U.S. Army Research Institute
for the Behavioral and Social Sciences

Research Report 1539

Preliminary Assessment of Selected Predictors of Special Forces Qualification Course Success

Robert J. Pleban, Howard L. Allentoff,
and Thomas J. Thompson

DTIC
ELECTE
OCT 10 1989
S E D

August 1989

89 10 10117

U.S. ARMY RESEARCH INSTITUTE
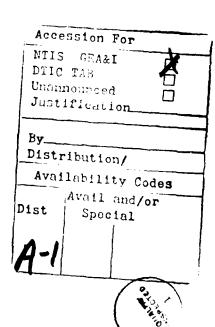
FOR THE BEHAVIORAL AND SOCIAL SCIENCES

A Field Operating Agency Under the Jurisdiction
of the Deputy Chief of Staff for Personnel

EDGAR M. JOHNSON
Technical Director

JON W. BLADES
COL, IN
Commanding

Technical review by

Kenneth L. Evans
Margaret Salter

NOTICES

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION	1b. RESTRICTIVE MARKINGS
Unclassified	

2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION / AVAILABILITY OF REPORT
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE	Approved for public release; distribution is unlimited

4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S)
ARI Research Report 1539	

6a. NAME OF PERFORMING ORGANIZATION	6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION
ARI Field Unit, Fort Benning	PERI-IJ	

6c. ADDRESS (City, State, and ZIP Code)	7b. ADDRESS (City, State, and ZIP Code)
PO Box 2086 Fort Benning, GA 31905-0686	

8a. NAME OF FUNDING / SPONSORING ORGANIZATION US Army Research Institute for the Behavioral and Social Sciences	8b. OFFICE SYMBOL (If applicable) PERI-I	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER

8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS			
5001 Eisenhower Avenue Alexandria, VA 22333-5600	PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO.
	63007A	794	355	H1

11. TITLE (Include Security Classification)
Preliminary Assessment of Selected Predictors of Special Forces Qualification Course Success

12. PERSONAL AUTHOR(S)
Pleban, Robert J., Allentoff, Howard L., and Thompson, Thomas J.

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Final	FROM 11/87 TO 10/88	1989, August	25

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Special Forces Qualification Course Intelligence
			Special Forces Personality
			Selection Assessment

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This report describes a follow-up research effort designed to examine the predictive utility of selected measures of intelligence (Wonderlic Personnel Test - WPT), personality (Jackson Personality Inventory - JPI), and biographical information in predicting the successful completion of Phase I of the Special Forces Qualification Course (SFQC).

Intelligence, personality, and biographical measures were obtained from 293 soldiers attending Phase I of the SFQC at Fort Bragg, NC. The relationships between two of the selected predictor measures, WPT and JPI, and the Phase I performance criteria were assessed through a correlation-multiple regression strategy. Predictive utility was assessed using a discriminant analysis procedure.

Intelligence (WPI) correlated significantly with overall Phase I status and four JIP scales: Energy Level, Anxiety, Risk Taking and Infrequency. The results further suggested that SF candidates who have had prior specialized training emphasizing land navigation,

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS	Unclassified

22a. NAME OF RESPONSIBLE INDIVIDUAL	22b. TELEPHONE (Include Area Code)	22c. OFFICE SYMBOL
Robert J. Pleban	(404) 545-5589	PERI-IJ

DD Form 1473, JUN 86   Previous editions are obsolete.   SECURITY CLASSIFICATION OF THIS PAGE

ARI Research Report 1539

Item 19 (Continued)

map reading, and patrolling (e.g., Ranger, Reconnaissance, Jungle Warfare) are likely to be much better prepared to complete Phase I successfully than those candidates who have not had such training. The implications of these findings are discussed./

Preliminary Assessment of Selected Predictors of Special Forces Qualification Course Success

Robert J. Pleban, Howard L. Allentoff,
and Thomas J. Thompson

**Field Unit at Fort Benning, Georgia
Seward Smith, Chief**

**Training Research Laboratory
Jack H. Hiller, Director**

August 1989

FOREWORD

For several years, the Fort Benning Field Unit·of the U.S. Army Research Institute (ARI) has been working in support of Special Forces training development at the John F. Kennedy Special Warfare Center. In response to a specific request from the Commander of the Special Warfare Center, this report presents some initial findings on the utility of selected paper-and-pencil measures of intelligence, personality, and biographical information in predicting future training success in the Special Forces Qualification Course (SFQC) at Fort Bragg, NC. The paper-and-pencil measures represent only one aspect of a three-week screening program, developed by the Special Warfare Center, to select Special Forces candidates for entry into the SFQC and to determine their suitability for working on an operational A-detachment.

ARI has been able to respond rapidly to the need to support the Special Warfare Center's interests in selection and training development as a result of recent systematic involvement in the Center's training and organizational evolution. The Institute looks forward to a growing research role with the Special Forces community.

The on-going work for the Special Warfare Center has been conducted as part of ARI's Tactical Doctrine and Training for Light Infantry Task (Research Task 355/3404), which is part of the ARI-Fort Benning Field Unit's research program. The research is being conducted under the initial Letter of Agreement established on 22 November 1985 between the Commanders of the Special Warfare Center and ARI. Briefings based on earlier findings and recommendations were provided to the Special Warfare Center Commander and principal staff officers in January 1987. This information together with the findings described in the present research are being used to build a stronger selection and training program for soldiers entering the Special Forces career management field. The goal of this joint effort is to identify and prepare the finest soldiers possible for some of the U.S. Army's most critical missions.

EDGAR M. JOHNSON
Technical Director   .

PRELIMINARY ASSESSMENT OF SELECTED PREDICTORS OF SPECIAL FORCES QUALIFICATION COURSE SUCCESS

EXECUTIVE SUMMARY

Requirement:

In August 1986, the U.S. Army Research Institute (ARI) Fort Benning Field Unit was tasked by the John F. Kennedy Special Warfare Center (SWC) to assess current selection procedures used in screening candidates for entry into the Special Forces Qualification Course (SFQC) and to provide recommendations for improving the overall selection process. The general opinion was that the overall attrition rate in the SFQC was too high (40%-50%), and that some of the candidates successfully completing the SFQC did not possess the psychological makeup or temperament to function successfully as team members on an operational A-detachment.

At the present time, ARI is providing research support to SWC in the development of a comprehensive screening program (Special Forces Assessment and Selection - SFAS) to assess key qualities previously determined to underlie success in the SFQC and general suitability for inclusion on an operational A-detachment. This report describes a follow-up research effort designed to examine in more detail the predictive utility of selected measures of intelligence (Wonderlic Personnel Test - WPT), personality (Jackson Personality Inventory - JPI), and biographical information in predicting the successful completion of Phase I of the SFQC.

Procedure:

Intelligence, personality, and biographical measures were obtained from 293 soldiers attending Phase I of the SFQC at Fort Bragg, NC in November 1987. The relationships between two of the selected predictor measures, WPT and JPI, and the Phase I performance criteria, were assessed through a correlation-multiple regression strategy. Predictive utility was assessed using a discriminant analysis procedure.

Findings:

Intelligence (WPT) correlated significantly with overall Phase I status (successful-unsuccessful). Significant correlations were also obtained between Phase I status and four of the 16 JPI scales: Energy Level, Anxiety, Risk Taking, and Infrequency. The results further suggested that SF candidates who have had prior specialized training emphasizing land navigation, map reading, and patrolling (e. g., Ranger, Reconnaissance, Jungle Warfare) are likely to be much better prepared to complete Phase I successfully than those candidates who have not had such training.

The single best predictor of Phase I status was intelligence. The best predictive model of Phase I status consisted of three variables: the WPT, Energy Level, and Risk Taking. When employed with the present sample, the model was able to increase the total percentage of correct classifications by 11.5%.

Utilization of Findings:

These findings, if replicated in subsequent research efforts, will provide valuable information to SWC staff personnel on the type of SF candidates most likely to succeed in the SFQC. The use of a valid screening program for determining suitability for entry into the SFQC could offer a significant reduction in training costs by insuring that the selected candidates have the basic capabilities and temperament necessary for mastering the content of the course, thus minimizing attrition and the number of candidates recycled.

PRELIMINARY ASSESSMENT OF SELECTED PREDICTORS OF
SPECIAL FORCES QUALIFICATION COURSE SUCCESS

CONTENTS

PRELIMINARY ASSESSMENT OF SELECTED PREDICTORS OF
SPECIAL FORCES QUALIFICATION COURSE SUCCESS

INTRODUCTION

Special Forces operational A-detachments, commonly referred to as A-teams, excel in five fundamental areas: light weapons, demolitions, field communications, combat intelligence, and paramedical support. Although Special Forces (SF) personnel are proficient at raids, ambushes, and sabotage, the special talent of these individuals is centered around their abilities to develop, organize, equip, train, and direct indigenous military and paramilitary forces in unconventional warfare (UW) and foreign internal defense (FID). Each A-team, composed of two officers and ten enlisted men, represents a complete unit, capable of organizing, training, and equipping a guerilla force of up to 1500 personnel. Force multiplication rather than direct force application is the Special Forces forte (Collins, 1987; George & Cassady, 1981).

The basic qualifications for all SF Military Occupational Specialties (MOS) are rigorous and are described in detail by Pleban, Thompson, Valentine, Dewey, Allentoff, and Wesolowski (1988) and Army Regulation 611-201 (Department of the Army, 1987). In general, the successful Special Forces candidate must be above average in intelligence, physically fit, proficient in basic military skills such as map and aerial photo reading and land navigation, and well versed in a variety of areas including conventional light infantry doctrine, low intensity conflict, unconventional tactics, and principles of fire and movement. In addition, the SF candidate must possess a certain temperament combining resourcefulness, ingenuity, pragmatism, and patience with self-discipline and dependability. He must also possess the emotional stability necessary to operate effectively in situations involving personal hazard (Collins, 1987; Department of the Army, 1987).

The Special Forces Qualification Course (SFQC), consisting of three separate phases, is the foundation upon which all specialized training is based. Phase I, which is four weeks long, focuses on general subjects, effective teaching, leadership, patrolling, land navigation, and physical conditioning. Phase II varies in length from 13 to 38 weeks, depending on the type of specialized training within the individual's selected Military Occupational Specialty (MOS). Each SF soldier receives extensive training in weapons, communications, engineering, or medicine (he will later receive cross-training in a second skill while a member of an operational A-detachment). Phase III emphasizes special forces advanced training in the areas of doctrine and organization, unconventional warfare operations, direct action operations, methods of instruction, and airborne and airmobile operations. A two-week unconventional warfare field training exercise and final exam completes the SFQC. Upon successful completion of the course, the SF soldier is awarded his MOS and the green beret. He is most frequently assigned to an A-detachment in the unit (SF group) where training continues in additional mission specific skills such as language, advanced parachute techniques, and scuba.

1

While the qualifications for entry into the SFQC are extensive, no specialized selection battery is currently being used. Present screening procedures require the prospective SFQC candidate to take the Army Physical Fitness Test (APFT) which includes situps, pushups, and two-mile run. In addition, he must take a swim test, have a medical checkup, a Secret Security clearance, and a GT score of at least 110. Additional criteria are also employed, but they focus more on administrative issues and general training experience (Department of the Army, 1985) than with specific qualities related to success in the course or on an operational A-detachment. Historically, personnel had been screened for mission aptitude using a specially designed paper-and-pencil battery (Special Forces Selection Battery-DA Forms 6140-42, 1961). This battery, however, fell into disuse in the past decade.

Recent discussions with SWC personnel indicated a growing dissatisfaction with the existing screening process. This dissatisfaction stemmed in part from the recent attrition rates in the SFQC which SWC considered to be excessively high (approximately 40%-50% during the last 6 years). Initial research by Pleban, Thompson, Valentine, Dewey, Allentoff, and Wesolowski (1988), indicated that the majority of failures (over 80%) occurred during Phase I of the course. The primary reason for failure was an inability to pass the land navigation section of the course. The inordinate number of land navigation failures can be attributed primarily to the fact that many candidates are insufficiently practiced in this skill prior to entering the course. If candidates' proficiency in land navigation could be improved prior to entering the SFQC, the Phase I success rate would no doubt show substantial improvement. However, it was clear from subsequent discussions that even if the percentage of land navigation failures could be reduced, there was a growing concern that many SFQC graduates did not possess the temperament or psychological makeup to function effectively on an operational A-detachment.

As a result of the concerns mentioned above, the SF Department initiated a major effort directed toward the development of a comprehensive screening (Special Forces Assessment and Selection - SFAS) program to assess, prior to entry into the SFQC, not only the SF candidate's proficiency in basic military skills but also his general suitability for inclusion on an operational A-detachment. The program is three weeks in length and was implemented in June 1988. The purpose of the SFAS program is to evaluate SF candidates across a series of exercises tapping their physical endurance and stamina, ability to work in small teams, and team-relevant personal traits (leadership, motivation, responsibility, and stability), along with obtaining actual performance measures (work samples) of candidates' proficiency on such requisite SFQC skills as land navigation. Paper-and-pencil measures are also employed to assess intelligence and to provide additional information on the candidate's general personality style.

One of the major objectives of the previous research (Pleban et al., 1988) was to provide a preliminary assessment of the predictive utility of selected screening variables (intelligence, personality, and physical fitness). While the data were only suggestive, Pleban et al. found positive trends for both intelligence and physical fitness. The more intelligent (as defined by scores obtained on the Wonderlic Personnel Test) and physically fit (based on performance on the APFT) the individual, the more likely he was to have

completed Phase I of the SFQC successfully. Personality traits did not show any systematic relationship with Phase I status (successful-unsuccessful). This could be due in part to the fact that one of the personality instruments employed, the Myers-Briggs Type Indicator (MBTI) simply did not tap into the traits underlying success in Phase I of the SFQC. More than likely, though, personality measures may be more valuable when the objective is to predict behavior in weak, unstructured situations, similar to what one would encounter in an operational environment. Under structured or "powerful" situations such as the SFQC, differences in personality style may be of limited value in predicting behavior, i. e., training success (Gatewood and Feild, 1987).

The objective of the present research was to determine more precisely the potential utility of selected measures of intelligence, personality, physical fitness, and relevant biographical information as predictors of Phase I status. Since detailed physical fitness data could not be collected as part of this effort, the research focuses primarily on the predictive utility of selected paper-and-pencil measures of intelligence, personality, and biographical information.

METHOD

Subjects

Subjects included a class of 293 soldiers attending Phase I of the SFQC at Fort Bragg, NC in November 1987. Table 1 summarizes the major characteristics of this particular class.

Table 1

Biographical Profile of SFQC Candidates

	n	M	SD
Age	283	26.74	4.22
Years of Education	283	13.27	1.80
Years in Service	281	7.12	7.40

Note. Sample size decreased since some students did not respond to all the biographical items.

Materials

Wonderlic Personnel Test. Based on previous research (Pleban et al., 1988), and extensive discussions with the SF Department clinical psychologist at Fort Bragg and Auburn University Department of Psychology faculty members, the Wonderlic Personnel Test (WPT) was selected as the primary instrument to assess general intellectual capacity. Although the Armed Service Vocational

3

Aptitude Battery (ASVAB) GT score is frequently employed as the major indicator of general intelligence, Pleban et al. (1988) found no significant differences between successful and unsuccessful SFQC Phase I candidates on this scale. Thus, for this research, intelligence was operationalized by scores obtained solely on the WPT.

The WPT is a 50-item, 12-minute omnibus test of general mental ability. It consists of a broad range of problem types including analogies, arithmetic computations, syllogisms, definitions, logic, analyses of geometric figures, proverbs, scrambled sentences, judgments, perceptual skills items, and spatial relations intermingled and arranged in an increasing order of difficulty. The response formats vary across items. The WPT has been used primarily in personnel selection (Murphy, 1984) and has been found to be highly predictive of success in learning situations (Schoenfeldt, 1986). Wonderlic and Associates (1983) cite 22 independently published studies demonstrating the validity of the WPT across a variety of job domains. The WPT correlates .91 with the full scale Wechsler Adult Intelligence Scale (WAIS) (Dodrill, 1981) and provides a reliable and reasonably economical measure of general ability that is valid in varying degree for essentially all jobs (Schmidt, 1986).

Jackson Personality Inventory. After further consultations with the Fort Bragg and Auburn University psychologists, the Jackson Personality Inventory (JPI) was selected as the candidate instrument with the best potential to assess those interpersonal qualities likely to underlie success in certain aspects of the SFQC and general suitability for inclusion on operational A-team detachments. The JPI consists of 15 scales (300 items) reflecting a variety of interpersonal, cognitive, and value orientations believed to have important implications for a person's functioning (anxiety, breadth of interest, complexity, conformity, energy level, innovation, interpersonal affect, organization, responsibility, risk taking, self esteem, social adroitness, social participation, tolerance, value orthodoxy). An additional scale, infrequency (20 items), is also included and is used to assess respondent carelessness in completing the JPI. Items are presented in a true-false format and no time limit is imposed (Jackson, 1976).

Biographical Questionnaire. The biographical questionnaire is a 14-item instrument designed by ARI-Benning staff psychologists to provide information concerning educational level, component (active-reserve), time in service, rank, specialized training received, MOS, marital status, race, and career plans. These areas were selected for their potential as subgrouping variables.

Procedure

Once the new SFQC participants were processed into Camp Mackall (the principal training site for Phases I and III), ARI researchers administered the instruments described above. Subjects were given a general explanation of the research objectives and each of the test instruments was briefly described. Subjects were also told that the present data collection effort was for research purposes only and that their responses would not affect their status in the course. The instruments were administered in the following order: WPT, Biographical Questionnaire, and the JPI. Total test time was approximately two hours.

4

RESULTS

Phase I status (successful-unsuccessful) is determined by the candidate's performance on six criteria: map reading written exam, land navigation field exercise (FTX), confidence course, patrolling written exam, patrolling FTX, and performance as a patrol member. If a candidate does not meet or exceed the established cutoff score on any one of the six criteria, he is not eligible to continue through the remaining phases (II and III) of the course. However, if approved, a candidate may be recycled and allowed to repeat Phase I as part of a new class. Performance on each of the criterion measures, therefore, is non-compensatory. A high score on one measure does not make up for a low score on another measure. The relationships between the two predictor variables, WPT and JPI, overall Phase I status, and the six above mentioned criteria were assessed using a correlation-multiple regression strategy. Chi-square tests were also performed where appropriate.

For the sample of 293 Phase I candidates tested for which performance data was available, 180 (62%) successfully completed this phase. Table 2 shows the percentage of students who failed by category. Sixty-one percent of the unsuccessful candidates failed either the map reading exam or the land navigation FTX. This finding is consistent with earlier research (George & Cassady, 1981; Pleban et al., 1988) which showed that problems in land navigation and map reading accounted for the overwhelming majority of failures in Phase I.

Table 2

Phase I Criteria Failed

Criterion	$\underline{n}$	$\underline{\%}$
Map Exam	12	(10.62)
Land Navigation FTX	57	(50.44)
Patrolling Written Exam	0	(0)
Patrolling FTX	8	(7.08)
Patrol Member	0	(0)
Confidence Course	4	(3.54)

Note. Other reasons for not completing Phase I included Medical (17%), Voluntary Termination (11%), and Administrative (1%).

5

Selected MOS and Prior Specialized Training

Based on discussions with SF Department personnel, the moderating effects of (selected) MOS and prior specialized training on Phase I status were also examined. Table 3 depicts the relationship between the five MOS training categories used for grouping the candidates and Phase I status. As can be seen in the table, the SF Medic candidates had the poorest success rate, 50%. The success rates of the remaining SF MOS categories varied between 61% and 69.2%. With regard to prior specialized training, Ranger training clearly had the most impact on Phase I status (see Table 4). Eighty-four percent (83.9%) of the candidates who had graduated from Ranger school successfully completed Phase I. Reconnaissance and Jungle Warfare training also appeared to be associated with improved success rates, 63.9% and 69.5% respectively. The relevance of other specialized training was inconclusive, due primarily to the small number of candidates who received the training.

Table 3

Phase I Status by MOS Training Categories

MOS	Successful		Unsuccessful	
	n	%	n	%
Detachment Officer	27	(69.2)	12	(30.8)
Weapons SGT	48	(66.7)	24	(33.3)
Engineer SGT	47	(61.0)	30	(39.0)
Medical SGT	31	(50.0)	31	(50.0)
Communications SGT	27	(62.8)	16	(37.2)

Table 4

Phase I Status by Specialized Training

Training	Successful n	Successful %	Unsuccessful n	Unsuccessful %
Ranger	52	(83.9)	10	(16.1)
Pathfinder	8	(57.1)	6	(42.8)
Air Assault	29	(55.8)	23	(36.1)
Reconnaissance	23	(63.9)	13	(36.1)
Scuba	9	(69.2)	4	(30.7)
Jungle Warfare	66	(69.5)	29	(30.5)
Halo	10	(83.3)	2	(16.6)
EOD	1	(50.0)	1	(50.0)
Sniper	14	(73.7)	5	(26.3)
Rigger	5	(83.3)	1	(16.7)

Note. Total responses exceeded 293 since some candidates reported more than one type of specialized training.

Intelligence

General intelligence, as measured by the WPT, correlated significantly with Phase I status (r = .29, p < .0001) indicating that the higher the score obtained on the WPT, the more likely the candidate was to have successfully completed Phase I. The WPT scores were also correlated with each of the six Phase I performance criteria. These correlations are shown in Table 5. As can be seen from the table, WPT scores correlated significantly (p < .0001) with the map reading written exam, land navigation FTX, and the patrolling written exam.

In addition, the WPT data were analyzed from an alternative perspective. According to Wonderlic et al. (1983), individuals who score 26 and above are considered able to both analyze and make decisions from a limited number of choices. They also have the ability to learn on their own by independent study and are able to gather and synthesize information easily, as well as infer conclusions and information from on-the-job situations. Since these qualities seemed to underlie the basic requirements listed in AR 611-201 (Department of the Army, 1987), i. e., quick thought and action in rapidly changing

7

situations, an initial WPT cutoff score of 26 and above correct responses for all SF candidates was established. Of the 125 who achieved a WPT score of 26 or greater, 94 (75%) passed Phase I. Alternatively, of the 165 candidates who scored 25 or below on the WPT, 86 (51%) passed Phase I. A contingency chi-square test performed on the data showed Phase I status to be significantly dependent on WPT categorization, X^2(1, $\underline{N}$ = 290) = 17.44, $\underline{p}$ < .001.

Table 5

Correlations Between WPT and Phase I Performance Criteria

Criterion	$\underline{r}$
Map Exam	.52*
Land Navigation FTX	.28*
Patrolling Written Exam	.31*
Patrolling FTX	-.02
Patrol Member	-
Confidence Course	-.06

Note. Sample sizes ranged from 188 to 282. The r between Wonderlic and performance as a patrol member could not be computed since all candidates received the maximum score.

*$\underline{p}$ < .0001.

Personality

Four of the 16 JPI scales correlated significantly with overall Phase I status: Energy level, $\underline{r}$ = .22, $\underline{p}$ = .0003; Risk Taking, $\underline{r}$ = .16, $\underline{p}$ = .007; Anxiety, $\underline{r}$ = -.12, $\underline{p}$ = .05; and Infrequency, $\underline{r}$ = -.16, $\underline{p}$ = .007 (see Table 6). The pattern of correlations indicated that the more persevering, enterprising, and calm the individual, the more likely he was to successfully complete Phase I. The significant correlation between Infrequency and course status suggested that the more careless the individual was in his responses to the JPI, the less likely he was to successfully complete Phase I. Overall, the correlations between the JPI scales and each of the separate Phase I performance criteria were negligible (see Table 6).

8

Table 6

Correlations Between Phase I Performance Criteria and the JPI Scales

	Performance Criteria					
Scales	Map Exam	Land Nav FTX	Patrol Exam	Patrol FTX	Conf. Crse.	Overall Status
Anxiety	-.06	-.05	-.12	-.05	-.03	-.12*
Breadth of Interest	.009	-.08	.07	-.01	.02	-.02
Complexity	.07	-.09	.07	.04	-.16*	-.006
Conformity	-.13*	-.05	-.08	.04	.08	-.10
Energy Level	.11	.10	.11	.14*	.18*	.22**
Innovation	.08	.003	.05	.03	-.02	.04
Interpersonal Affect	-.005	-.04	-.09	-.07	.12	-.07
Organization	-.06	.03	-.02	-.02	.17*	.02
Responsibility	.003	.02	-.06	-.07	.20**	.04
Risk Taking	.12*	.08	.08	.05	-.09	.16**
Self-Esteem	.07	.05	.09	.005	.02	.09
Social Adroitness	.06	.06	-.02	.10	.03	.11
Social Participation	.06	.04	-.06	-.07	.08	.03
Tolerance	-.01	-.09	.03	-.11	.009	.02
Value Orthodoxy	-.14*	-.08	-.07	.04	.18*	-.07
Infrequency	-.24**	-.09	-.10	.02	-.10	-.16**

Note. Sample sizes ranged from 187 to 272.

**$p \leq .007$.

*$p \leq .05$.

9

The Joint Contribution of Both Intelligence and Personality in Predicting Phase I Status

A stepwise regression was computed to determine the best predictive model of Phase I status. Five predictor variables were selected for further analysis including the WPT and four JPI scales: Energy Level, Risk Taking, Anxiety, and Infrequency. The resulting analysis yielded a three variable model composed of the WPT, Energy Level, and Risk Taking, and a corresponding multiple R of .36, $F(3, 268) = 13.25$, $p < .0001$; ($R^2 = 12.9\%$). Corrected for shrinkage, the multiple R fell to .34. Overall, the single best predictor of Phase I status was the WPT, $R = .29$, $F(1, 270) = 25.02$, $p < .0001$; ($R^2 = 8.5\%$).

The predictive utility of this model was assessed using a discriminant analysis. Setting the prior probability for success at 65%, proportionally equivalent to the success rate of the current class, the number of correct classifications were computed. The results showed that the model was able to correctly classify almost 90% of the successful Phase I students, but only 35% of the unsuccessful students. Overall, the model was correct in 194 out of 272 predictions (71.3%). On a purely chance basis alone, one would expect to be correct 163 cases out of the 272 (59.8%). Thus, the present model was able to improve the total percentage of correct classifications by 11.5%.

DISCUSSION

The results obtained from this research indicate that the selected paper-and-pencil measures of intelligence (WPT) and personality (JPI), along with prior specialized training may be useful in profiling the successful SFQC (Phase I) candidate. From a prediction standpoint, intelligence appeared to be the best single predictor of Phase I status. The results also suggested that the addition of specific personality (JPI) scales could significantly increase predictive power. Prior specialized training, particularly Ranger training, may become a critical predictor as more data is collected.

Intelligence and Phase I Status

The WPT correlated significantly with overall Phase I status (successful-unsuccessful) as well as with three of the six training criteria (see Table 5). Of particular interest are the significant correlations between the WPT and two of the separate training criteria: the map reading exam (.52) and the land navigation FTX (.28). As was noted earlier, deficiencies in land navigation and, to a lesser extent, map reading have historically accounted for the majority of failures in Phase I.

The relatively strong showing of the WPT is not surprising considering the prior evidence demonstrating the effectiveness of the WPT in predicting success in learning situations (Murphy, 1984; Wonderlic, 1983). The SFQC represents a learning situation in which the ability to comprehend material quickly is critical, given the amount of information covered and the less than optimal time allowed for assimilation of that material. Thus, it is not surprising that the brighter candidates are more likely to complete Phase I successfully.

Personality and Phase I Status

Four scales (three personality scales plus Infrequency) from the JPI correlated significantly with Phase I Status. SF candidates reporting low levels of anxiety, high levels of persistence and vigor, and who enjoy taking chances were likely to do better in Phase I than the more anxious, less persistent, and unadventuresome candidates. The significant correlations between the two JPI scales - Anxiety and Energy Level, and Phase I performance make sense given the relevance of these variables to learning and training success.

The importance of Risk Taking to Phase I success emerged during subsequent interviews with Phase I instructors who recounted numerous incidents, for example, where students failed the land navigation FTX because they were afraid of the dark, or thought there was "something out there". As a result, the students froze-up and were unable or unwilling to complete the FTX. The significant negative correlation between Infrequency and Phase I status is more difficult to interpret. Whatever the reason for some of the students haphazard responding on the JPI: poor comprehension, passive non-compliance, confusion, or gross deviation, it is clear that these qualities were not conducive to success in Phase I. A simple interpretation that will be explored in future analyses is that Infrequency may reflect a general inattention to detail that contrasts with SFQC A-detachment requirements.

11

The intercorrelations among the remaining JPI scales and each of the Phase I criteria were negligible, for the most part. The low, non-significant correlations could be due, as was mentioned earlier, to the highly structured nature of Phase I. These structured situations are viewed by Gatewood and Feild (1987) as "powerful" to the extent that they lead individuals to interpret particular events in the same way, create uniform expectancies regarding the most appropriate behavior, and require skills that everyone possesses roughly to the same extent. Under such conditions, individual behavior is hypothesized to be more attributable to the known situational role (e. g., student) than to individual personality traits.

Conversely, "weak" situations i. e., situations marked by constant change and ambiguity, and where a variety of skills may produce differing degrees of success, would allow personality to exert more of an influence on individual behavior according to Gatewood and Feild. Under these conditions, if individuals are uncertain as to appropriate behavior, the individual is assumed to interpret the situation and act in a manner that is consistent with his own personality traits. Thus, personality instruments such as the JPI may show even more promise as a means of assessing an individual's suitability for inclusion on an operational A-detachment (weak situation) than future performance in the SFQC (powerful situation). Further research linking personality style to performance on an operational A-detachment will be required, however, to accurately assess the powerful versus weak situational distinction.

Conceptually, the JPI appears to provide an appropriate measure of those traits believed to underlie success in the operational A-detachment. Discussions with SWC staff members who have served on operational A-detachments suggested that a number of the traits measured by the JPI are critical for "on-the-job" success (e. g., Energy Level, Risk Taking, Responsibility).

The nature of SF missions requires that the individual be able to work effectively in small groups. Hogan, Carpenter, Briggs, and Hansson (1985) list six factors they believe are associated with successful functioning in any group: intelligence (good judgment, accurate reasoning); adjustment (self-confidence, stable moods); prudence (honesty, self-control); ambition (leadership, energy level); sociability (affiliativeness); and likability (tolerance, warmth, tact). A comparison of these factors and the dimensions (e. g., self esteem, anxiety, responsibility, energy level, social adroitness, social participation, tolerance) which Jackson (1976) hypothesizes are critical for effective interpersonal functioning are strikingly similar. (The exception is intelligence which is assessed by the WPT). In summary, although there are no data at the present time linking the JPI to success in an operational A-detachment, it would appear, at least from a logical standpoint, that the JPI taps many of the key traits underlying successful "real world" performance.

Prior Specialized Training and Phase I Status

Prior specialized training appeared to play an important role in determining the candidates' chances of successfully completing Phase I. Of particular interest was the finding that 83.9% of those candidates who graduated from Ranger school also successfully completed Phase I. This finding is not

12

completely surprising when one realizes that the Ranger course places heavy emphasis on patrolling and land navigation, the same tasks which are stressed in Phase I. Five of the six Phase I training evaluation criteria are land navigation/patrolling oriented.

The data on specialized training suggests that one of the keys to completing the land navigation-map reading sections of Phase I successfully is to be practiced in these skills prior to coming to the SFQC. Candidates receiving prior advanced training in those courses which place heavy emphasis on land navigation (Ranger, Reconnaissance, and Jungle Warfare) apparently develop the foundation which allows them to readily master these skills in Phase I.

Predictive Utility of the WPT and the JPI

The results from this research indicated that overall errors of classification could be reduced through the use of the three variable selection model composed of the WPT, Energy Level, and Risk Taking. The observed increase in the accuracy of prediction is very likely an overestimate of the true discriminatory power of the model however, and the resulting discriminant function derived from the present sample will have to be cross-validated on a new sample to determine its true utility. In addition, a complete assessment of the utility of the model will require some consideration of the relative importance of committing specific types of classification errors. The present model yielded very few false negatives (10%), but a relatively high number of false positives (64.5%). Discussions with SWC staff members indicated that erroneously accepting a candidate into the course (false positive) was a more serious error than rejecting a potentially successful candidate (false negative). However, given the current Phase I success rates of the sample classes tested so far (62%-67%), a reduction in false positives will be difficult to accomplish since discriminant analysis procedures are generally not very successful in identifying members of a minority group (in this instance the unsuccessful SFQC students). As the deviation from a fifty-fifty split increases, the discrimination power of the predictor variables decreases (Kachigan, 1986).

Unless the current success rate shifts and/or more powerful predictor variables are discovered, only modest gains in classification accuracy can be expected. However, considering the monetary costs involved just in SFQC training alone, the practical significance of these gains could be substantial.

CONCLUSIONS

While the findings are still preliminary, a profile of the successful SFQC candidate is starting to emerge. The successful SFQC candidate is above average in intelligence, persevering, calm, enterprising, and is generally proficient in basic military skills such as land navigation prior to entering Phase I. Although physical fitness data was not collected, the data from the earlier Pleban et al. (1988) research suggests that the successful Phase I SFQC candidate is also more fit than the less successful candidate.

While the above mentioned qualities appeared to underlie success in Phase I of the SFQC for the sample tested, more research is needed. Of particular concern is how well the JPI and the simulated field exercises employed in the SFAS program (designed to provide behavioral assessments of leadership, teamwork, motivation, responsibility, and stability) predict performance on an operational A-detachment.

Data are presently being collected in which SF candidates attending the first two administrations of the SFAS will be tracked through the SFQC and their first tour on an operational A-detachment. The results of this research effort will provide valuable information on the qualities underlying successful "on the job performance" in addition to providing a further check on the validity of the present findings.

REFERENCES

Collins, J. M. (1987). United States and Soviet special operations. Washington, DC: U.S. Government Printing Office.

Dodrill, C. B. (1981). An economical method for the evaluation of general intelligence in adults. Journal of Consulting and Clinical Psychology, 49(5), 689-673.

Department of the Army. (1987). Enlisted career management fields and military occupational specialties AR 611-201. Washington, DC: Author.

Department of the Army. (1985). Special Forces selection criteria AR 614-200, Chapter 6, Section IV. Washington, DC: Author.

Gatewood, R. D., & Feild, H. S. (1987). Human resource selection. Chicago: Dryden Press.

George, E. L., & Cassady, P. D. (1981). Training attrition problem, Institute for Military Assistance (Report No. 13-81). White Sands Missile Range, NM: U.S. Army TRADOC Systems Analysis Activity.

Hogan, R., Carpenter, B. N., Briggs, S. R., & Hansson, R. O. (1985). Personality assessment and personnel selection. In H. J. Bernardin & D. A. Bownas (Eds.), Personality assessment in organizations (pp. 21-52). New York: Prager.

Jackson, D. N. (1976). Jackson Personality Inventory manual. Goshen, NY: Research Psychologists Press, Inc.

Kachigan, S. (1986). An interdisciplinary introduction to univariate and multivariate methods. New York: Radius Press.

Murphy, K. R. (1984). The Wonderlic Personnel Test. In D. J. Keyser, & R. C. Sweetland (Eds.), Test Critiques (Vol. I) (pp. 769-775). Kansas City, MO: Test Corporation of America.

Pleban, R. J., Thompson, T. J., Valentine, P. V., Dewey, G. I., Allentoff, H. L., & Wesolowski, M. A. (1988). Selection and assessment of special forces qualification course candidates: Preliminary issues (Research Note No. 88-37). Alexandria, VA: U.S. Army Research Institute AD A196 245

Schmidt, F. L. (1986). Review of Wonderlic Personnel Test. In O. K. Buros (Ed.), The ninth mental measurements yearbook: Vol. II (pp. 1755-1757). Highland Park, NJ: Gryphon Press.

Schoenfeldt, L. F. (1986). Review of Wonderlic Personnel Test. In O. K. Buros (Ed.), The ninth mental measurements yearbook: Vol. II (pp. 1757-1758). Highland Park, NJ: Gryphon Press.

Special Forces Selection Battery. (1961). Special forces locations test (DA Form 6140). Washington, DC: Headquarters, Department of the Army.

Special Forces Selection Battery. (1961). Critical decision test (DA Form 6141). Washington, DC: Headquarters, Department of the Army.

Special Forces Selection Battery. (1961). Special forces suitability inventory (DA Form 6142). Washington, DC: Headquarters, Department of the Army.

Wonderlic, E. F., & Associates, Inc. (1983). Wonderlic Personnel Test manual. Northfield, IL: Author.