46.24	43.59	46.19	1.44
SD	6.67	6.76	8.21	
Social Attitude				
Mean	12.63	12.59	13.14	<1.00
SD	3.77	2.54	3.31	

*Mean score of group was significantly different from the No Problems group.

**$p < .05$.

differ from each other on this measure.[5] The Disciplinary Problems group also tended to score higher than the other groups on the TAI Worry subscale, but this difference only approached statistical significance.[6]

The mean scores of the Academic Problems, Disciplinary Problems, and No Problems groups for the Arithmetic Reasoning (AR) and the Word Knowledge (WK) measures and for the combined AR+WK measure of general aptitude are reported in table 2. Although the Disciplinary Problems group scored consistently higher on all three aptitude measures, no significant differences were found in the analyses of the AR and WK scores. However, the three groups differed significantly on the combined AR+WK measure, and subsequent analyses showed that the Disciplinary Problems group scored significantly higher than the Academic Problems and No Problems groups. The latter two groups did not differ from each other on this measure.[7]

The average grades in the Apprentice Training Course of the trainees in the Academic Problems, Disciplinary Problems, and No Problems groups are also compared in table 2. The grades of the trainees in the Academic Problems group were much lower than those of the other groups, which were quite similar. However, all recruits who failed at least one examination were automatically assigned to the Academic Problems group, and this procedure resulted in the lower average grades for this group.

The correlations between each personality and attitude measure and the grades obtained by the trainees in the Apprentice Training Course are reported in table 3. Correlations of the personality and attitude measures with ASVAB scores are also reported in this table. There was a small negative correlation between trait curiosity (T-Curiosity) and grades, and a small positive correlation between T-Curiosity and the three aptitude measures.[8] The correlations of the other personality and attitude measures with grades were essentially zero.

Negative correlations with Word Knowledge (WK) were found for four of the five anxiety scales. While the pattern of correlations of the personality and attitude measures with the combined AR+WK scores was quite similar to the correlations between these measures and the WK scale, the magnitude of the relationships was weaker for the combined measure. Scores on the state curiosity (S-Curiosity) and Social Attitude measures were unrelated to either grades or aptitude scores.[9]

SUMMARY AND CONCLUSIONS. In this pilot study, psychological measures of individual differences in general and test anxiety, curiosity, and social attitudes were administered to Navy Apprentice Trainees. On the basis of the responses of these trainees, it was concluded that the psychological tests were appropriate for use with military personnel. Criteria for classifying Navy Apprentices as Academic or Disciplinary Problems were also validated in this study.

Navy Apprentices classified as Academic Problems scored lower on measures of ability and curiosity, and slightly higher on the anxiety measures. An interesting though somewhat surprising finding was that the apprentices classified as Disciplinary Problems were both brighter and more curious than the other groups. This finding was in agreement, however, with past

TABLE 2. MEANS AND STANDARD DEVIATIONS ON APTITUDE AND PERFORMANCE MEASURES FOR NAVY APPRENTICES CLASSIFIED AS ACADEMIC AND DISCIPLINARY PROBLEMS

Measure	No Problems (N=147)	Academic Problems (N=22)	Disciplinary Problems (N=21)	F
AR				
Mean	50.01	47.96	52.81	2.45
SD	8.00	6.34	8.00	
WK				
Mean	50.93	49.32	53.91	1.99
SD	8.11	6.86	5.59	
AR+WK				
Mean	100.93	97.27	106.71*	3.04**
SD	13.80	9.56	7.41	
Grade***				
Mean	3.03	2.44	2.94	<1.00
SD	.49	.34	.39	

*Mean score of group was significantly different from the No Problems group.

**$p < .05$

***The Academic Problems group was excluded from the statistical evaluation of differences among the groups in the Grade measure, since all trainees who failed one or more tests were assigned to this group.

TABLE 3. CORRELATIONS OF THE PERSONALITY AND ATTITUDE MEASURES WITH COURSE GRADES AND ASVAB SCORES FOR MALE NAVY APPRENTICES

PERSONALITY AND ATTITUDE MEASURES	COURSE GRADE	ASVAB SCORES		
		AR	WK	AR+WK
T-Anxiety	-.01	-.06	-.20*	-.15*
S-Anxiety	-.01	-.05	-.12*	-.12
TAI	-.09	-.05	-.13*	-.11
TAI/Worry	-.06	-.03	-.08	-.07
TAI/Emotionality	-.11	-.08	-.19*	-.16*
T-Curiosity	-.13*	.12*	.24*	.22*
S-Curiosity	.03	.07	.07	.08
Social Attitude	.04	-.02	.07	.02

*$p < .05$

observations by Navy Company Commanders and enlisted supervisors that the more intelligent men were often "troublemakers."

It should be noted that the Navy Apprentices who participated in this study had all successfully completed recruit training. Consequently, recruits with very severe problems that resulted in their being discharged during recruit training were not included in the sample. The next study examines the relationship between individual differences in selected personality and attitude measures and the attrition and performance of Navy recruits.

STUDY I: NAVY RECRUITS

This study investigated the extent to which measures of individual differences in anxiety, curiosity, and anger could predict academic performance, disciplinary problems, and the attrition of Navy recruits. The participants were 263 Navy recruits (192 males; 71 females) assigned for recruit training to the Naval Training Center, Orlando, Florida.[10]

TEST INSTRUMENTS AND PERFORMANCE MEASURES. The State-Trait Anger Inventory (STAgI) and three of the personality measures used in the previous study (TAI, STAI, STCI) were administered to all participants. The STAgI provides a measure of the intensity of anger experienced at a particular time (S-Anger), and also assesses individual differences in the disposition to experience anger as a personality trait (T-Anger). A brief description of the STAgI is included in appendix B.

The STAI, STCI and STAgI were incorporated into the State-Trait Personality Inventory (STPI), which measures the intensity of the experience of anxiety, curiosity, and anger for a particular time period and individual differences in the disposition to experience these emotions. The Test Form for the STPI that was used in this study is included in appendix B.

Ability and performance measures for each recruit who participated in the study were obtained from official Navy records. As in the previous study, the ASVAB AR and WK scales were used as specific aptitude measures, and scores on these scales were combined (AR+WK) to obtain an estimate of the general aptitude of each recruit.

Five measures of recruit performance were obtained from each recruit's "hard card," a performance log carefully maintained by the Commander of each Recruit Company. A sample "hard card" is included in appendix B. The five measures of performance were:

1. Unsuitable Discharge. Recruits are discharged for two major reasons: medical conditions and unsuitability. Medical discharges involve physical problems that prevent the recruit from performing military duties. Unsuitability discharges are given to recruits whose behavior problems seriously interfere with military performance; e.g., continued disciplinary problems and asocial behaviors. Recruits who were given Unsuitable Discharges prior to completion of basic training were identified on the basis of information recorded on the hard card.

2. Setbacks. Participants who completed Recruit Training but who were required to repeat part of the training program or were assigned for remedial instruction were classified as setbacks. Setbacks were further divided into academic or training problems on the basis of information recorded on the hard card.

3. Average Course Grade. Four academic tests were given during the recruit training program. The grades received by each recruit on these tests were averaged, and the resulting average score was used as the criterion measure of academic performance in this study. Any recruit who received a failing grade on one or more of these tests, defined as a score below 2.5 on a 4-point scale, was classified as an Academic Problem.

4. Counseling Incidents. Specific incidents that required counseling by the Recruit Company Commander were recorded on the hard card. The total number of these incidents was used as a measure of training performance. Counseling incidents were further divided into two groups:

a. Military training problems: These included difficulties in military dress and manner, problems with personal equipment and living area, knowledge of military organization and routine.

b. Disciplinary problems: These included arguing with superiors, refusing to obey officers, fighting and "attitude" problems. Any recruit who was involved in two or more such incidents was classified as a Disciplinary Problem.

5. Unsatisfactory Inspections. During basic training, each recruit stands 16 major inspections. These involve inspections of clothing and personal equipment, lockers and barracks, and questions to determine the recruit's knowledge of military information. Each inspection is graded as Satisfactory or Unsatisfactory, and this grade is recorded on the recruit's hard card. The number of inspections graded as Unsatisfactory for each recruit was used as a performance measure. On some occasions, unsatisfactory inspections may lead to a Counseling Incident, as described in 4 above.

PROCEDURES. The psychological tests were administered on the fifth day of the training cycle in group-testing sessions to recruits assigned to four newly-formed Training Units (TU). Each TU consisted of approximately 70 trainees; three males and one female TU were selected for this study. The instructions and the procedures for administering the psychological tests are described in appendix B. The state measures of the State-Trait Personality Inventory (STPI) were administered first, followed by the STPI Trait measures and the Test Anxiety Inventory (TAI).

RESULTS OF THE STUDY OF NAVY RECRUITS. Complete data were available for all 263 recruits who participated in the study. The mean scores for male and female recruits on the personality and aptitude measures are compared in table 4. The female recruits obtained significantly higher scores on the state and trait curiosity measures and scored lower on state anger than the males. The females were also significantly higher in Word Knowledge than the males.

TABLE 4. MEANS AND STANDARD DEVIATIONS ON PERSONALITY AND APTITUDE MEASURES FOR MALE AND FEMALE NAVY RECRUITS

Measure	Males (N=192)	Females (N=71)	t-test
Trait Anxiety			
Mean	40.12	40.03	1.00
SD	9.53	9.90	
State-Anxiety			
Mean	48.98	47.01	1.00
SD	12.38	14.42	
Trait-Curiosity			
Mean	44.68	47.68	3.45*
SD	6.37	6.19	
State-Curiosity			
Mean	42.44	48.24	5.23*
SD	8.31	7.26	
Trait-Anger			
Mean	31.66	30.10	1.53
SD	7.63	6.92	
State-Anger			
Mean	27.14	23.56	2.54**
SD	9.39	10.52	
Test-Anxiety			
Mean	38.00	39.81	1.06
SD	12.35	12.61	
TAI/Emotional			
Mean	16.01	17.33	1.87
SD	4.97	5.56	
TAI/Worry			
Mean	14.44	14.17	1.00
SD	5.41	5.06	
Social Attitude			
Mean	12.16	11.99	1.00
SD	3.69	5.26	
AR			
Mean	53.26	52.41	1.00
SD	8.29	6.97	
WK			
Mean	54.84	57.16	2.68**
SD	6.93	6.05	
AR+WK			
Mean	108.11	109.41	1.00
SD	13.30	10.68	

* $p < .001$
** $p < .01$

TABLE 5. MEANS AND STANDARD DEVIATIONS ON THE PERSONALITY AND APTITUDE MEASURES FOR MALE NAVY RECRUITS CLASSIFIED AS NO PROBLEMS, DISCHARGES, SETBACKS, ACADEMIC PROBLEMS, OR DISCIPLINARY PROBLEMS

Measures	No Problems (N=115)	Unsuitable Discharges (N=7)	Problems Setbacks (N=28)	Problems Academic (N=15)	Problems Discipline (N=27)	F
S-Anxiety						
Mean	49.30	60.86*	44.70*	50.67	48.19	2.61**
SD	12.00	12.46	10.75	13.18	13.73	
T-Anxiety						
Mean	39.51	48.00	39.61	47.13*	36.96	4.39***
SD	9.35	14.43	8.42	8.51	8.45	
S-Curiosity						
Mean	43.05	35.71	43.56	42.60	41.30	1.57
SD	7.63	9.80	8.91	8.13	7.63	
T-Curiosity						
Mean	45.30	41.00	43.61	41.13*	45.93	2.59**
SD	6.46	6.43	5.68	4.67	6.53	
S-Anger						
Mean	25.66	39.43*	26.85	32.60*	28.37	4.29***
SD	9.64	14.75	9.80	9.99	11.87	
T-Anger						
Mean	30.44	34.00	32.61	35.87*	32.43	2.32
SD	7.02	8.04	8.75	8.77	6.84	
TAI						
Mean	36.22	46.00	40.86	44.40*	38.27	2.82**
SD	11.16	14.86	14.31	14.41	11.27	
TAI/Emotion						
Mean	15.33	19.86	17.18	18.60*	15.92	3.13**
SD	4.51	6.69	5.68	5.33	4.43	
TAI/Worry						
Mean	13.57	17.00	15.46	17.60*	14.65	2.81**
SD	4.69	6.81	6.33	6.85	5.09	
AR						
Mean	54.93	54.71	48.25*	48.79*	51.83*	5.48***
SD	8.34	8.34	6.35	8.61	6.90	
WK						
Mean	56.16	57.29	51.29*	49.14*	53.90	6.24***
SD	6.32	5.31	8.18	5.47	6.33	
AR+WK						
Mean	111.09	112.00	99.54*	97.93*	105.72*	7.84***
SD	12.75	12.38	11.78	12.22	11.06	

*Mean score of group was significantly different from the No Problems group.

**$p < .05$

***$p < .01$

In comparing recruits who were discharged or setback, or who developed academic and/or disciplinary problems, the findings for the male recruits will be reported first. The results for the females will then be examined.

Results for Male Recruits. The means and standard deviations for each of the personality and aptitude measures for male recruits classified as Unsuitable Discharges, Setbacks, Academic Problems, and Disciplinary Problems are compared in table 5 with the scores of recruits for whom No Problems were recorded during basic training. Statistically significant differences among the five groups were found in state and trait anxiety, trait curiosity, state anger, and test anxiety (TAI, TAI/E, and TAI/W), and on all three ASVAB aptitude measures (AR, WK, AR+WK).[11]

Recruits who were discharged from the Navy prior to the completion of basic training because they were considered unsuitable for military service scored much higher on state anxiety and state anger than any other group. The recruits who were setback scored lower in state anxiety than any other group, and also scored lower than the No Problems group on all three aptitude measures.

The Academic Problems group scored higher on T-Anxiety and on trait and state anger, and lower on T-Curiosity than did the No Problems group. In addition, the recruits in the academic problems group scored lower on all three aptitude measures than the No Problems group. The Disciplinary Problems group did not differ from the No Problems group on any of the personality measures, but scored lower on two of the three aptitude measures (AR and AR+WK).

The means and standard deviations for the performance measures of recruits classified as No Problems, Unsuitable Discharges, Setbacks, Academic Problems and Disciplinary Problems are reported in table 6. The results of the statistical analyses for each measure are described below.[12]

1. Average Test Grade: The Setbacks and Disciplinary Problems groups received lower Average Test Grades than recruits with No Problems. However, the Academic Problems group had the lowest Average Test Grade, as would be expected since any recruit who failed one or more tests was assigned to this group.

2. Disciplinary and Training Incidents: The Disciplinary Problems group had the highest number of disciplinary incidents but this resulted from assigning recruits with two or more disciplinary incidents to this group. A larger number of disciplinary incidents was also recorded for recruits who were discharged or setback than for the No Problems group. Recruits classified as Discharges, Setbacks, or Disciplinary Problems were all involved in more training incidents than the No Problems group.

3. Unsatisfactory Inspections: The recruits who were setback recorded more than twice as many unsatisfactory inspections as any other group, and the setbacks were the only group that differed from the No Problems group on this measure. Surprisingly, the recruits who were subsequently discharged as unsuitable for service had fewer unsatisfactory inspections than any other group, but it should be noted that these recruits did not stand as many

TABLE 6. MEANS AND STANDARD DEVIATIONS ON THE PERFORMANCE MEASURES FOR MALE NAVY RECRUITS CLASSIFIED AS NO PROBLEMS, DISCHARGES, SETBACKS, ACADEMIC PROBLEMS, OR DISCIPLINARY PROBLEMS

Measure	No Problems (N=115)	Unsuitable Discharges (N=7)	Setbacks (N=28)	Problems		F
				Acad. (N=15)	Disc. (N=27)	
Average Test Grade*						
Mean	3.23	----	2.82**	2.53**	2.93**	23.65***
SD	.24	----	.43	.12	.34	
Counseling Incidents						
Discipline****						
Mean	.14	1.86**	.79**	.07	2.62**	45.32***
SD	.35	1.57	1.13	.26	1.90	
Training						
Mean	2.97	6.43**	5.57**	4.00	5.76**	16.54***
SD	1.76	3.21	2.92	2.24	2.67	
Unsatisfactory Inspections						
Mean	1.20	.57	2.82**	1.27	1.17	10.55***
SD	1.15	1.51	1.91	.96	1.00	

*Since trainees in the Discharge group did not complete basic training, average test grades were not computed for them. The Academic Problems group was also excluded from the statistical evaluation of differences among the groups in Average Test grade since all trainees who failed one or more exams were assigned to this group.

**Mean score for group was significantly different from the No Problems group.

***$p < .01$

****The Disciplinary Problems group was excluded from the statistical evaluation of differences among the groups in Discipline Incidents since a trainee who was involved in two or more incidents was automatically assigned to this group.

inspections as the other groups because they failed to complete basic training.

In order to further evaluate the extent to which personality and aptitude factors contributed to setbacks, the recruits who were setback in training were divided into two subgroups: (a) setbacks for academic reasons and (b) setbacks because of training problems. The means and standard deviations for these two subgroups on the personality and aptitude measures are compared in table 7 with the No Problems group.

Recruits setback for academic reasons scored much higher on the test anxiety measures than recruits who had no problems during basic training.[13] The Academic Setbacks also had lower mean scores on all three aptitude measures, especially in Word Knowledge. The recruits setback because of training problems did not differ from the No Problems group in test anxiety, but had significantly lower scores on two of the aptitude measures (AR, AR+WK).

In order to examine the relationship between each personality and aptitude scale and the performance measures, correlation coefficients were computed. These correlations are reported in table 8 and described below for each performance measure.

1. Average Test Grades: Trait anxiety, state and trait anger, and test anxiety (TAI, TAI/E, TAI/W) correlated negatively with Average Test Grades, which were positively correlated with trait curiosity and all three ASVAB measures (AR, WK, AR+WK).

2. Disciplinary and Training Incidents: State anger was positively correlated with the number of training incidents, and two of the three aptitude measures (AR, AR+WK) correlated negatively with training incidents. None of the personality and aptitude measures were significantly correlated with disciplinary incidents.

3. Unsatisfactory Inspections: State anxiety correlated negatively with the number of unsatisfactory inspections. Two of the three aptitude measures (AR, AR+WK) were also negatively correlated with this measure.

4. ASVAB Measures: Trait anxiety, trait-anger, and the three test anxiety measures all correlated negatively with AR+WK scores, whereas, trait curiosity correlated positively with this measure. The AR and WK measures correlated .52 with each other, and these measures were highly correlated with the combined AR+WK scores.

Results for Female Recruits. The means and standard deviations of scores on the personality and aptitude measures for female recruits classified as No Problems, Unsuitable Discharges, Setbacks, Academic Problems or Disciplinary Problems are reported in table 9. The five groups differed only on the TAI/Worry measure, on which the Academic Problems group scored higher than the No Problems group. While the Discharges and Setbacks groups scored even higher in Worry than the Academic Problems group, and much higher in state anxiety and test anxiety than the No Problems group, these differences were

TABLE 7. MEANS AND STANDARD DEVIATIONS FOR THE PERSONALITY AND APTITUDE MEASURES OF MALE NAVY RECRUITS CLASSIFIED AS NO PROBLEMS, ACADEMIC SETBACKS, AND TRAINING SETBACKS

Measure	No Problems (N=115)	Academic Setbacks (N=8)	Training Setbacks (N=20)	F
S-Anxiety				
Mean	49.30	44.29	44.85	1.61
SD	12.00	8.85	11.55	
T-Anxiety				
Mean	39.51	39.25	39.75	<1.00
SD	9.35	7.25	9.01	
S-Curiosity				
Mean	43.05	43.71	43.50	<1.00
SD	7.63	6.29	9.47	
T-Curiosity				
Mean	45.30	43.25	43.75	<1.00
SD	6.46	3.15	6.49	
S-Anger				
Mean	25.66	31.00	25.40	<1.00
SD	9.64	9.09	9.84	
T-Anger				
Mean	30.44	31.63	33.00	<1.00
SD	7.02	4.81	9.98	
TAI/Total				
Mean	36.22	48.25*	37.90	3.13**
SD	11.16	11.91	14.37	
TAI/Emotion				
Mean	15.33	20.13*	16.00	3.20**
SD	4.51	4.33	5.81	
TAI/Worry				
Mean	13.57	18.38*	14.30	2.4[illegible]**
SD	4.69	6.09	6.19	
AR				
Mean	54.93	46.75*	48.85*	7.69***
SD	8.34	6.04	6.52	
WK				
Mean	56.16	44.00*	54.20	9.04***
SD	6.32	5.63	7.22	
AR+WK				
Mean	111.09	90.74*	103.05*	9.27***
SD	12.75	9.13	11.00	

* Mean score of group was significantly different from the No Problems group.
** $p < .05$
*** $p < .01$

TABLE 8. CORRELATIONS OF THE PERSONALITY AND APTITUDE MEASURES WITH THE PERFORMANCE MEASURES FOR MALE NAVY RECRUITS (N=192)

Personality and Aptitude Measure	Performance Measures*				
	Test Grade	Disc. Incid.	Train. Incid.	Unsat. Insp.	ASVAB AR+WK
S-Anxiety	02	-01	-05	-18**	02
T-Anxiety	-20**	-04	00	02	-25**
S-Curiosity	07	-05	-05	10	-09
T-Curiosity	27**	06	-04	-08	18**
S-Anger	-20**	13	16**	-07	-05
T-Anger	-23**	13	07	09	-20**
TAI	-34***	07	01	04	-42***
TAI/Worry	-35***	05	00	02	-42***
TAI/Emot.	-32***	09	04	05	-42***
AR	48***	-08	-28**	-28**	90***
WK	65***	-03	-07	-13	85***
AR+WK	64***	-06	-21**	-24**	

* Average test grade correlations are based on 185 recruits; all other measures are based on 192 recruits.
** $p < .05$
*** $p < .01$

TABLE 9. MEANS AND STANDARD DEVIATIONS ON THE PERSONALITY AND APTITUDE MEASURES FOR FEMALE NAVY RECRUITS CLASSIFIED AS NO PROBLEMS, DISCHARGES, SETBACKS, ACADEMIC PROBLEMS, OR DISCIPLINARY PROBLEMS

Measures	No Problems (N=55)	Unsuitable Discharges (N=3)	Setbacks (N=4)	Problems		F
				Academic (N=5)	Discipline (N=4)	
S-Anxiety						
Mean	47.58	54.33	53.00	38.60	40.75	<1.00
SD	14.96	14.74	15.49	8.91	10.08	
T-Anxiety						
Mean	40.29	50.33	40.25	36.60	35.75	1.19
SD	10.28	12.70	6.65	5.37	1.50	
S-Curiosity						
Mean	48.55	48.00	44.50	46.60	51.50	<1.00
SD	7.03	5.57	10.02	10.11	5.80	
T-Curiosity						
Mean	48.20	42.33	45.75	48.20	48.50	<1.00
SD	6.13	4.73	5.68	5.26	5.07	
S-Anger						
Mean	24.00	21.00	27.25	19.60	18.75	<1.00
SD	10.12	3.00	7.68	4.56	3.78	
T-Anger						
Mean	30.09	31.67	31.25	28.00	32.25	<1.00
SD	6.78	8.62	7.93	7.75	5.85	
TAI						
Mean	38.78	52.00	47.25	43.60	35.50	1.39
SD	12.90	16.46	12.09	8.05	5.92	
TAI/Emotion						
Mean	17.13	20.33	20.75	18.20	14.75	<1.00
SD	5.81	6.11	4.99	4.21	2.63	
TAI/Worry						
Mean	13.40	21.33	17.50	17.00*	13.75	2.90**
SD	4.81	7.77	5.97	2.92	3.30	
AR						
Mean	53.38	48.00	53.50	48.60	46.00	1.90
SD	6.97	2.00	5.32	6.39	7.53	
WK						
Mean	57.85	52.67	51.75	57.20	56.50	1.43
SD	5.90	5.13	1.26	8.17	7.05	
AR+WK						
Mean	111.06	100.67	105.25	105.80	102.50	
SD	10.80	6.03	6.29	6.61	14.48	

* Mean score for group was significantly different from the No Problems group.
** $p < .05$

not statistically significant. The failure to find statistically significant differences in this study between female recruits with problems and those in the No Problems group must be interpreted with caution, however, because of the small number of subjects in each problems group.

The mean scores on the performance measures for female recruits with problems are compared in table 10 with female recruits classified as No Problems. The results of the analyses of the differences between the Problems and No Problems groups for each measure are described below.

1. Average Test Grade: There were no significant differences between groups in Average Test Grade. The Academic Problems group had a lower average test grade than any other group. However, as was noted for the males, the Academic Problems group was not included in the statistical analysis because any recruit who failed one or more tests was automatically assigned to this group. This procedure guaranteed that the Academic Problems group would have a very low Average Test Grade.

2. Disciplinary and Training Incidents: The Disciplinary Problems group had the highest number of disciplinary incidents. However, as previously noted for males, this was an artifact of assigning recruits who were involved in two or more disciplinary incidents to this group. Recruits who were setback in training had no disciplinary incidents but they were involved in nearly twice as many training incidents as any other group.

3. Unsatisfactory Inspections: The female recruits who were setback in training recorded nearly twice as many unsatisfactory inspections as any other group and more than four times as many as the No Problems group. The Academic Problems group also recorded significantly more unsatisfactory inspections than the No Problems group.[14]

Correlations between each personality and aptitude scale and the performance measures were computed for the total female sample. These correlations are reported in table 11 and described below for each performance measure.

1. Average Test Grade: Scores on the TAI/Worry scale correlated negatively with Average Test Grade. Trait anger and scores on all three ASVAB measures (AR, WK, AR+WK) were positively correlated with grades.

2. Disciplinary and Training Incidents: None of the personality and aptitude measures correlated significantly with disciplinary incidents for the female recruits, but state curiosity was negatively correlated with the number of training incidents. In addition, all three ASVAB measures were also negatively correlated with training incidents.

3. Unsatisfactory Inspections: None of the personality measures were correlated with the number of unsatisfactory inspections, and only one of the aptitude scales (WK) correlated with this performance measure.

4. ASVAB Measures: State anxiety and scores on the three test anxiety measures correlated negatively with the AR+WK scores, and state and trait curiosity were positively correlated with this measure. The ASVAB

TABLE 10. MEANS AND STANDARD DEVIATIONS ON THE PERFORMANCE MEASURES FOR FEMALE NAVY RECRUITS CLASSIFIED AS NO PROBLEMS, DISCHARGES, SETBACKS, ACADEMIC PROBLEMS, OR DISCIPLINARY PROBLEMS

Measure	No Problems (N=55)	Unsuitable Discharges (N=3)	Setbacks (N=4)	Problems: Acad. (N=5)	Problems: Disc. (N=4)	F
Average Test Grade*						
Mean	3.19	----	3.23	2.43	3.10	<1.00
SD	.25	----	.22	.23	.34	
Counseling Incidents						
Discipline**						
Mean	.24	2.00	----	.20	1.75	<1.00
SD	.43	3.46	----	.45	1.26	
Training						
Mean	3.71	2.33	7.00***	4.00	4.00	3.83****
SD	1.70	2.52	1.16	1.58	2.83	
Unsatisfactory Inspections						
Mean	1.00	2.00	4.25***	2.00***	.50	11.95****
SD	.96	1.73	.96	.71	1.00	

*Since trainees in the Discharge group did not complete basic training, average test grades were not computed for them. The Academic Problems group was also excluded from the statistical evaluation of differences among the groups in Average Test grade since all trainees who failed one or more exams were assigned to this group.

**The Disciplinary Problems group was excluded from the statistical evaluation of differences among the groups in Discipline Indidents since a trainee who was involved in two or more incidents was automatically assigned to this group.

***Mean score for group was significantly different from the No Problems group.

****$p < .01$

TABLE 11. CORRELATIONS OF THE PERSONALITY AND APTITUDE MEASURES WITH THE PERFORMANCE MEASURES FOR FEMALE NAVY RECRUITS (N=71)

Personality and Aptitude Measure	Performance Measures				
	Test Grade	Disc. Incid.	Train. Incid.	Unsat. Insp.	ASVAB AR+WK
S-Anxiety	03	-12	04	01	-22*
T-Anxiety	-04	-03	-12	-04	-19
S-Curiosity	19	-13	-29**	-10	27**
T-Curiosity	17	-01	-06	-07	23*
S-Anger	03	-06	08	03	-11
T-Anger	20*	-03	03	-02	06
TAI	-19	-07	-01	-02	-39**
TAI/Worry	-29*	-03	03	01	-34**
TAI/Emotionality	-09	-11	-05	-04	-39**
AR	38**	-14	-25*	-05	85**
WK	36**	07	-30**	-26*	80**
AR+WK	45**	-05	-32**	-18	

* $p<.05$
** $p<.01$

AR and WK measures correlated .48 with each other, and these measures were highly correlated with the combined AR+WK score.

SUMMARY AND CONCLUSIONS. In summary, it was demonstrated in this study that personality variables and, especially, measures of anxiety were related to attrition and performance problems experienced during recruit training. However, the recruits were not tested until the fifth day of training and approximately 50 percent of the discharges for unsuitability had occurred prior to the testing session. Therefore, if the recruits had been tested earlier in training, the relationship between anxiety and attrition might have been even stronger. Furthermore, retesting recruits at a later point in training would provide information on whether elevated levels of anxiety found at the beginning of training endure. In the following study, measures of state and trait anxiety were administered to a large sample of Air Force recruits on the first or second day of training, and two groups of recruits were retested on the 10th day of training.

STUDY II: AIR FORCE RECRUITS

This study investigated the extent to which measures of individual differences in state and trait anxiety could identify Air Force recruits who experienced severe performance problems during Basic Training that resulted in their being discharged from the service or setback in training. The participants were 1,728 male Air Force recruits assigned to the Basic Military Training School at Lackland Air Force Base, San Antonio, Texas.

PROCEDURES

The History, Opinion, Interest Form (HOI) is administered to all Air Force recruits by members of the staff of the Department of Mental Health, Wilford Hall, USAF Medical Center, during the first 2 days of basic training. The HOI is a 100-item self-report questionnaire that inquires about school adjustment, family stability, bodily complaints, motivation, and attitudes towards authority (LaChar, Sparks, & Larsen, 1974). This instrument was designed and validated by the Air Force to identify recruits who were likely to have difficulty in adapting to military life.

The State-Trait Anxiety Inventory (STAI) was administered along with the HOI to all recruits assigned to the four Training Squadrons that were selected to participate in the present study. A brief description of the STAI and a copy of the Test Form that was used in this study are included in appendix B.

Recruits with very high HOI composite scores are routinely interviewed by psychiatric technicians and administered a sentence completion test. The results of this evaluation are reviewed by a clinical psychologist who determines whether the recruit should be returned to duty or referred to the Mental Hygiene Clinic to be further evaluated for possible discharge from the service. The STAI was readministered to the recruits who participated in this study who were identified on the basis of their HOI composite scores as likely to have difficulty in adapting to military life. A total of 128 high risk recruits were retested with the STAI approximately 8 days after the initial testing.

Performance data were obtained from official Air Force records for all recruits who participated in this study following the completion of the 6-week basic training program. On the basis of the information contained in these records, each recruit was classified as belonging to one of three categories: (1) Graduates - recruits who successfully completed basic training with no major problems during the prescribed training period; (2) Setbacks - recruits who were setback 1 week or more because of problems experienced during training; (3) Discharges - recruits discharged from the service prior to the completion of basic training.

RESULTS

A total of 26 recruits were eliminated from the study because their responses to the STAI were incomplete or they failed to record identifying information on their answer sheets. Complete data were available for 1,702 recruits; 1,448 recruits graduated from basic training with no problems, 126 were setback during training, and 116 were discharged from the service because of severe medical, mental health, or performance difficulties.[15]

The means and standard deviations for the STAI S-Anxiety and T-Anxiety scores for the total sample of Air Force recruits and for recruits classified as Graduates, Setbacks, and Discharges are compared in table 12. The discharges group scored much higher in both state and trait anxiety than any other group.[16] The recruits who were setback also scored significantly higher in trait anxiety than the graduates.

The state and trait anxiety scores obtained on the second and tenth days of basic training for the recruits who were retested are reported in table 13. The Graduates group was comprised of 113 recruits who were initially identified as likely to have difficulty in adapting to military life, but who were returned to duty after psychiatric evaluation and subsequently graduated from basic training with no setbacks. The Discharges group included all high-risk recruits who were retested and subsequently discharged from the Air Force prior to completing basic training. Over the 8-day period, significant reductions in both state and trait anxiety were found for the graduates, whereas the anxiety scores of the discharged recruits on the 10th day of training were not significantly different from the scores reported by these recruits at the beginning of training.[17]

In order to evaluate changes in the state and trait anxiety levels of recruits not identified as likely to have difficulty in adapting to military life, the STAI was administered to a control squadron, which consisted of 136 recruits assigned to the Basic Military Training School at Lackland Air Force Base. This squadron was tested on the second and tenth days of training under essentially the same conditions as the original sample. The initial and retest state and trait anxiety scores for the control squadron are compared in table 13 with the anxiety scores of the recruits who were discharged from the service and the high-risk graduates. Although the anxiety scores for the control squadron were substantially lower than those of the high-risk graduates, comparable reductions in state and trait anxiety were found for both groups. In contrast, the anxiety scores for the Discharges group were substantially higher than those of the other groups and remained essentially unchanged.[18]

TABLE 12. MEANS AND STANDARD DEVIATIONS FOR THE S-ANXIETY AND T-ANXIETY SCALES OF THE STATE-TRAIT ANXIETY INVENTORY FOR AIR FORCE RECRUITS CLASSIFIED AS GRADUATES, SETBACKS, AND DISCHARGES

Measure	Total (N=1702)	Graduates (N=1448)	Setbacks (N=126)	Discharges (N=116)	F*
A-State					
Mean	43.50	42.87	43.90	51.93**	32.53***
SD	11.95	11.04	12.13	15.13	
A-Trait					
Mean	37.38	36.80	38.71**	42.22**	19.38***
SD	9.45	8.74	9.37	12.17	

* The F ratios are based on an analysis of variance in which the means for the Graduates, Setbacks, and Discharges groups were compared.
** Group mean is significantly different from the Graduates group.
*** $p < .05$

TABLE 13. MEANS AND STANDARD DEVIATIONS FOR THE S-ANXIETY AND T-ANXIETY SCALES OF THE STATE-TRAIT ANXIETY INVENTORY FOR RETESTED AIR FORCE RECRUITS

		State Anxiety			Trait Anxiety		
Group	N	Second	Tenth	t	Second	Tenth	t
Graduates	113						
Mean		55.95	47.35	4.73*	46.50	43.12	2.17*
SD		12.30	14.92		10.56	12.73	
Discharges	15						
Mean		61.71	57.29	1.02	47.43	46.71	.34
SD		11.49	13.63		10.96	13.09	
Control	136						
Mean		43.66	37.18	7.06*	36.21	34.44	2.60*
SD		12.52	9.88		7.84	8.52	

* $p < .05$

SECTION III

SUMMARY AND IMPLICATIONS OF FINDINGS

A summary and implications of the research findings for the identification of recruits who are likely to develop academic and disciplinary problems are provided in this section. The most important finding in the pilot study of Navy apprentices was that those men who became disciplinary problems were both brighter and more curious than other trainees. While this finding was somewhat surprising, it was nevertheless consistent with observations of the Navy officers and enlisted supervisors responsible for the Apprentice Training Program that the more intelligent men were often "troublemakers." It was also demonstrated in the pilot study that measures of anxiety and curiosity were potentially useful in predicting performance problems in military personnel.

It is generally recognized that the Navy Apprentice Training Course is not highly demanding, especially for the brighter trainees. Furthermore, recruits with high ability are generally assigned to technical (Class A) schools. Thus the sample included only apprentices in a general detail category (GENDET). Since a majority of the trainees in the pilot study who developed disciplinary problems were eligible for Class A schools but for some reason were not selected, these men cannot be considered as a representative sample of bright, curious Navy apprentices.

The Navy and Air Force recruits in Study I and Study II who were discharged before they completed basic training were very high in state anxiety at the beginning of training; the discharged Navy recruits also reported very high levels of state anger at the beginning of training. These findings suggested that intense emotional reactions to situational stress associated with the first few days of training contributed to the recruits' failure to complete the training program.

Navy and Air Force recruits who were discharged as unsuitable also reported higher levels of trait anxiety at the beginning of training, suggesting that the emotional problems of these men were of a long-standing nature. Although the discharged Navy recruits scored even higher in trait anxiety than the discharged Air Force recruits, the difference between the discharged Navy recruits and the Navy No Problems group was not statistically significant. However, there were only seven Navy recruits in the Unsuitable Discharges group, and the test of statistical significance for small groups is not very sensitive.

In both Study I and II, the level of state anxiety was relatively high for most recruits at the beginning of basic training. Air Force recruits retested on the 10th day of training who were subsequently discharged reported essentially the same high levels of anxiety as they had at the beginning of the training program, but two groups of Air Force recruits who successfully completed the program reported substantially lower levels of state anxiety when they were retested on the 10th day of training. It would appear that situational stress at the beginning of recruit training leads to intense state anxiety reactions in Navy and Air Force recruits and that recruits who are able to handle the stress and complete the training program show a

reduction in anxiety by the 10th day of training. In contrast, the Air Force recruits who were discharged during basic training were apparently unable to cope with the stressful demands of the training program as reflected in their sustained high levels of state anxiety.

Air Force recruits who were setback in training were slightly higher in trait anxiety than those who graduated, whereas the Navy recruits who were setback were lower in state anxiety at the beginning of training than recruits with no problems. Since the Navy setbacks were also very low in aptitude, the difficulties experienced by these recruits seemed to result primarily from their limited ability.

Navy recruits who developed academic problems were higher in trait anxiety, test anxiety, and state and trait anger than the No Problems group. Thus, high trait anxiety seemed to be characteristic of Air Force recruits who were setback in training and Navy recruits who experienced academic difficulties, whereas Navy recruits setback for other than academic reasons were low in aptitude (see tables 5 and 12).

The low-aptitude Navy recruits in Study I had both academic and military training problems, as might be expected because of their limited ability. However, low ability was not found to be related to either disciplinary problems or unsuitable discharges. Indeed, Navy recruits who were discharged as unsuitable were as bright as those who graduated from basic training with no problems, and had higher aptitude scores than the recruits who were setback or who developed academic or disciplinary problems (see table 5).

The analysis of the data for female Navy recruits was limited by the small number of women in the problems groups. However, when the male and female recruits were compared on the personality and aptitude measures, the females were found to be more curious than their male counterparts, and the males were considerably higher in anger than the females.

A possible reflection of the effects of anger on the performance of male and female recruits can be seen in the rate of disciplinary problems and setbacks for both sexes; the percentage of males who had disciplinary problems was over two times that for female recruits in this study (14 percent for males; 6 percent for females). Observations of the recruits during training suggested that the expectations for female recruits may be very different from those for the males. Female recruits may also have had fewer problems because they are on the average older (20 years for females; 19 years for males) and a larger percentage are high school graduates (94.4 percent) than is the case for men (75.5 percent).

The Discharged Navy recruits were higher in trait anxiety, test anxiety, and trait anger and lower in trait curiosity than the No Problems groups. The elevated scores on these personality trait measures suggested that the problems that were experienced during basic training by some of the recruits may have roots in long-standing personality disturbances. Since recruits with chronic personality problems are likely to have greater difficulty in basic training, measures of trait anxiety and trait anger might prove useful in screening out recruits who cannot adapt to military life.

The findings in the studies of Navy and Air Force recruits provide evidence that personality measures can be useful in identifying recruits whose emotional problems prevent or interfere with their completing basic training. Recruits with high levels of state anxiety were more likely to be discharged as unsuitable for service and/or to develop academic and disciplinary problems during recruit training. State anger was also very high in the Navy recruits who were discharged or who developed academic problems.

By the time the Navy recruits were tested on the fifth day of training, approximately 50 percent of those discharged for unsuitability were already being processed for termination. In the Air Force study, 47 percent of the recruits who were discharged because of emotional problems were identified before the 10th day of training. These findings suggest that psychological tests should be administered at the beginning of recruit training in screening new recruits to identify those who are likely to have difficulty in adapting to military life. Ideally, the testing should be conducted prior to the first day of training.

It is important to note that the anxiety measures in the Air Force study were administered in the context of the Air Force Medical Evaluation Test (AFMET) Program, an operational program for screening recruits at high-risk for developing mental health problems that interfere with adaptation to military life. In the AFMET Program, the psychological tests are administered by enlisted psychiatric technicians with little professional training under the supervision of a qualified Air Force clinical psychologist. Thus, the feasibility of routinely administering these psychological tests to large numbers of recruits at the beginning of basic training has been demonstrated, and the cost of giving and interpreting these tests is quite low.

The findings in these studies indicate that the first few days of basic training are the most stressful. While many recruits are initially overwhelmed by the sudden change in their environment, most of them quickly adapt to the demands of the training program. As previously noted, the Navy recruits who experienced intense emotional reactions, and who were discharged as unsuitable, were above average in aptitude as indicated by their ASVAB scores. If counseling and emotional support were available, some of these recruits might be able to successfully adapt to military life.

The results of the studies of Navy and Air Force recruits described in this report provide evidence that recruits who are very high in anger and anxiety are more likely to have difficulty in adjusting to military life, and that these recruits can be identified at the beginning of basic training. It has been demonstrated in previous research that crisis-intervention and behavior modification programs are effective in dealing with anger and anxiety in high school and college students (Meichenbaum & Turk, 1976; Monat & Lazarus, 1977; Small, 1979). Since the technology is available for alleviating intense anxiety and anger reactions, crisis-intervention programs for military recruits could similarly aid them in coping with the stress of military life.

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APPENDIX A

TECHNICAL NOTES

1. The ASVAB is a multiple-aptitude measure used to select and classify all enlistees in the U.S. Armed Forces. The ASVAB consists of 12 subtests that measure specific aptitudes. Six composite scales of more general abilities may be derived from combinations of scores on the ASVAB subtests (Bayroff & Fuchs, 1968; Weiss, 1978).

2. Trainees who failed these examinations were given another opportunity to pass. The course grades in this study were based on the average score obtained by each subject on two or more examinations.

3. The participants were instructed to record their Social Security numbers and sex on the answer sheet, but not their names. They were then instructed to open Test Booklet #1, which contained the STAI and STCI state measures and the Social Attitude Scale. Directions for the state measures, which were printed at the top of the first page of the booklet, were read to the participants who were given an opportunity to ask questions about the study. The examiner answered these questions by repeating appropriate portions of the instructions.

After the participants had completed the state measures, the examiner read the instructions for the Social Attitude Scale. Following the completion of this scale, the participants were instructed to insert their answer sheets into the test booklet, and to pass the booklet forward along with the Consent Statements.

The participants were then told to open Test Booklet #2, which contained the TAI, STAI A-Trait and the STCI C-Trait scales. The procedures in administering these scales were essentially the same as for the tests included in the first test booklet. Upon completion of the three personaltiy trait measures, the trainees were requested to bring their booklets and answer sheets forward and were thanked for their cooperation in the study.

4. Separate one-way analyses of variance (ANOVA's) were performed for each measure using the SPSS computer program ONEWAY (Kim & Kohout, 1975). For those measures for which the overall F test was significant, each problems group was compared with the No Problems group and with each other in subsequent analyses, using the Least Significant Difference (LSD) test (Keppel, 1973). The LSD test compares the actual difference between two scores with the minimum difference that is required for statistical significance.

5. The overall F ratio was: $F(2,187)=3.11$, $p<.05$; the LSD was 2.47, $p<.05$.

6. The overall F ratio was: $F(2,187)=2.40$, $p<.10$.

7. The overall F ratio was: $F(2,187)=3.04$, $p<.05$; the LSD was 4.56, $p<.05$.

8. Pearson product-moment correlations were computed using the SPSS computer program PEARSON CORRE (Nie, Jenkins, Steinbrenner, & Brent, 1975, pp. 276-288). It should be noted that while 10 of these correlations were statistically significant, the total variance accounted for by these correlations was quite small.

9. The three aptitude measures were positively correlated with course grades. The WK and AR scales correlated .42 and .40 with grades; the combined AR+WK measure correlated .49 with grades.

10. A total of 285 recruits were assigned to the four Training Units selected for participation in this study. Prior to the testing session, 12 recruits were discharged (8 unsuitability, 4 medical discharges) leaving 273 recruits available for testing. Of these, six chose not to participate in the study; 267 recruits were tested. During training, four additional recruits were discharged for medical reasons and were eliminated from the analyses. The final study population consisted of 263 recruits (192 males; 71 females).

11. As in the pilot study (see Technical Note 4), separate one-way ANOVA's were performed for each measure. However, when the obtained F ratio was significant, in subsequent analyses comparisons were made only between each of the problems groups and the No Problems group. Separate LSD values were computed for each comparison based on the number of subjects in the groups that were compared.

12. Since recruits who failed at least one examination were automatically assigned to the Academic Problems group, this group was excluded from the ANOVA for Average Test Grade because the definition of the group guaranteed that the mean score on this measure would be quite low. Similarly, the Disciplinary Problems group was excluded from the ANOVA for Discipline Incidents since all recruits who were involved in two or more of these incidents were assigned to this group.

13. The procedures used in computing these correlations are described in Technical Note 8.

14. The women who were discharged as unsuitable also had twice as many Unsatisfactory Inspections as did the No Problems group, but this difference was not statistically significant because of the small number of subjects in the Discharges group and the variability of this group. It should also be noted that the recruits in the Discharges group did not complete the training program, and therefore did not stand as many inspections as the other groups.

15. Twelve recruits who were included in the total sample were administratively discharged because the training they had chosen at the time of enlistment was not available. Since the performance of these recruits was satisfactory, they were not included in the Discharges group.

16. The group means were compared in separate ANOVA's for each measure. In subsequent analyses, the mean scores for the Setbacks and Discharges groups were compared with the scores of the Graduates group using the LSD test that was described in Technical Note 4.

17. Differences between the mean anxiety scores obtained for each group on the second and tenth days of training were evaluated, using the t-test for related means (Snedgrass, 1977, p. 229).

18. The statistical procedures used in the analysis of the test-retest data for the control squadron were the same as those described in Technical Note 17.

APPENDIX B-1

DESCRIPTION OF TEST INSTRUMENTS

State Trait Anxiety Inventory (STAI). The STAI consists of two 20-item self-report scales (Spielberger, Gorsuch, & Lushene, 1970). The STAI A-State scale provides a measure of the intensity of the experience of anxiety as an emotional state at a particular moment in time. In responding to each item on the STAI A-State scale, for example, "I feel nervous," subjects are instructed to report how they feel "right now" on the following 4-point scale: (1) Not at all; (2) Somewhat; (3) Moderately so; (4) Very much so.

The STAI A-Trait scale measures anxiety proneness, that is, individual differences in the disposition to react with elevations in state anxiety (A-State) under a wide range of threatening conditions (Spielberger, 1972). The items on this scale, for example, "I have disturbing thoughts," require subjects to report the frequency they generally experience specified symptoms of anxiety by rating themselves on the same 4-point scale that is used with the TAI.

Test Anxiety Inventory (TAI). The TAI is a 20-item self-report measure that requires subjects to report the frequency they generally experience specified symptoms of anxiety in test situations (Spielberger, Gonzalez, Taylor, Algaze, & Anton, 1978). In responding to the TAI items, for example, "During tests I feel very tense," subjects rate themselves on the following 4-point scale: (1) Almost Never; (2) Sometimes; (3) Often; (4) Almost Always. In addition to the total score, which is based on all 20 items, the TAI has two 8-item subscales that measure worry (TAI/W) and emotionality (TAI/E), the major components of test anxiety.

State-Trait Curiosity Inventory (STCI). The STCI, which is similar in format to the STAI, consists of two 15-item subscales for measuring state and trait curiosity (Spielberger, Butler, Peters, & Frain, 1979). The STCI C-State scale assesses the intensity of curiosity at a specific time. In responding to items on the C-State scale, for example, "I feel curious," subjects are instructed to rate themselves, according to how they feel at the moment, on a 4-point scale with the same response alternatives as the STAI A-State scale.

The STCI C-Trait scale was designed to measure individual differences in curiosity as a personality trait. Items on this scale, for example, "I feel inquisitive," require subjects to rate themselves according to how they generally feel on a 4-point scale with the same response alternatives as the STAI A-Trait scale.

Social Attitude Scale (SAS). The Social Attitude Scale consists of 20 statements concerning personal attitudes and traits (Spielberger, Kling, & O'Hagan, 1978). The total score on the SAS provides an index of the degree to which an individual is likely to engage in anti-social behavior. Subjects are instructed to respond to the items on this scale, for example, "When I get bored I like to stir up some excitement," by marking each statement "True" or "False" on the basis of whether or not it described their personal characteristics.

State-Trait Anger Inventory (STAgI). The STAgI, similar in format to the STAI and the STCI, consists of two 15-item subscales for measuring state anger (S-Anger) and trait anger (T-Anger). The Anger scale has recently been developed by C. D. Spielberger and his students. The S-Anger scale is an experimental measure and was used for the first time in this study. This scale was designed to assess the intensity of anger experienced at a particular time. The subjects are instructed to respond to items such as "I feel angry," by rating themselves according to how they feel at the moment on a 4-point scale identical to the STAI A-State scale.

The T-Anger scale measures individual differences in the disposition to experience anger as a personality trait. Items on this scale, for example, "I am quick tempered," require the subjects to rate themselves according to how they generally feel on a 4-point scale similar to the STAI A-Trait scale.

State-Trait Personality Inventory (STPI). The STPI consists of two 50-item self-report scales that were constructed using items from the STAI, STCI, and STAgI. The STPI State Scale (MSPI) provides measures of the intensity of the experience of state anxiety (S-Anxiety), state curiosity (S-Curiosity), and state anger (S-Anger) at a particular moment in time. The test format and the response choices for each item are the same as in the state scales of the parent measures that were previously described.

The STPI Trait Scale (MTPI) provides measures of individual differences in the disposition to experience anxiety (T-Anxiety), curiosity (T-Curiosity), and anger (T-Anger). The test format and the response choices for each item are the same as in the trait scales of the parent measures.

APPENDIX B-2

ADMINISTRATION OF THE TEST INSTRUMENTS

In the pilot study with Navy apprentices, the STAI and STCI state measures and the SAS were bound together in a single test booklet, and the STAI and STCI trait measures and the TAI were bound together in a second test booklet.

In Study I, the MSPI state anxiety, curiosity, and anger measures were administered first to the Navy recruits, followed by the MTPI trait anxiety, curiosity, and anger measures and the TAI. In Study II, the revised STAI (Form Y) A-State and A-Trait scales were administered to Air Force recruits along with the HOI (LaChar, et al., 1974).

The verbatim instructions that were used in administering the psychological tests in the two Navy studies that are described in this report and the Privacy and Informed Consent Statements that were used in these studies are included in this appendix. Copies of the test forms that were used in the study of Navy recruits are also included. The standard instructions for administering the STAI, which are presented at the top of the test form, were used in the study of Air Force recruits. The test forms used to measure anxiety and curiosity in the study of Navy apprentices are not included because these tests were subsequently combined with the anger measure to form the State-Trait Personality Inventory that was used in the study of Navy recruits.

APPENDIX B-3

PILOT STUDY: NAVY APPRENTICE TRAINEES

Instructions to the Participants

We are conducting a study designed to learn more about the feelings and attitudes of Navy men and women that may help us to improve training programs, and we would like for you to complete several questionnaires. The questionnaires will be used for research purposes only, and your responses will not in any way affect your individual Navy record.

There will be a follow-up meeting on _____, at which we will tell you more about the study. Please be accurate, honest and frank in responding to the questionnaires so that we can better understand the attitudes and feelings of Navy men and women. However, do not spend too much time on any one question, but be sure to answer all of the questions.

We will now pass out the booklet and answer sheet. (Pass out materials.) Please check your booklet to make sure that you have a privacy statement, three pages of questions, and an answer sheet. (Hold up booklet -- count pages -- show answer sheet.) Does everyone have a complete set?

Please complete the privacy statement and turn it in with your answer sheet when you are finished. You don't need to fill in your name, date, instructor and so on. In the space provided in the upper left corner of your answer sheet (hold up and point), please enter your social security number by writing the number in the blocks and blackening in the space above the corresponding numbers. This must be done in pencil only. Who does not have a pencil? (Demonstrate.)

If you are female, please write the letter "F" at the top of the page on the line marked "Course No" (hold up and point). Any questions?

Now, please open your booklet to the first page and read the instructions while I read them to you. (Read instructions.) Do not write or mark on the test booklet, use your pencil to record your answers on the answer sheet.

Please note that there are only four choices for each question, so do not mark space 5 on the answer sheet. When you have completed question number 35, lay your pencil down, and wait for further instructions. Please begin. (After about 6 minutes ask: Is anyone not finished?)

Now, turn the page to the Social Attitude Scale. This is a True-False questionnaire. In responding to the questions, mark #1 for TRUE and #2 for FALSE. Please note that the first question is number 41, so be sure to start with 41 on your answer sheet (point to answer sheet).

O.K., let's read the directions together: (read SPY directions). You may begin. While you are answering this questionnaire, we will be passing out a second booklet, but do not open this booklet until instructed to do so. (After 5 minutes, ask "Is anyone not finished?")

Please insert your answer sheet and your privacy statement into the old booklet and pass it to your right. Now, remove the answer sheet from the new booklet and fill it out the same way we did the first one, with your social security number.

Please check to see that your new booklet has 4 pages of questions, numbered from 1 to 80. Now open your booklet to the first page and read the directions while I read them to you. (Read directions.)

When you have answered all questions, bring your booklet and borrowed pencils up here and you may leave.

Any questions? Thank you for your cooperation in this research. Now, begin to answer the questionnaire.

PRIVACY STATEMENT

The Navy Recruit Training Command recommended that the standard Privacy Statement used by this command be modified for the study of Navy Apprentices. The two paragraphs in quotations were added to the modified standard Privacy Statement in compliance with the requirements of the Human Subjects Review Committee of the University of South Florida.

(FILL IN)
DATE

I, (PRINT NAME ONLY), do hereby authorize the Department of the Navy to release to the DDARPA, UNIVERSITY OF SOUTH FLORIDA, all information concerning my status and/or future assignment in the U.S. Navy.

The Privacy Act of 1974 has been explained to me and I have voluntarily signed this release authorization.

"It is also understood that my participation is voluntary and that I may terminate at any time during the session.
I also understand that the University has filed an Institutional Assurance with HEW to assure the protection of human subjects, and that a copy will be made available upon request."

(SIGNATURE)
(SOCIAL SECURITY NUMBER)

Trainee's Signature

Witnessed by:

_____

_____

TAEG Report No. 75

APPENDIX B-4

STUDY I: NAVY RECRUITS

Instructions to the Participants

We are conducting a study to learn about the feelings and attitudes of Navy men and women that may help improve training programs. For this study, we would like you to complete several questionnaires that will be used for research purposes only. Participation in this study is voluntary and you may withdraw at any time. (Optional: After the study is completed, information regarding your responses to the questionnaires will be made available to those of you who are interested in learning more about the study.)

Are there any questions? (Pass out Informed Consent Statements). Everyone should now have a copy of the Informed Consent Statement. Please read this statement as I read it to you. (Read statement.) Any questions? OK, if you are willing to participate in the study, please date the form and sign it. Turn the form in with your answer sheet when you are finished. (Those who choose not to participate will be allowed to leave at this time.)

We will now pass out the questionnaires and answer sheets. (Pass out materials.) There are two booklets. First, please check Booklet #1. There should be 3 pages of questions, numbered from 1 to 50, and an answer sheet. (Hold up booklet, count pages, show answer sheet.) Does everyone have a complete set? OK, remove the answer sheet from Booklet #1. (Demonstrate.) Your answers must be marked on this answer sheet in pencil only. Who does not have a pencil? (Pass out pencils.)

Do not write your name on the answer sheet. In the upper left corner (hold up and point), please write your social security number from top to bottom in the blocks provided for this purpose. Then, blacken the spaces above the corresponding numbers. (Demonstrate.) Indicate your sex by writing the letter "M" for male or "F" for female at the top right of your answer sheet above "Course No." Now, notice that the items on the answer sheet are numbered across the page, from left to right. (Point to item numbers 1, 2, 3, 4, and 5, 6, 7, 8.)

Now, please open Booklet #1 to the first page, and read the instructions for this questionnaire while I read them to you. (Read instructions.) Now, look at the first question, "I feel calm." Notice that there are four possible answers. If "Not At All" best describes how you feel right now, you would blacken the space above the "1" to the right of item number "1" on your answer sheet. (Demonstrate.) If you choose "Somewhat," mark the space above "2"; "Moderately So" would be the space above "3"; and "Very Much So" would be the space above "4." For each item there are 5 spaces on your answer sheet, but you will only be using the first 4.

Please be accurate, honest and frank in responding to the questionnaire so that we can better understand the feelings and attitudes of Navy men and women, but do not spend too much time on any one question. Be sure to respond

to all of the questions by marking your answers on the answer sheet. Do not write on the Booklet. When you have completed question number 50, lay down your pencil and wait for further instructions. Please begin. (After about 10 minutes, ask "Is anyone not finished?")

Now, remove the answer sheet from Booklet #2, and fill it out in the same way as before. Write your social security number and sex on the answer sheet, but NOT your name. Next, check to see that Booklet #2 has 3 pages of questions numbered from 1 to 70. Then, turn to the first page and read the directions while I read them to you. (Read directions.) Please note that these directions are different from the previous questionnaire in that they ask how you generally feel. Any questions?

When you have answered all of the questions, bring your Booklets, Answer Sheets, Consent Statements and borrowed pencils up here and you may leave. OK, please begin.

TAEG Report No. 75

STUDY I: NAVY RECRUITS

INFORMED CONSENT STATEMENT

I agree to participate in a study of the feelings and attitudes of Navy men and women. I understand that my participation in this study will involve completing several questionnaires. The Department of the Navy is authorized by me to release information concerning my ASVAB scores and performance in Recruit Training to the University of South Florida for use in this study.

My responses to the questionnaires and the information about my ASVAB scores and performance will be used only for research purposes, and will be kept strictly confidential. The University has filed an Institutional Assurance with DHEW to assure the protection of Human Subjects. A copy of this assurance is available at the USF Division of Sponsored Research.

I understand that information regarding my performance on the questionnaires will be made available to me upon request at the completion of the study. Since my participation is voluntary, if I wish to discontinue for any reason, I am free to do so at any time without penalty.

Signed:_____

Date: _____

STUDY I: NAVY RECRUITS

SELF-ANALYSIS QUESTIONNAIRE (MSPI FORM X)

Directions: A number of statements that people use to describe themselves are given below. Read each statement and then blacken the appropriate space on the answer sheet to indicate how you feel right now. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

		NOT AT ALL	SOME-WHAT	MODER-ATELY SO	VERY MUCH SO
1.	I feel calm	1	2	3	4
2.	I feel like exploring my environment	1	2	3	4
3.	I am furious	1	2	3	4
4.	I feel secure	1	2	3	4
5.	I feel curious	1	2	3	4
6.	I am annoyed	1	2	3	4
7.	I am tense	1	2	3	4
8.	I feel unstimulated	1	2	3	4
9.	I feel steady	1	2	3	4
10.	I feel strained	1	2	3	4
11.	I feel interested	1	2	3	4
12.	I feel like banging on the table	1	2	3	4
13.	I feel at ease	1	2	3	4
14.	I feel inquisitive	1	2	3	4
15.	I feel angry	1	2	3	4
16.	I feel apathetic	1	2	3	4
17.	I feel eager	1	2	3	4
18.	I feel aggravated	1	2	3	4
19.	I feel upset	1	2	3	4
20.	I feel unconcerned	1	2	3	4
21.	I feel irritated	1	2	3	4

(MSPI)
SELF-ANALYSIS QUESTIONNAIRE, Cont.

	NOT AT ALL	SOME-WHAT	MODER-ATELY SO	VERY MUCH SO
22. I am presently worrying over possible misfortunes.	1	2	3	4
23. I feel pleasant	1	2	3	4
24. I feel satisfied	1	2	3	4
25. I feel frightened	1	2	3	4
26. I feel disinterested	1	2	3	4
27. I feel like yelling at somebody	1	2	3	4
28. I feel comfortable	1	2	3	4
29. I am in a questioning mood	1	2	3	4
30. I feel like breaking things	1	2	3	4
31. I feel self-confident	1	2	3	4
32. I feel indifferent	1	2	3	4
33. I am resentful	1	2	3	4
34. I feel nervous	1	2	3	4
35. I feel stimulated	1	2	3	4
36. I am mad	1	2	3	4
37. I am jittery	1	2	3	4
38. I am tired of what I am doing	1	2	3	4
39. I feel like I'm about to explode	1	2	3	4
40. I feel indecisive	1	2	3	4
41. I feel mentally active	1	2	3	4
42. I feel frustrated	1	2	3	4
43. I am relaxed	1	2	3	4
44. I feel bored	1	2	3	4
45. I feel like hitting someone	1	2	3	4
46. I feel content	1	2	3	4

(MSPI)
SELF-ANALYSIS QUESTIONNAIRE, Cont.

	NOT AT ALL	SOME-WHAT	MODER-ATELY SO	VERY MUCH SO
47. I am burned up.....	1	2	3	4
48. I am worried.....	1	2	3	4
49. I feel like swearing.....	1	2	3	4
50. I feel confused.....	1	2	3	4

STUDY I: NAVY RECRUITS

SELF-ANALYSIS QUESTIONNAIRE (MTPI FORM X)

Directions: A number of statements that people have used to describe themselves are given below. Read each statement and then blacken the appropriate space on the answer sheet to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

		ALMOST NEVER	SOME-TIMES	OFTEN	ALMOST ALWAYS
1.	I feel pleasant.....	1	2	3	4
2.	I feel like exploring my environment.....	1	2	3	4
3.	I am quick tempered.....	1	2	3	4
4.	I feel nervous and restless.....	1	2	3	4
5.	I feel curious.....	1	2	3	4
6.	I get annoyed when I am singled out for correction.	1	2	3	4
7.	I feel satisfied with myself.....	1	2	3	4
8.	I feel unstimulated.....	1	2	3	4
9.	I am a steady person.....	1	2	3	4
10.	I wish I could be as happy as others seem to be....	1	2	3	4
11.	I feel interested.....	1	2	3	4
12.	I have a fiery temper.....	1	2	3	4
13.	I feel like a failure.....	1	2	3	4
14.	I feel inquisitive.....	1	2	3	4
15.	I feel angry.....	1	2	3	4
16.	I feel apathetic.....	1	2	3	4
17.	I feel eager.....	1	2	3	4
18.	I am a hotheaded person.....	1	2	3	4
19.	I am "calm, cool, and collected".....	1	2	3	4
20.	I feel unconcerned.....	1	2	3	4
21.	I feel irritated.....	1	2	3	4

(MTPI)
SELF-ANALYSIS QUESTIONNAIRE, Cont.

		ALMOST NEVER	SOME-TIMES	OFTEN	ALMOST ALWAYS
22.	I feel that difficulties are piling up so that I cannot overcome them.....	1	2	3	4
23.	I feel rested.....	1	2	3	4
24.	I get in a state of tension or turmoil as I think over my recent concerns and interests.....	1	2	3	4
25.	I feel secure.....	1	2	3	4
26.	I get angry when I'm slowed down by others mistakes	1	2	3	4
27.	I am happy.....	1	2	3	4
28.	I am in a questioning mood.....	1	2	3	4
29.	I feel annoyed when I am not given recognition for doing good work.....	1	2	3	4
30.	I have disturbing thoughts.....	1	2	3	4
31.	I feel indifferent.....	1	2	3	4
32.	I fly off the handle.....	1	2	3	4
33.	I lack self-confidence.....	1	2	3	4
34.	I feel stimulated.....	1	2	3	4
35.	When I get mad, I say nasty things.....	1	2	3	4
36.	I feel disinterested.....	1	2	3	4
37.	I am tired of what I am doing.....	1	2	3	4
38.	People who think they are always right irritate me.	1	2	3	4
39.	Some unimportant thought runs through my mind and bothers me.....	1	2	3	4
40.	I feel mentally active.....	1	2	3	4
41.	It makes me furious when I am criticized in front of others.....	1	2	3	4
42.	I feel inadequate.....	1	2	3	4
43.	I feel bored.....	1	2	3	4
44.	When I get frustrated, I feel like hitting someone.	1	2	3	4

(MTPI)
SELF-ANALYSIS QUESTIONNAIRE, Cont.

		ALMOST NEVER	SOME-TIMES	OFTEN	ALMOST ALWAYS
45.	I am content.....	1	2	3	4
46.	I feel infuriated when I do a good job and get a poor evaluation.....	1	2	3	4
47.	I make decisions easily.....	1	2	3	4
48.	It makes my blood boil when I am pressured.....	1	2	3	4
49.	I take disappointments so keenly that I can't put them out of my mind.....	1	2	3	4
50.	I worry too much over something that really does not matter.....	1	2	3	4

STUDY I: NAVY RECRUITS

TEST ATTITUDE INVENTORY

Developed by Charles D. Spielberger in collaboration with
H.P. Gonzalez, C.J. Taylor, and W.D. Anton

NAME _____ **DATE** _____

DIRECTIONS: Read each of the following statements carefully and then blacken the appropriate space on your answer sheet to indicate how you *generally* feel regarding tests. There are no right or wrong answers. Do not spend too much time on any one statement, but give the answer which seems to describe how you *generally* feel with regard to tests and examinations.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
1. I feel confident and relaxed while taking tests	1	2	3	4
2. While taking final examinations I have an uneasy, upset feeling	1	2	3	4
3. Thinking about the grade I may get in a course interferes with my work on tests	1	2	3	4
4. I freeze up on final exams	1	2	3	4
5. During exams I find myself thinking about whether I'll ever get through school	1	2	3	4
6. The harder I work at taking a test, the more confused I get	1	2	3	4
7. Thoughts of doing poorly interfere with my concentration on tests	1	2	3	4
8. I feel very jittery when taking an important test	1	2	3	4
9. Even when I'm well prepared for a test, I feel very anxious about it	1	2	3	4
10. I start feeling very uneasy just before getting a test paper back	1	2	3	4
11. During tests I feel very tense	1	2	3	4
12. I wish examinations did not bother me so much	1	2	3	4
13. During important tests I am so tense that my stomach gets upset	1	2	3	4
14. I seem to defeat myself while working on important tests	1	2	3	4
15. I feel very panicky when I take an important test	1	2	3	4
16. If I were to take an important examination, I would worry a great deal before taking it	1	2	3	4
17. During tests I find myself thinking about the consequences of failing	1	2	3	4
18. I feel my heart beating very fast during important tests	1	2	3	4
19. As soon as an exam is over I try to stop worrying about it, but I just can't	1	2	3	4
20. During a course examination I get so nervous that I forget facts I really know	1	2	3	4

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USF 8044-05-77

SAMPLE HARD CARD

RECRUIT PERSONNEL INFORMATION RECORD

6ND RTC 1070/4 (REV. 5/77)

NAME			SSN		T.U. NO.	BILLET NO.
AGE	**SCHOOL GRADE COMP.**	**HEIGHT**	**WEIGHT**	**EYE COLOR**	**HAIR COLOR**	**D.O.B.**
PREVIOUS OCCUPATION			**PREVIOUS MILITARY TRAINING**		**LENGTH**	**RANK**

HOBBIES	REASON FOR JOINING

PREVIOUS TRAINING UNITS	DATE ENLISTED	PLACE ENLISTED

MARRIED	SINGLE	RATE	MENTAL GROUP	READING	COMPREHENSION	VERBAL

WK	AR	MC	AD	NO	EI	MK	GS	SI

TRAINING RECORD

ACADEMIC TEST SCORES	1ST	2ND	3RD	4TH	RFAT	SWIM QUAL. DATE

MILITARY EVALUATION RESULTS: S – SAT; U – UNSAT.; A – ABSENT

PI				BKS			
1	2	3	4	1	2	3	4
LKR				**INF**			
1	2	3	4	1	2	3	4

RECRUIT PROFICIENCY BADGE					AWARDS					
	1	2	3	4	E–2	HONOR RECRUIT	ASA CAND.	ACC		

PT TEST	1	2	3	4	SHOTS	1	2	3	4	5	6

PAY DAY	1	2	3

VERIFICATION RECORD	WHEN REQUIRED	DATE	DIV.	DIV. OFFICER'S SIGNATURE
	2–5 DOT			
	4–5 DOT			
	7–5 DOT			

The authority to maintain this information is contained in 5 USC 301 Departmental Regulations. Its principal purpose will be to record, document and monitor your performance progress through training. The uses will include consideration by those tasked with determining your suitability for continued retention in the U. S. Navy.

(Signature of Recruit)

INSTRUCTIONS: *Company Commander's will keep Information Record on file for each recruit, which must be* maintained in accordance with NAVCRUITRACOMORLINST 5400.1. All records must be turned in to Recruit Training Command Data Analysis Div. (Bldg. 252, Rm 126) on 8-4 D.O.T.

REMARKS: DEMERITS ASSIGNED, INSTRUCTIONAL TRAINING, CAPTAIN'S MAST, OFFENSES, COUNSELLING, ETC.....

DATE	DOT	DISCREPANCY	DEMERITS	ASSIGNED BY	RECRUIT INIT.

STUDY II: AIR FORCE RECRUITS

SELF-EVALUATION QUESTIONNAIRE

Developed by Charles D. Spielberger in collaboration with
R.L. Gorsuch, R. Lushene and P.R. Vagg

STAI FORM Y-1

NAME_____ **SEX: M F AGE**_____ **DATE**_____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken the appropriate space on your answer sheet to indicate how you *feel* right now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	1	2	3	4
2. I feel secure	1	2	3	4
3. I am tense	1	2	3	4
4. I feel strained	1	2	3	4
5. I feel at ease	1	2	3	4
6. I feel upset	1	2	3	4
7. I am presently worrying over possible misfortunes	1	2	3	4
8. I feel satisfied	1	2	3	4
9. I feel frightened	1	2	3	4
10. I feel comfortable	1	2	3	4
11. I feel self-confident	1	2	3	4
12. I feel nervous	1	2	3	4
13. I am jittery	1	2	3	4
14. I feel indecisive	1	2	3	4
15. I am relaxed	1	2	3	4
16. I feel content	1	2	3	4
17. I am worried	1	2	3	4
18. I feel confused	1	2	3	4
19. I feel steady	1	2	3	4
20. I feel pleasant	1	2	3	4

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USF 8045-07/77

SELF-EVALUATION QUESTIONNAIRE

STAI FORM Y-2

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken the appropriate space on the answer sheet to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you *generally* feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	1	2	3	4
22. I feel nervous and restless	1	2	3	4
23. I feel satisfied with myself	1	2	3	4
24. I wish I could be as happy as others seem to be	1	2	3	4
25. I feel like a failure	1	2	3	4
26. I feel rested	1	2	3	4
27. I am "calm, cool, and collected"	1	2	3	4
28. I feel that difficulties are piling up so that I cannot overcome them	1	2	3	4
29. I worry too much over something that really doesn't matter	1	2	3	4
30. I am happy	1	2	3	4
31. I have disturbing thoughts	1	2	3	4
32. I lack self-confidence	1	2	3	4
33. I feel secure	1	2	3	4
34. I make decisions easily	1	2	3	4
35. I feel inadequate	1	2	3	4
36. I am content	1	2	3	4
37. Some unimportant thought runs through my mind and bothers me	1	2	3	4
38. I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
39. I am a steady person	1	2	3	4
40. I get in a state of tension or turmoil as I think over my recent concerns and interests	1	2	3	4

APPENDIX C

COMPARISONS OF NAVY RECRUITS WITH HIGH SCHOOL AND COLLEGE STUDENTS ON MEASURES OF ANXIETY, CURIOSITY, AND ANGER

The anxiety, curiosity, and anger scores of Navy recruits in Study I are compared with those of high school and college students in table C-1. The Navy recruits were substantially higher in state anxiety than the high school and college students, which reflected the intense situational stress that was associated with the conditions under which these recruits were tested on the fifth day of basic training. In contrast, the trait anxiety scores of the Navy recruits were essentially the same as those of the high school students and only slightly higher than the T-Anxiety scores of the college students.

The TAI test anxiety scores of the Navy recruits were higher than those of college students but lower than the scores of the high school students. This same pattern was found for the TAI worry subscale, but the TAI emotionality subscale scores for the recruits were quite similar to those of the high school and college students.

The Navy recruits scored slightly lower in trait curiosity than the college students, but did not differ in state curiosity. However, the recruits were much higher in state anger, and somewhat higher in trait anger than the college students. Measures of curiosity and anger were not available for the high school students.

In summary, the Navy recruits appeared to be more anxious, more angry, and less curious than the college students. When compared with high school students, the recruits were higher in state anxiety, lower in test anxiety, and about the same in trait anxiety.

TABLE C-1. COMPARISONS OF NAVY RECRUITS WITH HIGH SCHOOL AND COLLEGE STUDENTS ON MEASURES OF ANXIETY, CURIOSITY, AND ANGER

Measure	Males		
	Navy (N=192)	High School* (N=527)	College** (N=654)
T-Anxiety			
Mean	40.12	40.48	37.90***
SD	9.53	10.84	8.88
S-Anxiety			
Mean	48.98	39.59***	38.43***
SD	12.38	9.77	8.68
Test Anxiety			
Mean	38.00	40.87***	35.12***
SD	12.35	12.77	8.91
Test Worry			
Mean	14.44	15.60***	12.75***
SD	5.40	5.33	3.57
Test Emotionality			
Mean	16.01	16.61	15.27
SD	4.97	5.47	4.24
T-Curiosity			
Mean	44.68		46.10***
SD	6.37		6.25
S-Curiosity			
Mean	42.44		42.77
SD	8.31		9.66
T-Anger			
Mean	31.66		28.83***
SD	7.63		6.59
S-Anger			
Mean	27.14		20.62***
SD	9.39		8.59

* Data for the T-Anxiety and S-Anxiety measures were available for only 139 high school students.

** For the college students, the T-Anxiety and S-Anxiety scores were based on 585 students; curiosity scores are based on 642 students; and anger scores were available for only 95 students.

*** Group mean is significantly different from the Navy group, using the t-test.

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