Technical Report 1375

Validation of Measures for Predicting Leader Development and Assessment Course Performance

Laurie E. Wasko
Dan J. Putka
Human Resources Research Organization

Peter J. Legree
Robert N. Kilcullen
U.S. Army Research Institute

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Authorized and approved:

MICHELLE L. ZBYLUT, Ph.D.
Director

Research accomplished under contract
for the Department of the Army by:

Human Resources Research Organization

Technical review by:

Nehama Babin, U.S. Army Research Institute
Kate LaPort, U.S. Army Research Institute
Gerald F. Goodwin, U.S. Army Research Institute

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14. ABSTRACT *(Maximum 200 words)*:

The Reserve Officer Training Corps (ROTC) program is an essential source for U.S. Army commissioned officers. In early 2007, the U.S. Army Cadet Command (USACC) requested that the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) initiate research to develop and validate a non-cognitive measure to complement USACC's existing process to award four-year ROTC scholarships to those applicants who are most likely to complete to become commissioned officers. Therefore, ARI developed the Cadet Background and Experience Form (CBEF) to predict the continuance of four-year ROTC scholarship applicants in pre-commissioning programs. This report examines validity evidence for a version of the CBEF that was administered at the Leader Development and Assessment Course (LDAC) in the summer of 2010 (i.e., the CBEF L1). The CBEF L1 was validated against several performance criteria, including: (a) USACC cadet national order of merit list (OML) scores, (b) LDAC performance metrics, (c) cumulative college grade point average (GPA), and (d) Army Physical Fitness Test (APFT) scores. Although the CBEF was initially designed to predict cadet disenrollment, analyses show that the CBEF was a valid predictor of performance criteria, thereby further supporting its utility in the four-year ROTC scholarship award process. Validity evidence is also presented for leadership-oriented CBEF biodata scales, and additional non-cognitive predictors. The report provides recommendations for revising and refining CBEF.

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Tonia S. Heffner, Chief

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VALIDATION OF MEASURES FOR PREDICTING LEADER DEVELOPMENT AND ASSESSMENT COURSE PERFORMANCE

EXECUTIVE SUMMARY

Research Requirement

The Reserve Officer Training Corps (ROTC) program is an essential source for U.S. Army commissioned officers. To encourage participation in ROTC, the U.S. Army offers two-, three-, and four-year ROTC scholarships to qualified high school seniors and college students. The ROTC scholarship program is structured to award scholarships to individuals who are likely to complete the ROTC program and pursue a long-term career in the U.S. Army. Cadets who receive an Army ROTC scholarship must agree to complete a period of service with the Army or refund their scholarship support to the ROTC program.

The current project continues a research effort begun by the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) in early 2007 that was designed to help the U.S. Army Cadet Command (USACC) improve its process to award four-year ROTC scholarships. The original research effort was structured to develop and establish validity evidence for a non-cognitive selection measure to identify applicants who are most likely to complete the ROTC program and become commissioned officers. With those objectives in mind, ARI developed a new measure to improve ROTC scholarship recipient selection, the Cadet Background and Experiences Form (CBEF; Kilcullen, Robbins, & Tremble, 2009). The CBEF was developed to improve prediction of retention-related criteria beyond that currently provided by the Whole Person Score (WPS), which is based on applicant responses on the four-year ROTC scholarship application.

The primary objective of the current project was to extend previous research on the CBEF by evaluating its ability to predict cadet performance in the ROTC Leadership Development and Assessment Course (LDAC). LDAC is an intensive four week training exercise that ROTC cadets complete during the summer between their junior and senior year in college. At LDAC, cadets are evaluated on various critical dimensions of leadership, their performance in various leadership roles, and general soldiering skills such as physical fitness and navigation.

A version of the CBEF (i.e., the CBEF L1) was created specifically for this research effort, and CBEF data were collected at LDAC during the summer of 2010. The CBEF L1 contained the following scales: the CBEF biodata scales, the Work Values scale, the Tailored Adaptive Personality Assessment System (TAPAS), the Leadership Knowledge Test (LKT), and the Graphical Army Identification (GAI) test. Using data collected for the CBEF biodata scales, scores were also computed for the "CBEF operational composite," which is operationally used to help award four-year ROTC scholarships (Putka, Wasko, Kilcullen, & Legree, 2012).

Analyses were structured to evaluate the predictive validity of the CBEF L1 scales against USACC cadet performance metrics that were collected at LDAC.

Procedure

Useable CBEF L1 data were collected from 4,405 ROTC cadets who attended LDAC during the summer of 2010 (i.e., the summer between their junior and senior year of college) and matched with USACC archival records to validate CBEF L1 predictor scales.

Findings

Results indicated that the CBEF operational composite predicted the USACC cadet national order of merit list (OML) scores, which is critical to predict because it is operationally used to support officer branch assignment, as well as leadership, academic, and physical fitness metrics that comprise the OML score. Though optimized to predict disenrollment, the operational CBEF composite was able to significantly increment the validity of WPS for the prediction of cadet performance criteria, thus providing further support for its value to award four-year scholarships.

Composites formed from the CBEF biodata scales tended to outperform composites formed of all TAPAS scales for predicting various criteria, with the most notable differences emerging for OML and cumulative college grade point average (GPA) criteria. Though most of the experimental measures showed evidence of validity for predicting leadership, academic, and physical fitness criteria, only the experimental CBEF biodata (R = .51) and TAPAS scales (R = .45) showed consistent evidence of incremental validity (across criteria) over and above components of the existing four-year scholarship award process (i.e., WPS and operational CBEF scores). Additionally, the Work Values and GAI scales also exhibited evidence of incremental validity, but only for predicting academic and physical fitness criteria over the WPS and operational CBEF scores.

With regard to individual constructs, predictor scales related to physical fitness were the strongest predictors of the OML-LDAC performance variables, as indicated by the relationships between the criteria and the CBEF Fitness Motivation and Tolerance for Injury biodata scales, as well as the TAPAS Physical Conditioning scale. Of the constructs specific to cadet leadership, the CBEF Interest in Leadership biodata scale was an important predictor of the leadership performance variables. Achievement related scales (e.g., CBEF Achievement, TAPAS Achievement) showed the most promise as predictors of academic criteria (e.g., GPA).

Use and Dissemination of Findings

The findings in this report provide further foundation establishing the criterion-related validity of the CBEF for predicting valued ROTC program outcomes, including leadership, academic, and physical performance variables. The results of this project can help inform revisions of the CBEF, as well as judgments about which of its scales may be most useful to complement the existing scholarship award process.

New experimental scales that have been linked to long-term officer continuance and advancement have recently been identified, and these should be added to the CBEF in future LDAC data collections so that the potential for these new scales to predict ROTC leadership outcomes can be evaluated. Lastly, data gathered from previous cohorts as part of early CBEF validation efforts (e.g., Putka et al., 2012) should be validated against LDAC criterion data collected in subsequent years.

VALIDATION OF MEASURES FOR PREDICTING LEADER DEVELOPMENT AND ASSESSMENT COURSE PERFORMANCE

CONTENTS

Page

CONTENTS (Continued)

Page

APPENDICES

Page

TABLES

Page

Page

VALIDATION OF MEASURES FOR PREDICTING LEADER DEVELOPMENT ASSESSMENT COURSE PERFORMANCE

Chapter 1: Overview and Background

The Reserve Officer Training Corps (ROTC) is an essential commissioning source for the U.S. Army. To encourage participation in ROTC, the U.S. Army offers two-, three-, and four-year ROTC scholarships to qualified high school seniors and college students. The ROTC scholarship program is structured to award scholarships to individuals who are likely to complete the ROTC program and pursue a long-term career in the U.S. Army. Although a scholarship is not required to be enrolled in ROTC, cadets who receive an ROTC scholarship must agree to complete a set period of service with the U.S. Army upon graduation.

Past research has indicated that officers who were awarded four-year ROTC scholarships were more likely than their U.S. Military Academy (USMA), Officer Candidate School (OCS), and non-scholarship ROTC counterparts to leave the U.S. Army after their initial Active Duty Service Obligation (ADSO; Doganca, 2006). Toward that end, the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) initiated a research project in 2007 that was designed to help the U.S. Army Cadet Command (USACC) improve its process to award four-year ROTC scholarships.

The short-term goal of that project was to develop a new measure, the Cadet Background Experiences Form (CBEF) that improves program continuance for four-year ROTC scholarship recipients beyond the level of prediction already provided by the current scholarship award process (Putka, 2009). The initial form of the new measure was designated CBEF Experimental #1 (CBEF X1) and was designed to improve prediction beyond the Whole Person Score (WPS), which is based on applicant responses on the scholarship application form.[1] The long-term objective of the project was to provide the foundation for longitudinal research that would examine the ability of the new measures to predict ROTC performance, ROTC program completion, commissioning status, and career continuance and performance in the U.S. Army.

The current research effort addresses the project's long-term goals; specifically, it extends previous research on the CBEF biodata and Work Values scales by evaluating their ability to predict performance on the USACC cadet national order of merit list (OML) and in the Leadership Development and Assessment Course (LDAC). LDAC is an intensive four-week training experience that ROTC cadets complete during the summer between their junior and senior year in college. This course is also known as "Advanced Camp" and consists of a variety of field exercises. At LDAC, cadets are evaluated on various critical dimensions of leadership, performance in various leadership roles, and general soldiering skills such as physical fitness and land navigation. USACC uses OML scores to influence officer branch assignment upon commissioning. In addition to evaluating the potential of these CBEF scales for predicting the OML and LDAC criteria, this research effort also extends the content of the CBEF and evaluates the criterion-related validity evidence for three other ARI non-cognitive measures that were added to the battery.

[1] Tremble and Russell (2009) summarize use of the Whole Person Score to award four-year ROTC scholarships.

The following section provides a brief description of the existing procedure for selecting four-year scholarship recipients. Then, given the novel composition of the CBEF version administered at LDAC (i.e., CBEF L1) and the evolution of the CBEF over time, we provide a synopsis of the history of the CBEF and an introduction to the non-cognitive measures that were included in the current version. With this information as a backdrop, we then discuss the role of the current project in further refining and evaluating the CBEF for use in awarding four-year ROTC scholarships.

Existing Procedures for Selecting ROTC Scholarship Recipients

Typically, students apply for four-year ROTC scholarships during their junior or senior year in high school. The U.S. Army Cadet Command (USACC) oversees the Army's ROTC program and admits cadets based on the Army's projected leadership requirements. Applications are reviewed and candidates are considered eligible if (a) they have a high school grade point average (GPA) of 2.5 or greater, (b) their ACT score is greater than or equal to 19 or their SAT score is greater than or equal to 920, and (c) they meet date of birth requirements. Eligible candidates are then interviewed in cycles, either at a local ROTC program or the school they are interested in attending. Interviews are conducted by professors of military science (PMS), who complete an interview form that is forwarded to USACC. When a sufficient number of interviews have been completed, selection boards are convened to review applications and assign a Whole Person Score (WPS) to each applicant. The WPS has reflected the following components: (a) SAT/ACT scores, which were rescaled and allotted a maximum of 249 points; (b) Scholar-Athlete-Leader (SAL) scores based on the four-year application, which were rescaled and allotted a maximum of 201 points; (c) PMS interview scores, which were rescaled and allotted a maximum of 200 points; and (d) promotion board scores, which were allotted a maximum of 350 points. Thus, the maximum total WPS an applicant could historically receive was 1,000 points.[2]

Based on the WPS, applicants are placed on a four-year ROTC scholarship award list with offers extended in a top down fashion. The number of offers reflects a variety of factors including the quality of applicants, the number of slots to be filled, and the available funds. Offers are made for up to three schools to which the applicant has applied for admission. If the applicant fails to get into the schools on his or her list, or decides to attend a different institution, USACC has the flexibility to make alternate accommodations. Once an offer is made, the student has 30 days to accept or decline. If no response is received, the offer is withdrawn. Students who are not made an offer may be reconsidered by subsequent selection boards based on their original application and resulting scores.

Description of the CBEF L1

To date, the CBEF has undergone three primary revisions, resulting in four versions of the test battery. At the core of all versions of the CBEF are a set of rationally-keyed biodata

[2] Four-year ROTC scholarship applicants can now receive up to 1200 points on the WPS because the CBEF HS was integrated into the WPS and assigned up to 200 points in February 2010. When project data were collected, the PMS Interview and Promotion Board scores had not been systematically documented in the USACC applicant database. Unless noted, results involving the WPS in this report reflect only the administrative components of the WPS score (i.e., SAT/ACT and SAL scores).

scales designed to assess various temperament constructs hypothesized to relate to cadet and officer retention. Table 1.1 provides a version history of the CBEF, along with a description of the cohorts to which each version has been administered. Appendix A provides a listing of content measured by each version of the CBEF. For a detailed description of the changes made to each CBEF version, refer to Putka, Wasko, Kilcullen, and Legree (2012).

The version of the CBEF under investigation in this research effort, the CBEF L1, was created specifically for paper-and-pencil administration to cadets attending LDAC during the summer of 2010 (i.e., the summer between the cadets' junior and senior year of college). The CBEF L1 is composed of the seven core biodata scales that are included in the CBEF High School Applicant (CBEF HS) form, and experimental biodata scales that are hypothesized to predict leadership behaviors and military performance (e.g., the Peer Leadership, Leadership Self-Efficacy scales). In addition to the biodata scales, the CBEF L1 includes the 11 Work Values scales from previous CBEF versions, the Tailored Adaptive Personality Assessment System (TAPAS), the Leadership Knowledge Test (LKT), and the Graphical Army Identification (GAI) Test. These measures are described in more detail in Chapter 2.

Table 1.1. ***CBEF Version History and Predictor Data Collection Cohorts***

Cohort	CBEF Version	Description of Cohort	Dates of Administration	Mode of Administration
1. F06 (Freshman in 2006)	CBEF X1	~1,000 cadets who received four-years ROTC scholarships and were freshman in Academic Year (AY) 2006-07	Spring 2007	Paper-and-pencil administration by PMSs
2. F07	CBEF X1	~790 cadets who received four-years ROTC scholarships and were freshman in Academic Year AY 2007-08	Summer 2007	E-mail invitation by ARI to participate in online survey hosted by ARI in an unproctored setting
3. F08	CBEF X2	~ 250 individuals offered four-year ROTC scholarship in 2007 to start in AY 2008-09	Fall & Winter 2007	E-mail invitation by ARI to participate in online survey hosted by ARI in an unproctored setting
4. F10	CBEF HS	~2,100 online applicants for a four-year ROTC scholarship beginning 20 Nov 2009 for AY 2010-11	20 Nov 2009 to 15 Feb 2010[1]	Integrated into four-year online application on USACC website
5. F11	CBEF HS	~ 6,000 online applicants for a four-year ROTC scholarship beginning 1 Feb 2010 for the AY 2011-12	1 Jun 2010 to 15 Feb 2011	Integrated into four-year online application on USACC website
6. LDAC F07	CBEF L1	~4,400 cadets attending LDAC in the summer before their senior year of college. Includes approximately 300 four-year ROTC scholarship recipients from Cohort 2 (F07)	Summer 2010	Paper-and-pencil administration by LDAC Cadre

Notes. [1]The deadline for starting new applications for Academic Year (AY) 10-11 was 10 Jan 2010, with the deadline for completing AY10-11 applications of 28 Feb 2010 (personal communication, Linda Matthews, 9 August 2010). The cutoff date used to define the F10 Cohort was 15 Feb 2010 and corresponds to the date through which the extract of item-level CBEF data were current.

Summary of Past Findings

In earlier stages of this research program, Putka et al. (2012) examined the relationship between a core set of CBEF biodata scales and cadet performance variables. Predictor data were gathered in a research setting from three cadet groups (i.e., the F06, F07, and F08 Cohorts listed in Table 1.1), while performance data for these groups (e.g., disenrollment from ROTC, cumulative college GPA, LDAC scores) were gathered from archival sources and updated through January 2010. The research effort also examined the basic functioning of the CBEF HS scales from data gathered in an operational setting (i.e., data gathered from actual four-year scholarship applicants as part of their scholarship application process). Lastly, based on the criterion-related validity data for predicting disenrollment, an operational CBEF composite was created. This composite was evaluated, recommended for operational implementation as part of the four-year scholarship award process, and implemented in the 2012-2013 academic year to make scholarship award decisions. The operational CBEF composite is composed of seven CBEF scales: (a) Achievement Orientation, (b) Army Identification, (c) Fitness Motivation, (d) Hostility to Authority, (e) Self-Efficacy, (f) Stress Tolerance, and (g) Response Distortion.

When evaluating individual CBEF scales in a research setting, Putka et al. (2012) found that the seven CBEF core biodata scales showed statistically significant levels of validity and incremental validity, beyond the administrative components of the WPS, for predicting a wide range of retention and performance criteria (see Table 1.2). Thus, from the standpoint of criterion-related validity evidence, the CBEF core biodata scales showed clear potential for adding value to the four-year ROTC scholarship awarding process.

Putka et al. (2012) also examined the functioning of individual CBEF biodata scales under operational conditions (i.e. using applicant data). Results indicated that the CBEF scales (a) appeared reliable, (b) had meaningful variance as evidenced by their intercorrelations and correlations with components of the WPS, and (c) exhibited relatively small subgroup differences. Moreover, three of the key scales that had been consistently linked to retention-related criteria (Army Identification, Fitness Motivation, and Self-Efficacy) exhibited only small to moderate elevation in scores in the applicant sample. There were, however, several CBEF core biodata scales that exhibited sizable elevation in an applicant sample relative to the research samples, as well as notably higher correlations with the CBEF Response Distortion scale in the applicant sample. Therefore, results examining the CBEF HS were mixed.

Though Putka et al.'s (2012) findings regarding the functioning of individual CBEF scales under operational conditions were mixed, the functioning of the CBEF composite scores recommended for operational use were positive. Specifically, the CBEF composite scores were reliable and normally distributed among applicants, were uncorrelated with the CBEF Response Distortion scale, did not exacerbate subgroup differences associated with the existing WPS, and exhibited meaningful correlations with components of the WPS. Lastly, though moderate levels of elevation were present in the CBEF composite scores among applicants relative to cadet scores in one of the research cohorts (d = .70; F06), far less elevation was found compared to scores of cadets' in the second cohort examined (d = .41; F07).

Table 1.2. ***Summary of Prior Validity Evidence for the Core Biodata Scales***

	Cohort 1 (F06)		Cohort 2 (F07)	
Criterion	*R*	Δ*R*	*R*	Δ*R*
Retention Criteria				
Disenrollment	.17	.17	.07	.07
Self-Rated Likelihood of Completing ROTC	.47	.47	-	-
Self-Rated Likelihood of Making the Army a Career	.47	.36	.37	.23
Performance Criteria				
Cumulative Overall GPA	.43	.04	.33	.03
Army Physical Fitness Test (APFT) Score	.40	.15	.40	.12
OML Score	.48	.07	-	-
OML: LDAC Performance Score	.34	.12	-	-
OML: LDAC Platoon Tactical Evaluation Score	.27	.06	-	-
OML: LDAC Land Navigation Score	.28	.05	-	-
OML: PMS Potential Score	.38	.09	-	-

Note. Results are drawn from Table 3.9 in Chapter 3 of Putka et al. (2012). *R* is the multivariate correlation between the linear composite of seven CBEF core scales and the given criterion, and is one form of expressing statistical criterion-related validity. Δ*R* is the increment in validity of the seven core CBEF scales beyond the administrative components of the WPS for predicting the given criterion. Performance criteria results are based on data corrected for multivariate range restriction. All *R*s and Δ*R*s are statistically significant ($p < .05$, one-tailed).

Current Project Objectives and Goals

The primary objective of the current project was to further research on the CBEF by evaluating its ability to predict cadet performance in LDAC. Initial evidence supported the CBEF's utility in predicting LDAC performance outcome. However, the utility of those analyses were limited because (a) the CBEF has been expanded, and (b) the data were collected from only four-year scholarship winners (Putka et al., 2012). The current project extends the research base by examining the relationship between the CBEF biodata and Work Values scales and LDAC performance scores collected from approximately 4,400 cadets who attended LDAC in the summer of 2010. In addition to evaluating the potential of the CBEF biodata and Work Values scales for predicting LDAC criteria, the research effort evaluated the criterion-related validity for three additional non-cognitive measures that were included in the CBEF L1 (i.e. the TAPAS, LKT, and GAI Test).

Overview of Report

The remaining chapters of this report summarize our effort in meeting the research effort's objectives. Chapter 2 provides an overview of the data collection effort and databases constructed. Chapter 3 provides a psychometric evaluation of the individual scales comprising the CBEF L1. Chapter 4 provides initial criterion-related validity evidence for the CBEF L1 in the form of bivariate relationships. Chapter 5 provides a more in-depth evaluation of the validity of the CBEF L1 in the prediction of performance outcomes. Chapter 6 summarizes recommendations for future research on the CBEF.

Chapter 2: Data Collection Methods and Database Construction

Before CBEF L1 data collection began, we finalized the content of the CBEF L1 measures. Specifically, we identified: (a) content for a Background Information Form to be completed by cadets; (b) experimental and core biodata scales from the CBEF HS, (c) TAPAS scales that would be administered, and (d) promising scales from ARI officer research projects (e.g., Leadership Self-Efficacy, Peer Leadership; Allen & Young, 2012). The ARI Institutional Review Board (IRB) approved all procedures that were used to collect and analyze project data.

Participants

All ROTC cadets who attended LDAC during the summer of 2010 were asked to voluntarily participate in this project. These cadets were between their junior and senior years of college. CBEF L1 predictor data were collected from 4,405 cadets within the first few days after their arrival at LDAC. Predictor test administration lasted approximately 90 minutes per cadet. Data were collected over a 7-week period starting on 14 June 2010.

Predictor Measures

Cadet Background Experience Form (CBEF) Biodata Scales. The CBEF L1 contains a set of rationally keyed biodata scales designed to assess various temperaments believed to be related to cadet performance and continuance. Developing a rational biodata instrument involves identifying motivational constructs (e.g., Achievement Orientation) that are judged as likely to predict the criterion of interest, and writing items to sample behaviors believed to be manifestations of these constructs. Item responses are rationally scored based on their anticipated relationship to the construct, and item scores are summed to form scale scores with substantive meaning. All of the CBEF biodata scales are on a 5-point metric ranging from 1 (lower standing on the trait of interest) to 5 (higher standing on the trait of interest). CBEF scale definitions are listed in Appendix A. The CBEF also includes a Response Distortion subscale that is used to detect and adjust for socially desirable responding that might not accurately reflect the individual's true feelings or tendencies. We do not provide detailed example items for the CBEF or the other predictor scales because these scales are operationally used.

Tailored Adaptive Personality Assessment System (TAPAS). TAPAS is an item response theory (IRT) based computer adaptive personality assessment capable of measuring up to 22 lower-order facets of the Big Five factor model (Drasgow, Stark, & Chernyshenko, 2006; Stark, Drasgow, & Chernyshenko, 2008). The TAPAS was developed to assess personality traits in the enlisted accessions process, and is typically administered in the computer-adaptive format. A research version of TAPAS, which assesses 12 dimensions in a paper-and-pencil format with 95 paired-response items, was used to avoid technical challenges of administering a computerized test in field conditions. Descriptions of the TAPAS scales administered as part of this research effort are in Appendix A. TAPAS uses a multidimensional pairwise preference (MDPP) item type scored using ideal-point IRT methods. The MDPP format is designed to be more faking-resistant than traditional personality assessments, which use standard Likert-type response formats. TAPAS items contain two response statements assessing different personality facets but which have similar levels of social desirability. Because both response statements in the item pair are designed to be equally positive or negative, it is more difficult for respondents

to determine which response statement will generate a "better" score, and therefore makes it difficult to portray themselves as a more qualified candidate (i.e., "fake good").

Work Values Scale. The Work Values scale lists 11 work-related values (e.g., pay, recognition) that respondents rank order and identify as either important or not important. Descriptions of the Work Values scales administered as part of this project can be found in Appendix A. Each Work Values item was scored such that: 0 indicates the value is neither important nor unimportant to the individual, a positive score indicates the degree to which a given work value is important to an individual (in *z*-score units), and a negative score indicates the degree to which a given work value is unimportant to the individual (in *z*-score units). In addition to computing 11 Work Value scale scores, an "Officer Fit Index" was calculated as the Spearman rank-order correlation between an individual's profile of values across the 11 Work Value items, and the Army junior officer mean work-value profile. Putka et al. (2012) provides additional information on the scoring of the Work Value scales.

The Minnesota Importance Questionnaire Work Importance Profiler algorithm was used to score the Work Values scales. A key benefit of this method is its ability to provide a better approximation of persons' normative standing on each work value than would be possible based on rank-order information alone (Hicks, 1970). This result is achieved by using data from the final step in the assessment (i.e., differentiating between important and unimportant values to each respondent) to establish an individual zero-point on each value's importance scale. Establishing such a zero-point allows for more meaningful between-person comparisons because the ipsativity of the assessment is reduced (Gay, Weiss, Hendel, Dawis, & Lofquist, 1971). Knapp, Sager, and Tremble (2005) provide an in-depth description of this algorithm.

Leader Knowledge Test (LKT). The LKT is designed to assess individual differences related to implicit leadership theories (ILTs). ILTs refer to beliefs and assumptions that individuals hold regarding the characteristics and traits necessary for effective leaders. The LKT presents a list of 30 traits and 30 skills (derived from leadership and personality literature) and instructs respondents to rate the importance of each trait or skill to performing successfully as a Company Grade leader (see Appendix A). The scoring of the LKT involves calculating two Pearson correlation based "C-scores". The trait C-score indexes the correlation between a cadet's vector of importance ratings for the 30 traits and a keyed, mean importance profile based on responses of a group of Captains to the trait statements. The skills C-score indexes the correlation between a cadet's vector of importance ratings for the 30 skills and a keyed, mean importance profile based on responses of a group of Captains to the skill statements. Though C-scores could potentially range from -1.0 to +1.0, negative Characteristics C-scores for 180 cadets (4.7% of the 3,825 cadets who had clean Characteristics data) and negative Skills C-scores for 199 cadets (5.2% of the 3,815 cadets who had clean Skills data) were treated as invalid for purposes of analysis out of concerns that such scores reflected misunderstanding of cadets on how to use the LKT importance scale.[3]

[3] Criterion-related validity analyses for LKT scores were initially run two ways. One way used LKT data from cadets regardless of whether their C-scores were negative or positive, and the other way only used LKT data from cadets if they had a positive C-scores. The validities for the latter sample of cadets were slightly higher than validities for the former sample. This pattern provides some evidence for the hypothesis that cadets with negative

Graphical Army Identification (GAI) Test. The GAI test comprises three items designed to capture the extent to which an individual identifies with the U.S. Army. For each item, cadets are presented with a series of seven graphics and a set of instructions describing the graphics. They are asked to identify the graphic that most accurately represents the (a) extent to which they identify with the U.S. Army, (b) U.S. Army's place in their self-concept, and (c) level of consistency in their identification with the U.S. Army. Scores on each item range from 1 (low levels of identification) to 7 (high levels of identification); the three ratings (Identity, Magnitude, and Stability) are averaged to create an overall GAI score.

Whole Person Score (WPS). The WPS had been used by USACC to award four-year ROTC scholarships to applicants who were most likely to excel in university programs. The WPS scores were obtained from the Scholarship Application Database, which is maintained by USACC. The WPS scores are available for only four-year ROTC scholarship applicants and reflect a combination of applicant scores based on the: SAT/ACT, scholastic accomplishments, athletic accomplishments, leader accomplishments, Professors of Military Science (PMS) interviews, and PMS board evaluations.

Test Forms

Because of the potential for respondent fatigue effects during test administration, two versions of the predictor battery were created for use in the current project. Form A had students completing the CBEF first, followed by the Work Values, GAI, TAPAS, and LKT scales, while Form B had students completing the TAPAS first, followed by the LKT, CBEF biodata scales, Work Values, and the GAI.

Criterion Measures

After the completion of LDAC, USACC provided cadet OML scores and LDAC outcome data. Analyses focused on predicting the performance of four-year ROTC scholarship winners for whom WPS scores were available. Usable predictor and criterion data were obtained for approximately 1,500 cadets with four-year ROTC scholarships.

USACC collects a rich set of performance measures on all cadets who complete LDAC. More important, USACC treats these measures as indicators for subsequent officer performance and uses these measures for branch assignment. The performance metrics collected after LDAC include the following:

LDAC Leader Performance Scores. LDAC leader performance scores reflect ratings on key leadership dimensions and performance in leader roles. Ratings were provided by the LDAC training cadre based on cadet performance across multiple exercises.

LDAC Platoon Tactical Evaluation Scores. LDAC platoon tactical evaluation scores represent assessments from the cadet's platoon leader while at LDAC.

C-scores may have misunderstood the instructions for the LKT's importance scale and inadvertently reversed the scale when responding to the LKT. As such, we decided to base LKT-related validation analyses on only those cadets who had positive C-scores.

LDAC Land Navigation Scores. LDAC land navigation scores represent individual cadet performance on a standardized land navigation task.

LDAC Army Physical Fitness Test (APFT). As part of LDAC, all cadets are required to complete a scored APFT. This APFT score represents the cadet's general level of physical fitness at the time of LDAC. The APFT includes components of push-ups, sit-ups, and a two-mile run. The APFT is scored using gender- and age-based norms to produce an overall score with a maximum of 300 points.

Officer Potential Evaluation Ratings. Officer potential ratings were provided by PMS who interacted with cadets on an ongoing basis at ROTC and LDAC.

USACC Cadet National Order of Merit List (OML) Scores. OML scores reflect the overall performance of the cadet over the entire ROTC program. OML scores are calculated based on the following metrics: cadet college GPA, LDAC leader performance scores, LDAC platoon evaluation scores, PMS officer potential evaluation ratings, and APFT test scores. OML scores are used by USACC to guide branch assignments when cadets become U.S. Army commissioned officers. Thus OML is the most critical outcome to predict.

Database Construction

The project database was developed by merging the CBEF L1 data with archival records that were collected by USACC to monitor and administer the ROTC programs. The archival records correspond to data contained in the ROTC Scholarship Applicant Database, the USACC Information Management System (CCMIS), and the Student Management Database. All the datasets contained person identifiers that were used to merge the information and create a new dataset. This new dataset was used to conduct the analyses that are described in this document.

CBEF L1 Data. The CBEF L1 data were collected from 4,405 ROTC cadets who attended LDAC during the summer of 2010 by the LDAC Training Cadre (i.e., course instructors). The LDAC Training Cadre had been instructed to administer the measures, and the CBEF L1 questionnaire corresponded to a paper-and-pencil measure. The CBEF L1 questionnaires were electronically scanned and form the basis of the project dataset.

USACC Archival Records. The first source of archival records corresponded to the ROTC Scholarship Application Database. This dataset contained records collected from applicants for four-year ROTC scholarships (e.g., high school grades, SAT/ACT scores, and indicators of participation in high school activities). This information was collected to create applicant Whole Person Scores and award ROTC scholarships. In addition, the Scholarship Applicant Database contains demographic information, ROTC school preferences, expected academic major, and applicant scholarship status (i.e., accepted, declined, or withdrawn).

The second source of archival records corresponded to the CCMIS Dataset. The CCIMS dataset was used to obtain cadet OML scores and LDAC performance data. Indicators of cadet performance at LDAC are used to compute cadet OML scores, and OML scores influence officer

branch assignments upon commissioning. USACC provided data for all students who completed LDAC during the summer of 2010 (n = 6,317).

The third source of archival records corresponded to the Student Management Database. The Student Management Database contains much of the information that is used to develop cadet OML score and contract with the U.S. Army (e.g., college GPA, APFT scores, age, dependents).

Data Merging and Cleaning. After collecting the CBEF L1 data, the information was cleaned and processed for basic errors (e.g., invalid personal identifiers). The CBEF L1 data were then merged with information from: (a) the USACC Scholarship Applicant Database (e.g., Whole Person Scores); (b) the USACC's Student Management data (e.g. college GPA, college APFT scores, enrollment status), and (c) LDAC performance data.

The resulting validation database held records for 7,769 individual cadets. Of those cadets, 4,405 (56.7%) completed the CBEF HS as part of the scholarship application process. The OML criterion data (i.e. the criterion data of primary interest in this research effort) were available for 4,455 cadets.

With the validation database constructed, we screened the CBEF L1 for missing data (i.e., no more than 10% of items missing on any individual measure), as well as for random or patterned responding. This screening eliminated CBEF biodata for 413 of 4,405 cadets (9.4%), Work Values data for 2,362 cadets[4] (53.6%), TAPAS data for 461 cadets (10.5%), LKT data for 580 cadets[5] (13.2%), and GAI data for 556 cadets (12.6%). Forty individuals whose commissioning source was listed as something other than ROTC (e.g., USMA) were also excluded from the dataset.

[4] A significant amount of Work Values data were dropped due to a high proportion of cadets who failed to use the Work Values response scale according to the instructions.
[5] This percentage does not include those Cadets with LKT C-scores that were less than zero.

Chapter 3: Basic Psychometric Properties of the CBEF and Key Criterion Measures

This chapter describes the basic psychometric properties of the CBEF L1 scales, as well as the key criteria that were used for the validity analyses described later in the report. For the predictor variables, we examine (a) distributional properties (e.g., mean, standard deviation), (b) reliability estimates, (c) subgroup differences, and (d) correlations among the predictor scales. For the criterion variables we examine (a) distributional properties, (b) subgroup differences, and (c) correlations among the criteria. An additional examination of the predictors' psychometric properties, examined separately by test form, can be found in Appendix B. All analyses presented are for cadets who were awarded a four-year ROTC scholarship.

Basic Psychometric Properties of the Predictor Scales

Table 3.1 presents the distributional properties of the CBEF core biodata scales, experimental CBEF biodata scales (i.e., scales not included in the operational CBEF composite), and Work Values scales for four-year scholarship recipients.[6] Among the core biodata scales, score variance and internal consistency reliability estimates were acceptable, with a few exceptions.[7] Specifically, the reliability estimates for Stress Tolerance and Hostility-Social Maturity were both somewhat low (α = .66). Score variance for these scales was also somewhat low (*SD* = .45 for Stress Tolerance and .46 for Hostility-Social Maturity), which likely contributed to their lower reliability estimates. For the remaining biodata scales, Hostility to Authority, Social Maturity, and Social Interests exhibited reliability estimates less than .70.[8] Similar to previous research, Manipulativeness exhibited a marginal reliability estimate (α = .67) despite the fact that the scale has eight items. No estimates of internal consistency reliability were calculated for the Work Values scales given their rank-order nature.

Means and standard deviations of the CBEF biodata and Work Values scales were similar to those found in previous research (Putka et al, 2012). Means of the substantive core biodata scales (i.e., all core scales except Response Distortion) ranged from 2.51 (Hostility-Social Maturity) to 4.32 (Self-Efficacy) on a 5-point scale. For the experimental CBEF biodata scales, means ranged from 2.03 (Social Maturity) to 4.21 (Leadership Self-Efficacy). Mean scores on the Work Values scales ranged from -0.15 (Recognition) to 1.29 (Selfless Service). The metric for the Work Values scales is such that 0 indicates a value is neither important nor unimportant to an individual, positive values indicate the degree to which a given work value is important to an individual (in *z*-score units), and negative values indicate the degree to which a given work value is unimportant to the individual (in *z*-score units).

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[6] This composite is a weighted combination of CBEF L1 biodata scales that were administered to the ROTC cadets, not scholarship applicants. The elements and weighting of this composite (in terms of CBEF scales included) reflects what is used operationally as part of the four-year ROTC scholarship application process. Thus, we refer to this composite as the "operational CBEF composite" throughout this report.

[7] The Response Distortion scale was not designed to be an internally consistent scale. It is a heterogeneous set of indicators of socially desirable responding. Because of this heterogeneity, the modest coefficient alpha reported for this scale should not be concerning and is not interpreted as such.

[8] The Hostility-Social Maturity scale included in the operational CBEF composite includes two individual subscales, Hostility and Social Maturity, which may be used for different purposes in the future. Therefore, both the combined and independent subscales are evaluated in the analyses reported in this chapter.

Table 3.1. ***Descriptive Statistics and Internal Consistency Reliability Estimates for CBEF Biodata and Work Values Scales***

		Four-Year Scholarship Recipients			
Predictor	*k*	*M*	*SD*	Skew	Coef α
Operational CBEF composite		84.40	43.66	-0.09	
Core CBEF Biodata Scales					
Achievement	9	4.01	0.52	-0.44	0.73
Army Identification	11	3.94	0.61	-0.87	0.85
Fitness Motivation	8	3.68	0.63	-0.18	0.78
Hostility-Social Maturity	9	2.51	0.46	0.34	0.66
Self-Efficacy	6	4.32	0.41	-0.37	0.73
Stress Tolerance	11	3.09	0.45	-0.02	0.66
Response Distortion	7	0.06	0.11	2.20	0.40
Experimental CBEF Biodata Scales					
Hostility to Authority	5	2.90	0.54	0.10	0.56
Social Maturity	4	2.03	0.56	0.65	0.56
Manipulativeness	8	2.50	0.47	0.26	0.67
Tolerance for Injury	5	3.63	0.71	-0.38	0.72
Instrumentality of ROTC to Career Goals	4	2.70	0.82	-0.04	0.72
Interest in Leadership	6	3.72	0.62	-0.27	0.80
Leadership Self-Efficacy	6	4.21	0.45	-0.41	0.75
Peer Leadership	6	3.61	0.59	-0.10	0.77
Selfless Service	6	4.08	0.53	-0.41	0.71
Social Interests	5	3.77	0.59	-0.38	0.69
Work Values					
Selfless Service	1	1.29	1.11	-0.60	
Leadership Opportunities	1	0.87	0.89	-0.17	
Recognition	1	-0.15	1.05	0.32	
Pay	1	0.88	1.02	-0.17	
Structured Work	1	0.07	0.99	0.28	
Comfortable Work Environment	1	0.36	1.06	0.29	
Work Close to Home	1	0.04	1.07	0.48	
Challenge	1	0.92	0.88	-0.13	
Self-Direction	1	0.40	0.88	-0.04	
Teamwork	1	0.57	0.94	-0.17	
Variety	1	0.52	0.96	-0.23	
Officer Fit Index [a]	1	0.24	0.40	-0.42	

Note. n = 1,583 – 1,584 for the CBEF biodata scales. n = 838 for Work Values scales.
[a] Officer Fit Index = Spearman rank-order correlation between an applicant's profile of Work Values and the Army junior officer mean profile provided by students at the Army's Captain's Career Course. No reliability estimate is provided for the officer fit index because the Work Value scales that comprise it are partially ipsative.

The basic psychometric properties of the TAPAS, LKT, and GAI scales were also acceptable (see Tables 3.2 and 3.3). For the TAPAS scales, mean scores for Achievement, Even Temper, Intellectual Efficiency, Physical Conditioning, and Optimism were positive, while the mean scores for the remaining scales were negative. Physical Conditioning received the highest score (0.37), while Tolerance received the lowest scores (-0.78). We were unable to evaluate the internal consistency reliability estimates for the TAPAS scales due to the forced-choice nature of the measure. For the LKT, the Characteristics C-score was higher than the Skills C-score, had less variance, and was more negatively skewed. Lastly, the Magnitude score was the highest of

the GAI scales (5.20), followed by Stability scores (4.75), and finally Centrality scores (4.14). The three items that make up the GAI overall score seemed to be assessing the same construct, as indicated by its internal consistency reliability estimate of 0.82.

Table 3.2. ***Descriptive Statistics for TAPAS Scales***

	Four-Year Scholarship Recipients		
Predictor	*M*	*SD*	Skew
Achievement	0.04	0.67	-0.27
Curiosity	-0.17	0.67	0.13
Non-Delinquency	-0.27	0.60	-0.15
Dominance	-0.05	0.60	-0.33
Even Temper	0.18	0.60	0.08
Intellectual Efficiency	0.01	0.72	0.12
Adjustment	-0.18	0.68	0.40
Physical Conditioning	0.37	0.77	0.12
Responsibility	-0.23	0.59	0.56
Tolerance	-0.78	0.79	0.62
Trust-Cooperation	-0.58	0.57	0.43
Optimism	0.03	0.63	0.03

Note. n = 1,568.

Table 3.3. ***Descriptive Statistics for LKT and GAI Scales***

		Four-Year Scholarship Recipients			
Predictor	*k*	*M*	*SD*	Skew	Coef α
Leadership Knowledge Test (LKT)					
Characteristics C-Score	30	0.70	0.17	-1.57	--
Skills C-Score	30	0.62	0.19	-1.03	--
Graphical Army Identification (GAI)					
Overall Identity Score	3	4.70	1.13	-0.42	0.82
Identity Magnitude Score	1	5.20	1.11	-0.80	
Identity Centrality Score	1	4.14	1.47	0.03	
Identity Stability Score	1	4.75	1.36	-0.55	

Note. n = 1,492 for the LKT's Characteristics C-Score, and 1,473 for the Skills C-Score. n = 1,522 for the GAI scales and Overall Identity Score.

Lastly, we examined the basic psychometric properties of the Whole Person Score (WPS) and its components. As indicated in Table 3.4, the mean WPS among four-year scholarship recipients attending LDAC during the summer of 2010 was 238.58 (*SD* = 40.43). Contrasted with the mean WPS among all AY06-07 applicants of 152.62 (*SD* = 107.24)[9], it is clear the sample of four-year scholarship recipients used in our analysis were subject to a substantial level of range restriction.[10]

[9] WPS estimates for AY06-07 applicants were based on analyses of the ROTC Scholarship Applicant Dataset.
[10] Recall from Chapter 1 that only the administrative components of the WPS were available for examination in this research effort. As such, the maximum possible point values for the average WPS reported here were 450.

Table 3.4. ***Descriptive Statistics for Whole Person Scores and Components***

	Four-Year. Scholarship Recipients		
Predictor	*M*	*SD*	Skew
Whole Person Score	238.58	40.43	0.00
SAT/ACT Points	157.55	32.10	0.29
Scholar Points	19.188	10.47	-0.43
Athlete Points	30.09	13.66	-0.78
Leader Points	31.75	11.65	-1.09

Note. n = 913.

Correlations among Predictor Scales

To check for redundancy among the predictors, we examined the correlations among all 48 individual scales and associated composites for the four-year scholarship recipient group (see Appendix C). Correlations between the predictors and the Whole Person Score were also calculated where data were available (see Tables 3.5 to 3.7).

Non-cognitive Predictor Correlations with the Operational CBEF Composite. The operational CBEF composite showed a pattern of meaningful relationships with the other non-cognitive predictor scales, with no evidence to suggest redundancy in measurement. Similar to previous results (e.g., Putka et al., 2012), the composite was minimally correlated with the CBEF Response Distortion scale (r = -.08) and moderately to strongly correlated with the remaining biodata scales, with relationships ranging from r = -.22 for Manipulativeness, to r = .78 for Army Identification. Similar to previous research, there was a moderate relationship between the biodata composite and the officer fit index (r = .36), providing evidence for the validity of the composite in predicting fit with the junior officer work value profile. When examining relationships between the operational CBEF composite and individual Work Values scales, the strongest relationships were between the composite and Comfortable Work Environment (r = -.33), Work Close to Home (r = -.25), and Challenge (r = .25).

Regarding relationships between the operational CBEF composite and TAPAS scales, the strongest relationships were found for those TAPAS scales purported to measure constructs similar to the individual CBEF scales forming the composite; specifically, the Achievement (r = .26), Dominance (r = .34), and Physical Conditioning (r = .28) TAPAS subscales. Lastly, the operational CBEF composite was minimally related to the LKT subscales (with an average correlation of .08), but showed fairly strong relationships with the GAI scales, where the lowest correlation between the composite and the Identity Stability score (r = .49) and the highest correlation between the composite and the Identity Centrality score (r = .52). Conceptually, the strength of the relationships with the GAI scales is understandable because the CBEF Army Identification scale is included in the operational CBEF composite. Regardless, the magnitudes of correlations reported above are not strong enough to conclude that the GAI scales are redundant with the operational CBEF composite or CBEF Army Identification scale.

Correlations among Non-Cognitive Predictor Scales. We next examined correlations between all of the predictor scales for additional evidence of convergent and discriminant validity. On average, the CBEF biodata scales were minimally to moderately intercorrelated with a mean correlation of .10. Some of the strongest relationships were found between Hostility to

Authority and Manipulativeness (r = .51), and between General Self-Efficacy and Interest in Leadership, Leadership Self-Efficacy, and Peer Leadership (with correlations ranging from .49 to .63). The relationship between General Self-Efficacy and these three scales was similar to their relationships with each other; that is, correlations between Interest in Leadership, Leadership Self-Efficacy, and Peer Leadership ranged from .37 to .64. The weakest relationships were between Instrumentality of ROTC to Career Goals and the other biodata scales, with the exception of the Instrumentality of ROTC to Career Goals and Army Identification relationship, which was strong (r =.53). The pattern of relationships found among CBEF biodata scales provides additional convergent validity evidence for these scales.

The Officer Fit Index was most strongly related to predictors that would appear to be most theoretically relevant to Army officer "fit," including the CBEF Army Identification and Selfless Service biodata scales, as well as the three GAI subscales. This result provides convergent validity evidence for the predictor scales, as well as evidence for the potential utility of GAI for predicting the officer fit outcome. Additionally, when examining the individual Work Values scales, we see a few small, significant relationships. Interestingly, the Comfortable Work Environment Work Values scale showed the strongest relationships with the remaining predictors, with correlations ranging from .22 (TAPAS Trust-Cooperation) to -.26 (CBEF Tolerance for Injury), with a majority of relationships being negative. This pattern may indicate that while individuals to whom a comfortable work environment is important may be trusting, cordial, or cooperative, they are less likely to exhibit traits that would also characterize individuals suited for an ROTC lifestyle (e.g., Army Identification or Fitness Motivation).

The LKT Characteristics and Skills scales were moderately correlated with each other (r = .44), but did not show many significant relationships with the remaining predictor scales. The strongest relationships were between the LKT scales and the CBEF core scale of Hostility to Authority-Social Maturity (r = -.15 and -.16 for the Characteristics and Skills C-scores, respectively), and between the Characteristics C-score and the Officer Fit Index (r = .19), indicating that cadets who are better able to identify the characteristics of a leader may also be a better fit with the junior Army officer profile than those cadets who are less able. The LKT scales were also significantly related to the TAPAS Responsibility scale (r = .14 and .12 for Characteristics and Skills C-Scores, respectively), indicating the knowledge of the characteristics and skills espoused by leaders may be related to the extent that individuals tend to demonstrate personal responsibility and a dedication to duty.

The GAI scales also showed meaningful patterns of relationships with scales of similar constructs. For example, the three GAI scale scores were as strongly related to the CBEF Army Identification biodata scale (correlations ranging from .59 to .61) as they were with each other (correlations ranging from .59 to .65). They also showed a modest relationship with the CBEF Instrumentality of ROTC to Career Goals scale (correlations ranging from .38 to .48). Interestingly, the GAI scales were significantly related to all CBEF biodata scales, with the exception of the Response Distortion scale, where only the Identity Stability score was nominally related (r = .10).

Overall, the relationships between the various predictors were consistent with a priori expectations. This evidence reinforces claims that the individual measures are distinct and assess the intended constructs.

Correlations with Whole Person Score Components. Lastly, we examined correlations between the WPS and predictor scales, the purpose of which was twofold. First, because the WPS components are currently used to evaluate four-year scholarship candidates, any supplemental measures must exhibit discriminant validity and not be too highly correlated with the WPS in order to add value.[11] Second, observing the pattern of correlations between the non-cognitive predictor scales and WPS provides the potential to establish evidence of convergent validity (i.e., confirming that scales that are theoretically and empirically related to various WPS components). Table 3.5 shows correlations between the WPS components and the CBEF biodata and Work Values scales, Table 3.6 shows the relationship between the WPS components and the TAPAS scales, and Table 3.7 shows the relations between the WPS and the LKT and GAI scales.

As shown in Table 3.5, there was very little overlap between the WPS and CBEF biodata and Work Values scales. The CBEF composite itself was not significantly related to the WPS, providing evidence for its potential value in the ROTC selection process. Uncorrected (raw) correlations ranged from .02 to .09 in absolute magnitude for the WPS and core biodata scales, from .01 to .19 for the experimental biodata scales, and from .02 to .13 for the Work Values scales. As previously mentioned, the WPS was fairly range restricted, which may have contributed to the somewhat small magnitude of these relationships. When correlations were corrected for direct range restriction on the WPS, they increased appreciably, but not sufficiently to conclude that any of the CBEF biodata scales were redundant with the WPS.

The pattern of correlations presented in Table 3.5 also provides convergent validity evidence for the CBEF biodata scales. For example, the strongest CBEF core scale by WPS correlation was between the CBEF Fitness Motivation scale and WPS Athlete score (r = .19). This finding is consistent with the conceptual link between these scales. Also consistent with expectations, the CBEF Achievement scale was most strongly related to the WPS Scholar score, and the Army Identification and Self-Efficacy biodata scales were most strongly correlated with the WPS Leader score. For the experimental biodata scales, we see that many of the scales have a fitness or leadership aspect to them. For example, Tolerance for Injury, Social Maturity, and Peer Leadership, among others, are all related to WPS Athlete scores, while Interest in Leadership, Peer Leadership, and Social Interests are related to WPS Leader scores. Also of note is the negative relationship between Instrumentality of ROTC to Career Goals and the academic components of the WPS score, suggesting that applicants with high SAT/ACT scores may be more likely to have other scholarship options for funding their education besides ROTC.

[11] One limitation of this research is that only the administrative components of the WPS were available for examination. Given that some of the other components likely have non-cognitive elements to them (e.g., the PMS interview), results from this research will overestimate the discriminant validity of the CBEF and other non-cognitive measures (relative to the WPS and its components) to an unknown degree.

Table 3.5. ***Correlations between CBEF Biodata, Work Values Scales, WPS Scores, and Components***

Predictor	Whole Person Score		SAT/ACT Points	Scholar Points	Athlete Points	Leader Points
	r	r_c				
Operational CBEF composite	.05	.13	.02	.01	**.07**	.03
Core BEF Biodata Scales						
Achievement	**.07**	.19	.03	**.08**	.05	.04
Army Identification	-.04	-.11	**-.08**	-.01	.03	**.06**
Fitness Motivation	.04	.11	.01	**-.14**	**.19**	.02
Hostility-Social Maturity	.02	.06	-.01	**-.06**	**.11**	.02
Self-Efficacy	**.06**	.17	.01	.01	**.10**	**.09**
Stress Tolerance	**.07**	.18	**.08**	-.01	.02	.00
Response Distortion	**-.09**	-.22	**-.12**	.01	-.02	**.06**
Experimental CBEF Biodata Scales						
Hostility to Authority	-.01	-.03	-.04	-.03	**.07**	.04
Social Maturity	.06	.15	.04	-.07	**.13**	-.01
Manipulativeness	.04	.12	.03	-.03	**.06**	.02
Tolerance for Injury	**.10**	.25	**.06**	**-.07**	**.16**	.05
Instrumentality of ROTC to Career Goals	**-.19**	-.45	**-.20**	**-.07**	-.03	.01
Interest in Leadership	**.17**	.42	**.10**	.04	**.12**	**.16**
Leadership Self-Efficacy	**.10**	.25	.06	-.03	**.12**	**.07**
Peer Leadership	**.14**	.36	.06	**.06**	**.14**	**.13**
Selfless Service	-.02	-.04	**-.07**	.05	.03	**.07**
Social Interests	**-.11**	-.27	**-.18**	-.04	**.06**	**.10**
Work Values Scales						
Selfless Service	-.02	-.05	**-.11**	**.14**	.01	**.09**
Leadership Opportunities	-.02	-.06	**-.13**	.07	.07	**.12**
Recognition	.02	.06	.03	.05	-.05	.00
Pay	**-.08**	-.21	**-.10**	.00	.02	-.03
Structured Work	**-.11**	-.28	**-.21**	.08	.04	.07
Comfortable Work Environment	-.06	-.15	**-.12**	.07	.03	.03
Work Close to Home	**-.08**	-.21	**-.13**	**.10**	-.04	.03
Challenge	.05	.12	-.01	.01	.07	**.09**
Self-Direction	.07	.18	.04	.00	.03	**.08**
Teamwork	**-.13**	-.32	**-.21**	-.03	**.10**	.03
Variety	**.10**	.25	.07	.07	.03	.03
Officer Fit Index	.08	.20	.07	-.05	.07	.03

Note. N = 383 - 837 for CBEF biodata scales. N = 450 for Work Values. r = raw (uncorrected) bivariate correlation between the predictor and WPS/WPS component. r_c = correlation corrected for direct range restriction due to selection on the WPS. Bolded values are significant at $p < .05$ (one-tailed).

A similar pattern of relationships emerged between the WPS and individual TAPAS scales. By far, the largest relationship was between the TAPAS Intellectual Efficiency score and the WPS (r = .32). Additional convergent validity evidence for the scales included the relationship between the Physical Conditioning score and WPS Athlete score, the TAPAS Dominance score and the WPS Leader score, and the TAPAS Intellectual Efficiency and Curiosity scores and the WPS SAT/ACT scores. Overall, the magnitude of the relationships between the TAPAS scales and the WPS components were larger than those between the CBEF scales and WPS components, indicating that the TAPAS may have less value in supplementing

the ROTC scholarship process than would the CBEF because of the greater amount of overlap with the existing selection process components.

Table 3.6. ***Correlations between TAPAS Scales, WPS Scores and Components***

Predictor	Whole Person Score		SAT/ACT Points	Scholar Points	Athlete Points	Leader Points
	r	r_c				
Achievement	-.01	-.03	-.03	-.02	.04	.03
Curiosity	**.15**	**.37**	**.21**	.05	**-.09**	-.01
Non-Delinquency	**-.14**	**-.35**	**-.14**	**.07**	**-.14**	-.01
Dominance	**.12**	**.29**	**.07**	-.01	**.09**	**.10**
Even Temper	-.03	-.07	-.02	.01	-.03	-.02
Intellectual Efficiency	**.32**	**.67**	**.37**	.06	.01	.03
Adjustment	**.10**	**.26**	**.10**	.00	.03	.04
Physical Conditioning	-.01	-.02	-.05	**-.13**	**.21**	-.03
Responsibility	.04	.10	.04	.02	.00	.00
Tolerance	.01	.03	.03	.03	-.05	-.01
Trust-Cooperation	**-.13**	**-.33**	**-.11**	.01	**-.12**	-.02
Optimism	-.04	-.10	**-.07**	-.01	.05	.02

Note. n = 383 - 837. *r* = raw bivariate correlation between the predictor and WPS/WPS component. r_c = correlation corrected for direct range restriction due to selection on the WPS. Bolded values are significant at $p < .05$ (one-tailed).

Table 3.7. ***Correlations between LKT, GAI Scales, WPS Scores and Components***

Predictor	Whole Person Score		SAT/ACT Points	Scholar Points	Athlete Points	Leader Points
	r	r_c				
Leadership Knowledge Test						
Characteristics C-Score	**.20**	**.47**	**.23**	.05	.01	-.02
Skills C-Score	**.17**	**.41**	**.20**	.05	.01	-.02
Graphical Army Identification						
Identity Magnitude Score	**-.07**	**-.19**	**-.09**	.01	-.01	.00
Identity Centrality Score	-.04	-.10	-.05	**-.06**	.04	.01
Identity Stability Score	**-.08**	**-.21**	**-.09**	-.05	.01	.00
Overall Identity Score	**-.07**	**-.19**	**-.09**	-.04	.02	.01

Note. n = 800 for the LKT Characteristics C-Score. *n* = 787 for the LKT Skills C-Score. *n* = 807 for the GAI scales and Overall Identity score. *r* = raw bivariate correlation between the predictor and WPS/WPS component. r_c = correlation corrected for direct range restriction due to selection on the WPS. Bolded values are significant at $p < .05$ (one-tailed).

Finally, there were some interesting relationships between the WPS and the additional predictor variables. First, the Characteristics and Skills C-scores of the Leadership Knowledge Test showed (comparatively) strong relationships with the WPS. These relationships, driven through the relationship with the WPS SAT/ACT score, indicate there may be a cognitive component to the LKT scales. The Army Identification scales, on the other hand, were negatively related to the WPS (specifically the WPS SAT/ACT score), indicating that four-year scholarship recipients with higher SAT/ACT scores may identify less with the Army than individuals with lower scores. However, the relationships between these non-cognitive predictor scales and the WPS were not large enough to conclude that they were redundant with the WPS.

Predictor Subgroup Differences

Mean differences in CBEF scores across various subgroups were also examined because sizable group differences may increase the potential for adverse impact in the ROTC selection processes. Cohen's *d* effect sizes (Cohen, 1988) reflecting standardized mean differences between various subgroups are presented in Tables 3.8 through 3.11.[12]

Race/Ethnicity. Effect sizes on the core biodata scales ranged from (a) -0.40 to 0.56 for Black-White comparisons (Mean $|d|$ = 0.32, Mean d = 0.01), (b) -0.23 to 0.14 for Hispanic-White comparisons (Mean $|d|$ = 0.13, Mean d = -0.02), and (c) -0.01 to 0.43 for Asian-White differences (Mean $|d|$ = 0.22, Mean d = -0.22). For the experimental biodata scales, effect sizes ranged from (a) -0.78 to 0.21 for Black-White comparisons (Mean $|d|$ = 0.22, Mean d = -0.15), (b) -0.19 to 0.16 for Hispanic-White comparisons (Mean $|d|$ = 0.10, Mean d = 0.02), and (c) -0.32 to 0.23 for Asian-White differences (Mean $|d|$ = 0.20, Mean d = -0.08). For the work scales, effect sizes ranged from (a) -0.19 to 0.61 for Black-White comparisons (Mean $|d|$ = 0.25, Mean d = 0.18), (b) -0.16 to 0.60 for Hispanic-White comparisons (Mean $|d|$ = 0.22, Mean d = 0.19), and (c) -0.10 to 0.38 for Asian-White differences (Mean $|d|$ = 0.19, Mean d = 0.17).

Group differences on the operational CBEF composite were small with a similar magnitude across races, ranging from d = -0.25 (for Hispanic-White differences) to -0.35 (for Asian-White differences). For the core biodata scales making up the composite, there were small Black-White differences for all scales, with a moderate difference for the Response Distortion scale, where Black cadets scored 0.56 *SD* units higher than White cadets. There was a smaller group difference in Response Distortion Scale scores between Hispanic and White cadets (d = 0.14) and a negligible one between Asian and White cadets (d = -0.01). The Hispanic-White group differences for the core biodata scales were smaller than the Black-White differences with one exception; White cadets scored 0.23 *SD* units higher than Hispanic cadets on Stress Tolerance, but only 0.04 *SD* units higher than Black cadets. In addition to the Stress Tolerance scale score difference, White cadets also scored slightly higher than Hispanic cadets on the Achievement, Army Identification, and Fitness Motivation scales, and lower than Hispanic cadets on the Hostility-Social Maturity, Self-Efficacy, and Response Distortion scales. Group differences between Asian and White cadets were slightly larger than those between Hispanic and White cadets (and smaller than those between Black and White cadets) across the set of core biodata scales, with White cadets scoring higher than Asian cadets on all scales. The magnitude of the effect sizes is somewhat larger than in previous studies for Black-White comparisons, but similar for Asian and Hispanic comparisons. For example, for core biodata scales in an applicant sample, Putka et al. (2012) found a Mean $|d|$ of 0.13 for Black-White comparisons, 0.15 for Hispanic-White comparisons, and 0.23 for Asian-White comparisons.

[12] Means and standard deviations for each subgroup are presented in Appendix D. Cohen's *d* effect sizes calculated by dividing the difference between means for each subgroup by the pooled standard deviation across the subgroups being compared.

Table 3.8. ***Magnitude of Subgroup Differences on CBEF HS Biodata and Work Values Scales***

	Race and Gender Subgroup Differences			
Predictor	$d_{B\text{-}W}$	$d_{H\text{-}W}$	$d_{A\text{-}W}$	$d_{F\text{-}M}$
Operational CBEF composite	-0.30	-0.25	-0.35	-0.27
Core BEF Biodata Scales				
Achievement	0.33	-0.06	-0.23	0.50
Army Identification	-0.37	-0.12	-0.18	-0.33
Fitness Motivation	-0.40	-0.12	-0.26	-0.91
Hostility-Social Maturity	-0.26	0.10	-0.20	-0.30
Self-Efficacy	0.25	0.11	-0.26	-0.05
Stress Tolerance	-0.04	-0.23	-0.43	-0.38
Response Distortion	0.56	0.14	-0.01	0.20
Experimental CBEF Biodata Scales				
Hostility to Authority	-0.16	0.12	-0.16	-0.17
Social Maturity	-0.29	0.04	-0.16	-0.35
Manipulativeness	-0.30	0.12	0.10	-0.21
Tolerance for Injury	-0.78	-0.16	-0.32	-0.74
Instrumentality of ROTC to Career Goals	-0.07	0.02	0.19	-0.31
Interest in Leadership	-0.22	-0.19	-0.31	-0.18
Leadership Self-Efficacy	0.21	0.11	-0.18	-0.14
Peer Leadership	0.07	-0.02	-0.29	0.03
Selfless Service	0.07	0.01	0.08	0.23
Social Interests	-0.01	0.16	0.23	0.07
Work Values Scales				
Selfless Service	0.24	0.20	0.19	0.34
Leadership Opportunities	0.22	0.22	0.19	0.32
Recognition	0.24	0.09	0.09	0.00
Pay	0.61	0.28	0.38	0.12
Structured Work	0.47	0.22	0.15	0.32
Comfortable Work Environment	0.48	0.40	0.34	0.29
Work Close to Home	-0.03	0.60	0.13	0.07
Challenge	-0.19	0.00	-0.10	-0.07
Self-Direction	0.02	-0.16	0.17	-0.19
Teamwork	-0.19	0.26	0.36	0.07
Variety	0.07	0.01	0.01	0.05
Officer Fit Index	-0.34	-0.32	-0.12	-0.07

Note. B-W = Standardized mean difference: Black - White. H-W = Standardized mean difference: Hispanic - White. A-W = Standardized mean difference: Asian - White. F-M = Standardized mean difference: female - male. Positive values indicate non-whites and females (respectively) scored higher. For the CBEF biodata scales: White n = 1,201-1,202; Black n = 117; Hispanic n = 94; Asian n = 85; Male n = 1,132; Female n = 333. For the Work Values scales: White n = 655; Black n = 46; Hispanic n = 47; Asian n = 51; Male n = 601; Female n = 180.

Race/ethnicity group differences for the experimental biodata scales were, on average, similar to those for the core biodata scales, although slightly smaller. For Black-White differences, the largest group difference was for the Tolerance for Injury scale, where White cadets scored 0.78 *SD* higher than Black cadets. White cadets also scored 0.16 *SD* higher than Hispanic cadets on this scale, and 0.32 *SD* higher than Asian cadets. These group differences on Tolerance for Injury were the largest group differences for race/ethnicity groups on the remaining biodata scales. Other than the Tolerance for Injury difference, there were no additional notable Hispanic-White differences, although Hispanic cadets did score slightly higher than

White cadets on all scales except for this scale, Interest in Leadership (d = -0.19), and Peer Leadership (d = -0.02). Lastly, Asian-White differences were also small, with Asian cadets scoring higher than White cadets on Manipulativeness, Instrumentality of ROTC to Career Goals, Selfless Service, and Social Interests.

Race/ethnicity group differences for the Work Values scales were, on average, slightly larger than those for the biodata scales, with the largest group differences found for the Pay and Comfortable Work Environment scales. Minorities placed more importance on these scales than White cadets, with group differences on the Pay scale ranging from 0.28 (Hispanic-White) to 0.61 (Black-White) and group differences for the Comfortable Work Environment ranging from 0.34 (Asian-White) to 0.48 (Black-White). Black cadets scored higher than White cadets on all scales except for Work Close to Home, Challenge, and Teamwork; Hispanic cadets scored higher than White cadets on all scales except for Self-Direction; and Asian cadets scored higher than White cadets on all scales except for Challenge. With regard to the officer fit index, small group differences were found, ranging from -0.12 (Asian-White) to -0.34 (Black-White) with White cadets showing a higher "fit" with the junior Army officer work value profile. These results were similar to those found in previous studies (e.g., Putka et al, 2012).

Table 3.9. ***Magnitude of Subgroup Differences on TAPAS Scales***

	Race and Gender Subgroup Differences			
Predictor	$d_{B\text{-}W}$	$d_{H\text{-}W}$	$d_{A\text{-}W}$	$d_{F\text{-}M}$
Achievement	-0.04	-0.24	-0.32	0.18
Curiosity	-0.13	0.15	-0.06	-0.13
Non-Delinquency	0.42	-0.02	0.10	0.49
Dominance	-0.16	0.05	-0.25	-0.08
Even Temper	0.26	-0.21	0.15	-0.09
Intellectual Efficiency	-0.22	-0.13	-0.25	-0.26
Adjustment	0.02	0.13	-0.41	-0.44
Physical Conditioning	-0.14	-0.09	-0.20	-0.19
Responsibility	0.06	-0.16	-0.04	0.11
Tolerance	0.30	0.32	0.42	0.46
Trust/Cooperation	0.36	-0.03	0.41	0.46
Optimism	0.19	0.25	-0.16	-0.02

Note. B-W = Standardized mean difference: Black - White. H-W = Standardized mean difference: Hispanic – White. A-W = Standardized mean difference: Asian – White. F-M = Standardized mean difference: female - male. Positive values indicate non-whites and females (respectively) scored higher. White n = 1192; Black n = 116; Hispanic n = 92; Asian n = 85; Male n = 1,117; Female n = 335.

Effect sizes on the TAPAS scales ranged from (a) -0.22 to 0.42 for Black-White comparisons (Mean $|d|$ = 0.19, Mean d = 0.08), (b) -0.24 to 0.32 for Hispanic-White comparisons (Mean $|d|$ = 0.15, Mean d = 0.00), and (c) -0.41 to 0.42 for Asian-White differences (Mean $|d|$ = 0.23, Mean d = -0.05). Overall, the effect sizes were similar in magnitude to those found for the CBEF biodata scales. Minorities scored higher on the Tolerance subscale than did Whites cadets, with effect sizes ranging from 0.30 (Black-White) to 0.42 (Asian-White). The largest Black-White differences were found for the Non-Delinquency and Trust-Cooperation subscales, with Black cadets scoring 0.42 and 0.36 *SD* units higher than White cadets, respectively. For Hispanic cadets, the largest differences were found for the Tolerance subscale. For Asian cadets, the largest differences were found for

Tolerance and Trust/Cooperation, with Asian cadets scoring higher than White cadets, and for Adjustment, where White cadets scored 0.41 *SD* units higher than Asian cadets.

Effect sizes on the LKT scales (see Table 3.10) were (a) -0.43 and -0.46 for Black-White comparisons (Mean $|d|$ = 0.45, Mean d = -0.45), (b) -0.47 and -0.52 for Hispanic-White comparisons (Mean $|d|$ = 0.49, Mean d = -0.49), and (c) -0.02 and -0.01 for Asian-White differences (Mean $|d|$ = 0.01, Mean d = -0.01), for Characteristics and Skills C-scores, respectively. Both the Black-White and Hispanic-White differences were larger than both the CBEF biodata and TAPAS scales, while the Asian-White differences were smaller.

Table 3.10. ***Magnitude of Subgroup Differences on LKT and GAI Scales***

	Race and Gender Subgroup Differences			
Predictor	$d_{B\text{-}W}$	$d_{H\text{-}W}$	$d_{A\text{-}W}$	$d_{F\text{-}M}$
Leadership Knowledge Test				
Characteristics C-Score	-0.43	-0.47	-0.02	0.16
Skills C-Score	-0.46	-0.52	-0.01	0.03
Graphical Army Identification				
Identity Magnitude Score	0.04	-0.12	0.08	-0.14
Identity Centrality Score	-0.09	-0.15	0.00	-0.22
Identity Stability Score	0.07	-0.02	0.14	-0.17
Overall Identity Score	0.01	-0.11	0.08	-0.21

Note. B-W = Standardized mean difference: Black - White. H-W = Standardized mean difference: Hispanic - White. A-W = Standardized mean difference: Asian - White. F-M = Standardized mean difference: female - male. Positive values indicate non-whites and females (respectively) scored higher. For the LKT Characteristics C-Score: White n = 1,144; Black n = 108; Hispanic n = 80; Asian n = 85; Male n = 1,048; Female n = 320. For the LKT Skills C-Scores: White n = 1,133; Black n = 108; Hispanic n = 77; Asian n = 84; Male n = 1,048; Female n = 320. For the GAI scales: White n = 1,155 Black n = 113; Hispanic n = 92; Asian n = 80; Male n = 1,083; Female n = 325.

Effect sizes on the GAI subscales ranged from (a) -0.09 to 0.07 for Black-White comparisons (Mean $|d|$ = 0.07, Mean d = 0.01), (b) -0.15 to -0.02 for Hispanic-White comparisons (Mean $|d|$ = 0.10, Mean d = -0.10), and (c) 0.00 to 0.14 for Asian-White differences (Mean $|d|$ = 0.07, Mean d = 0.07). The largest Black-White and Hispanic-White group differences were found for the Identity Centrality score, where White cadets scored higher than both Black and Hispanic cadets (0.09 and 0.15 SD, respectively), while the largest Asian-White subgroup difference was found for the Identity Stability score, where Asian cadets scored 0.14 *SD* higher than White cadets. Interestingly, both Asian and Black cadets scored higher than White cadets on the GAI scales (with the exception of White cadets scoring higher than Black cadets on the Identity Centrality score). Although the effect sizes were nominal, the pattern is interesting, as the opposite was true for the CBEF Army Identification biodata scale, where White cadets scored higher than all minority groups.

Lastly, we examined standardized group mean differences on the WPS and its components (see Table 3.11). Across the four-year scholarship cadet sample, White cadets scored higher than minority groups on the WPS, similar to previous research (Putka, 2009; Putka et al., 2012). For the Black-White and Hispanic-White comparison, group differences were driven mainly through the SAT/ACT and Athlete points, whereas the Asian-White group difference was driven by the Scholar and Leader point totals.

Table 3.11. ***Magnitude of Subgroup Differences on the Whole Person Score and its Components***

	Race and Gender Subgroup Differences			
Predictor	$d_{B\text{-}W}$	$d_{H\text{-}W}$	$d_{A\text{-}W}$	$d_{F\text{-}M}$
Whole Person Score	-0.97	-0.48	-0.35	-0.11
SAT/ACT Points	-1.13	-0.47	-0.12	-0.24
Scholar Points	-0.05	0.09	-0.40	0.19
Athlete Points	-0.27	-0.30	-0.09	0.07
Leader Points	0.07	-0.12	-0.39	0.02

Note. B-W = Standardized mean difference: Black - White. H-W = Standardized mean difference: Hispanic - White. A-W = Standardized mean difference: Asian - White. F-M = Standardized mean difference: female - male. Positive values indicate non-whites and females (respectively) scored higher. White n = 749; Black n = 38; Hispanic n = 43; Asian n = 36; Male n = 692; Female n = 157.

Gender. The effect size for gender differences on the operational CBEF composite was d = -0.27, while effect sizes for the core biodata scales that comprise the composite ranged from -0.91 to 0.50 (Mean $|d|$ = 0.38). The CBEF Achievement and Response Distortion biodata scales favored females (d = 0.50 and 0.20), while the remaining scales with subgroup differences favored males. By far, the largest effect size favoring males was for Fitness Motivation (d = -0.91). For the remaining biodata scales, effect sizes ranged from -0.74 (Stress Tolerance) to 0.23 (Selfless Service; Mean $|d|$ = 0.24). Peer Leadership, Selfless Service, and Social Interests favored females, while the remaining scales favored males. The gender differences on the Work Values scales were negligible to moderate, ranging from -0.19 to 0.34 (Mean $|d|$ = 0.17). The largest differences favoring females were for Selfless Service, Leadership Opportunities, Structured Work, and Comfortable Work Environment (d ranging from 0.29 to 0.34) while the largest difference favoring males were for Self-Direction (d = -0.19). Group differences for the remainder of the scales were close to zero, ranging from d = -0.07 to 0.12.

Effect sizes for gender differences on the TAPAS scales were similar to the CBEF biodata scales, ranging from -0.44 to 0.49 (Mean $|d|$ = 0.24). Moderate differences were found for the Non-Delinquency, Tolerance, and Trust/Cooperation scales (d = 0.49, 0.46, and 0.46, respectively), favoring females, while moderate differences on the Adjustment scale favored males (d = -0.44). The direction of the differences were similar to those found in previous TAPAS research with an enlisted applicant sample (Knapp, Heffner, & White, 2011), although the magnitude of the differences were slightly larger in the ROTC cadet sample.

For the Leadership Knowledge Test, females scored 0.16 *SD* higher than males on the Characteristics C-score and 0.03 *SD* higher than males on the Skills C-scores. These effect sizes for gender group differences were smaller than for the other predictors under evaluation in this research effort. Effect sizes on the GAI subscales ranged from -0.22 to -0.14 for Female-Male comparisons (Mean $|d|$ = 0.18, Mean d = -0.18), where males scored higher than females on all subscales.

Lastly, there was a nominal Female-Male group difference on the WPS, with males scoring 0.11 *SD* higher than females. This was mainly due to the SAT/ACT points, as the remaining points (i.e., Scholar Athlete, Leader) were higher for female than male scores.

Basic Psychometric Properties of the Criterion Variables

In the sections that follow, we evaluate the psychometric properties of the variables used to evaluate the predictive potential of the CBEF biodata, Work Values, TAPAS, LKT, and GAI scales. As in Putka et al. (2012), criteria included the OML, as well as LDAC and non-LDAC related performance scores that play a critical role in determining the OML score. Specifically, we evaluated (a) OML score, (b) LDAC Performance score, (c) LDAC Platoon Tactical Evaluation score, (d) LDAC Land Navigation score, (e) PMS Potential score, (f) Cumulative Overall GPA score, (g) LDAC APFT score, and (h) Fall Semester APFT score. In the sections that follow, we present descriptive statistics, intercorrelations, and subgroup differences for all criteria.

Descriptives. Descriptive statistics for the criterion variables among four-year scholarship recipients (the focus of this report) can be found in Table 3.12. Means ranged from 78.98 (for cumulative overall GPA score) to 90.93 (for LDAC Land Navigation score), with a score range from 0 to 100 on the OML variables. Adequate variance was found for all variables, with the exception of the LDAC Performance score which had a low standard deviation (*SD* = 3.33). Lastly, the variables were only slightly skewed, with the exception of the LDAC Land Navigation score that had a skew of -2.92, indicating that a majority of four-year scholarship cadets received scores at the upper end of the score distribution for this particular variable.

Table 3.12. ***Descriptive Statistics for Criterion Variables***

	Four-Year Scholarship		
Criterion	*M*	*SD*	Skew
OML Score	79.33	9.99	-0.07
OML: LDAC Performance Score	89.46	3.33	0.52
OML: LDAC Platoon Tactical Evaluation Score	86.81	7.38	0.26
OML: LDAC Land Navigation Score	90.93	10.59	-2.92
OML: PMS Potential Scores	87.13	8.09	0.09
OML : Cumulative Overall GPA Score	78.98	10.24	-0.21
OML: LDAC APFT Score	88.02	8.94	-0.52
OML: Fall Semester APFT Score	90.31	8.73	-0.83

Note. n = 1,324.

Correlations among Criterion Variables. Table 3.13 presents correlations among the research effort's criterion variables among four-year scholarship recipients. All variables were significantly related to one another with correlations ranging from r = .14 (between Fall Semester APFT and LDAC Land Navigation scores) to .82 (between Cumulative Overall GPA and OML scores). The strongest correlations were noted between the OML score and the remaining performance variables, which is logical because the remaining performance variables are among those used to generate the OML score. None of the relationships, however, are strong enough to claim redundancy. Additionally, we see evidence of convergent and divergent validity as the physical performance variables are more correlated with other physical performance variables than they are with scholastic performance variables (e.g., the relationship between LDAC Tactical Evaluation and LDAC APFT scores is r = .43, whereas the relationship between LDAC Tactical Evaluation and Cumulative Overall GPA scores is r = .18).

Table 3.13. ***Correlations among Criterion Variables***

	Variable	1	2	3	4	5	6	7
1	OML Score							
2	OML: LDAC Performance Score	.57						
3	OML: LDAC Platoon Tactical Evaluation Score	.59	.64					
4	OML: LDAC Land Navigation Score	.34	.24	.27				
5	OML: PMS Potential Score	.73	.59	.72	.27			
6	OML: Cumulative Overall GPA Score	.82	.21	.18	.18	.36		
7	OML: LDAC APFT Score	.63	.32	.43	.17	.52	.28	
8	OML: Fall Semester APFT Score	.53	.29	.29	.14	.43	.26	.68

Note. n = 1,324. All correlations are significant at $p < .05$ (one-tailed).

Criterion Subgroup Differences

As a final evaluation, Table 3.14 presents standardized group mean differences for the research effort's criterion variables among four-year scholarship recipients, depicting both race/ethnicity and gender differences.

Table 3.14. ***Magnitude of Subgroup Differences on Criterion Variables***

	Race and Gender Subgroup Differences			
Predictor	$d_{B\text{-}W}$	$d_{H\text{-}W}$	$d_{A\text{-}W}$	$d_{F\text{-}M}$
OML Score	-0.60	-0.31	-0.10	-0.09
OML: LDAC Performance Score	-0.56	-0.18	0.05	-0.14
OML: LDAC Platoon Tactical Evaluation Score	-0.49	-0.36	-0.02	-0.16
OML: LDAC Land Navigation Score	-1.22	-0.25	0.03	-0.57
OML: PMS Potential Score	-0.44	-0.37	0.05	-0.17
OML : Cumulative Overall GPA Score	-0.45	-0.13	-0.07	0.11
OML: LDAC APFT Score	-0.19	-0.15	-0.04	-0.12
OML: Fall Semester APFT Score	-0.29	-0.25	-0.07	-0.03

Note. B-W = Standardized mean difference: Black - White. H-W = Standardized mean difference: Hispanic - White. A-W = Standardized mean difference: Asian - White. F-M = Standardized mean difference: female - male. Positive values indicate non-whites and females (respectively) scored higher. White n = 1,032; Black n = 78; Hispanic n = 76; Asian n = 72; Male n = 987; Female n = 239.

Race differences in the performance variables were modest, particularly for Hispanic-White and Asian-White comparisons. White cadets scored higher than Black cadets on all performance variables, with a moderate (d = -0.60) difference between the OML scores of Black and White cadets, and a large difference on the LDAC Land Navigation score (d = -1.22). A similar pattern of group differences emerged for the performance differences between Hispanic and White cadets, although the effect sizes were consistently smaller; White cadets scored slightly higher than Hispanic cadets on all performance variables. The Asian-White differences were nominal across performance dimensions and somewhat mixed, with Asian cadets receiving higher scores than Whites on the LDAC Performance, LDAC Land Navigation, and PMS Potential, and lower scores on the remaining variables.

Gender differences on the criterion variables were also small, with the exception of a moderate group difference on LDAC Land Navigation, where males scored 0.57 *SD* higher than

females. Otherwise, males scored slightly higher than females on the remaining criterion variables (*d* ranging from -0.16 to -0.09), with the exception of Cumulative Overall GPA, where females scored 0.11 *SD* units higher than males.

Summary

The goal of this chapter was to evaluate the psychometric properties of the CBEF L1 and criterion variables of interest. Overall, both the predictor and criterion variables were functioning as expected. Each predictor scale showed a meaningful pattern of relationships with the remaining scales, providing evidence of convergent and discriminant validity for all measures. The criterion variables looked acceptable, although LDAC Performance variable was slight restricted and LDAC Land Navigation score was negatively skewed.

An evaluation of the operational CBEF composite showed it was not significantly related to the WPS, had only a minimal correlation with the CBEF Response Distortion biodata scale (r = -.08), and had only small subgroup differences. This statistical evidence further supports its potential utility for the four-year scholarship selection process. Further, the CBEF core biodata scales forming the composite, the experimental CBEF biodata scales, and the TAPAS all seemed to be functioning properly, with acceptable score distributions. The individual CBEF biodata and TAPAS scales exhibited similar group differences and patterns of relationships with various constructs. One divergent artifact between the CBEF biodata and TAPAS scales was the strong relationships exhibited between the WPS and specific TAPAS scales, which were stronger than relationships between the WPS and CBEF biodata scales of similar constructs.

Considering the psychometric properties of the remaining scales, we see that the LKT scales showed only modest relations to the other non-cognitive predictors included in the research effort, with the strongest relationships with the Officer Fit Index, the CBEF Hostility to Authority-Social Maturity biodata scale, and the TAPAS Responsibility scale. The LKT was most strongly related to the WPS, with a corrected correlation of r = .47, indicating there may be a strong cognitive component to the LKT. This may also be a contributing factor to the measure's group differences, which were between d = -0.43 and -0.53 for Hispanic-White and Black-White comparisons. Lastly, the GAI scales, as expected, were strongly correlated with the CBEF Army Identification biodata scale, a different measure of a similar construct. The scales were minimally correlated with the WPS, mainly through their (negative) relationship with the WPS SAT/ACT points, and showed nominal subgroup differences, with the largest differences for Hispanic cadets (who scored lower on the scales than White cadets, whereas other minority groups tended to score higher).

Chapter 4: Bivariate Criterion-Related Validity Evidence

This chapter presents criterion-related validity evidence for each CBEF L1 predictor scale and the operational CBEF composite. Of interest here is the ability of these metrics to predict the OML and LDAC criteria, as well as the academic and physical fitness criteria (i.e., the GPA and APFT scores). For these criteria, we present validity results for the operational CBEF composite, individual CBEF biodata scales, Work Values scales, TAPAS subscales, LKT scales, and GAI subscales. Results are based on uncorrected correlations between the CBEF L1 scales and criteria. In addition to the uncorrected correlations computed on the overall four-year scholarship sample, we ran the same analyses split by test form (Form A or B) as results would need to be interpreted with care in the event that the correlations differed by the Form of the CBEF L1 administered.

CBEF as a Predictor of Performance Criteria: OML and LDAC Outcomes

Results of the correlations between the (a) operational CBEF composite, (b) core biodata scales forming the composite, (c) experimental biodata scales, and (d) Work Values, and the OML and LDAC performance variables are presented in Table 4.1. Correlations between the criteria and USACC's Whole Person Scores (WPS) are also provided as a point of comparison.

The operational CBEF composite showed statistically significant levels of validity for predicting all OML and LDAC performance indices except for the LDAC Land Navigation score, with correlations ranging from r = .15 to .22. These relationships were similar in magnitude to the correlations between the WPS and performance variables, although they were, on average, slightly lower. Across the entire set of predictors included in the research effort, there were the fewest significant relationships with the LDAC Land Navigation score; the lack of consistency in prediction was likely due in part to range restriction on this performance indicator (skew = -2.92).

Of the core biodata data scales making up the composite, Fitness Motivation was the strongest predictor of OML and LDAC performance, with correlations ranging from .15 (with LDAC Land Navigation score) to .34 (with the OML and PMS Potential scores). Self-Efficacy and Stress Tolerance were also consistent predictors, with average correlations of .12 and .09 across performance indices. Of the experimental biodata scales, Tolerance for Injury was a consistently strong predictor, with correlations ranging from .11 (with the OML score) to .20 (with the LDAC Performance score), as were Interest in Leadership, Peer Leadership, and Leadership Self-Efficacy (with correlations of .18, 13, and 11, averaged across performance variables).

When examining the correlations between the Work Values scales and OML and LDAC outcomes, evidence supports a positive relationship between the Officer Fit Index and performance (with correlations ranging from .11 with LDAC Platoon Tactical Evaluation and Land Navigation scores to .18 with LDAC Performance and PMS Potential scores, average r = .14), suggesting individuals with value profiles similar to junior Army officers performed better during LDAC than individuals with dissimilar profiles. When examining the individual Work Values scales, Pay and Comfortable Work Environment had the strongest (negative)

relationships, suggesting that individuals to whom these values are important tend to perform poorly during LDAC than individuals who do not identify these values as important.

Table 4.1. ***Correlations between CBEF Biodata and Work Values Scale and OML and LDAC Performance Criteria***

Predictor / Criterion	OML Score	OML: LDAC Performance Score	OML: LDAC Platoon Tactical Evaluation Score	OML: LDAC Land Navigation Score	OML: PMS Potential Score
Whole Person Score	**.27**	**.21**	**.15**	**.21**	**.17**
Operational CBEF composite	**.22**	**.15**	**.15**	.05	**.21**
Core CBEF Biodata Scales					
Achievement	**.29**	**.06**	.06	**-.08**	**.15**
Army Identification	-.02	**.08**	**.06**	.02	**.08**
Fitness Motivation	**.34**	**.28**	**.28**	**.15**	**.34**
Hostility-Social Maturity	**-.08**	.04	.00	.04	-.02
Self-Efficacy	**.17**	**.19**	**.11**	-.02	**.17**
Stress Tolerance	**.12**	**.06**	**.06**	**.11**	**.09**
Response Distortion	-.04	**-.07**	**-.08**	**-.08**	-.03
Experimental CBEF Biodata Scales					
Hostility to Authority	**-.06**	.02	.00	.05	.00
Social Maturity	**-.08**	.05	.01	.01	-.03
Manipulativeness	.00	.06	.01	.01	.02
Tolerance for Injury	**.11**	**.20**	**.15**	**.17**	**.16**
Instrumentality of ROTC to Career Goals	**-.09**	.02	.01	.01	.02
Interest in Leadership	**.19**	**.29**	**.17**	.04	**.21**
Leadership Self-Efficacy	**.08**	**.21**	**.11**	.00	**.12**
Peer Leadership	**.15**	**.24**	**.13**	-.03	**.16**
Selfless Service	.05	.10	.05	-.05	.05
Social Interests	-.04	.05	.04	-.05	.02
Work Values					
Selfless Service	**.08**	-.02	.04	-.05	.07
Leadership Opportunities	.05	**.08**	**.09**	-.06	**.12**
Recognition	.03	.03	.03	-.03	.01
Pay	**-.12**	-.07	**-.08**	**-.10**	**-.11**
Structured Work	**-.11**	**-.14**	**-.08**	-.04	**-.08**
Comfortable Work Environment	**-.11**	**-.13**	-.05	**-.09**	**-.10**
Work Close to Home	**-.09**	-.07	**-.09**	-.07	**-.14**
Challenge	**.11**	**.14**	**.09**	.05	**.13**
Self-Direction	-.05	.02	.01	.00	-.03
Teamwork	-.02	.04	.02	.01	.04
Variety	.02	**.08**	.01	.04	.00
Officer Fit Index	**.14**	**.18**	**.11**	**.11**	**.18**

Note. n = 769 for the WPS, n = 1,217 – 1,218 for the CBEF biodata scales, n = 651 for the Work Values scales. Bolded correlations are statistically significant ($p < .05$, one-tailed).

Table 4.2 presents correlations between the TAPAS scales and OML and LDAC performance variables. Relationships between Achievement, Dominance, and Physical Conditioning were positive and statistically significant across performance variables, while relationships between Non-Delinquency and Trust-Cooperation and the performance variables were significant and negative. The magnitude of the correlations averaged across performance indices (ranging from -.13 to .15) were similar to the magnitude of relationships between the CBEF biodata scales and performance.

Table 4.2. ***Correlations between TAPAS and OML and LDAC Performance Criteria***

Predictor/Criterion	OML Score	OML: LDAC Performance Score	OML: LDAC Platoon Tactical Evaluation Score	OML: LDAC Land Navigation Score	OML: PMS Potential Score
Achievement	**.24**	**.12**	**.12**	.04	**.22**
Curiosity	**.12**	.03	.02	**.06**	.05
Non-Delinquency	-.03	**-.15**	**-.11**	**-.14**	**-.06**
Dominance	**.14**	**.24**	**.16**	.02	**.17**
Even Temper	-.03	**-.07**	-.02	.04	-.04
Intellectual Efficiency	.04	**.09**	.03	.06	.02
Adjustment	-.04	.02	.00	.09	-.01
Physical Conditioning	**.26**	**.22**	**.20**	.01	**.27**
Responsibility	**.11**	-.01	.02	-.01	**.09**
Tolerance	.05	-.04	-.05	**-.07**	-.03
Trust/Cooperation	**-.15**	**-.16**	**-.13**	**-.11**	**-.12**
Optimism	.05	**.09**	.04	.02	**.07**

Note. n = 1,205. Bolded correlations are statistically significant (p<.05, one-tailed).

Relationships between the LKT and OML and LDAC performance variables, as well as the GAI test and performance variables, are presented in Table 4.3. The LKT Skills C-score was a consistently significant predictor of performance, although the relationships were somewhat small (r ranging from .06 with LDAC Platoon Tactical Evaluation score to .16 with the OML score).

The GAI Overall Identity score was significantly related to LDAC Performance, LDAC Platoon Tactical Evaluation, and PMS Potential scores, but not the OML or Land Navigation scores. The pattern of relationships between the Identity Magnitude and Centrality scores and performance variables was similar, while the Identity Stability score showed no significant relationships.

Table 4.3. ***Correlations between the LKT, GAI, OML, and LDAC Performance Criteria***

Predictor / Criterion	OML Score	OML: LDAC Performance Score	OML: LDAC Platoon Tactical Evaluation Score	OML: LDAC Land Navigation Score	OML: PMS Potential Score
Leadership Knowledge Test					
Characteristics C-Score	**.07**	.04	.00	**.07**	.01
Skills C-Score	**.16**	**.08**	**.06**	**.09**	**.09**
Graphical Army Identification					
Identity Magnitude Score	.03	**.07**	**.07**	.01	**.11**
Identity Centrality Score	.02	**.09**	**.09**	.00	**.11**
Identity Stability Score	-.04	.04	.03	.00	.04
Overall Identity Score	.00	**.08**	**.07**	.01	**.10**

Note. n = 1,151 for LKT Characteristics C-scores, n = 1,137 for LKT Skills C-scores, n = 1,162 for GAI subscales. Bolded correlations are statistically significant ($p < .05$, one-tailed).

CBEF as a Predictor of Performance Criteria: GPA and APFT

Results of the correlations between the (a) operational CBEF composite, (b) core biodata scales, (c) experimental biodata scales, and (d) Work Values scales, and cumulative overall GPA, LDAC APFT, and fall semester APFT are presented in Table 4.4.

The operational CBEF composite showed statistically significant levels of validity for predicting both physical and academic performance criteria in the form of APFT scores (r = .15 and .12 for LDAC and Fall Semester APFT scores, respectively) and GPA (r = .12). The strongest relationships for the core biodata scales forming the composite were between the CBEF Achievement scale and cumulative overall GPA (r = .35), and between CBEF Fitness Motivation and the APFT scores (r = .53 and .41 with LDAC APFT and fall semester APFT, respectively). Stress Tolerance and Self-Efficacy were modestly statistically related to all performance indicators, while the Response Distortion scale showed no statistical relations. Lastly, Army Identification and Hostility-Social Maturity were both negatively related to cumulative overall GPA, but not related to the Army physical fitness test scores.

Among the experimental biodata scores, the strongest individual relationship was between the CBEF Instrumentality of ROTC to Career Goals and cumulative overall GPA (r = -.18), indicating that individuals who perform well academically may not perceive ROTC as a way to excel their career. Tolerance for Injury was also predictive of APFT scores (r = .16 and .17), indicating that those individuals with a high tolerance for physical injury have higher levels of fitness than those individuals who do not. Interest in Leadership and Peer Leadership were significant predictors of all three criterion variables, although the relationships were modest in size (r ranging from .06 to .09).

Table 4.4. ***Correlations between CBEF Biodata, Work Values Scales, GPA, and APFT Criteria***

Predictor/Criterion	OML : Cumulative Overall GPA Score	OML: LDAC APFT Score	OML: Fall Semester APFT Score
Whole Person Score	**.24**	**.11**	**.08**
Operational CBEF composite	**.12**	**.15**	**.12**
Core CBEF Biodata Scales			
Achievement	**.35**	**.09**	**.09**
Army Identification	**-.13**	-.01	-.01
Fitness Motivation	**.07**	**.53**	**.41**
Hostility-Social Maturity	**-.15**	-.01	.00
Self-Efficacy	**.08**	**.14**	**.09**
Stress Tolerance	**.07**	**.10**	**.09**
Response Distortion	-.02	.00	-.01
Experimental CBEF Biodata Scales			
Hostility to Authority	**-.12**	-.01	.01
Social Maturity	**-.13**	-.01	.00
Manipulativeness	-.04	.02	.02
Tolerance for Injury	**-.08**	**.17**	**.16**
Instrumentality of ROTC to Career Goals	**-.18**	-.02	.00
Interest in Leadership	**.08**	**.09**	**.09**
Leadership Self-Efficacy	-.03	**.06**	.02
Peer Leadership	**.06**	**.08**	**.06**
Selfless Service	.01	.03	.04
Social Interests	**-.09**	.01	.01
Work Values			
Selfless Service	**.09**	.05	**.08**
Leadership Opportunities	-.03	.04	.06
Recognition	.01	.02	-.04
Pay	**-.08**	-.07	**-.14**
Structured Work	**-.08**	-.04	-.04
Comfortable Work Environment	-.05	-.05	**-.10**
Work Close to Home	-.02	-.06	-.06
Challenge	-.01	**.18**	**.15**
Self-Direction	**-.08**	-.01	.02
Teamwork	-.07	.03	.02
Variety	-.01	.01	.02
Officer Fit Index	.02	**.11**	**.15**

Note. n = 769 for the WPS, n = 1,217 – 1,218 for the CBEF biodata scales, n = 651 for the Work Values scales. Bolded correlations are statistically significant ($p < .05$, one-tailed).

Relationships between cumulative overall GPA, APFT scores, and the TAPAS can be found in Table 4.5. Achievement was a consistent positive predictor across performance indicators with correlations ranging from .13 (with Fall Semester APFT scores) to .19 (with cumulative overall GPA). Interestingly, Trust-Cooperation was consistently negatively related to the performance variables, indicating that individuals identifying themselves as trusting, cooperative, and cordial tended to have a lower academic GPA (r = -.06) and be less physically fit (r = -.14 and -13) than individuals not endorsing those traits, although these relationships were

somewhat small. Non-Delinquency also showed an interesting pattern of relationships: individuals who identified themselves as compliant and not challenging of authority tended to have higher GPAs, but lower APFT scores. Lastly, and similar to the CBEF biodata scales, the strongest relationships were between the fitness related scale of Physical Conditioning and the APFT scores (.44 with LDAC APFT and .36 with Fall Semester APFT). Scores on the Physical Conditioning scale were not related to cumulative overall GPA.

Table 4.5. ***Correlations between TAPAS, GPA, and APFT Criteria***

Predictor / Criterion	OML : Cumulative Overall GPA Score	OML: LDAC APFT Score	OML: Fall Semester APFT Score
Achievement	**.19**	**.15**	**.13**
Curiosity	**.15**	.02	-.03
Non-Delinquency	**.10**	**-.13**	**-.09**
Dominance	.03	**.06**	**.07**
Even Temper	-.01	-.03	-.03
Intellectual Efficiency	.05	**-.07**	**-.09**
Adjustment	**-.10**	.05	.05
Physical Conditioning	.05	**.44**	**.36**
Responsibility	**.12**	.03	.04
Tolerance	**.12**	-.02	.00
Trust/Cooperation	**-.06**	**-.14**	**-.13**
Optimism	.01	.04	.05

Note. n = 1,205. Bolded correlations are statistically significant ($p < .05$, one-tailed).

Lastly, Table 4.6 presents the correlations between the LKT, GAI, and GPA and APFT scores. The strongest relationship was between the LKT Skills C-score and cumulative overall GPA ($r = .18$), further supporting the presence of a cognitive component to the LKT. While the Skills C-score was also modestly related to the APFT scores, the Characteristics C-scores were not. Scores on the GAI test were negatively statistically related to cumulative overall GPA, with correlations ranging from -.06 to -.11. GAI scores were not related to performance on the APFT.

Table 4.6. ***Correlations between the LKT, GAI, GPA, and APFT Criteria***

Predictor / Criterion	OML : Cumulative Overall GPA Score	OML: LDAC APFT Score	OML: Fall Semester APFT Score
Leadership Knowledge Test			
Characteristics C-Score	**.09**	.00	.04
Skills C-Score	**.18**	**.07**	**.09**
Graphical Army Identification			
Identity Magnitude Score	**-.06**	.05	.04
Identity Centrality Score	**-.09**	.05	.05
Identity Stability Score	**-.11**	.00	-.02
Overall Identity Score	**-.10**	.04	.03

Note. n = 1,151 for LKT Characteristics C-scores, n = 1,137 for LKT Skills C-scores, n = 1,162 for GAI subscales. Bolded correlations are statistically significant ($p < .05$, one-tailed).

Order Effects

Correlations between the non-cognitive predictor scales and criterion variables were also examined separately by test form. Results of these analyses are provided in Appendix E.

In predicting the OML and LDAC criteria, there were small differences between the test forms, with an average absolute difference across all predictors of .05. There were multiple significantly different relationships between CBEF LDAC-1 scales and OML-LDAC criterion variables by test form. For example, the significant CBEF Stress Tolerance biodata scale / LDAC Performance relationship in test Form A was significantly larger than the non-significant relationship in Form B. As another example, the Response Distortion / LDAC Land Navigation score relationship was non-significant in Form A, but was .14 (and significantly larger) in Form B. There were also a few significant differences in correlations between Work Values and the OML-LDAC criteria between test forms, and no significant differences in TAPAS scales. Relationships between the LKT, GAI, and criterion variables were also larger in Form B than they were in Form A, with a few of these differences being statistically significant.

In predicting GPA, the only significant difference in a predictor/criterion relationship between test forms was for the relationship between the CBEF Achievement biodata scale and OML score. Specifically, the correlation of .42 between the CBEF Achievement biodata scale and OML score for Form A was significantly larger than the correlation of .29 between the same variables for those that completed Form B. For a majority of the relationships, the correlations were stronger in Form A than they were for Form B. The exception to that, however, was for the LKT. For the LKT scales (although not significantly different), the correlations were stronger for Form B, than they were for Form A. Overall, the predictor/ GPA and APFT criterion relationship differences between test forms were smaller than the predictor / OML-LDAC relationship differences.

Overall, results of these analyses indicate that the order in which the predictors did in fact have an impact (albeit a small one) on some of the predictor / criterion relationships.

Summary

Initial validation evidence in the form of observed (uncorrected) bivariate correlations between the predictor scales and criteria was positive. Results indicated that the operational CBEF composite was predictive of a wide-range of performance criteria, including OML score and the individual leadership, academic, and physical fitness performance variables that partly compose the OML score. Moreover, all CBEF core biodata scales predicted at least one of the OML-LDAC outcomes, while multiple none-core CBEF biodata scales (e.g., Tolerance for Injury, Interest in Leadership, and Peer Leadership) showed substantial promise across performance variables. The Work Values scales also showed moderate correlations with all outcomes, excluding a non-significant relationship cumulative overall GPA. Of the remaining non-cognitive predictors, the TAPAS Achievement, Non-Delinquency, Dominance, Physical Conditioning, and Trust/Cooperation scores showed the most promise across criterion variables, as did the LKT (and the Skills C-Score, in particular). The GAI scales were the most inconsistent, but were significantly related to cumulative overall GPA and the LDAC performance variables.

Chapter 5: Validity and Incremental Validity of Predictor Composites

This chapter presents criterion-related validity evidence for empirically-driven (regression-based) composites of various CBEF L1 scales (e.g., biodata scales, TAPAS scales, Work Values scales). As with Chapter 4, the criteria of interest here are LDAC and OML criteria, as well as cumulative overall GPA and APFT scores. We also present incremental validity evidence for the CBEF scale combinations noted above for predicting each criterion over and above the USACC Whole Person Scores (WPS) and operational CBEF composite.

Examining Relations between CBEF L1 Predictor Composites and Criteria

Two sets of analyses were conducted to examine the relationships between seven sets of empirical CBEF L1 composites and each criterion of interest. First, each criterion variable was regressed on the set of scales underlying each composite. Specifically, each criterion was regressed on:

- All 15 CBEF biodata scales (C1);
- All 12 TAPAS scales (C2);
- The seven CBEF core biodata scales (C3);
- The eight experimental CBEF biodata scales not included in the operational composite (C4);
- All 11 Work Values scales (C5);
- The two LKT C-Score scales (C6);
- The three GAI scales (C7).

The goal of these analyses was to estimate the relationship between various potential empirical composites of related CBEF L1 scales and various indices of cadet performance. Of particular interest here was a comparison between composites formed from all 15 CBEF biodata scales (C1) relative to composites formed from all TAPAS scales (C2), which amounts to a comparison of the predictive potential of biodata and forced-choice based temperament measures. Table 3.1 lists 7 core and 10 experimental CBEF biodata scales. However, the core Hostility-Social Maturity scale represents the combination of two experimental biodata scales: Social-Maturity and Hostility to Authority. To avoid multi-collinearity issues, only the Hostility-Social Maturity scale was included in Model C1.

Because USACC already has a selection process in place for four-year ROTC scholarship applicants, we also conducted a series of hierarchical regressions examining the incremental validity of the various scale combinations noted above over current components of the selection process (i.e., the WPS and/or WPS and operational CBEF composite). This was done to determine (a) the relative merits of the full set of CBEF biodata and TAPAS scales for incrementing the validity of the WPS, and (b) the potential value that additional sets of scales could add to the combination of the WPS and operational CBEF composite.

Because all criteria were continuously scaled, we used ordinary least squares (OLS) regression analyses to evaluate validity evidence for the sets of scales examined. We provide results of these analyses run on observed data, as well as results based on correlation matrices

corrected for multivariate range restriction stemming from cadets' selection on the WPS.[13] An examination of the scales' relationships with the OML and LDAC performance variables are presented first, followed by an examination of the scales' relationships with academic (GPA) and physical fitness (APFT) criteria.

Predicting Performance Criteria: OML and LDAC Outcomes

Table 5.1 presents a summary of the relationships between each predictor scale composite and the leadership performance variables. Tables summarizing both the standardized regression weights and relative weights of each of the individual scales included in the models can be found in Appendix F (Tables F.1 through F.7).

Table 5.1. ***Summary of Validity Evidence for Non-Cognitive Models in Predicting OML-LDAC Performance Variables***

	OML Score	OML: LDAC Performance Score	OML: LDAC Platoon Tactical Evaluation Score	OML: LDAC Land Navigation Score	OML: PMS Potential Score
	R (R_{cor})	*R* (R_{cor})	*R* (R_{cor})	*R* (R_{cor})	*R* (R_{cor})
Full Model R					
C1: All 15 CBEF biodata scales	**.49** (.65)	**.39** (.54)	**.32** (.39)	**.27** (.52)	**.39** (.45)
C2: All 12 TAPAS scales	**.36** (.49)	**.34** (.46)	**.27** (.36)	**.22** (.42)	**.35** (.44)
C3: 7 CBEF Core biodata scales	**.46** (.59)	**.31** (.40)	**.30** (.32)	**.23** (.33)	**.36** (.37)
C4: 8 Experimental CBEF biodata scales	**.27** (.53)	**.34** (.49)	**.21** (.34)	**.22** (.50)	**.25** (.38)
C5: All 11 Work Values scales	**.25** (.42)	**.27** (.33)	**.20** (.22)	.15 (.37)	**.28** (.29)
C6: 2 LKT C-Score scales	**.16** (.25)	**.07** (.17)	.05 (.04)	**.11** (.18)	**.08** (.14)
C7: 3 GAI scales	**.08** (.29)	**.09** (.22)	**.10** (.08)	**.02** (.26)	**.13** (.13)
Cross-validated Model R					
C1: All 15 CBEF biodata scales	.47 (.61)	.36 (.48)	.28 (.28)	.23 (.45)	.36 (.36)
C2: All 12 TAPAS scales	.33 (.47)	.32 (.40)	.24 (.27)	.18 (.35)	.32 (.36)
C3: 7 CBEF Core biodata scales	.45 (.57)	.29 (.35)	.28 (.26)	.21 (.27)	.35 (.32)
C4: 8 Experimental CBEF biodata scales	.25 (.50)	.32 (.45)	.18 (.27)	.19 (.46)	.23 (.38)
C5: All 11 Work Values scales	.19 (.35)	.21 (.24)	.12 (.06)	.04 (.29)	.22 (.18)
C6: 2 LKT C-Score scales	.14 (.24)	.05 (.13)	.01 (-.12)	.09 (.14)	.06 (.09)
C7: 3 GAI scales	.05 (.26)	.06 (.18)	.07 (-.04)	-.11(.23)	.11 (.06)

Note. The bottom set of coefficients represent the model R_{cv}, or the cross-validated multiple correlations for the full models. Range restriction corrected estimates for both model *R* and model R_{cv} are noted in parentheses. Bolded values are statistically significant, $p<.05$ (one-tailed for uncorrected model *R*). Significance is not indicated for corrected statistics as there is no known sampling distribution. The top set of coefficients represents the model *R*, or the multiple correlations for the full models. n =1,217 for all 15 CBEF scales. n = 1,205 for the 12 TAPAS scales. n = 1,218 for the seven CBEF core biodata scales. n = 1,217 for the eight experimental CBEF biodata scales. n = 651 for the 11 Work Values scales. n = 1,121 for the two LKT scales. n = 1,162 for the three GAI scales.

[13] We used Lawley's (1943) procedure for making multivariate range restriction corrections. The population standard deviation used in these corrections was based on the standard deviation of administrative WPS scores among all 2006-2007 academic year four-year scholarship applicants (*SD* = 107.24). The correlation matrix was created via listwise deletion across all predictor and criterion variables, resulting in a fully crossed matrix of 322 cases. Note that there was a notable loss of sample size here due to unavailability of Work Values and WPS for a large number of cadets.

All CBEF Biodata Scales vs. All TAPAS Scales. Results of regressing OML scores and LDAC criteria on all 15 CBEF biodata scales and all TAPAS scales revealed that both the full set of CBEF biodata scales (C1) and the full set of TAPAS scales (C2) were significantly related to all criteria. For the CBEF biodata scales, corrected cross-validated model *R* values ranged from .28 (LDAC Platoon Tactical Evaluation score) to .61 (OML score), whereas for the TAPAS scales, corrected cross-validated model *R* values ranged from .27 (LDAC Platoon Tactical Evaluation score) to .47 (OML score).

Comparing these validity estimates, composites formed from all CBEF biodata scales tended to outperform composites formed of all TAPAS scales for most of the criteria. The largest differences emerged for OML (.61 for CBEF biodata vs. .47 for TAPAS), which corresponds to the measure that USACC operationally uses for officer branch assignment.

Regarding the components of the OML, CBEF composites tended to be more predictive than TAPAS composites: LDAC Performance score (.48 for CBEF vs. .40 for TAPAS); LDAC Land Navigation score (.45 for CBEF vs. .35 for TAPAS); PMS Platoon Tactical Evaluation score (.28 for CBEF vs. .27 for TAPAS). Finally the CBEF and TAPAS composites were equally valid for predicting PMS Potential scores (R = .36 for both CBEF and TAPAS).

Examination of the relative weights for individual CBEF scales that comprise full CBEF composites above (see Tables F.1 of Appendix F) revealed that Fitness Motivation was the most important predictor for each criterion except LDAC Land Navigation, accounting for between 29.1% (LDAC Performance) and 58% (LDAC Platoon Tactical Evaluation) of the full models' R^2 estimates for the other criteria.[14] For LDAC Land Navigation, the top predictor was Tolerance for Injury (accounting for 28.3% of the full model R^2) followed closely by Fitness Motivation (accounting for 23% of the full model R^2). With regard to the other criteria, Achievement was the second most important predictor for OML score (accounting for 27.4% of the full model R^2), while Interest in Leadership was the second most important in predictor of LDAC Performance (25% of the full model R^2), PMS Potential (12.8% of the full model R^2), and LDAC Platoon Tactical Evaluation scores (12.6% of the full model R^2). A comparison of these results with those used to weight the operational CBEF composite reveals multiple similarities and a few key differences in the relative importance of the scales (Putka et al., 2012). Whereas Army Identification was the most important scale in predicting disenrollment (the basis of the operational composite), it plays a minimal role in the prediction of the leadership performance variables (accounting for a maximum of 3.4% of any of the full model R^2s). In contrast, Fitness Motivation was clearly an important predictor of all leadership performance criteria, but plays a minimal role in the prediction of disenrollment. With regard to experimental CBEF scales, Interest in Leadership and Tolerance for Injury emerged as important predictors of various leadership performance criteria, but such scales are not currently part of the operational composite because their relationship to disenrollment has yet to be examined.

With regard to the relative importance the individual TAPAS scales (Table F.2 of Appendix F) that comprise the full TAPAS composites, examination of the relative weights revealed that Physical Conditioning was the most important predictor for each criterion except

[14] Relative weights for all regression analyses in this chapter were based on Johnson's (2000) methods for estimating the relative weight of predictors in OLS regression models.

LDAC Land Navigation and LDAC Performance, accounting for between 34.9% (LDAC Platoon Tactical Evaluation) and 42.9% (PMS Potential) of the full model R^2 estimates for the other criteria. For LDAC Land Navigation, the top predictor was Non-Delinquency (accounting for 38.7% of the full model R^2) followed by Trust/Cooperation (accounting for 17.1% of the full model R^2). For LDAC Performance, the top predictor was Dominance (accounting for 31.7% of the full model R^2) followed by Physical Conditioning (accounting for 25.8% of the full model R^2). With regard to the other criteria, Achievement was the second most important predictor for OML score (accounting for 29.1% of the full model R^2) and PMS Potential (accounting for 27.5% of the full model R^2), while Dominance was the second most important in predictor of LDAC Platoon Tactical Evaluation scores (20.8% of the full model R^2).

Despite the fact that there is not complete construct overlap between the TAPAS and CBEF biodata scales, a comparison of the relative weight results for the TAPAS to those of the full CBEF reveal a number of similarities, which serve to reinforce the importance of the top predictors. For example, fitness related scales (e.g., CBEF Fitness Motivation, TAPAS Physical Conditioning) emerged as important within the TAPAS and CBEF composites, as did scales that have a clear nexus to leadership (e.g., CBEF Interest in Leadership, TAPAS Dominance). Moreover, the CBEF and TAPAS Achievement scales both emerged as relatively important predictors of OML scores.

Core vs. Experimental CBEF Biodata Scales. Next, we examined how the CBEF core scales (those that have been consistently used over the course of ROTC CBEF research) fared as a group compared to the experimental CBEF scales evaluated as part of the current effort. Results of regressing OML scores and LDAC criteria on the seven CBEF core biodata scales indicated the set of those scales was significantly related to all criteria, with corrected cross-validated model *R* values ranging from .26 (LDAC Platoon Tactical Evaluation score) to .57 (OML score). When examining the relative weights of the individual CBEF scales (Table F.3 of Appendix F), Fitness Motivation was by far the most important predictor in each model, accounting for between 47.1% and 80.6% of each full model R^2.[15] Beyond Fitness Motivation, Achievement was the next most important predictor for OML score (accounting for 34.5% of that full model R^2), while Self-Efficacy was important in predicting LDAC Performance, and Stress Tolerance was important for the LDAC Land Navigation score (accounting for 22.0% and 24.3% of the full model $R^2$for each criterion, respectively).

Results of regressing the OML and LDAC criteria on the set of experimental CBEF biodata scales (i.e., those not included in the operational composite) indicated that the set of eight experimental biodata scales significantly predicted all of the leadership performance variables, with corrected cross-validated Model *R* ranging from .27 (LDAC Platoon Tactical Evaluation score) to .50 (OML score). As shown in Table F.4 of Appendix F, Interest in Leadership was the most important of the eight experimental scales, accounting for between 38.9 and 45.8% of the full model R^2 in all performance variables except for LDAC Land Navigation score, for which Tolerance for Injury was the most important (67.7%). Tolerance for Injury was a significant predictor of the remaining LDAC variables as well, accounting for between 13.3% and 35.3% of the full model R^2.

[15] Relative weights for all regression analyses in this chapter were based on Johnson's (2000) methods for estimating the relative weight of predictors in OLS regression models.

Work Values Scales. Corrected cross-validated model *R* values indicate the set of Work Values scales shows promise in predicting various outcomes, with corrected cross-validated multiple *R* values ranging from a low of .06 (LDAC Platoon Tactical Evaluation) to a high of .35 (OML). The individual Work Values scales of Pay, Structured Work, Challenge, and Leadership Opportunities consistently emerged as important individual predictors (see Table F.5 in Appendix F), accounting for an average of 11.4% (Leadership Opportunities) to 14.4% (Challenge) of the full models' R^2(across criteria).

Leadership Knowledge Test C-Scores. Although results of regressing OML and LDAC criteria on the LKT scales were variable, the corrected cross-validated *R* for predicting OML scores was a solid .24, indicating that the LKT shows promise in predicting this particular criterion. Corrected cross-validated *R* was .13 for predicting LDAC Performance score, .14 for predicting LDAC Land Navigation score, and .09 for predicting PMS Potential score. Of the two LKT scales, the Skills C-score was a more important predictor of the various criterion variables (see Table F.6 of Appendix F), accounting for more than half of the full model R^2 for all criteria. Additionally, and of note, are the uncorrected and corrected standardized regression coefficients. While the uncorrected standardized regression coefficients indicated that the Skills C-score had a stronger relationship with performance across all criterion variables, once corrected for multivariate range restriction due to selection on the WPS, results indicated that the Characteristics C-score was the stronger predictor.

GAI Scale Scores. Corrected cross-validated model *R* values for the prediction of the OML score (.26) and the LDAC Performance score (.18) were promising, while results for predicting the remaining criteria were somewhat unstable. When examining the relative importance of the subscales (refer to Table F.7 of Appendix F), the Identity Stability score was the most important predictor of the OML score, accounting for 58.1% of the full model R^2. For the prediction of the LDAC Performance score, the Identity Centrality score was the most important, accounting for 61.9% of the full model R^2.

Incremental Validity Evidence: OML and LDAC Performance

The sections below provides results of analyses performed to examine the incremental validity of: (a) the operational CBEF composite over the WPS (Table 5.2), (b) the full set of CBEF biodata scales relative to the full set of TAPAS scales over the WPS and operational CBEF composite (Table 5.3) and (c) various other combinations of CBEF L1 scales over the WPS and operational CBEF composite (Table 5.4) in predicting OML and LDAC leadership performance criteria. Tables summarizing both the standardized regression weights and relative weights of each of the individual scales included in the incremental validity models can be found in Appendix F (Tables F.8 through F.15).

Incremental Validity of Operational CBEF Composite. Results in Table 5.2 indicate that the operational CBEF composite significantly incremented the validity of the WPS for all performance criteria except for the LDAC Land Navigation score – though the magnitude of the increments were modest (e.g., largest increment in corrected, cross-validated *R* values was .05 for predicting PMS Potential) . With regard to the relative contribution of the CBEF composite compared to the WPS, for all OML-LDAC criteria except PMS Potential score, the WPS emerged as the more important predictor. For the PMS Potential score, the CBEF composite

accounted for 64.6% variance in the model R^2 whereas for the other criteria it accounted for a maximum of 38.2%. These results suggest that, although optimized predict disenrollment, the CBEF composite is able to significantly increment the validity of WPS in the prediction of leadership outcomes, thus providing further support for its value as part of the four-year scholarship awarding process.

Table 5.2. ***Incremental Validity of Operational CBEF Composite for Predicting OML and LDAC Criteria over Whole Person Scores***

	OML Score					OML: LDAC Performance Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.26**	.50	*62.4*	**.26** (.50)	.26 (.50)	**.20**	.37	*70.2*	**.20** (.37)	.19 (.36)
Step 2: Operational CBEF composite	**.20**	.15	*37.6*	***.33*** (.52)	.32 (.51)	**.13**	.03	*29.8*	***.24*** (.37)	.23 (.36)
	OML: LDAC Platoon Tactical Evaluation Score					OML: LDAC Land Navigation Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.14**	.21	*61.8*	**.14** (.21)	.13 (.20)	**.21**	.49	*98.5*	**.21** (.49)	.21 (.49)
Step 2: Operational CBEF composite	**.11**	.09	*38.2*	***.18*** (.23)	.16 (.20)	.02	.01	*1.5*	**.22** (.49)	.20 (.48)
	OML: PMS Potential Score									
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}					
Step 1: Whole Person Score	**.16**	.21	*35.4*	**.16** (.21)	.15 (.20)					
Step 2: Operational CBEF composite	**.21**	.17	*64.6*	***.26*** (.27)	.25 (.25)					

Note. n = 705. B_r = Standardized regression coefficient for the full model (both predictors). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p<.05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution for such statistics. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

All CBEF Biodata Scales vs. All TAPAS Scales. Table 5.3 shows that the full set of CBEF biodata scales and TAPAS scales significantly incremented the WPS. Corrected cross-validated model R values for the CBEF biodata scales ranged from .34 (LDAC Land Navigation score) to .66 (OML score), whereas for the TAPAS scales, corrected cross-validated model R values ranged from .37 (LDAC Land Navigation score) to .61 (OML score).

Comparing these incremental validity estimates revealed that the CBEF and TAPAS hold considerable potential for incrementing the WPS. A moderate difference emerged for predicting OML (R = .66 for CBEF biodata vs. R = .61 for TAPAS), which corresponds to the measure that USACC operationally uses for officer branch assignment.

Regarding the components of the OML, the results were mixed. The CBEF composites resulting in higher levels of incremental validity for the LDAC Performance score (.52 for CBEF biodata vs. .49 for TAPAS) and the Platoon Tactical Evaluation score (.55 for CBEF biodata vs. .49 for TAPAS), but the TAPAS resulted in higher levels of incremental validity for the Land

Navigation Score (.37 for TAPAS vs. .34 for CBEF) and the PMS Potential score (.45 for TAPAS vs. .41 for CBEF).

Table 5.3. ***Incremental Validity of All CBEF Biodata Scales and All TAPAS Scales for Predicting OML and LDAC Criteria over Whole Person Scores***

	OML Score	OML: LDAC Performance Score	OML: LDAC Land Navigation Score	OML: LDAC Platoon Tactical Evaluation Score	OML: PMS Potential Score
Model *R*					
All CBEF Biodata over WPS					
Step 1: Whole Person Score	**.26** (.50)	**.20** (.37)	**.14** (.21)	**.21** (.49)	**.16** (.21)
Step 2: All CBEF Biodata Scales	***.54*** (.68)	***.42*** (.55)	***.33*** (.39)	***.33*** (.58)	***.42*** (.45)
All TAPAS over WPS					
Step 1: Whole Person Score	**.27** (.50)	**.20** (.37)	**.16** (.21)	**.21** (.49)	**.17** (.21)
Step 2: TAPAS	***.48*** (.63)	***.41*** (.52)	***.34*** (.41)	**.27** (.52)	***.43*** (.48)
Cross-validated Model *R*					
All CBEF Biodata over WPS					
Step 1: Whole Person Score	.25 (.50)	.19 (.37)	.13 (.20)	.20 (.49)	.15 (.20)
Step 2: All CBEF Biodata Scales	.51 (.66)	.37 (.52)	.27 (.34)	.27 (.55)	.37 (.41)
All TAPAS over WPS					
Step 1: Whole Person Score	.27 (.50)	.19 (.37)	.15 (.20)	.20 (.49)	.16 (.20)
Step 2: TAPAS	.45 (.61)	.37 (.49)	.29 (.37)	.21 (.49)	.39 (.45)

Note. Four-year scholarship, n = 704 for CBEF biodata models and 701 for TAPAS models. The top set of coefficients represents the model *R*, or the multiple correlations for the models. The bottom set of coefficients represents the model R_{cv}, or the cross-validated multiple correlations for the models. Range restriction corrected estimates for both model *R* and model R_{cv} are noted in parentheses. Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model *R*). Significance is not indicated for corrected statistics as there is no known sampling distribution for such statistics. Italicized *R* indicates the change in *R* between steps of the model was statistically significant, $p < .05$ (one-tailed).

CBEF Experimental Biodata Scales. As indicated in Table 5.4, the set of experimental CBEF biodata scales significantly incremented the validity of the WPS and operational CBEF composite in the prediction of all leadership criteria. In fact, when examining the relative weights (see Table F.10 of Appendix F), we see that the set of experimental biodata scales accounted for a majority of the full model R^2, ranging from 40.5% to 75.2%. Again, Tolerance for Injury and Interest in Leadership were the two most important predictors across criteria, accounting for an average of 17.0% and 17.6% of the model R^2s across criteria.

Table 5.4. ***Summary of Incremental Validity Evidence for Predicting OML and LDAC Criteria over Whole Person Scores and the Operational CBEF Composite***

	OML Score	OML: LDAC Performance Score	OML: LDAC Platoon Tactical Evaluation Score	OML: LDAC Land Navigation Score	OML: PMS Potential Score
Increment in R Over WPS + Operational CBEF					
8 Experimental CBEF biodata scales	.06	.14	.11	.08	.11
All 11 Work Values scales	*ns*	*ns*	*ns*	*ns*	.07
Officer Fit Index	*ns*	.02	*ns*	*ns*	.01
2 LKT C-Score scales	*ns*	*ns*	*ns*	*ns*	*ns*
3 GAI scales	.03	*ns*	*ns*	*ns*	*ns*
Overall Identity Score	.02	*ns*	*ns*	*ns*	*ns*
Cross-validated Increment in R Over WPS + Operational CBEF					
8 Experimental CBEF biodata scales	.03	.10	.06	.10	.06
All 11 Work Values scales	*ns*	*ns*	*ns*	*ns*	*ns*
Officer Fit Index	*ns*	.01	*ns*	*ns*	.00
2 LKT C-Score scales	*ns*	*ns*	*ns*	*ns*	*ns*
3 GAI scales	.02	*ns*	*ns*	*ns*	*ns*
Overall Identity Score	.02	*ns*	*ns*	*ns*	*ns*

Note. Values in this table are based on results presented in Appendix F. Cells in this table represent Δ*R*, or the increment in validity of the set of non-cognitive predictors in question over and above the WPS and operational CBEF composite in predicting a given criterion. Increments in the top half of the table represent the difference between corrected *R*s for a model containing the WPS, operational CBEF composite and non-cognitive scales in question versus a model containing only the WPS and operational CBEF composite. Increments in the bottom half of the table represent the difference between corrected cross-validated *R*s for a model containing the WPS, operational CBEF composite, and non-cognitive scales in question versus a model containing only the WPS and operational CBEF composite. Only statistics for statistical significant increments in *R* have been reported (Appendix F contains complete results). *ns* = the increment in *R* is not significant.

Work Values Scales. The results in Table 5.4 show that the set of Work Values scales added incremental value only when predicting the PMS Potential score. In this instance, the set of Work Values scales contributed to 77.4% of the full model R^2, with Selfless Service, Leadership Opportunities, Structured Work, Challenge, and Teamwork accounting for the largest portions of the model (between 9.6% and 14.5%; see Table F.11 in Appendix F).

Similar to the results of the individual Work Values scales, the Officer Fit Index added incrementally in the prediction of PMS Potential score, with a very small, but significant, change in *R* of .01 (for observed values corrected for multivariate range restriction) and a relative weight of 43.3% (compared to 41.7% accounted for by the CBEF composite, please refer to Table F.11). The Officer Fit Index also added value to the existing components of the four-year scholarship awarding process in the prediction of the LDAC Performance score. Again, the increment was small, with a change in multivariate range restriction corrected *R* of .02 (.01 for the corrected cross-validated values). In this instance, the Officer Fit Index accounted for 51.2% of the full model R^2, compared to 46.9% accounted for by the WPS (see Table F.12 in Appendix F).

Leadership Knowledge Test. Based on Table 5.4, the LKT did not predict the OML-LDAC criteria over and above the WPS and operational CBEF composite (see Table F.13 for details).

GAI. Results of the incremental validity analyses indicated that the set of GAI scales did in fact predict performance above and beyond the WPS and CBEF composite, but only for OML score. The effect was small – the significant change in the corrected cross-validated *R* was .02 and the set of three scales only accounted for 13.5% of the full model R^2 (see Table F.14).

When examining the incremental validity of the Overall Identity score above and beyond the WPS and operational CBEF composite, we see results similar to those found for the individual GAI scales. Specifically, that the Overall Identity score significantly incremented the validity for the OML score although the effect was small – the change in corrected cross-validated *R* was .02, and the Overall Identity score accounted for 10.0% of the full model R^2 (see Table F.15).

Summary of the CBEF L1 Scales as Predictors of OML and LDAC Criteria. In summary, multiple scales showed value in predicting the leadership performance criteria, while several indicated they could add incremental value above and beyond the WPS and operational CBEF composite. Although the set of Work Values scales, and to a lesser extent the LKT and GAI subscales, were related to OML-LDAC criteria, these scales showed little promise for adding incremental value over and above the validity provided by the WPS and operational CBEF composite.

As previously noted, the OML is the critical outcome to predict because it is used operationally by USACC to support officer branch assignment. The results indicate that the CBEF composite yields higher validity for predicting OML compared to the TAPAS composite assignment (Cross-Validated Model *R* corrected for range restriction: .61 for CBEF biodata vs. .47 for TAPAS; See Table 5.1). The CBEF composite also adds slightly more incremental validity to the WPS compared to the TAPAS composite (corrected cross-validated model $R = .66$ for the CBEF scales versus $R = .61$ for the TAPAS; Table 5.3).

The results with respect to predicting components of the OML were more mixed, with the CBEF composite predicting some OML components better than the TAPAS composite, and the TAPAS composite predicting other OML composites better than the CBEF.

Predicting Performance Criteria: GPA and APFT Scores

In addition to the leadership performance variables, the relations between the non-cognitive predictors and academic and physical performance were also examined. Table 5.5 presents a summary of the relationships between each predictor scale composite and GPA and APFT scores. Tables summarizing both the standardized regression weights and relative weights of each of the individual scales included in the models can be found in Appendix F (Tables F.16 through F.22).

Table 5.5. ***Summary of Validity Evidence for Non-Cognitive Models in Predicting GPA and APFT Scores***

	OML: Cumulative Overall GPA Score	OML: LDAC APFT Score	OML: Fall Semester APFT Score
Full Model R			
C1: All 15 CBEF biodata scales	**.47** (.66)	**.56** (.60)	**.44** (.51)
C2: All 12 TAPAS scales	**.28** (.41)	**.48** (.50)	**.40** (.48)
C3: 7 CBEF Core biodata scales	**.44** (.66)	**.55** (.58)	**.43** (.47)
C4: 8 Experimental CBEF biodata scales	**.26** (.51)	**.19** (.33)	**.19** (.31)
C5: All 11 Work Values scales	**.19** (.45)	**.22** (.31)	**.23** (.31)
C6: 2 LKT C-Score scales	**.18** (.27)	**.**07 (.12)	**.09** (.15)
C7: 3 GAI scales	**.18** (.27)	.07 (.12)	**.09** (.15)
C1: All 15 CBEF biodata scales	**.12** (.35)	.07 (.17)	**.08** (.20)
Cross-validated Model R			
C1: All 15 CBEF biodata scales	.45 (.65)	.54 (.59)	.42 (.49)
C2: All 12 TAPAS scales	.25 (.34)	.46 (.44)	.38 (.42)
C3: 7 CBEF Core biodata scales	.43 (.64)	.54 (.55)	.42 (.43)
C4: 8 Experimental CBEF biodata scales	.24 (.47)	.16 (.26)	.16 (.24)
C5: All 11 Work Values scales	.10 (.38)	.15 (.21)	.16 (.20)
C6: 2 LKT C-Score scales	.17 (.25)	.04 (.07)	.08 (.11)
C7: 3 GAI scales	.10 (.32)	.03 (.11)	.05 (.15)

Note. n = 1,217 for all 15 CBEF biodata scales. n = 1,205 for the 12 TAPAS scales. n = 1,218 for the seven CBEF core biodata scales. n = 1,217 for the eight experimental CBEF biodata scales. n = 651 for the 11 Work Values scales. n = 1,121 for two LKT scales. n = 1,162 for the three GAI scales. The top set of coefficients represents the model R, or the multiple correlation for the full model. The bottom set of coefficients represent the model R_{cv}, or the cross-validated multiple correlation for the full model. Range restriction corrected estimates for both model R and model R_{cv} are noted in parentheses. Bolded values are statistically significant, $p < .05$ (one-tailed for raw model R). Significance is not indicated for corrected statistics because there is no known sampling distribution.

All CBEF Biodata Scales vs. All TAPAS Scales. Results of regressing GPA and APFT scores on all 15 CBEF biodata scales and all TAPAS scales revealed that both the full set of CBEF biodata scales (C1) and the full set of TAPAS scales (C2) were significantly related to all criteria. For the CBEF biodata scales, corrected cross-validated model R values ranged from .49 (Fall Semester APFT score) to .65 (Cumulative overall GPA), whereas for the TAPAS scales, corrected cross-validated model R values ranged from .34 (Cumulative overall GPA) to .44 (LDAC APFT score). Comparing these validity estimates revealed that composites formed of all CBEF biodata scales tended to outperform composites formed of all TAPAS scales, with the most notable differences emerging for Overall GPA (.65 for CBEF biodata vs. .34 for TAPAS) and LDAC APFT score (.59 for CBEF biodata vs. .44 for TAPAS).

Examination of the relative weights for individual CBEF scales that comprise full CBEF composites above (see Tables F.16 in Appendix F) revealed that Achievement was the most important predictor of GPA, accounting for 53.2% of the full model R^2 estimate, and Fitness Motivation was the most important predictor of the APFT criteria, accounting for 74.5% and 81.9% of the full model R^2 estimates for prediction of fall semester APFT and LDAC APFT scores respectively. A comparison of these results with those used to weight the operational

CBEF composite reveals multiple similarities and a few key differences in the relative importance of the scales (Putka et al., 2012). Whereas Army Identification was the most important scale in predicting disenrollment (the basis of the operational composite), it plays a somewhat minimal role in the prediction of GPA and APFT (accounting for a maximum of 7.9% of any of the full model R^2s). In contrast, Fitness Motivation was clearly an important predictor of APFT criteria, but plays a minimal role in the prediction of disenrollment. With regard to experimental CBEF scales, none of them accounted for more than 10% of the full model coefficients of determination for predicting GPA and APFT criteria.

With regard to the relative importance the individual TAPAS scales (Table F.17 in Appendix F) that comprise the full TAPAS composites, examination of the relative weights revealed that Achievement and Curiosity were the most important predictors of GPA accounting for 28.9% and 20.2% of the full model R^2. As expected, Physical Conditioning was the most important predictor of the APFT criteria, accounting for 68.6% and 74.0% of the full model R^2 estimates for prediction of fall semester and LDAC APFT scores respectively.

Despite the fact that there is not complete construct overlap between the TAPAS and CBEF biodata scales, a comparison of the relative weight results for the TAPAS to those of the full CBEF reveal a number of similarities, which serve to reinforce the importance of the top predictors. For example, fitness related scales (e.g., CBEF Fitness Motivation, TAPAS Physical Conditioning) emerged as the most important predictors of APFT criteria within the TAPAS and CBEF composites. Moreover, the CBEF and TAPAS Achievement scales both emerged as the most important predictors of cumulative overall GPA.

Core vs. Experimental CBEF Biodata Scales. Given the results above, we examined how the CBEF core scales (those that have been consistently used over the course of ROTC CBEF research) fared as a group compared to the experimental CBEF scales evaluated as part of the current effort. Results of regressing GPA and APFT criteria on the seven core biodata scales produced corrected cross-validated model *R* values ranging from .43 (fall semester APFT score) to .64 (Cumulative overall GPA). When examining the relative weights of the individual CBEF scales (see Table F.18), Achievement was by far the most important predictor of GPA, whereas Fitness Motivation was by far the most important predictor of the APFT criteria. Results of regressing the OML and LDAC criteria on the set of experimental CBEF biodata scales indicated that the set of eight experimental biodata scales significantly predicted both GPA and APFT criteria, with corrected cross-validated *R* values of .24 for fall semester APFT score to .47, which are notably lower than the range of *R* values achieved when using the core biodata scales for predicting these criteria. When predicting cumulative overall GPA, Instrumentality of ROTC to Career Goals was the most important predictor, accounting for 43.3% of the model R^2, while Tolerance for Injury was most important in predicting APFT scores, accounting for 69% of the R^2 in the APFT models (see Table F.19).

Work Values Scales. Corrected cross-validated model *R* for the set of Work Values scales ranged from .20 (fall semester APFT score) to .38 (GPA). For the prediction of GPA, Selfless Service emerged as the most important predictor, accounting for 30.4% of the full model R^2 (see Table F.20). Challenge emerged as the strongest predictor for both physical performance variables, accounting for 66.4% of the full model R^2 for LDAC APFT score and 37.9% for the cadets' last semester APFT.

Leadership Knowledge Test (LKT). Results also indicate the LKT significantly predicted academic performance, with a corrected cross-validity coefficient of .25. The Skills C-score was the more important predictor of the two LKT subscales (see Table F.21), accounting for 88.5% of the full model R^2. The relationship between LKT scales and LDAC APFT scores was not significant, while their relationship with Fall Semester APFT scores was significant, but small (R = .11). Again, in both instances, the Skills C-score was by far the more important predictor accounting for a minimum of 92.7% of the full model *R*.

GAI. GAI scales were significant predictors of all three academic and physical performance criteria. The strongest relationship was between the GAI and cumulative overall GPA, with a notable corrected cross-validity coefficient of .32. The most important predictor of GPA was the Identity Stability score, accounting for 64.5% of the full model R^2 (see Table F.22). The most important predictor of the physical fitness criteria, on the other hand, was the Identity Centrality score, accounting for 48.9% of the full model R^2in predicting LDAC APFT scores (corrected cross-validated R = .11) and 45.8% when predicting Fall Semester APFT scores (corrected cross-validated R = .15).

Incremental Validity Evidence: GPA and APFT Scores

The sections below provides results of analyses performed to examine the incremental validity of: (a) the operational CBEF composite over the WPS (Table 5.6), (b) the full set of CBEF biodata scales relative to the full set of TAPAS scales over the WPS and operational CBEF composite (Table 5.7) and (c) various other combinations of CBEF L1 scales over the WPS and operational CBEF composite (Table 5.8) in predicting the GPA and APFT criteria. Tables summarizing both the standardized regression weights and relative weights of each of the individual scales included in the incremental validity models can be found in Appendix F (Tables F.23 through F.30).

Incremental Validity of Operational CBEF Composite. Results in Table 5.6 indicate that the operational CBEF composite significantly incremented the validity of the WPS for predicting both academic and physical fitness criteria, though the magnitude of these increases were quite small (no larger than .02 based on corrected cross-validated estimates).

Table 5.6. ***Incremental Validity of the Operational CBEF Composite for Predicting GPA and APFT Scores over WPS***

	OML : Cumulative Overall GPA Score					OML: LDAC APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: WPS	**.22**	.49	*77.1*	**.23** (.49)	.22 (.49)	**.11**	.24	*51.5*	***.11*** (.24)	.10 (.23)
Step 2: CBEF composite	**.12**	.10	*22.9*	***.26*** (.50)	.25 (.49)	**.11**	.09	*48.5*	***.16*** (.25)	.14 (.23)

	OML: Fall Semester APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}
Step 1: WPS	**.08**	.22	*25.7*	**.08** (.22)	.06 (.21)
Step 2: CBEF composite	**.13**	.11	*74.3*	***.15*** (.25)	.13 (.23)

Note. n = 705. B_r = Standardized regression coefficient for the full model (all predictors). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, p<.05 (one-tailed for regression coefficients and for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution for such statistics. Italicized R indicates the change in R between steps of the model was statistically significant, p < .05 (one-tailed).

All CBEF Biodata Scales vs. All TAPAS Scales. Table 5.7 shows that the full set of CBEF biodata scales and TAPAS scales significantly incremented the WPS. Corrected cross-validated model R values for the CBEF biodata scales ranged from .49 (fall semester APFT score) to .67 (GPA), whereas for the TAPAS scales, corrected cross-validated model R values ranged from .49 (fall semester APFT score) to .56 (GPA). Comparing these incremental validity estimates revealed that the CBEF appeared to hold more potential for then the TAPAS for incrementing the WPS when predicting GPA and LDAC APFT scores, but comparable potential for predicting fall semester APFT scores.

Experimental CBEF Biodata Scales. The set of experimental biodata scales incremented the validity of the WPS and operational CBEF composite in the prediction of all criteria, with the largest value add for predicting cumulative overall GPA (change in corrected cross-validated R = .09). With regard to the relative contribution of the CBEF scales compared to the WPS and operational CBEF composite (see Table F.25 in Appendix F), the experimental biodata scales emerged as the most important for all criteria, with the set accounting for a minimum of 50.4% of the full model R^2. For cumulative overall GPA, the most important predictor was Instrumentality of ROTC to Career Goals (28.2%), while for the APFT-related criteria Tolerance for Injury was most important (accounting for a minimum of 42.5% of the full model R^2).

Table 5.7. ***Incremental Validity of All CBEF Biodata Scales and All TAPAS Scales for Predicting GPA and APFT Scores over Whole Person Scores***

	OML: Cumulative Overall GPA Score	OML: LDAC APFT Score	OML: Fall Semester APFT Score
Model *R*			
All CBEF Biodata over WPS			
Step 1: Whole Person Score	**.23** (.49)	**.11** (.24)	**.08** (.22)
Step 2: All CBEF Biodata Scales	***.54*** (.69)	***.55*** (.62)	***.45*** (.52)
All TAPAS over WPS			
Step 1: Whole Person Score	**.23** (.49)	**.12** (.24)	**.09** (.22)
Step 2: TAPAS	***.38*** (.58)	***.51*** (.55)	***.46*** (.52)
Cross-validated Model *R*			
All CBEF Biodata over WPS			
Step 1: Whole Person Score	.22 (.49)	.10 (.23)	.06 (.21)
Step 2: All CBEF Biodata Scales	.51 (.67)	.52 (.60)	.41 (.49)
All TAPAS over WPS			
Step 1: Whole Person Score	.22 (.49)	.11 (.23)	.07 (.21)
Step 2: TAPAS	.34 (.56)	.48 (.53)	.43 (.49)

Note. Four-year scholarship N = 704 for CBEF biodata models and 701 for TAPAS models. The top set of coefficients represents the model *R*, or the multiple correlations for the models. The bottom set of coefficients represents the model R_{cv}, or the cross-validated multiple correlations for the models. Range restriction corrected estimates for both model *R* and model R_{cv} are noted in parentheses. Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model *R*). Significance is not indicated for corrected statistics as there is no known sampling distribution for such statistics. Italicized *R* indicates the change in *R* between steps of the model was statistically significant, $p < .05$ (one-tailed).

Work Values Scales. The Work Values scales significantly incremented the validity of the WPS and operational CBEF composite for all academic and physical performance criteria. The Work Values scales accounted for between 62.0% (cumulative overall GPA) and 87.0% (LDAC APFT score) of the full model R^2s (see Table F.26 in Appendix F). For predicting cumulative overall GPA, Structured Work was the most important predictor (13.8% of full model R^2). For APFT scores Pay and Challenge clearly emerged as most important, contributing more to the full model R^2s than either the WPS or operational CBEF composite. Unlike the individual Work Values scales, the Officer Fit Index did not predict the academic and performance outcomes over and above the WPS and operational CBEF composite (see Table 5.8 and Table F.27 in Appendix F).

Leadership Knowledge Test. The LKT incremented the validity of the WPS and operational composite in predicting cumulative overall GPA, although the effect was small (change in corrected cross-validated $R = .00$). The two scales together accounted for 21.5% of the full model R^2, mainly due to the Skills C-Score (which accounted for 18.3%; see Table F.28 in Appendix F).

Table 5.8. ***Summary of Incremental Validity Evidence for Non-Cognitive Models in Predicting GPA and APFT Scores***

	OML : Cumulative Overall GPA Score	OML: LDAC APFT Score	OML: Fall Semester APFT Score
Increment in R Over WPS + Operational CBEF			
8 Experimental CBEF biodata scales	.11	.09	.08
All 11 Work Values scales	.07	.11	.09
Officer Fit Index	*ns*	*ns*	*ns*
2 LKT C-Score scales	.01	*ns*	*ns*
3 GAI scales	.06	.04	.04
Overall Identity Score	.06	*ns*	*ns*
Cross-validated Increment in R Over WPS + Operational CBEF			
8 Experimental CBEF biodata scales	.09	.03	.01
All 11 Work Values scales	.03	.03	.00
Officer Fit Index	*ns*	*ns*	*ns*
2 LKT C-Score scales	.00	*ns*	*ns*
3 GAI scales	.05	.01	.01
Overall Identity Score	.05	*ns*	*ns*

Note. Values in this table are based on results presented in Appendix F. Cells in this table represent ΔR, or the increment in validity of the set of non-cognitive predictors in question over and above the WPS and operational CBEF composite in predicting a given criterion. Increments in the top half of the table represent the difference between corrected *R*s for a model containing the WPS, operational CBEF composite and non-cognitive scales in question versus a model containing only the WPS and operational CBEF composite. Increments in the bottom half of the table represent the difference between corrected cross-validated *R*s for a model containing the WPS, operational CBEF composite, and non-cognitive scales in question versus a model containing only the WPS and operational CBEF composite. Only statistics for statistical significant increments in *R* have been reported (Appendix F contains complete results)\. *ns* = the increment in *R* is not significant.

GAI. Results indicated that the GAI scales incremented the validity of the WPS and operational CBEF composite in predicting both cumulative overall GPA and Fall Semester APFT Scores. With regard to the relative contribution of scales in the prediction of cumulative overall GPA (Table F.29 in Appendix F), the set of GAI scales accounted for 31.2% of the full model R^2, a value similar to the contribution to that of the WPS and the operational CBEF composite. All three GAI subscales also contributed fairly evenly, accounting for between 8.6% and 12.9% of the full model R^2. In predicting Fall Semester APFT scores, the GAI scales combined contributed to 41.9% of the model R^2 with the Identity Centrality score accounting for 24.1%, a contribution similar to that afforded by the WPS (20.5%). Therefore, when predicting academic performance, the GAI scales show incremental value over the existing components of the four-year scholarship awarding process.

As was the case with the individual GAI scales, the Overall Identity Score incremented the validity of the WPS and operational CBEF composite in predicting cumulative overall GPA, with each composite contributing almost equally to overall model R^2 (see Table F.30 in Appendix F for results). It did not, however, significantly predict APFT scores over and above the WPS and operational CBEF composite.

Summary of the CBEF L1 as a Predictor of GPA and APFT Scores. In summary, multiple scales showed value in predicting the academic and physical performance variables. The CBEF core biodata scales showed the most promise in predicting cumulative overall GPA, accounting for approximately 41% variance. With the exception of the Officer Fit Index, all sets of scales/composites not only predicted cumulative overall GPA, but added incrementally to the prediction over and above WPS and the operational CBEF composite.

In the prediction of LDAC APFT and Fall Semester APFT scores, the individual CBEF biodata scales, Work Values scales, and TAPAS scales were the strongest predictors, with all sets of scales (and the CBEF scales, in particular) incrementing the validity of the WPS and operational composite. The Officer Fit Index, LKT, and Overall Identity Score, however, did not add value in the prediction of APFT scores over and above the current components of the four-year ROTC scholarship selection process.

Chapter 6: Recommendations for Next Steps

Our recommendations for next steps based on findings from this project fall into two categories. Based on experiences and lessons learned from the LDAC 2010 data collection, the first set of recommendations address potential improvements for future data collection procedures, while the second set of recommendations focus on adjustments to CBEF biodata scale item content. This chapter elaborates on our recommendations in these areas.

Recommendations for Future Data Collections

There were a number of lessons to be learned from the LDAC 2010 data collection. The two main recommendations stemming from these lessons are to (a) reduce testing time from the existing 90 minutes down to 60 minutes, and (b) administer the CBEF and associated measures under more favorable conditions (e.g., better lighting, adequate writing surfaces).

The testing time for the 2010 LDAC data collection was approximately 90 minutes. Although testing time did not have a substantial impact on scale validity estimates, respondent fatigue associated with the testing time did impact some of the psychometric properties of the scales. It particularly had an impact on the LKT, which was administered last on one of the CBEF forms. To collect better quality data and decrease the burden put on cadets (who are typically completing these assessments after a long day of training), we recommend decreasing testing time down to a more manageable length (e.g., 60 minutes), or moving the administration to a time at which cadets would be less fatigued/distracted.

Another test administration factor that may have impacted the quality of the CBEF data collected as part of this research effort was lighting. Cadets completed the CBEF in their bunks during the evening time, where lighting quality may have impacted their ability to respond to the CBEF items. Therefore, we would recommend future data collections ensure that there is adequate lighting during test administration.

Recommendations for Adjustments to CBEF Item Content

Based on the analyses conducted in this research effort, we identified modifications for the item content of the CBEF biodata scales prior to future LDAC test administrations (or administrations at similar training courses). Based on the limited validity evidence for predicting important leadership outcomes, 23 CBEF items should be considered for revision or removal including: (a) 8 items from the Manipulativeness scale, (b) 4 items from the Instrumentality of ROTC to Career Goals scale, (c) 6 items from the Selfless Service scale, and (d) 5 items from the Social Interests scale. These items exhibited one or more potential problems, including low convergence within scale, low discrimination with criteria, and unintended correlations with other predictors. The graphical army identification (GAI) test exhibited limited validity or incremental validity for the criteria investigated, as well as conceptually overlapping with the CBEF Army Identification biodata scale.

In lieu of the CBEF items and GAI scale discussed above, experimental CBEF biodata item content could be considered in the future. The Equity Sensitivity scale (9 items) had originally been proposed to be included in the CBEF L1, and would be an expanded version of

the Equity Sensitivity (EQ) scale used in ARI's recent OCS project data collections (Allen, Bynum, Erk, Babin & Young, 2014). Additionally Goal Orientation/Expectation (6 items), Narcissism (6 items), and Tolerance for Ambiguity (9 items) could be included. All three of these scales have recently been incorporated into OCS's Officer Background Experience Form (OBEF) and have been predictive of outcomes in that research setting. The LDAC data collection would be a good opportunity to collect additional data needed to further refine these scales. Lastly, we would recommend adding a scale to assess Coachability. In total, these recommendations would incorporate 35 additional biodata items to the CBEF L1.

Based on recommendations stemming from ARI's Army Officer Predictor and Criterion Measure project, two additional tests merit consideration for investigation in predicting ROTC outcomes: the Consequences test, and the Cognitive Complexity test (Zaccaro et al., 2015). The Consequences and Cognitive Complexity tests have also shown promise in predicting important officer-related outcomes. The Consequences test is a 10 minute timed test that present examinees with five hypothetical situations. For each hypothetical situation, individuals have two minutes to write as many consequences in response to the situation as possible. For the Cognitive Complexity test, examinees are shown nine sets of behaviors. Each set of behaviors contains six statements that reflect ways of behaving or reacting to an event. Individuals are asked to rank order the statements in terms of how well they reflect their typical way of behaving.

Despite considering adding to the test content, it is clear from this research effort that efforts need to be taken to further constrain test administration time. In order to collect sufficient data on each of the measures recommended above while minimizing test administration time and respondent fatigue effects, future research endeavors might create multiple test forms (see Table 6.1 for one example approach). These form recommendations were created based on: (a) the 60 minute time cap, (b) interest in gathering initial research data for the Consequences and Cognitive Complexity tests, (c) USACC's desire to re-administer the TAPAS to LDAC cadets, and (d) interest in gathering additional data on the LKT.

Table 6.1. ***Recommended Configurations for the Next Iteration of the CBEF LDAC Test Battery***

Measure	Time	Form A1	Form A2	Form B	Form C
CBEF biodata	30	1st	2nd	3rd	
TAPAS	30	2nd	1st		3rd
Consequences	10			1st	1st
Cognitive Complexity	10			4th	4th
LKT	10			2nd	2nd
Total Time		60	60	60	60

Note. Form A1 and A2 are identical except that the order of administration of CBEF biodata and TAPAS are reversed (Form A1 TAPAS 1st - biodata 2nd; Form A2 biodata 1st - TAPAS 2nd). In Forms B and C, Consequences will be administered first as it has a 10-minute time limit. The items in Consequences and Cognitive Complexity are presented in reverse order in Form C (relative to the order in which they appear on Form B). In addition, the behaviors in each set in the Cognitive Complexity items are reordered in Form C (again, relative to the order in which they appear in Form B).

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Appendix A: Research Scales by Version

Table A.1. *Research Scales by Version*

Type	Scale	CBEF X1 (F06, F07)	CBEF X2 (F08)	CBEF HS (F10, F11)	CBEF L1 (LDAC F07)	Definition
Biodata	**Achievement Orientation**	X	X	X	X	The willingness to give one's best effort and to work hard toward achieving difficult objectives.
Biodata	**Army Identification**	X	X	X	X	The degree of personal identification with, and intrinsic interest in becoming, a U.S. Army officer.
Biodata	Cognitive Flexibility	X				The willingness to entertain new approaches to solving problems, create new plans and ideas, and initiate and accept change and innovation.
Biodata	Continuance Commitment		X			The degree of commitment to finishing college or completing ROTC because (a) the cost of leaving is too high, (b) the quality of his/her options will be better, or (c) it is a way to achieve his/her ultimate career goal.
Biodata	Cultural Tolerance	X	X			The willingness to work with people of different cultures, and the ability to establish supportive work relationships with people of a variety of racial and ethnic backgrounds.
Biodata	Educational Identification	X	X			The desire to obtain a college degree, and the self-perception of being someone who will complete college.
Biodata	**Fitness Motivation**	X	X	X	X	The degree of enjoyment from participating in physical exercise, and the willingness to put in the time and effort to maintain good physical conditioning.
Biodata	**Hostility to Authority**	X	X	X	X	The tendency to be suspicious of the motives and actions of legitimate authority figures, and to view the rules, regulations, and directives from higher authority as punitive and illegitimate.
Biodata	Impulsiveness	X				The tendency to act without thinking beforehand.
Biodata	Interest in Leadership				X	Preference for serving as a leader, being in a position of influence on project teams in which one serves.
Biodata	Instrumentality of ROTC Funding			X		The personal importance of obtaining an ROTC scholarship to pay for college.
Biodata	Instrumentality of ROTC to Long-Term Goals			X	X	The personal importance of ROTC to achieving long-term career goals.
Biodata	Interpersonal Skills - Diplomacy	X				The tendency to be extroverted and outgoing. The ability to easily make friends, establish rapport with strangers, and meet and greet people.
Biodata	Leadership Self-Efficacy				X	The feeling that one is able to lead groups in successful performance.
Biodata	Manipulativeness		X	X	X	The tendency to use deception or shortcuts against others or against "the system" for personal gain and gratification.
Biodata	Past Withdrawal Propensity		X	X		The tendency to leave groups because of changing interests or lack of attachment.

Table A.1. ***(Continued)***

Type	Scale	CBEF X1 (F06, F07)	CBEF X2 (F08)	CBEF HS (F10, F11)	CBEF L1 (LDAC F07)	Definition
Biodata	Peer Leadership	X			X	The desire to obtain positions of authority and influence. The level of comfort being in charge of a group, and the willingness to make tough decisions and accept responsibility for the group's performance.
Biodata	**Response Distortion**	X	X	X	X	The motivation to respond to items in a socially desirable manner. The scale is designed to detect and adjust for socially desirable responding.
Biodata	**Self-Efficacy**	X	X	X	X	The feeling that one has successfully overcome work obstacles in the past and that one will continue to do so in the future.
Biodata	Selfless Service				X	The desire to help and affect with well-being of others.
Biodata	Social Interests				X	The desire to work and interact with others, particularly on the job.
Biodata	**Stress Tolerance**	X	X	X	X	The ability to maintain one's composure under pressure, and remain calm and in control of one's emotions instead of feeling anxious and worried.
Biodata	Tolerance of Injury Risk		X	X	X	The willingness to participate in activities that might result in physical injury or harm to the individual.
Biodata	Traditional Values		X			Acceptance of societal values, authority, and the value of discipline.
Values	Challenge		X	X	X	Doing work that is challenging.
Values	Comfort		X	X	X	Working in a comfortable, relaxed environment.
Values	Home		X	X	X	Doing work that keeps one close to home.
Values	Leadership		X	X	X	Providing guidance and direction to others.
Values	Pay		X	X	X	Receiving a good salary and benefits.
Values	Recognition		X	X	X	The desire to receive recognition or praise for what one does.
Values	Self-Direction		X	X	X	The ability to come up with one's own way to do tasks.
Values	Selfless Service		X	X	X	The willingness to contribute to society and the well-being of others.
Values	Structure		X	X	X	The desire for having well-defined rules for accomplishing tasks.
Values	Teamwork			X	X	The desire to work as part of a team.
Values	Variety			X	X	The desire to work on a variety of types of problems.

Table A.1. ***(Continued)***

Type	Scale	CBEF X1 (F06, F07)	CBEF X2 (F08)	CBEF HS (F10, F11)	CBEF L1 (LDAC F07)	Definition
PFC	Group Orientation	X	X			The tendency to seek out and affiliate with a group.
PFC	Need for Autonomy vs. Need for Affiliation		X			The tendency to prefer working alone versus in a group.
PFC	Persistence	X				The tendency to persist in one's group membership and to see oneself as a group member regardless of the circumstances.
PFC	Propensity for Group Commitment		X			The tendency to persist with one's group membership, even when problems arise.
TAPAS	Achievement				X	Individuals with high scores on this factor are described as hard working, ambitious, confident, and resourceful.
TAPAS	Adjustment				X	Those scoring high on this facet demonstrate flexibility in behavior and ability to overcome setbacks quickly.
TAPAS	Curiosity				X	Individuals with high scores on this facet are characterized as inquisitive and perceptive; they are interested in experimenting with objects and substances.
TAPAS	Dominance				X	High scoring individuals are domineering, take charge and are often called "natural leaders" by their peers.
TAPAS	Even Temper				X	Those scoring low on this facet have a tendency to experience a range of negative emotions including irritability, anger, hostility, or aggression; those scoring high tend to be calm and stable.
TAPAS	Intellectual Efficiency				X	Individuals with high scores on this factor are able to process information quickly and would be described by others as knowledgeable, astute, and intellectual.
TAPAS	Non Delinquency				X	People with high scores on this facet tend to comply with current rules, customs, norms, and expectations, dislike changes and do not challenge authority.
TAPAS	Optimism				X	Individuals with high scores on this factor are described as happy and able to maintain a positive outlook.
TAPAS	Physical Conditioning				X	High scoring individuals routinely participate in vigorous sports of exercise and enjoy hard physical work.
TAPAS	Responsibility				X	Those scoring high on this facet express willingness to demonstrate personal responsibility and dedication to duty.

Table A.1. ***(Continued)***

Type	Scale	CBEF X1 (F06, F07)	CBEF X2 (F08)	CBEF HS (F10, F11)	CBEF L1 (LDAC F07)	Definition
TAPAS	Tolerance				X	Individuals scoring high on this facet like to attend cultural events or meet and befriend people with different views; they adapt better to novel situations.
TAPAS	Trust/Cooperation				X	Individuals scoring high are trusting, cordial, cooperative, and easy to live with.
LKT	Characteristics C-Score				X	Ability to assess the importance of characteristics to effective leadership.
LKT	Skills C-Score				X	Ability to assesses the importance of skills to effective leadership.
GAI	Identity Magnitude				X	Extent to which an individual identifies with the Army.
GAI	Identity Centrality				X	Extent to which the Army has a place in one's self-concept.
GAI	Identity Stability				X	Level of consistency in an individual's identification with the Army.

Note. Type = Scale type: Biodata = Rationally keyed biodata scale; Values = Work Values scale; PFC = Propensity for Commitment scale. TAPAS = Tailored Adaptive Personality Assessment System scale. LKT = Leadership Knowledge Test scale. GAI = Graphical Army Identification scale. X = Scale is included on the given version of the CBEF. Scales that appear in boldface type were those scales from CBEF X1 that were carried through to CBEF HS, and then to CBEF L1.

Appendix B: Predictor Descriptive Statistics by Test Form

Because of the potential for rater fatigue effects, two CBEF L1 test forms were created for data collection at LDAC. Form A of the CBEF L1 had students completing the CBEF biodata scales first, followed by the Work Values, GAI, TAPAS, and LKT scales, while Form B of the CBEF L1 had students completing the TAPAS first, followed by the LKT, CBEF biodata scales, Work Values, and lastly the GAI scales. If the order in which students completed the various predictor scores impacted the psychometric properties of the scales, subsequent validation analyses may need to be examined separately by form. As such, we examined the mean, standard deviation, and skew of each predictor scale by test form (see Tables B.1 through B.4). Cronbach's alpha reliability estimates were also calculated for the CBEF biodata scales and GAI Overall Identity Score. The standardized mean difference between test forms was calculated as an effect size indicator of the predictor score differences.

Overall, the scores on the various predictor measures were similar between test forms. Effect sizes ranged from (a) 0.14 on the operational CBEF composite, (b) -0.30 to 0.21 (Mean $|d|$ = 0.12, Mean d = 0.04) on the CBEF core biodata scales, (c) -0.36 to 0.27 (Mean $|d|$ = 0.19, Mean d = 0.00) on the experimental CBEB biodata scales, (d) -0.10 to 0.12 (Mean $|d|$ = 0.05, Mean d = 0.05) on the Work Values scales, (e) -0.14 to .014 (Mean $|d|$ = 0.12, Mean d = 0.04) on the TAPAS scales, (f) -0.14 to 00.06 for the Characteristics and Skills C-scores, respectively, and (g) 0.03 to 0.08 (Mean $|d|$ = .05, Mean d = .05) on the Graphical Army Identification scales.

The largest differences between test forms were found for the biodata scales, which were completed at the very beginning of the CBEF L1 in Form A, and in the middle of the CBEF L1 in Form B. Of the biodata scales, the greatest score differences were found on the CBEF Manipulativeness biodata scale (d = -0.36) and the Hostility-Social Maturity biodata scale (d = 0.30). These differences, however, would still be considered "small" per Cohen's (1988) standards. We also examined the reliability estimates of the CBEF biodata scales to see if they differed between test forms; if the reliability of a particular scale was impacted by test form, it would have a direct effect on the predictive validity of that scale. Results indicated, however, that the reliability estimates were stable across test form, and would therefore have minimal, if any, impact on validity results.

Table B.1. ***Descriptive Statistics and Internal Consistency Reliability Estimates for CBEF Biodata Scales by Test Form***

	CBEF Form A				CBEF Form B				
Predictor	*M*	*SD*	Skew	Coef α	*M*	*SD*	Skew	Coef α	$d_{A\text{-}B}$
Operational CBEF composite	87.49	44.61	-0.09		81.20	42.45	-0.12		.14
Core CBEF Biodata Scales									
Achievement	4.04	0.51	-0.34	0.71	3.98	0.52	-0.52	0.74	.12
Army Identification	3.94	0.64	-0.94	0.87	3.94	0.58	-0.78	0.84	.00
Fitness Motivation	3.69	0.64	-0.15	0.79	3.66	0.62	-0.21	0.77	.04
Hostility-Social Maturity	2.45	0.45	0.20	0.65	2.58	0.46	0.49	0.66	-.30
Self-Efficacy	4.34	0.39	-0.39	0.71	4.29	0.42	-0.33	0.74	.14
Stress Tolerance	3.13	0.46	-0.15	0.67	3.04	0.44	0.11	0.65	.21
Response Distortion	0.07	0.12	2.09	0.43	0.06	0.11	2.34	0.37	.05
Experimental CBEF Biodata Scales									
Hostility to Authority	2.84	0.55	0.13	0.57	2.96	0.52	0.10	0.55	-.22
Social Maturity	1.96	0.53	0.48	0.53	2.11	0.58	0.73	0.57	-.27
Manipulativeness	2.42	0.46	0.35	0.65	2.59	0.46	0.19	0.66	-.36
Tolerance for Injury	3.63	0.72	-0.41	0.72	3.62	0.71	-0.36	0.72	.01
Instrumentality of ROTC to Career Goals	2.66	0.82	0.00	0.72	2.74	0.81	-0.08	0.72	-.11
Interest in Leadership	3.76	0.62	-0.23	0.81	3.67	0.61	-0.34	0.79	.14
Leadership Self-Efficacy	4.26	0.43	-0.31	0.73	4.16	0.46	-0.47	0.76	.22
Peer Leadership	3.64	0.59	-0.04	0.77	3.59	0.59	-0.15	0.78	.09
Selfless Service	4.13	0.52	-0.50	0.71	4.02	0.52	-0.33	0.71	.21
Social Interests	3.85	0.58	-0.35	0.68	3.69	0.59	-0.40	0.69	.27

Note. For Form A, *n* for CBEF biodata scales ranged from 805 – 806. For Form B, *n* for CBEF biodata scales = 778. A-B = Standardized mean difference: Form A - Form B. Positive values mean that individuals who completed Form A scored higher than those that completed Form B.

Table B.2. ***Descriptive Statistics and Internal Consistency Reliability Estimates for the Work Values Scales by Test Form***

	CBEF Form A			CBEF Form B			
Predictor	*M*	*SD*	Skew	*M*	*SD*	Skew	$d_{A\text{-}B}$
Selfless Service	1.24	1.08	-0.51	1.35	1.14	-0.72	-.10
Leadership Opportunities	0.88	0.88	-0.05	0.86	0.90	-0.30	.03
Recognition	-0.13	1.07	0.33	-0.17	1.03	0.31	.03
Pay	0.93	1.01	-0.24	0.81	1.04	-0.09	.12
Structured Work	0.03	1.00	0.31	0.11	0.97	0.26	-.09
Comfortable Work Environment	0.35	1.08	0.28	0.37	1.04	0.31	-.02
Work Close to Home	0.01	1.06	0.47	0.07	1.08	0.50	-.06
Challenge	0.90	0.85	-0.09	0.94	0.91	-0.19	-.05
Self-Direction	0.38	0.89	-0.05	0.42	0.87	-0.03	-.05
Teamwork	0.54	0.92	-0.20	0.60	0.95	-0.15	-.06
Variety	0.53	0.93	-0.37	0.51	0.99	-0.09	.02
Officer Fit Index	0.24	0.40	-0.37	0.25	0.40	-0.48	-.02

Note. For Form A, n = 458 for Work Values scales. For Form B, n = 380 for the Work Values scales.
A-B = Standardized mean difference: Form A - Form B. Positive values mean that individuals who completed Form A scored higher than those that completed Form B.

Table B.3. ***Descriptive Statistics for the TAPAS by Test Form***

	CBEF Form A			CBEF Form B			
Predictor	*M*	*SD*	Skew	*M*	*SD*	Skew	$d_{A\text{-}B}$
Achievement	0.06	0.66	-0.22	0.01	0.67	-0.31	.08
Curiosity	-0.20	0.67	0.11	-0.14	0.66	0.16	-.09
Non-Delinquency	-0.25	0.60	-0.21	-0.28	0.60	-0.09	.05
Dominance	-0.09	0.60	-0.24	-0.01	0.60	-0.43	-.14
Even Temper	0.19	0.60	0.14	0.18	0.60	0.01	.02
Intellectual Efficiency	-0.02	0.73	0.12	0.04	0.70	0.13	-.09
Adjustment	-0.14	0.70	0.38	-0.23	0.66	0.40	.14
Physical Conditioning	0.37	0.77	0.16	0.37	0.78	0.08	.01
Responsibility	-0.25	0.58	0.60	-0.21	0.60	0.52	-.08
Tolerance	-0.77	0.81	0.63	-0.80	0.78	0.61	.04
Trust-Cooperation	-0.57	0.58	0.51	-0.58	0.55	0.34	.02
Optimism	0.03	0.62	0.06	0.02	0.63	0.00	.01

Note. For Form A, n =778. Form B, n = 790. A-B = Standardized mean difference: Form A - Form B. Positive values mean that individuals who completed Form A scored higher than those that completed Form B.

Table B.4. ***Descriptive Statistics and Internal Consistency Reliability Estimates for the LKT and GAI by Test Form***

	CBEF Form A				CBEF Form B				
Predictor	*M*	*SD*	Skew	Coef α	*M*	*SD*	Skew	Coef α	$d_{A\text{-}B}$
Leadership Knowledge Test									
Characteristics C-Score	0.69	0.18	-1.51		0.71	0.16	-1.60		-.14
Skills C-Score	0.61	0.20	-1.04		0.62	0.17	-0.97		-.06
Graphical Army Identification									
Overall Identity Score	4.73	1.11	-0.44	.81	4.67	1.15	-0.40	.83	.05
Identity Magnitude Score	5.22	1.10	-0.79		5.19	1.12	-0.81		.03
Identity Centrality Score	4.19	1.47	0.00		4.08	1.46	0.07		.08
Identity Stability Score	4.77	1.33	-0.52		4.73	1.39	-0.56		.03

Note. For Form A, n =702 for the LKT Characteristics C-score; n = 689 for the Skills C-score; n = 780 for GAI scale. For Form B, n = 790 for LKT Characteristics C-score; n = 784 for Skills C-score; n = 742 for GAI scale. A-B = Standardized mean difference: Form A - Form B. Positive values mean that individuals who completed Form A scored higher than those that completed Form B.

Appendix C: Correlations among All CBEF L1 Predictor Variables

Table C.1. ***Correlations among All LDAC CBEF Predictor Variables***

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 Operational CBEF composite																		
Core CBEF Biodata Scales																		
2 Achievement	**.56**																	
3 Army Identification	**.78**	**.21**																
4 Fitness Motivation	**.45**	**.14**	**.26**															
5 Hostility to Authority-Social Maturity	**-.31**	**-.21**	**-.07**	.00														
6 General Self-Efficacy	**.50**	**.40**	**.34**	**.38**	**-.12**													
7 Stress Tolerance	**.44**	.05	**.11**	**.27**	**-.38**	**.33**												
8 Lie Scale	**-.08**	**.15**	.05	.02	**-.22**	**.18**	**.14**											
Experimental CBEF Biodata Scales																		
9 Hostility to Authority	**-.28**	**-.13**	-.05	.01	**.86**	**-.08**	**-.40**	**-.14**										
10 Social Maturity	**-.23**	**-.23**	**-.06**	-.01	**.79**	**-.11**	**-.21**	**-.25**	**.38**									
11 Manipulativeness	**-.22**	**-.13**	**-.12**	**-.06**	**.51**	**-.16**	**-.32**	**-.33**	**.42**	**.43**								
12 Tolerance for Injury	**.39**	.00	**.44**	**.45**	**.15**	**.28**	**.15**	**-.06**	**.11**	**.14**	.06							
13 Instrumentality of Army to Career Goals	**.32**	**-.09**	**.53**	**.10**	.03	-.02	.01	-.01	.02	.03	.01	**.26**						
14 Interest in Leadership	**.46**	**.31**	**.36**	**.33**	-.03	**.52**	**.24**	.04	-.04	-.01	**-.09**	**.28**	**.09**					
15 Leadership Self-Efficacy	**.49**	**.30**	**.38**	**.34**	**-.08**	**.63**	**.29**	**.12**	**-.06**	**-.07**	**-.13**	**.31**	**.07**	**.64**				
16 Peer Leadership	**.38**	**.36**	**.28**	**.27**	**.09**	**.49**	**.18**	**.12**	**.10**	.04	.01	**.25**	.02	**.62**	**.57**			
17 Selfless Service	**.39**	**.39**	**.34**	**.18**	**-.13**	**.36**	.05	**.15**	-.06	**-.17**	**-.15**	**.23**	**.09**	**.37**	**.43**	**.38**		
18 Social Interests	**.30**	**.23**	**.27**	**.14**	**-.13**	**.23**	**.08**	**.11**	**-.11**	**-.11**	**-.10**	**.15**	**.09**	**.24**	**.31**	**.26**	**.49**	
Work Values																		
19 Selfless Service	**.16**	**.23**	**.13**	.03	**-.14**	**.08**	-.02	**.12**	**-.08**	**-.17**	**-.14**	.00	**.06**	**.08**	**.10**	**.13**	**.47**	**.23**
20 Leadership Opportunities	**.16**	**.13**	**.19**	.04	-.04	**.09**	-.01	**.08**	-.02	-.05	-.01	.04	**.12**	**.24**	**.20**	**.23**	**.34**	**.24**
21 Recognition	-.04	**.07**	-.02	**-.08**	**.08**	-.03	**-.11**	-.02	.04	**.10**	**.13**	**-.06**	-.03	.04	-.01	-.03	-.06	-.01
22 Pay	**-.08**	.02	**-.09**	**-.11**	**.07**	-.03	**-.07**	**-.07**	.05	**.08**	**.15**	**-.17**	-.06	-.06	.00	**-.07**	**-.16**	-.01
23 Structured Work	.03	**.07**	**.10**	**-.10**	-.05	**-.11**	**-.14**	.03	-.02	**-.08**	-.01	**-.08**	**.11**	**-.07**	**-.12**	**-.10**	.02	.01
24 Comfortable Work Environment	**-.25**	-.03	**-.23**	**-.23**	.05	**-.17**	**-.18**	**-.06**	**.06**	.02	**.15**	**-.26**	**-.15**	**-.21**	**-.20**	**-.14**	**-.14**	.00
25 Work Close to Home	**-.24**	-.02	**-.24**	**-.15**	.04	**-.11**	**-.18**	-.02	**.09**	-.04	**.11**	**-.28**	**-.18**	**-.12**	**-.11**	**-.06**	**-.09**	.00
26 Challenge	**.25**	**.15**	**.19**	**.26**	-.05	**.22**	**.14**	**.07**	-.05	-.03	**-.08**	**.28**	**.07**	**.23**	**.20**	**.19**	**.16**	**.11**
27 Self-Direction	**.07**	.02	**.07**	.05	.02	**.09**	.01	.01	.03	.00	.02	**.14**	.05	**.11**	**.12**	**.11**	.02	-.01
28 Teamwork	**.18**	.05	**.18**	**.10**	**-.12**	.01	.03	.03	**-.10**	**-.09**	**-.08**	**.09**	**.17**	**.07**	**.11**	.05	**.23**	**.47**
29 Variety	**.11**	**.09**	**.06**	.01	**-.12**	**.13**	**.12**	.05	**-.11**	**-.09**	**-.11**	**.10**	.03	**.08**	**.10**	**.10**	**.11**	.06
30 Officer Fit Index	**.36**	**.11**	**.31**	**.28**	**-.15**	**.24**	**.26**	**.09**	**-.15**	**-.09**	**-.23**	**.36**	**.21**	**.26**	**.28**	**.23**	**.33**	**.23**

Table C.1. ***(Continued)***

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
TAPAS																			
31	Achievement	**.26**	**.30**	**.14**	**.19**	**-.17**	**.23**	**.07**	**.07**	**-.13**	**-.16**	**-.20**	.05	.00	**.22**	**.13**	**.14**	**.11**	.05
32	Curiosity	**.07**	**.23**	-.02	.02	.02	**.10**	.00	.02	.03	.00	-.03	-.02	**-.11**	.05	.02	**.06**	**.07**	-.05
33	Non-Delinquency	-.01	**.17**	.00	**-.24**	**-.29**	**-.11**	**-.13**	**.14**	**-.14**	**-.36**	**-.19**	**-.29**	-.02	**-.15**	**-.17**	**-.14**	**.09**	.02
34	Dominance	**.34**	**.21**	**.30**	**.19**	**.09**	**.31**	**.11**	-.03	.03	**.14**	.00	**.23**	**.14**	**.61**	**.43**	**.48**	**.21**	**.12**
35	Even Temper	**-.11**	**-.11**	**-.11**	**-.09**	**-.10**	**-.10**	.06	.05	**-.07**	**-.10**	.01	**-.09**	-.06	**-.19**	**-.13**	**-.15**	**-.09**	.00
36	Intellectual Efficiency	**.14**	**.15**	**.06**	**.07**	**.08**	**.22**	**.15**	.02	.05	**.09**	.04	**.08**	**-.10**	**.24**	**.22**	**.27**	-.01	**-.09**
37	Adjustment	**.07**	**-.11**	.01	**.15**	.02	**.16**	**.34**	**.07**	-.04	**.08**	.02	**.15**	.00	**.09**	**.12**	**.10**	**-.08**	-.02
38	Physical Conditioning	**.28**	**.12**	**.16**	**.66**	.05	**.21**	**.12**	-.02	.02	.06	-.01	**.29**	**.10**	**.19**	**.15**	**.14**	**.07**	**.10**
39	Responsibility	**.23**	**.20**	**.16**	**.09**	**-.15**	**.17**	**.10**	.06	**-.10**	**-.14**	**-.22**	.06	.03	**.15**	**.13**	**.16**	**.16**	**.07**
40	Tolerance	.03	**.18**	-.05	**-.11**	**-.06**	-.02	-.02	.02	-.04	-.06	-.06	**-.08**	-.04	-.03	-.01	.04	**.19**	.04
41	Trust-Cooperation	**-.12**	.00	**-.12**	**-.21**	**-.16**	**-.12**	-.06	**.07**	**-.11**	**-.16**	-.05	**-.23**	**-.09**	**-.20**	**-.14**	**-.16**	**.07**	**.16**
42	Optimism	**.18**	.05	**.07**	**.12**	**-.11**	**.28**	**.30**	**.06**	**-.15**	-.03	-.04	**.07**	-.05	**.20**	**.20**	**.15**	**.10**	**.13**
LKT																			
43	Characteristics C-Score	**.08**	.01	.01	-.01	**-.16**	.05	**.11**	-.04	**-.16**	**-.09**	**-.16**	.02	**-.07**	.03	.05	-.02	.04	-.03
44	Skills C-Score	**.08**	.02	.02	.00	**-.15**	.02	**.08**	-.05	**-.16**	**-.09**	**-.12**	**-.06**	-.06	.04	.04	.00	.02	-.02
GAI																			
45	Identity Magnitude Score	**.51**	**.13**	**.61**	**.17**	**-.13**	**.23**	**.15**	.04	**-.12**	**-.09**	**-.12**	**.28**	**.46**	**.27**	**.29**	**.18**	**.20**	**.18**
46	Identity Centrality Score	**.52**	**.12**	**.62**	**.21**	**-.07**	**.22**	**.15**	.04	**-.09**	-.03	**-.09**	**.30**	**.48**	**.27**	**.29**	**.20**	**.22**	**.19**
47	Identity Stability Score	**.49**	**.13**	**.59**	**.15**	**-.17**	**.25**	**.18**	**.10**	**-.17**	**-.11**	**-.17**	**.25**	**.38**	**.25**	**.30**	**.17**	**.20**	**.22**
48	Overall Identity Score	**.58**	**.14**	**.70**	**.20**	**-.14**	**.27**	**.18**	**.07**	**-.14**	**-.08**	**-.15**	**.32**	**.50**	**.30**	**.34**	**.21**	**.24**	**.23**

Table C.1. ***(Continued)***

Variable		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Work Values																									
19	Selfless Service																								
20	Leadership Opportunities	**.46**																							
21	Recognition	**.09**	**.25**																						
22	Pay	.00	**.18**	**.48**																					
23	Structured Work	**.20**	**.30**	**.23**	**.23**																				
24	Comfortable Work Environment	.05	**.16**	**.29**	**.45**	**.25**																			
25	Work Close to Home	**.09**	**.19**	**.25**	**.38**	**.24**	**.47**																		
26	Challenge	**.15**	**.22**	**.13**	**.08**	**.12**	-.04	**.08**																	
27	Self-Direction	**.07**	**.21**	**.21**	**.19**	**.16**	**.15**	**.18**	**.28**																
28	Teamwork	**.25**	**.32**	**.13**	**.11**	**.26**	**.14**	**.17**	**.35**	**.27**															
29	Variety	**.15**	**.14**	**.12**	**.08**	**.12**	**.10**	**.07**	**.36**	**.35**	**.34**														
30	Officer Fit Index	**.20**	**.11**	**-.37**	**-.44**	**-.21**	**-.57**	**-.56**	**.41**	**.09**	**.37**	**.48**													
TAPAS																									
31	Achievement	.01	**.08**	-.01	-.05	**.10**	**-.10**	-.02	**.24**	.03	**.08**	**.12**	**.16**												
32	Curiosity	.04	-.01	.00	**-.07**	-.06	-.04	-.04	**.13**	**.09**	**-.08**	**.12**	**.08**	**.17**											
33	Non-Delinquency	**.13**	-.01	-.02	.01	**.25**	**.11**	**.09**	**-.13**	**-.09**	.05	.01	**-.11**	**.19**	-.03										
34	Dominance	.02	**.20**	.05	-.03	-.04	**-.16**	**-.09**	**.21**	**.12**	**.06**	**.06**	**.21**	**.20**	**.08**	**-.18**									
35	Even Temper	**-.10**	**-.11**	-.04	.03	-.02	**.09**	.00	**-.13**	**-.09**	-.03	.00	**-.09**	**-.11**	**-.06**	**.20**	**-.27**								
36	Intellectual Efficiency	**-.07**	-.05	-.01	-.02	**-.12**	**-.11**	-.06	**.12**	**.09**	**-.13**	**.12**	**.10**	**.12**	**.30**	**-.15**	**.25**	-.05							
37	Adjustment	**-.12**	**-.09**	-.04	.01	**-.14**	**-.12**	-.03	.05	.04	**-.07**	.02	.05	**-.08**	**-.08**	**-.24**	**.08**	**.08**	**.16**						
38	Physical Conditioning	.02	.04	.00	**-.07**	-.01	**-.14**	**-.07**	**.23**	.01	**.14**	.01	**.19**	**.26**	.03	**-.12**	**.17**	**-.11**	.03	.05					
39	Responsibility	**.13**	**.11**	**-.08**	**-.13**	.01	**-.16**	**-.12**	**.16**	.02	**.12**	**.10**	**.26**	**.28**	.01	**.15**	**.21**	.05	**.10**	-.03	**.11**				
40	Tolerance	**.23**	**.14**	-.01	-.05	.00	.04	-.04	.02	.03	.04	**.07**	**.08**	-.03	**.18**	**.07**	.03	-.02	-.01	**-.14**	**-.08**	.02			
41	Trust-Cooperation	**.08**	.02	.06	**.08**	.05	**.22**	**.13**	**-.12**	**-.09**	**.15**	**.07**	**-.10**	-.03	**-.07**	**.25**	**-.21**	**.18**	**-.16**	**-.11**	**-.09**	.02	**.08**		
42	Optimism	.04	.04	.02	**.07**	**-.12**	.00	-.01	**.10**	.03	.03	**.07**	**.07**	.01	-.05	**-.13**	**.11**	**.08**	.05	**.25**	**.13**	**.08**	-.03	**.06**	
LKT																									
43	Characteristics	.05	.03	**-.11**	**-.08**	**-.08**	-.06	**-.08**	**.09**	-.04	.03	**.12**	**.19**	**.10**	.04	.00	.04	.01	.05	-.03	.00	**.14**	.05	.03	-.01
44	Skills	**.06**	-.02	-.02	**-.07**	-.04	-.04	**-.10**	.01	-.04	.03	.02	**.09**	.04	.01	.02	.04	.00	.01	-.06	-.04	**.12**	.05	.06	-.03
GAI																									
45	Identity Magnitude	**.11**	**.18**	.01	-.05	**.13**	**-.17**	**-.19**	**.15**	.04	**.21**	**.11**	**.28**	**.14**	-.04	.01	**.21**	**-.08**	.03	.01	**.13**	**.15**	-.05	-.06	**.07**
46	Identity Centrality	**.07**	**.18**	.02	**-.06**	**.12**	**-.17**	**-.19**	**.19**	.06	**.22**	**.09**	**.28**	**.14**	**-.07**	.00	**.27**	-.05	.03	.02	**.15**	**.15**	-.06	**-.06**	.04
47	Identity Stability	**.07**	**.12**	.01	**-.10**	**.08**	**-.17**	**-.20**	**.12**	.03	**.18**	**.12**	**.27**	**.12**	**-.10**	.04	**.20**	-.01	.01	.03	**.09**	**.14**	-.06	-.01	**.09**
48	Overall Identity	**.09**	**.18**	.02	**-.09**	**.13**	**-.20**	**-.23**	**.18**	.05	**.24**	**.12**	**.32**	**.16**	**-.08**	.02	**.27**	-.05	.03	.02	**.14**	**.17**	**-.07**	-.05	**.08**

Table C.1. ***(Continued)***

Variable		43	44	45	46	47
LKT						
43	Characteristics					
44	Skills	**.44**				
GAI						
45	Identity Magnitude	.02	.03			
46	Identity Centrality	.03	.04	**.65**		
47	Identity Stability	.04	.01	**.60**	**.59**	
48	Overall Identity	.03	.03	**.85**	**.88**	**.85**

Note. n =768 (LKT –Work Values correlations) - 1,584 (CBEF Biodata correlations). Bolded correlations are statistically significant ($p < .05$, one-tailed).

Appendix D: Means and Standard Deviations for Four-Year Scholarship Recipients by Demographic Subgroup

Table D.1. ***CBEF Biodata Scale Means and Standard Deviations by Race/Ethnic Group***

	White			Black			Hispanic			Asian		
Predictor	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Operational CBEF composite	1202	86.93	44.52	117	73.79	41.01	94	76.08	39.54	85	71.46	36.16
Core CBEF Biodata Scales												
Achievement	1202	4.00	0.52	117	4.17	0.46	94	3.97	0.51	85	3.88	0.49
Army Identification	1202	3.97	0.61	117	3.74	0.70	94	3.89	0.53	85	3.86	0.56
Fitness Motivation	1202	3.71	0.63	117	3.46	0.62	94	3.63	0.58	85	3.55	0.59
Hostility to Authority-Social Maturity	1202	2.52	0.45	117	2.41	0.42	94	2.57	0.52	85	2.43	0.40
General Self-Efficacy	1202	4.31	0.41	117	4.41	0.38	94	4.36	0.39	85	4.20	0.42
Stress Tolerance	1202	3.11	0.46	117	3.09	0.42	94	3.00	0.45	85	2.91	0.42
Lie Scale	1202	0.06	0.10	117	0.12	0.17	94	0.07	0.13	85	0.06	0.10
Experimental CBEF Biodata Scales												
Hostility to Authority	1202	2.90	0.53	117	2.82	0.57	94	2.97	0.55	85	2.82	0.49
Social Maturity	1202	2.05	0.55	117	1.89	0.49	94	2.07	0.68	85	1.96	0.51
Manipulativeness	1202	2.51	0.47	117	2.37	0.46	94	2.56	0.49	85	2.55	0.42
Tolerance for Injury	1202	3.69	0.70	117	3.15	0.65	94	3.58	0.79	85	3.47	0.60
Instrumentality of Army to Career Goals	1201	2.70	0.82	117	2.64	0.78	94	2.72	0.84	85	2.86	0.81
Interest in Leadership	1202	3.75	0.62	117	3.61	0.62	94	3.63	0.63	85	3.56	0.59
Leadership Self-Efficacy	1202	4.20	0.44	117	4.29	0.49	94	4.25	0.47	85	4.12	0.46
Peer Leadership	1202	3.62	0.58	117	3.66	0.68	94	3.60	0.65	85	3.45	0.55
Selfless Service	1202	4.07	0.52	117	4.11	0.59	94	4.08	0.51	85	4.11	0.47
Social Interests	1202	3.76	0.58	117	3.75	0.62	94	3.85	0.59	85	3.89	0.55

Table D.2. ***Work Values Scale Means and Standard Deviations by Race/Ethnic Group***

	White			Black			Hispanic			Asian		
Predictor	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Selfless Service	655	1.24	1.11	46	1.51	1.12	47	1.46	1.10	51	1.45	1.08
Leadership Opportunities	655	0.83	0.87	46	1.02	0.90	47	1.03	0.98	51	1.00	0.89
Recognition	655	-0.17	1.03	46	0.08	1.11	47	-0.07	1.10	51	-0.08	1.12
Pay	655	0.79	1.01	46	1.40	0.77	47	1.08	1.12	51	1.18	1.09
Structured Work	655	0.01	0.97	46	0.47	1.08	47	0.22	1.04	51	0.15	0.92
Comfortable Work Environment	655	0.29	1.05	46	0.79	0.96	47	0.72	1.09	51	0.64	1.06
Work Close to Home	655	-0.01	1.06	46	-0.04	1.13	47	0.62	0.99	51	0.13	0.94
Challenge	655	0.94	0.87	46	0.77	1.00	47	0.93	0.98	51	0.85	0.76
Self-Direction	655	0.40	0.88	46	0.42	0.81	47	0.26	0.96	51	0.55	0.93
Teamwork	655	0.55	0.95	46	0.37	1.15	47	0.79	0.83	51	0.88	0.70
Variety	655	0.51	0.98	46	0.58	1.00	47	0.52	0.87	51	0.51	0.78
Officer Fit Index	655	0.26	0.40	46	0.13	0.36	47	0.13	0.41	51	0.21	0.38

Table D.3. ***TAPAS, LKT, and GAI Scale Means and Standard Deviations by Race/Ethnic Group***

	White			Black			Hispanic			Asian		
Predictor	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
TAPAS												
Achievement	1192	0.06	0.67	116	0.03	0.58	92	-0.10	0.66	85	-0.16	0.69
Curiosity	1192	-0.17	0.67	116	-0.26	0.60	92	-0.07	0.70	85	-0.21	0.73
Non-Delinquency	1192	-0.29	0.60	116	-0.04	0.52	92	-0.30	0.64	85	-0.23	0.57
Dominance	1192	-0.04	0.61	116	-0.13	0.51	92	-0.01	0.61	85	-0.19	0.57
Even Temper	1192	0.18	0.60	116	0.33	0.63	92	0.05	0.50	85	0.27	0.59
Intellectual Efficiency	1192	0.04	0.73	116	-0.12	0.63	92	-0.06	0.67	85	-0.14	0.66
Adjustment	1192	-0.18	0.68	116	-0.16	0.68	92	-0.09	0.67	85	-0.46	0.64
Physical Conditioning	1192	0.39	0.78	116	0.28	0.71	92	0.32	0.79	85	0.23	0.70
Responsibility	1192	-0.22	0.59	116	-0.19	0.62	92	-0.32	0.61	85	-0.24	0.60
Tolerance	1192	-0.84	0.80	116	-0.60	0.66	92	-0.58	0.78	85	-0.50	0.81
Trust-Cooperation	1192	-0.60	0.56	116	-0.40	0.59	92	-0.62	0.57	85	-0.38	0.63
Optimism	1192	0.02	0.63	116	0.14	0.61	92	0.17	0.70	85	-0.08	0.61
LKT												
Characteristics C-Score	1144	0.71	0.16	108	0.64	0.18	80	0.64	0.21	85	0.71	0.14
Skills C-Score	1133	0.63	0.18	108	0.55	0.20	77	0.54	0.22	84	0.63	0.17
Graphical Army Identification												
Identity Magnitude Score	1155	5.20	1.11	113	5.25	1.17	92	5.07	1.12	80	5.29	0.90
Identity Centrality Score	1155	4.16	1.50	113	4.04	1.45	92	3.95	1.23	80	4.16	1.28
Identity Stability Score	1155	4.73	1.37	113	4.83	1.35	92	4.71	1.37	80	4.93	1.19
Overall Identity Score	1155	4.70	1.15	113	4.71	1.14	92	4.57	1.02	80	4.79	0.94

Table D.4. ***WPS and WPS Component Means and Standard Deviations by Race/Ethnic Group***

	White			Black			Hispanic			Asian		
Predictor	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Whole Person Score	749	241.71	39.79	38	203.32	31.77	43	222.40	44.48	36	227.89	44.78
SAT/ACT Points	749	31.80	11.46	38	32.58	11.82	43	30.44	13.25	36	27.25	15.04
Scholar Points	749	30.47	13.52	38	26.84	15.12	43	26.40	14.17	36	29.22	13.67
Athlete Points	749	19.25	10.45	38	18.74	10.31	43	20.19	11.73	36	15.06	11.90
Leader Points	749	160.19	31.53	38	125.16	21.36	43	145.37	33.08	36	156.36	35.47

Note. The subgroup differences reported here should be interpreted with caution due to small sample size for the non-white subgroups.

Table D.5. ***Criterion Scale Means and Standard Deviations by Race/Ethnic Group***

	White			Black			Hispanic			Asian		
Scale	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
OML Score	1032	79.94	9.95	78	73.98	9.66	76	76.85	9.70	72	78.92	8.79
OML: LDAC Performance Score	1032	89.61	3.32	78	87.78	2.94	76	89.02	3.37	72	89.76	3.18
OML: LDAC Platoon Tactical Evaluation Score	1032	87.22	7.33	78	83.65	6.92	76	84.61	7.74	72	87.08	6.80
OML: LDAC Land Navigation Score	1032	91.87	9.61	78	79.40	16.49	76	89.45	10.42	72	92.19	5.82
OML: PMS Potential Score	1032	87.49	8.09	78	83.97	7.62	76	84.47	8.07	72	87.92	7.68
OML : Cumulative Overall GPA Score	1032	79.46	10.21	78	74.86	10.32	76	78.13	9.82	72	78.71	8.99
OML: LDAC APFT Score	1032	88.04	8.84	78	86.39	9.18	76	86.69	10.17	72	87.68	8.93
OML: Fall Semester APFT Score	1032	90.50	8.53	78	88.01	9.50	76	88.29	10.55	72	89.92	8.82

Table D.6. ***CBEF Biodata Scale Means and Standard Deviations by Gender***

	Male			Female		
Predictor	*n*	*M*	*SD*	*n*	*M*	*SD*
Operational CBEF composite	1132	86.90	44.36	332	74.93	41.40
Core CBEF Biodata Scales						
Achievement	1132	3.95	0.52	332	4.20	0.47
Army Identification	1132	3.98	0.60	332	3.77	0.65
Fitness Motivation	1132	3.80	0.60	332	3.26	0.55
Hostility to Authority-Social Maturity	1132	2.54	0.46	332	2.41	0.44
General Self-Efficacy	1132	4.32	0.40	332	4.30	0.43
Stress Tolerance	1132	3.13	0.44	332	2.95	0.47
Lie Scale	1132	0.06	0.11	332	0.08	0.13
Experimental CBEF Biodata Scales						
Hostility to Authority	1132	2.92	0.53	332	2.82	0.56
Social Maturity	1132	2.08	0.56	332	1.88	0.52
Manipulativeness	1132	2.52	0.47	332	2.43	0.47
Tolerance for Injury	1132	3.74	0.68	332	3.23	0.69
Instrumentality of Army to Career Goals	1132	2.75	0.82	332	2.50	0.79
Interest in Leadership	1132	3.74	0.61	332	3.63	0.65
Leadership Self-Efficacy	1132	4.22	0.44	332	4.16	0.47
Peer Leadership	1132	3.60	0.59	332	3.62	0.61
Selfless Service	1132	4.05	0.52	332	4.17	0.52
Social Interests	1132	3.75	0.58	332	3.80	0.62

Table D.7. ***Work Values Scale Means and Standard Deviations by Gender***

	Male			Female		
Predictor	*n*	*M*	*SD*	*n*	*M*	*SD*
Selfless Service	601	1.18	1.15	180	1.56	0.90
Leadership Opportunities	601	0.79	0.90	180	1.07	0.83
Recognition	601	-0.16	1.04	180	-0.16	1.04
Pay	601	0.85	1.00	180	0.98	1.09
Structured Work	601	-0.02	0.94	180	0.29	1.04
Comfortable Work Environment	601	0.28	1.05	180	0.58	1.04
Work Close to Home	601	0.02	1.06	180	0.09	1.11
Challenge	601	0.93	0.87	180	0.87	0.89
Self-Direction	601	0.43	0.89	180	0.27	0.86
Teamwork	601	0.56	0.95	180	0.62	0.88
Variety	601	0.51	0.99	180	0.55	0.87
Officer Fit Index	601	0.25	0.40	180	0.22	0.40

Table D.8. ***TAPAS, LKT, and GAI Scale Means and Standard Deviations by Gender***

	Male			Female		
Predictor	*n*	*M*	*SD*	*n*	*M*	*SD*
TAPAS						
Achievement	1117	0.00	0.69	335	0.13	0.57
Curiosity	1117	-0.15	0.68	335	-0.24	0.62
Non-Delinquency	1117	-0.34	0.60	335	-0.05	0.56
Dominance	1117	-0.04	0.60	335	-0.09	0.62
Even Temper	1117	0.19	0.60	335	0.14	0.61
Intellectual Efficiency	1117	0.06	0.73	335	-0.13	0.66
Adjustment	1117	-0.11	0.67	335	-0.40	0.63
Physical Conditioning	1117	0.40	0.77	335	0.25	0.77
Responsibility	1117	-0.25	0.59	335	-0.18	0.57
Tolerance	1117	-0.87	0.78	335	-0.51	0.78
Trust-Cooperation	1117	-0.64	0.55	335	-0.38	0.59
Optimism	1117	0.03	0.63	335	0.02	0.62
LKT						
Characteristics C-Score	1061	0.70	0.17	320	0.72	0.14
Skills C-Score	1048	0.62	0.19	319	0.62	0.17
Graphical Army Identification						
Identity Magnitude Score	1083	5.24	1.10	325	5.08	1.15
Identity Centrality Score	1083	4.21	1.47	325	3.89	1.45
Identity Stability Score	1083	4.81	1.35	325	4.57	1.43
Overall Identity Score	1083	4.75	1.12	325	4.51	1.17

Table D.9. ***WPS and WPS Component Means and Standard Deviations by Gender***

	Male			Female		
Predictor	*n*	*M*	*SD*	*n*	*M*	*SD*
Whole Person Score	692	240.09	39.67	157	235.66	44.02
SAT/ACT Points	692	31.76	11.66	157	32.02	11.89
Scholar Points	692	30.00	13.31	157	30.92	14.36
Athlete Points	692	18.93	10.58	157	20.94	9.72
Leader Points	692	159.40	31.81	157	151.78	33.83

Table D.10. ***Criterion Variable Means and Standard Deviations by Gender***

	Male			Female		
Scale	*n*	*M*	*SD*	*n*	*M*	*SD*
OML Score	987	79.53	10.00	239	78.62	10.09
OML: LDAC Performance Score	987	89.57	3.36	239	89.10	3.23
OML: LDAC Platoon Tactical Evaluation Score	987	87.05	7.38	239	85.88	7.35
OML: LDAC Land Navigation Score	987	92.10	9.51	239	86.30	12.43
OML: PMS Potential Score	987	87.39	8.12	239	86.03	8.08
OML : Cumulative Overall GPA Score	987	78.77	10.19	239	79.95	10.39
OML: LDAC APFT Score	987	88.19	8.81	239	87.11	9.39
OML: Fall Semester APFT Score	987	90.33	8.56	239	90.07	9.48

Appendix E: Correlations between Predictors and Criterion Variables by Test Form

Table E.1. ***Correlations between CBEF Biodata Scales and OML and LDAC Criteria by Test Form***

	Form A					Form B				
Predictor / Criterion	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l
Whole Person Score	**.27**	**.16**	**.12**	**.21**	**.15**	**.27**	**.26**	**.17**	**.21**	**.18**
Overall CBEF composite	**.21**	**.15**	**.12**	**.08**	**.21**	**.22**	**.16**	**.18**	.01	**.19**
Core CBEF Biodata Scales										
Achievement	**.35**	.08	.07	-.04	**.17**	**.24**	.04	.04	**-.11**	**.13**
Army Identification	-.05	.06	.01	.06	**.08**	.00	**.11**	**.11**	-.03	**.08**
Fitness Motivation	**.32**	**.27**	**.26**	**.21**	**.32**	**.36**	**.30**	**.31**	**.10**	**.37**
Hostility-Social Maturity	**-.12**	.04	-.02	.03	-.06	-.04	.04	.02	.05	.03
Self-Efficacy	**.15**	**.21**	**.13**	.01	**.17**	**.19**	**.16**	**.09**	-.05	**.16**
Stress Tolerance	**.12**	**.12**	.06	**.10**	**.12**	**.11**	.00	.07	**.12**	.07
Response Distortion	.01	-.04	-.06	-.02	.00	**-.10**	**-.11**	**-.09**	**-.14**	-.07
Experimental CBEF Biodata Scales										
Hostility to Authority	**-.10**	.01	-.03	.03	-.06	-.01	.04	.03	.07	.05
Social Maturity	**-.09**	.06	.01	.02	-.04	-.06	.03	.00	.01	-.01
Manipulativeness	-.06	.05	-.02	-.01	-.03	.06	.08	.03	.03	.08
Tolerance for Injury	.08	**.17**	**.10**	**.20**	**.13**	**.14**	**.22**	**.20**	**.13**	**.18**
Instrumentality of ROTC to Career Goals	**-.13**	.01	-.03	.03	.01	-.06	.03	.05	-.01	.04
Interest in Leadership	**.18**	**.33**	**.18**	.05	**.21**	**.21**	**.26**	**.18**	.03	**.22**
Leadership Self-Efficacy	**.09**	**.27**	**.13**	-.01	**.14**	.07	**.16**	**.10**	.02	**.11**
Peer Leadership	**.12**	**.24**	**.12**	-.05	**.13**	**.18**	**.24**	**.14**	.00	**.19**
Selfless Service	.06	**.10**	.06	-.01	.06	.04	**.09**	.05	**-.09**	.05
Social Interests	-.06	.01	.01	-.07	-.01	-.02	**.09**	.08	-.04	.05

Note. LDAC Perf = LDAC Performance; LDAC Tac. Eval = LDAC Tactical Evaluation; LDAC Land Nav = LDAC Land Navigation Performance; PMS Pot'l = Professor of Military Studies Evaluation of Potential. n =367 for the WPS, n = 620 - 621 for the CBEF biodata scales (Form A; Form B). n = 402 for the WPS, n = 597 for the CBEF biodata scales. Form A – Form B = Standardized mean difference: significance tested using Fischer's z transformation. Bolded correlations are statistically significant ($p < .05$, one-tailed). Bolded differences between Form A and Form B correlations are statistically significant ($p < .05$, two-tailed).

Table E.1. ***(Continued)***

Form A - Form B							
Predictor / Criterion	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l	Mean *d*	Mean |*d*|
Whole Person Score	.00	-.10	-.05	.00	-.03	-.03	.03
Overall CBEF composite	-.01	.00	-.06	.07	.02	.00	.03
Core CBEF Biodata Scales							
Achievement	.11	.04	.03	.07	.05	.06	.06
Army Identification	-.05	-.05	-.09	.09	.00	-.02	.06
Fitness Motivation	-.03	-.04	-.05	**.12**	-.06	-.01	.06
Hostility-Social Maturity	-.07	-.01	-.04	-.02	-.09	-.05	.05
Self-Efficacy	-.04	.05	.04	.06	.00	.02	.04
Stress Tolerance	.01	**.11**	-.01	-.02	.05	.03	.04
Response Distortion	.11	.07	.03	**.13**	.07	.08	.08
Experimental CBEF Biodata Scales							
Hostility to Authority	-.09	-.03	-.06	-.04	-.11	-.07	.07
Social Maturity	-.03	.03	.00	.01	-.03	.00	.02
Manipulativeness	**-.11**	-.03	-.06	-.05	-.11	-.07	.07
Tolerance for Injury	-.06	-.05	-.10	.07	-.06	-.04	.07
Instrumentality of ROTC to Career Goals	-.07	-.02	-.08	.04	-.04	-.03	.05
Interest in Leadership	-.03	.07	.00	.02	-.02	.01	.03
Leadership Self-Efficacy	.02	.11	.03	-.02	.03	.03	.04
Peer Leadership	-.06	-.01	-.02	-.05	-.06	-.04	.04
Selfless Service	.02	.01	.01	.08	.01	.02	.02
Social Interests	-.04	-.07	-.07	-.03	-.07	-.06	.06

Note. LDAC Perf = LDAC Performance; LDAC Tac. Eval = LDAC Tactical Evaluation; LDAC Land Nav = LDAC Land Navigation Performance; PMS Pot'l = Professor of Military Studies Evaluation of Potential. n =367 for the WPS, n = 620 - 621 for the CBEF biodata scales for Form A. Form B n = 402 for the WPS, n = 597 for the CBEF biodata scales. Form A – Form B = Standardized mean difference: significance tested using Fischer's z transformation. Bolded correlations are statistically significant ($p < .05$, one-tailed). Bolded differences between Form A and Form B correlations are statistically significant ($p < .05$, two-tailed).

Table E.2. ***Correlations between Work Values Scales and OML and LDAC Criteria by Test Form***

	Form A					Form B				
Predictor / Criterion	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l
Selfless Service	.07	-.04	.05	-.06	.03	.10	-.01	.02	-.05	.10
Leadership Opportunities	.04	**.16**	**.16**	-.07	**.12**	.06	-.01	.01	-.03	**.13**
Recognition	.00	.03	.04	-.09	-.03	.07	.03	.03	.05	.07
Pay	**-.12**	-.06	-.05	**-.14**	**-.13**	**-.12**	-.07	**-.12**	-.03	-.09
Structured Work	**-.14**	-.10	-.09	-.06	**-.13**	-.08	**-.18**	-.08	-.03	-.04
Comfortable Work Environment	-.07	-.05	.05	**-.12**	-.10	**-.17**	**-.23**	**-.17**	-.04	-.11
Work Close to Home	-.09	-.01	-.04	**-.12**	**-.14**	-.10	**-.13**	**-.14**	-.01	**-.15**
Challenge	.08	**.12**	.07	.02	**.12**	**.13**	**.16**	.11	.09	**.14**
Self-Direction	-.01	.02	.05	.02	-.01	-.10	.01	-.03	-.03	-.05
Teamwork	-.03	.05	.00	.00	.03	-.02	.03	.03	.01	.05
Variety	.03	.10	.01	.04	.01	.01	.07	.02	.05	-.01
Officer Fit Index	**.13**	**.14**	.05	**.15**	**.19**	**.15**	**.23**	**.18**	.04	**.17**

Note. LDAC Perf = LDAC Performance; LDAC Tac. Eval = LDAC Tactical Evaluation; LDAC Land Nav = LDAC Land Navigation Performance; PMS Pot'l = Professor of Military Studies Evaluation of Potential. n = 353 for the Work Values scales for Form A, n = 298 for the Work Values scales for Form B. Form A – Form B = Standardized mean difference: significance tested using Fischer's z transformation. Bolded correlations are statistically significant ($p < .05$, one-tailed). Bolded differences between Form A and Form B correlations are statistically significant ($p < .05$, two-tailed).

Table E.2. ***(Continued)***

Form A - Form B							
Predictor / Criterion	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l	Mean *d*	*Mean* |*d*|
Selfless Service	-.04	-.03	.03	.00	-.08	-.02	.04
Leadership Opportunities	-.02	**.17**	.15	-.04	-.01	.05	.08
Recognition	-.07	-.01	.01	-.14	-.10	-.06	.07
Pay	.00	.02	.07	-.12	-.05	-.01	.05
Structured Work	-.06	.08	-.02	-.03	-.09	-.02	.05
Comfortable Work Environment	.10	**.18**	**.22**	-.08	.01	.08	.12
Work Close to Home	.00	.12	.10	-.11	.02	.02	.07
Challenge	-.05	-.04	-.04	-.07	-.02	-.04	.04
Self-Direction	.09	.01	.08	.05	.04	.05	.05
Teamwork	-.01	.02	-.03	.00	-.02	-.01	.02
Variety	.02	.04	.00	-.02	.02	.01	.02
Officer Fit Index	-.02	-.08	-.13	.11	.02	-.02	.07

Note. LDAC Perf = LDAC Performance; LDAC Tac. Eval = LDAC Tactical Evaluation; LDAC Land Nav = LDAC Land Navigation Performance; PMS Pot'l = Professor of Military Studies Evaluation of Potential. n = 353 for the Work Values scales for Form A, n = 298 for the Work Values scales for Form B. Form A – Form B = Standardized mean difference: significance tested using Fischer's z transformation. Bolded correlations are statistically significant ($p < .05$, one-tailed). Bolded differences between Form A and Form B correlations are statistically significant ($p < .05$, two-tailed).

Table E.3. ***Correlations between TAPAS Scales and OML and LDAC Criteria by Test Form***

	Form A					Form B				
Predictor/Criterion	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l
Achievement	**.26**	**.13**	**.14**	.05	**.23**	**.22**	**.11**	**.10**	.03	**.22**
Curiosity	**.11**	-.01	-.01	.03	.03	**.12**	.07	.06	**.08**	.06
Non-Delinquency	-.01	**-.16**	**-.09**	**-.15**	-.07	-.04	**-.15**	**-.13**	**-.14**	-.05
Dominance	**.14**	**.25**	**.19**	.01	**.17**	**.14**	**.23**	**.13**	.02	**.16**
Even Temper	-.05	**-.08**	-.02	.04	-.05	-.02	-.06	-.03	.05	-.03
Intellectual Efficiency	.06	.07	.03	.06	.05	.03	**.10**	.03	.06	-.01
Adjustment	-.05	.04	-.01	**.10**	-.02	-.03	-.01	.01	.08	.00
Physical Conditioning	**.26**	**.20**	**.19**	.07	**.27**	**.25**	**.23**	**.20**	-.03	**.27**
Responsibility	**.13**	.01	.03	-.03	.10	**.08**	-.02	.02	.00	.08
Tolerance	**.11**	.01	-.03	-.06	-.01	-.02	**-.09**	-.07	-.08	-.05
Trust-Cooperation	**-.15**	**-.21**	**-.14**	**-.11**	**-.15**	**-.15**	**-.11**	**-.12**	**-.10**	**-.09**
Optimism	.07	**.09**	.06	.02	.08	.04	**.09**	.03	.01	.07

Note. LDAC Perf = LDAC Performance; LDAC Tac. Eval = LDAC Tactical Evaluation; LDAC Land Nav = LDAC Land Navigation Performance; PMS Pot'l = Professor of Military Studies Evaluation of Potential. n = 599 for Form A, n = 606 for Form B. Form A – Form B = Standardized mean difference. The significance of the difference between Form A and Form B correlations were tested using Fischer's z transformation. Bolded correlations are statistically significant ($p < .05$, one-tailed). Bolded differences between Form A and Form B correlations are statistically significant ($p < .05$, two-tailed).

Table E.3. ***(Continued)***

Form A - Form B							
Predictor/Criterion	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l	Mean *d*	Mean |*d*|
Achievement	.05	.02	.04	.01	.02	.03	.03
Curiosity	.00	-.07	-.07	-.05	-.04	-.05	.05
Non-Delinquency	.03	-.01	.03	-.02	-.01	.00	.02
Dominance	.00	.02	.06	-.01	.01	.01	.02
Even Temper	-.02	-.02	.01	-.01	-.03	-.01	.02
Intellectual Efficiency	.03	-.03	.00	.00	.06	.01	.02
Adjustment	-.02	.05	-.03	.02	-.02	.00	.03
Physical Conditioning	.01	-.03	-.01	.10	.00	.01	.03
Responsibility	.05	.03	.01	-.03	.02	.02	.03
Tolerance	.12	.10	.04	.02	.04	.06	.06
Trust-Cooperation	.01	-.10	-.02	-.01	-.06	-.04	.04
Optimism	.03	.00	.03	.01	.01	.01	.02

Note. LDAC Perf = LDAC Performance; LDAC Tac. Eval = LDAC Tactical Evaluation; LDAC Land Nav = LDAC Land Navigation Performance; PMS Pot'l = Professor of Military Studies Evaluation of Potential. n = 599 for Form A, n = 606 for Form B. Form A – Form B = Standardized mean difference. The significance of the difference between Form A and Form B correlations were tested using Fischer's z transformation. Bolded correlations are statistically significant ($p < .05$, one-tailed). Bolded differences between Form A and Form B correlations are statistically significant ($p < .05$, two-tailed).

Table E.4. ***Correlations between LKT and GAI Scales and OML and LDAC Criteria by Test Form***

	Form A					Form B				
Predictor / Criterion	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l
Leadership Knowledge Test										
Characteristics C-Score	.04	.01	-.07	.00	-.01	**.11**	**.08**	.07	**.15**	.04
Skills C-Score	**.12**	.04	.04	.03	.05	**.21**	**.11**	**.08**	**.15**	**.13**
Graphical Army Identification										
Identity Magnitude Score	-.03	.02	.02	.01	**.08**	**.09**	**.12**	**.12**	.01	**.14**
Identity Centrality Score	-.01	.06	.06	.05	**.12**	.05	**.12**	**.11**	-.04	**.10**
Identity Stability Score	-.06	.03	-.01	-.01	.04	-.02	.06	.07	.01	.04
Overall Identity Score	-.04	.05	.03	.02	**.10**	.04	**.11**	**.11**	-.01	**.10**

	Form A - Form B						
Predictor / Criterion	OML Score	OML: LDAC Perf.	OML: LDAC Tac. Eval	OML: LDAC Land Nav	OML: PMS Pot'l	Mean *d*	Mean |*d*|
Leadership Knowledge Test							
Characteristics C-Score	-.07	-.08	**-.14**	**-.15**	-.04	-.09	.09
Skills C-Score	-.09	-.07	-.04	**-.12**	-.07	-.08	.08
Graphical Army Identification							
Identity Magnitude Score	**-.12**	-.10	-.10	.00	-.06	-.08	.08
Identity Centrality Score	-.06	-.06	-.05	.09	.02	-.01	.05
Identity Stability Score	-.04	-.02	-.07	-.01	.01	-.03	.03
Overall Identity Score	-.08	-.07	-.08	.03	-.01	-.04	.05

Note. LDAC Perf = LDAC Performance; LDAC Tac. Eval = LDAC Tactical Evaluation; LDAC Land Nav = LDAC Land Navigation Performance; PMS Pot'l = Professor of Military Studies Evaluation of Potential. For Form A, n = 544 for LKT Characteristics C-scores, n = 535 for LKT Skills C-scores, n = 599 for GAI subscales. For Form B, n = 607 for LKT Characteristics C-scores, n = 602 for LKT Skills C-scores, n = 563 for GAI subscales. Form A – Form B = Standardized mean difference. The significance of the difference between Form A and Form B correlations were tested for using Fischer's z transformation. Bolded correlations are statistically significant ($p < .05$, one-tailed). Bolded differences between Form A and Form B correlations are statistically significant ($p < .05$, two-tailed).

Table E.5. ***Correlations between CBEF Biodata Scales and GPA and APFT Criteria by Test Form***

	Form A			Form B			Form A - Form B				
Predictor / Criterion	GPA	LDAC APFT	Fall APFT	GPA	LDAC APFT	Fall APFT	GPA	LDAC APFT	Fall APFT	*Md*	*M* |*d*|
Whole Person Score	**.25**	.09	**.10**	**.23**	**.13**	.07	.02	-.04	.04	.01	.02
Overall CBEF composite	**.11**	**.17**	**.12**	**.13**	**.14**	**.12**	-.02	.04	.00	.00	.01
Core CBEF Biodata Scales											
Achievement	**.42**	**.11**	**.09**	**.29**	**.08**	**.09**	**.13**	.03	.00	.05	.03
Army Identification	**-.16**	.03	-.01	**-.09**	-.05	-.01	-.07	.08	.01	.00	.03
Fitness Motivation	.06	**.54**	**.40**	**.09**	**.52**	**.42**	-.02	.02	-.03	-.01	.01
Hostility-Social Maturity	-.19	-.03	-.04	**-.10**	.00	.05	-.09	-.03	-.09	-.07	.04
Self-Efficacy	.05	**.12**	.06	**.11**	**.15**	**.13**	-.06	-.03	-.07	-.05	.03
Stress Tolerance	.07	**.10**	**.10**	.06	**.11**	.07	.00	-.02	.03	.01	.01
Response Distortion	.01	.05	.05	-.07	-.06	-.06	.08	.11	.11	.10	.06
Experimental CBEF Biodata Scales											
Hostility to Authority	**-.16**	-.02	-.02	-.06	-.01	.05	-.10	-.01	-.07	-.06	.04
Social Maturity	**-.15**	-.03	-.04	**-.11**	.01	.03	-.05	-.04	-.08	-.05	.03
Manipulativeness	**-.09**	-.02	-.03	.02	.05	.08	-.10	-.07	-.10	-.09	.05
Tolerance for Injury	**-.10**	**.19**	**.17**	-.05	**.14**	**.16**	-.05	.05	.02	.00	.02
Instrumentality of ROTC to Career Goals	**-.22**	-.02	-.01	**-.14**	-.03	.01	-.08	.00	-.01	-.03	.02
Interest in Leadership	.05	**.10**	**.09**	**.11**	**.10**	**.08**	-.06	.00	.01	-.02	.01
Leadership Self-Efficacy	-.04	**.08**	.06	-.02	.05	-.01	-.03	.03	.07	.02	.02
Peer Leadership	.04	.06	.02	**.08**	**.10**	**.10**	-.05	-.04	-.08	-.06	.03
Selfless Service	.01	.06	.05	.00	.01	.02	.01	.05	.03	.03	.02
Social Interests	**-.09**	.05	.05	**-.10**	-.02	-.02	.00	.07	.07	.05	.03

Note. For Form A, n =367 for the WPS, n = 620 - 621 for the CBEF biodata scales. For Form B, n =402 for the WPS, n =597 for the CBEF biodata scales. Form A – Form B = Standardized mean difference. The significance of the difference between Form A and Form B correlations were tested for using Fischer's z transformation. Bolded correlations are statistically significant ($p < .05$, one-tailed). Bolded differences between Form A and Form B correlations are statistically significant ($p < .05$, two-tailed).

Table E.6. ***Correlations between Work Values Scales and GPA and APFT Criteria by Test Form***

	Form A			Form B			Form A - Form B				
Predictor / Criterion	GPA	LDAC APFT	Fall APFT	GPA	LDAC APFT	Fall APFT	GPA	LDAC APFT	Fall APFT	*Md*	*M* |*d*|
Selfless Service	.07	.02	.05	.11	.07	.11	-.04	-.05	-.05	-.05	.03
Leadership Opportunities	-.08	.06	.02	.04	.02	.11	-.12	.05	-.10	-.06	.05
Recognition	-.03	.02	-.04	.07	.02	-.04	-.10	.00	-.01	-.04	.02
Pay	-.09	-.04	**-.13**	-.07	-.10	**-.15**	-.02	.06	.02	.02	.02
Structured Work	**-.12**	-.05	-.05	-.03	-.05	-.03	-.09	.00	-.02	-.04	.02
Comfortable Work Environment	.00	-.03	**-.13**	-.11	-.08	-.07	.10	.05	-.06	.03	.04
Work Close to Home	-.03	-.09	-.08	.00	-.02	-.04	-.03	-.07	-.03	-.04	.03
Challenge	-.05	**.21**	**.13**	.04	**.15**	**.16**	-.09	.06	-.03	-.02	.04
Self-Direction	-.06	.01	.05	-.11	-.03	-.01	.05	.04	.06	.05	.03
Teamwork	**-.11**	.09	.05	-.03	-.05	.00	-.08	.15	.05	.04	.05
Variety	-.02	.04	.00	-.01	-.01	.04	-.01	.06	-.04	.00	.02
Officer Fit Index	.00	**.15**	**.15**	.04	.06	**.15**	-.04	.09	.00	.02	.03

Note. n = 353 for the Work Values scales for Form A, n = 298 for the Work Values scales for Form B. Form A – Form B = Standardized mean difference. The significance of the difference between Form A and Form B correlations were tested for using Fischer's z transformation. Bolded correlations are statistically significant ($p < .05$, one-tailed). Bolded differences between Form A and Form B correlations are statistically significant ($p < .05$, two-tailed).

Table E.7. ***Correlations between TAPAS Scales and GPA and APFT Criteria by Test Form***

	Form A			Form B			Form A - Form B				
Predictor/Criterion	GPA	LDAC APFT	Fall APFT	GPA	LDAC APFT	Fall APFT	GPA	LDAC APFT	Fall APFT	*Md*	*M* |*d*|
Achievement	**.22**	**.16**	**.11**	**.16**	**.15**	**.14**	.06	.01	-.02	.02	.03
Curiosity	**.18**	-.02	-.06	**.13**	.06	.01	.05	-.07	-.07	-.03	.06
Non-Delinquency	**.12**	**-.14**	**-.12**	.08	**-.12**	-.07	.04	-.02	-.05	-.01	.04
Dominance	.00	**.09**	.06	.05	.03	.07	-.05	.06	-.01	.00	.04
Even Temper	.00	-.03	-.01	-.02	-.02	-.04	.02	-.02	.03	.01	.02
Intellectual Efficiency	.06	-.08	-.07	.05	-.07	**-.11**	.01	-.01	.03	.01	.02
Adjustment	**-.12**	.05	.06	**-.09**	.05	.04	-.03	.00	.01	.00	.02
Physical Conditioning	.06	**.45**	**.34**	.04	**.43**	**.38**	.02	.03	-.04	.00	.03
Responsibility	**.15**	.05	.06	**.10**	.01	.03	.06	.04	.03	.04	.04
Tolerance	**.16**	.03	.02	.06	-.06	-.02	.10	.10	.05	.08	.08
Trust-Cooperation	-.02	**-.16**	**-.15**	**-.10**	**-.12**	**-.12**	.08	-.03	-.03	.01	.05
Optimism	.03	.04	.03	-.02	.04	.07	.05	.00	-.04	.01	.03

Note. n = 599 for Form A, n = 606 for Form B. Form A – Form B = Standardized mean difference. The significance of the difference between Form A and Form B correlations were tested for using Fischer's z transformation. Bolded correlations are statistically significant ($p < .05$, one-tailed). Bolded differences between Form A and Form B correlations are statistically significant ($p < .05$, two-tailed).

Table E.8. ***Correlations between LKT and GAI Scales and GPA and APFT Criteria by Test Form***

	Form A			Form B			Form A - Form B				
Predictor / Criterion	GPA	LDAC APFT	Fall APFT	GPA	LDAC APFT	Fall APFT	GPA	LDAC APFT	Fall APFT	*M d*	*M |d|*
Leadership Knowledge Test											
Characteristics C-Score	**.09**	-.01	.00	**.11**	.01	.07	-.02	-.01	-.07	-.04	.04
Skills C-Score	**.14**	.07	.05	**.22**	.06	**.13**	-.09	.01	-.08	-.05	.06
Graphical Army Identification											
Identity Magnitude Score	**-.11**	.02	.02	-.01	.07	.06	-.10	-.05	-.03	-.06	.06
Identity Centrality Score	**-.12**	.05	.03	-.05	.05	.07	-.08	.00	-.04	-.04	.04
Identity Stability Score	**-.13**	.01	-.01	**-.10**	.00	-.03	-.03	.01	.02	.00	.02
Overall Identity Score	**-.14**	.03	.02	-.06	.04	.04	-.08	-.01	-.02	-.04	.04

Note. For Form A, *n* = 544 for LKT Characteristics C-scores, *n* = 535for LKT Skills C-scores, *n* = 599 for GAI subscales. For Form B, *n* = 607 for LKT Characteristics C-scores, *n* = 602 for LKT Skills C-scores, *n* = 563 for GAI subscales. Form A - Form B = Standardized mean difference. The significance of the difference between Form A and Form B correlations were tested for using Fischer's *z* transformation. Bolded correlations are statistically significant (p < .05, one-tailed). Bolded differences between Form A and Form B correlations are statistically significant (*p* < .05, two-tailed).

Appendix F: Validity and Incremental Validity Evidence

Table F.1. ***Regression of OML and LDAC Criteria on All CBEF Scales***

	OML Score			OML: LDAC Performance Score			OML: LDAC Land Navigation Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Core CBEF Biodata Scales									
Achievement	**.28**	.29	27.4	-.05	-.03	1.0	-.03	-.04	4.4
Army Identification	**-.14**	-.22	3.4	-.07	-.26	1.2	.00	-.16	1.6
Fitness Motivation	**.32**	.27	36.7	**.20**	.15	29.1	**.12**	.01	23.0
Hostility-Social Maturity	**-.08**	-.11	2.6	-.41	-.04	0.3	.04	-.05	2.0
Self-Efficacy	.01	.12	3.5	.01	-.03	5.4	**-.10**	-.02	4.7
Stress Tolerance	.03	-.03	2.1	-.05	-.06	0.8	**.11**	.04	13.9
Response Distortion	**-.07**	-.08	1.7	**-.06**	.00	3.7	-.05	-.07	5.4
Experimental CBEF Biodata Scales									
Manipulativeness	.03	.10	0.4	.06	.12	2.4	-.01	.06	0.5
Tolerance for Injury	.04	.13	3.3	.07	.19	8.8	**.15**	**.37**	28.3
Instrumentality of ROTC to Career Goals	-.01	-.08	1.9	.01	.02	0.2	-.04	-.09	0.8
Interest in Leadership	**.15**	.26	7.4	**.21**	.28	25.0	**.08**	**.30**	4.0
Leadership Self-Efficacy	**-.14**	-.24	2.2	.00	.01	7.1	.00	-.05	1.6
Peer Leadership	.03	.03	3.3	**.11**	.13	13.3	-.08	-.13	3.5
Selfless Service	-.04	-.06	1.3	-.02	-.07	1.4	-.04	-.03	3.2
Social Interests	**-.10**	-.06	2.8	-.03	.05	0.5	-.04	**-.12**	3.1
Model R		**.49** (.65)			**.39** (.54)			**.27** (.52)	
Model R_{cv}		.47 (.61)			.36 (.48)			.23 (.45)	

Note. Four-year scholarship n = 1,217 for all CBEF biodata scales. B_r= Standardized regression coefficient for the full model (all 15 biodata scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution for such statistics.

Table F.1. ***(Continued)***

Predictor / Criterion	OML: LDAC Platoon Tactical Evaluation Score			OML: PMS Potential Score		
	Br	*Bc*	*RWr*	*Br*	*Bc*	*RWr*
Core CBEF Biodata Scales						
Achievement	-.01	.04	0.7	**.10**	.09	7.4
Army Identification	-.04	-.16	0.8	-.03	-.10	0.8
Fitness Motivation	**.27**	.17	58.0	**.32**	.22	56.0
Hostility-Social Maturity	-.05	-.05	0.4	-.05	-.09	0.7
Self-Efficacy	-.02	.06	2.7	.01	.10	4.1
Stress Tolerance	-.03	-.07	1.0	.00	-.06	1.6
Response Distortion	**-.08**	-.02	6.9	-.03	.04	1.2
Experimental CBEF Biodata Scales						
Manipulativeness	.00	-.04	0.3	.05	.07	1.0
Tolerance for Injury	.03	.19	8.3	.01	.17	5.8
Instrumentality of ROTC to Career Goals	.00	-.02	0.1	.03	.02	0.2
Interest in Leadership	**.12**	.10	12.6	**.16**	.24	12.8
Leadership Self-Efficacy	-.04	-.06	2.5	-.08	-.15	2.3
Peer Leadership	.04	.13	4.7	.03	.03	4.3
Selfless Service	-.02	-.12	0.7	-.05	-.14	1.0
Social Interests	.00	.05	0.3	-.04	.04	0.7
Model *R*		**.32** (.39)			**.39** (.45)	
Model R_{cv}		.28 (.36)			.36 (.43)	

Note. Four-year scholarship n = 1,217 for all CBEF biodata scales. B_r= Standardized regression coefficient for the full model (all 15 biodata scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution for such statistics.

Table F.2. ***Regression of OML and LDAC Criteria on All TAPAS Scales***

	OML Score			OML: LDAC Performance Score			OML: LDAC Platoon Tactical Evaluation Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Achievement	**.17**	.21	29.1	**.08**	.08	8.1	**.08**	.09	11.7
Curiosity	**.07**	.11	6.1	-.02	.07	.2	.00	.00	.2
Non-Delinquency	-.03	-.18	1.3	**-.10**	-.17	11.8	**-.09**	-.12	11.9
Dominance	.04	.03	5.3	**.18**	.11	31.7	**.12**	.13	20.8
Even Temper	.05	.10	.4	.04	.06	1.0	**.06**	.09	1.2
Intellectual Efficiency	-.03	.09	.3	.02	.08	2.4	-.03	-.02	.5
Adjustment	-.04	-.02	1.2	-.04	.06	.4	-.04	-.02	.8
Physical Conditioning	**.18**	.19	35.4	**.15**	.23	25.8	**.14**	.23	34.9
Responsibility	.04	.05	4.0	-.08	-.03	2.2	-.02	.03	.6
Tolerance	.05	.05	2.0	-.02	-.09	.8	-.03	-.07	2.3
Trust/Cooperation	**-.12**	-.07	13.2	**-.09**	-.02	11.7	**-.08**	-.02	14.0
Optimism	.04	-.03	1.6	.05	.00	4.0	.01	-.06	1.1
Model R		**.36** (.49)			**.34** (.46)			**.27** (.36)	
Model R_{cv}		.33 (.47)			.32 (.40)			.24 (.27)	

	OML: LDAC Land Navigation Score			OML: PMS Potential Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r
Achievement	**.09**	.11	7.5	**.16**	.17	27.5
Curiosity	.05	.03	6.1	.02	.07	0.8
Non-Delinquency	**-.15**	-.24	38.7	-.06	-.12	2.9
Dominance	-.02	.01	0.6	**.09**	.15	11.6
Even Temper	.09	.11	9.3	.05	.06	0.5
Intellectual Efficiency	.00	.18	2.1	-.05	-.09	0.6
Adjustment	.05	.09	10.0	-.03	-.01	0.5
Physical Conditioning	-.03	.01	0.4	**.20**	.25	42.9
Responsibility	.00	-.06	0.5	.02	.04	2.5
Tolerance	-.05	-.05	7.5	-.01	-.06	0.4
Trust/Cooperation	**-.08**	-.02	17.1	**-.08**	-.02	7.2
Optimism	-.01	-.09	0.3	.04	-.03	2.6
Model R		**.22** (.42)			**.35** (.44)	
Model R_{cv}		.18 (.35)			.32 (.36)	

Note. Four-year scholarship n = 1,205 for TAPAS scales. B_r= Standardized regression coefficient for the full model (all 12 TAPAS scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.3. ***Regression of OML and LDAC Criteria on the CBEF Core Biodata Scales***

	OML Score			OML: LDAC Performance Score			OML: LDAC Platoon Tactical Evaluation Score		
	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Achievement	**.28**	.35	34.5	-.01	.06	1.5	.01	.07	1.5
Army Identification	**-.16**	-.30	5.5	-.01	-.19	2.4	-.02	-.13	1.5
Fitness Motivation	**.33**	.30	47.1	**.24**	.25	63.5	**.28**	.24	80.6
Hostility-Social Maturity	-.04	.00	2.0	.02	.12	1.5	-.02	.00	0.2
Self-Efficacy	-.01	.12	5.3	**.13**	.15	22.0	.02	.13	6.3
Stress Tolerance	.04	.01	2.9	-.01	-.01	2.0	-.01	-.03	2.0
Response Distortion	**-.10**	-.20	2.8	**-.09**	-.12	7.1	**-.09**	-.07	8.0
Model R	**.46** (.59)			**.31** (.40)			**.30** (.32)		
Model R_{cv}	.45 (.57)			.29 (.35)			.28 (.26)		

	OML: LDAC Land Navigation Score			OML: PMS Potential Score		
	B_r	B_c	RW_r	B_r	B_c	RW_r
Achievement	-.06	.01	9.4	**.10**	.11	10.4
Army Identification	.02	-.15	1.1	-.02	-.08	1.6
Fitness Motivation	**.16**	.15	44.3	**.32**	.28	75.2
Hostility-Social Maturity	.05	.07	4.3	-.01	.01	0.3
Self-Efficacy	**-.09**	.07	6.6	.02	.12	7.7
Stress Tolerance	**.13**	.08	24.3	.01	-.01	2.8
Response Distortion	**-.07**	-.21	9.9	**-.06**	-.06	2.1
Model R	**.23** (.33)			**.36** (.37)		
Model R_{cv}	.21 (.27)			.35 (.32)		

Note. Four-year scholarship n = 1,218 for the core biodata scales. B_r = Standardized regression coefficient for the full model (all seven core biodata scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.4. ***Regression of OML and LDAC Criteria on the Experimental Biodata Scales***

	OML Score			OML: LDAC Performance Score			OML: LDAC Platoon Tactical Evaluation Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Manipulativeness	-.01	.05	0.1	**.07**	.14	4.3	.01	-.04	0.4
Tolerance for Injury	**.10**	.17	13.2	**.13**	.19	19.4	**.12**	.22	35.3
Instrumentality of ROTC to Career Goals	**-.12**	-.29	16.0	-.02	-.13	0.4	-.03	-.13	0.8
Interest in Leadership	**.22**	.36	38.9	**.23**	.27	40.4	**.16**	.12	40.1
Leadership Self-Efficacy	**-.11**	-.18	5.6	.01	-.02	12.6	-.03	-.04	7.6
Peer Leadership	**.08**	.07	17.0	**.09**	.09	20.0	.03	.12	13.2
Selfless Service	.01	-.02	2.4	-.05	-.10	2.2	-.04	-.12	1.8
Social Interests	**-.09**	-.04	6.8	-.03	.04	0.7	.00	.06	0.8
Model R		**.27** (.53)			**.34** (.49)			**.21 (**.34)	
Model R_{cv}		.25 (.50)			.32 (.45)			.18 (.27)	

	OML: LDAC Land Navigation Score			OML: PMS Potential Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r
Manipulativeness	-.01	.07	0.1	.02	.01	1.1
Tolerance for Injury	**.21**	.35	67.7	**.12**	.22	25.2
Instrumentality of ROTC to Career Goals	-.04	-.18	1.7	-.01	-.08	0.5
Interest in Leadership	**.09**	.32	7.3	**.20**	.26	45.8
Leadership Self-Efficacy	-.02	-.08	2.6	-.04	-.07	7.9
Peer Leadership	**-.08**	-.16	5.9	.05	.05	16.4
Selfless Service	**-.08**	-.09	9.3	-.04	-.11	2.0
Social Interests	-.04	-.13	5.4	-.03	.06	1.1
Model R		**.22** (.50)			**.25** (.38)	
Model R_{cv}		.19 (.46)			.23 (.38)	

Note. Four-year scholarship n =1,217 for the experimental biodata scales. B_r = Standardized regression coefficient for the full model (all eight experimental biodata scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.5. ***Regression of OML and LDAC Criteria on the Work Values Scales***

	OML Score			OML: LDAC Performance Score			OML: LDAC Platoon Tactical Evaluation Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Selfless Service	.07	.02	9.2	-.08	-.12	3.7	-.01	-.06	1.8
Leadership Opportunities	.06	.10	5.3	**.14**	.14	13.6	**.11**	.10	19.9
Recognition	**.11**	.18	7.7	.07	.11	3.9	.08	.10	8.5
Pay	**-.12**	-.22	19.0	-.05	-.11	4.8	**-.10**	-.17	16.2
Structured Work	**-.10**	-.18	16.5	**-.15**	-.19	26.3	**-.10**	-.06	17.5
Comfortable Work Environment	-.04	-.03	8.5	**-.10**	-.02	16.5	.03	.05	2.2
Work Close to Home	-.04	.06	6.6	.00	-.02	2.9	-.09	-.04	15.7
Challenge	**.12**	.10	18.9	**.10**	.09	18.3	.09	.07	15.9
Self-Direction	-.06	.04	4.6	-.02	.10	0.7	.00	.04	0.8
Teamwork	-.05	-.23	2.4	.02	.00	2.2	.00	.01	1.0
Variety	.02	.10	1.3	.07	.04	7.1	-.02	-.02	0.5
Model R	**.25** (.42)			**.27** (.33)			**.20** (.22)		
Model R_{cv}	.19 (.35)			.21 (.24)			.12 (.06)		

	OML: LDAC Land Navigation Score			OML: PMS Potential Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r
Selfless Service	-.05	-.03	10.1	.00	-.05	2.8
Leadership Opportunities	-.04	-.04	8.2	**.15**	.14	21.1
Recognition	.03	.15	2.0	.07	.13	3.3
Pay	-.09	-.17	28.1	**-.10**	-.18	11.6
Structured Work	.00	-.06	2.5	**-.09**	-.06	9.3
Comfortable Work Environment	-.04	-.06	14.9	-.01	-.01	5.4
Work Close to Home	-.03	-.01	10.6	**-.13**	-.06	20.4
Challenge	.06	.08	12.8	**.13**	.14	20.5
Self-Direction	.01	.14	0.9	-.05	.01	2.4
Teamwork	.01	-.15	1.4	.03	-.05	2.3
Variety	.05	.13	8.5	-.04	-.02	1.0
Model R	.15 (.37)			**.28** (.29)		
Model R_{cv}	.04 (.29)			.22 (.18)		

Note. Four-year scholarship n = 651 for Work Values scales. B_r = Standardized regression coefficient for the full model (all 11 Work Values scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.6. ***Regression of OML and LDAC Criteria on the Leadership Knowledge Test Scales***

	OML Score			OML: LDAC Performance Score			OML: LDAC Platoon Tactical Evaluation Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Characteristics C-Score	.00	.19	10.0	.03	.17	38.7	-.01	.02	5.7
Skills C-Score	**.16**	.10	90.0	.05	.01	61.3	.06	.02	94.3
Model R	**.16** (.25)			**.07** (.17)			.05 (.04)		
Model R_{cv}	.14 (.24)			.05 (.13)			.01 (.00)		

	OML: LDAC Land Navigation Score			OML: PMS Potential Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r
Characteristics C-Score	.05	.16	41.1	-.02	.10	5.4
Skills C-Score	**.07**	.04	58.9	**.09**	.06	94.6
Model R	**.11** (.18)			**.08** (.14)		
Model R_{cv}	.09 (.14)			.06 (.09)		

Note. Four-year scholarship n = 1,121. *Br* = Standardized regression coefficient for the full model (both LKT scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.7. ***Regression of OML and LDAC Criteria on the Graphical Army Identification Scales***

	OML Score			OML: LDAC Performance Score			OML: LDAC Platoon Tactical Evaluation Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Identity Magnitude Score	.06	-.01	25.8	**.03**	-.10	29.5	**.03**	-.01	27.8
Identity Centrality Score	.04	.07	16.1	**.08**	.16	61.9	**.09**	.08	63.9
Identity Stability Score	**-.11**	-.32	58.1	-.03	-.23	8.6	-.05	-.10	8.3
Model R	**.08** (.29)			**.09** (.22)			**.10** (.08)		
Model R_{cv}	.05 (.26)			.06 (.18)			.07 (-.04)		

	OML: LDAC Land Navigation Score			OML: PMS Potential Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r
Identity Magnitude Score	.02	-.03	76.2	**.09**	.10	46.0
Identity Centrality Score	.00	.07	10.1	**.09**	.09	45.4
Identity Stability Score	-.01	-.28	13.7	-.07	-.16	8.6
Model R	**.02** (.26)			**.13** (.13)		
Model R_{cv}	-.11 (.23)			.11 (.06)		

Note. Four-year scholarship n = 1,162. B_r = Standardized regression coefficient for the full model (all three GAI scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.8. ***Incremental Validity of All CBEF Biodata Scales for Predicting OML and LDAC Criteria over WPS***

	OML Score					OML: LDAC Performance Score					OML: LDAC Land Navigation Score				
Predictor / Criterion	*Br*	*Bc*	*RWr*	*R*	*Rcv*	*Br*	*Bc*	*RWr*	*R*	*Rcv*	*Br*	*Bc*	*RWr*	*R*	*Rcv*
Step 1: Whole Person Score	**.21**	.31	16.9	**.26** (.50)	.25 (.50)	**.16**	.16	16.2	**.20** (.37)	.19 (.37)	**.11**	.06	2.0	**.14** (.21)	.13 (.20)
Step 2: All CBEF Biodata Scales				***.54*** (.68)	.51 (.66)				***.42*** (.55)	.37 (.52)				***.33*** (.39)	.27 (.34)
Core Biodata Scales															
Achievement	**.33**	.29	27.1			-.02	-.04	0.6			.02	.04	3.4		
Army Identification	**-.17**	-.19	3.7			-.10	-.24	1.4			-.07	-.15	3.0		
Fitness Motivation	**.34**	.32	30.9			**.25**	.18	30.6			**.27**	.18	67.3		
Hostility-Social Maturity	-.04	-.08	1.2			-.01	-.02	1.2			-.01	-.04	0.3		
Self-Efficacy	.00	.10	2.8			-.03	-.04	2.9			-.02	.05	3.2		
Stress Tolerance	.03	-.04	1.7			-.04	-.06	0.7			-.04	-.08	2.6		
Response Distortion	-.02	-.03	0.4			.00	.03	0.6			-.06	-.02	1.2		
Experimental Biodata Scales															
Manipulativeness	.04	.04	0.6			**.09**	.09	4.5			.01	-.06	1.2		
Tolerance for Injury	.01	.04	2.6			.03	.14	6.6			.03	.18	9.1		
Instrumentality of ROTC to Career Goals	.04	.02	1.5			.05	.08	0.6			.02	.00	0.8		
Interest in Leadership	**.12**	.18	5.1			**.19**	.24	17.6			**.12**	.09	1.5		
Leadership Self-Efficacy	**-.12**	-.22	1.6			.02	.01	5.6			-.02	-.05	2.2		
Peer Leadership	-.03	-.01	1.9			.05	.11	8.0			.00	.12	1.5		
Selfless Service	-.08	-.04	1.5			-.03	-.06	0.9			-.06	-.11	0.6		
Social Interests	-.01	-.03	0.5			.06	.06	2.0			.05	.06	0.3		

Table F.8. ***(Continued)***

Predictor / Criterion	OML: LDAC Platoon Tactical Evaluation Score					OML: PMS Potential Score				
	Br	*Bc*	*RWr*	*R*	*Rcv*	*Br*	*Bc*	*RWr*	*R*	*Rcv*
Step 1: Whole Person Score	**.20**	.42	12.8	**.21** (.49)	.20 (.49)	**.13**	.05	37.3	**.16** (.21)	.15 (.20)
Step 2: All CBEF Biodata Scales				***.33*** (.58)	.27 (.55)				***.42*** (.45)	.37 (.41)
Core Biodata Scales										
Achievement	-.02	-.05	0.9			**.13**	.09	2.4		
Army Identification	-.05	-.11	1.5			-.03	-.10	1.7		
Fitness Motivation	**.09**	.08	50.9			**.32**	.23	10.2		
Hostility-Social Maturity	.02	-.01	0.3			-.02	-.08	0.7		
Self-Efficacy	-.10	-.04	2.3			.01	.10	3.6		
Stress Tolerance	**.10**	.03	0.7			-.02	-.06	9.6		
Response Distortion	.00	-.01	4.1			.00	.05	0.6		
Experimental Biodata Scales										
Manipulativeness	-.01	-.02	0.6			.07	.06	0.3		
Tolerance for Injury	**.15**	.25	7.7			.01	.15	18.3		
Instrumentality of ROTC to Career Goals	.05	.05	0.4			.05	.04	1.8		
Interest in Leadership	.08	.19	10.4			**.14**	.22	2.9		
Leadership Self-Efficacy	.01	-.03	2.3			-.05	-.14	1.3		
Peer Leadership	-.09	-.19	2.7			.00	.03	2.7		
Selfless Service	-.02	.00	1.1			**-.10**	-.13	1.7		
Social Interests	-.07	-.08	1.4			.03	.04	5.0		

Note. n = 704. B_r = Standardized regression coefficient for the full model (WPS and all 15 biodata scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded raw values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.9. ***Incremental Validity of All TAPAS Scales for Predicting OML and LDAC Criteria over WPS***

	OML Score					OML: LDAC Performance Score					OML: LDAC Land Navigation Score				
Predictor / Criterion	*Br*	*Bc*	*RWr*	*R*	*Rcv*	*Br*	*Bc*	*RWr*	*R*	*Rcv*	*Br*	*Bc*	*RWr*	*R*	*Rcv*
Step 1: Whole Person Score	**.30**	.61	32.2	**.27** (.50)	.27 (.50)	**.21**	.35	22.8	**.20** (.37)	.19 (.37)	**.18**	.28	32.2	**.16** (.21)	.15 (.20)
Step 2: TAPAS				***.48*** (.63)	.45 (.61)				***.41*** (.52)	.37 (.49)				***.34*** (.41)	.29 (.37)
Achievement	**.17**	.21	16.6			.02	.08	2.3			.02	.10	16.6		
Curiosity	.07	.03	4.7			.03	.02	1.1			.02	-.03	4.7		
Non-Deliquency	-.03	-.03	1.1			-.08	-.08	7.9			-.07	-.05	1.1		
Dominance	.04	.05	2.5			**.17**	.12	17.9			**.12**	.14	2.5		
Even Temper	.05	.08	0.2			.04	.04	0.6			.09	.08	0.2		
Intellectual Efficiency	**-.15**	-.19	3.1			**-.09**	-.09	1.4			-.13	-.15	3.1		
Adjustment	-.07	-.10	1.7			-.05	.01	0.4			-.05	-.05	1.7		
Physical Conditioning	**.24**	.22	29.9			**.23**	.25	35.5			**.22**	.24	29.9		
Responsibility	.01	.03	1.0			-.06	-.05	1.2			-.01	.01	1.0		
Tolerance	**.08**	.04	2.4			-.03	-.09	0.9			-.03	-.07	2.4		
Trust/Cooperation	**-.08**	-.05	4.4			-.05	-.01	5.6			-.05	-.01	4.4		
Optimism	.00	.06	0.3			.04	.05	2.5			-.03	-.02	0.3		

Table F.9. ***(Continued)***

	OML: LDAC Platoon Tactical Evaluation Score					OML: PMS Potential Score				
Predictor / Criterion	*Br*	*Bc*	*RWr*	*R*	*Rcv*	*Br*	*Bc*	*RWr*	*R*	*Rcv*
Step 1: Whole Person Score	**.21**	.46	55.6	**.21** (.49)	.20 (.49)	**.20**	.31	16.2	**.17** (.21)	.16 (.20)
Step 2: TAPAS				**.27** (.52)	.21 (.49)				***.43*** (.48)	.39 (.45)
Achievement	**.09**	.11	5.8			**.15**	.17	16.7		
Curiosity	.04	-.03	3.8			.04	.02	2.1		
Non-Deliquency	**-.11**	-.13	14.4			-.05	-.04	2.4		
Dominance	-.02	.03	0.5			**.12**	.16	10.2		
Even Temper	.07	.10	3.8			.06	.04	0.5		
Intellectual Efficiency	-.06	-.04	1.9			-.15	-.24	4.0		
Adjustment	.07	.03	9.4			-.04	-.06	0.5		
Physical Conditioning	-.01	.02	0.2			**.26**	.26	41.6		
Responsibility	.00	-.08	0.2			.00	.03	1.2		
Tolerance	-.02	-.06	0.8			.01	-.07	0.1		
Trust/Cooperation	-.03	-.01	3.3			-.05	-.01	4.1		
Optimism	-.02	-.02	0.3			.00	.02	0.6		

Note. n = 701. B_r = Standardized regression coefficient for the full model (WPS and all 12 TAPAS scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded raw values are statistically significant, $p <$ .05 (one-tailed for regression coefficients, one-tailed for raw model R). Italicized R indicates the change in R between steps of the model was statistically significant, $p <$ .05 (one-tailed).

Table F.10. ***Incremental Validity of the Experimental CBEF Biodata Scales for Predicting OML and LDAC Criteria over WPS and the Operational CBEF Composite***

	OML Score					OML: LDAC Performance Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.20**	.27	*34.5*	**.26** (.50)	.25 (.50)	**.15**	.13	*21.5*	**.20** (.37)	.19 (.36)
Step 2: Operational CBEF composite	**.26**	.20	*25.0*	***.33*** (.52)	.32 (.51)	-.01	-.17	*3.2*	***.24*** (.37)	.23 (.36)
Step 3: Experimental CBEF Biodata			*40.5*	***.38*** (.58)	.35 (.54)			*75.2*	***.36*** (.51)	.33 (.46)
Manipulativeness	.05	.02	1.0			**.09**	.08	8.0		
Tolerance for Injury	.05	.07	4.0			**.12**	.19	14.2		
Instrumentality of ROTC to Career Goals	**-.17**	-.24	13.5			-.01	-.03	0.7		
Interest in Leadership	**.14**	.24	12.6			**.20**	.27	26.8		
Leadership Self-Efficacy	**-.13**	-.18	2.7			.01	.01	8.8		
Peer Leadership	.01	.01	4.4			.06	.10	12.6		
Selfless Service	-.06	-.01	1.4			-.05	-.08	1.4		
Social Interests	-.02	-.02	0.9			.06	.07	2.7		

	OML: LDAC Platoon Tactical Evaluation Score					OML: LDAC Land Navigation Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.10**	.03	*24*	**.14** (.21)	.13 (.20)	**.21**	.41	*47.5*	**.21** (.49)	.21 (.49)
Step 2: Operational CBEF composite	.06	-.02	*8.8*	***.18*** (.23)	.16 (.20)	-.02	-.08	*1.3*	**.22** (.49)	.20 (.48)
Step 3: Experimental CBEF Biodata Scales			*67.2*	***.24*** (.34)	.19 (.26)			*51.2*	***.30*** (.57)	.26 (.58)
Manipulativeness	.04	-.05	2.7			-.03	-.03	0.2		
Tolerance for Injury	**.12**	.22	23.1			**.19**	.28	30.0		
Instrumentality of ROTC to Career Goals	-.05	-.12	2.2			.03	.01	2.1		
Interest in Leadership	**.14**	.11	23.4			.08	.21	3.4		
Leadership Self-Efficacy	-.04	-.03	4.5			-.02	-.03	1.4		
Peer Leadership	.00	.12	5.8			-.09	-.20	3.5		
Selfless Service	-.08	-.11	2.9			-.06	-.04	3.8		
Social Interests	.05	.06	2.6			-.07	-.08	6.8		

	OML: PMS Potential Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.11**	.00	*16.3*	**.16** (.21)	.15 (.20)
Step 2: Operational CBEF composite	**.17**	.07	*23.4*	***.26*** (.27)	.25 (.25)
Step 3: Experimental CBEF Biodata Scales			*60.3*	***.32*** (.38)	.28 (.31)
Manipulativeness	.08	.02	4.8		
Tolerance for Injury	**.10**	.21	13.9		
Instrumentality of ROTC to Career Goals	-.06	-.10	1.5		
Interest in Leadership	**.15**	.24	21.8		
Leadership Self-Efficacy	-.04	-.08	5.7		
Peer Leadership	.03	.04	8.6		
Selfless Service	**-.09**	-.12	2.5		
Social Interests	.03	.06	1.5		

Note. n = 704. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data).
Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses).
Bolded raw values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R).
Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.11. ***Incremental Validity of the Work Values Scales for Predicting OML and LDAC Criteria over WPS and the Operational CBEF Composite***

	OML Score					OML: LDAC Performance Score					OML: LDAC Platoon Tactical Evaluation Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.19**	**.44**	*32.5*	**.21** (.50)	.19 (.50)	**.14**	**.38**	*28.5*	**.16** (.37)	.14 (.36)	.08	**.23**	*17.6*	.09 (.21)	.06 (.20)
Step 2: Overall CBEF composite	**.17**	**.18**	*19.0*	***.26*** (.52)	.24 (.51)	-.05	-.02	*0.9*	**.16** (.37)	.13 (.36)	.04	.08	*5.8*	.11 (.23)	.06 (.20)
Step 3: Work Values			*48.4*	**.34** (.55)	.25 (.50)			*70.7*	**.28** (.44)	.16 (.36)			*76.6*	.20 (.28)	.03 (.14)
Selfless Service	.05	.00	3.2			**-.12**	**-.12**	10.4			-.05	-.07	2.0		
Leadership Opportunities	.03	.04	1.7			.12	.11	9.8			.11	.07	21.4		
Recognition	**.12**	.11	5.8			.05	.04	1.5			.07	.06	5.0		
Pay	**-.15**	**-.15**	12.1			-.05	-.04	3.2			-.12	-.13	20.8		
Structured Work	**-.14**	-.10	13.7			-.11	**-.12**	14.5			-.04	-.02	4.2		
Comfortable Work Environment	-.01	.02	2.7			-.06	-.03	4.6			.05	.07	1.6		
Work Close to Home	.08	.10	1.1			-.03	-.01	2.9			-.05	-.02	6.7		
Challenge	.02	.02	1.8			.07	.06	9.6			.04	.03	5.8		
Self-Direction	-.08	-.08	3.7			-.01	.00	0.7			-.04	-.02	1.7		
Teamwork	-.05	-.06	2.1			.10	**.17**	10.3			.06	.11	7.0		
Variety	.01	.00	0.5			.03	-.04	3.2			-.02	-.07	0.4		

Table F.11. (Continued)

	OML: LDAC Land Navigation Score					OML: PMS Potential Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.18**	**.47**	*58.5*	**.19** (.49)	.18 (.49)	.07	**.17**	*6.6*	.08 (.21)	.05 (.20)
Step 2: Overall CBEF composite	-.03	-.03	*0.6*	**.20** (.49)	.17 (.48)	.10	**.13**	*16.1*	***.17*** (.27)	.14 (.25)
Step 3: Work Values			*40.9*	.24 (.51)	.10 (.45)			*77.4*	***.29*** (.34)	.17 (.23)
Selfless Service	-.03	-.04	1.7			-.01	-.06	1.4		
Leadership Opportunities	-.04	-.07	2.0			.12	.11	14.5		
Recognition	.05	.07	2.4			.11	.10	6.0		
Pay	-.07	-.09	7.9			**-.16**	**-.16**	18.9		
Structured Work	.01	.03	0.6			-.05	-.04	3.3		
Comfortable Work Environment	-.08	-.07	10.5			.02	.03	3.9		
Work Close to Home	-.01	.00	2.6			-.08	-.03	11.2		
Challenge	.05	.04	5.2			.10	.10	12.2		
Self-Direction	.04	.01	3.3			-.06	-.04	3.0		
Teamwork	.04	.07	1.6			.03	.02	1.8		
Variety	.02	.03	3.1			-.05	-.07	1.2		

Note. n = 371. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded raw values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.12. ***Incremental Validity of the Officer Fit Index for Predicting OML and LDAC Criteria over WPS and the Operational CBEF Composite***

	OML Score					OML: LDAC Performance Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.21**	.50	*62.2*	**.21** (.50)	.19 (.50)	**.14**	.36	*46.9*	**.16** (.37)	.14 (.36)
Step 2: CBEF composite	**.15**	.16	*30.8*	***.26*** (.52)	.25 (.51)	-.04	-.01	*1.9*	**.16** (.37)	.13 (.36)
Step 3: Officer Fit Index	.03	-.01	*7.0*	**.26** (.52)	.23 (.51)	**.16**	.12	*51.2*	***.22*** (.39)	.19 (.37)

	OML: LDAC Platoon Tactical Evaluation Score					OML: LDAC Land Navigation Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	.08	.20	*42.4*	.09 (.21)	.06 (.20)	**.19**	.48	*79.3*	**.19** (.49)	.18 (.49)
Step 2: CBEF composite	.04	.08	*16.5*	.11 (.23)	.06 (.20)	-.02	-.03	*0.7*	**.20** (.49)	.17 (.48)
Step 3: Officer Fit Index	.08	.03	*41.1*	.13 (.23)	.07 (.19)	.09	.10	*20.1*	**.21** (.50)	.18 (.49)

	OML: PMS Potential Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	.08	.20	*15.0*	.08 (.21)	.05 (.20)
Step 2: Operational CBEF composite	**.12**	.15	*41.7*	***.17*** (.27)	.14 (.25)
Step 3: Officer Fit Index	**.11**	.06	*43.3*	***.20*** (.28)	.17 (.25)

Note. n = 371. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p <$. 05 (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p <$ .05 (one-tailed).

Table F.13. ***Incremental Validity of the LKT Scales for Predicting OML and LDAC Criteria over WPS and the Operational CBEF Composite***

	OML Score					OML: LDAC Performance Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.23**	.48	*47.9*	**.24** (.50)	.23 (.50)	**.19**	.37	*64.6*	**.19** (.37)	.18 (.36)
Step 2: Operational CBEF	**.22**	.15	*43.9*	***.33*** (.52)	.32 (.51)	**.14**	.03	*34.0*	***.23*** (.37)	.22 (.36)
Step 3: LKT			*8.2*	**.33** (.52)	.32 (.50)			*1.4*	**.24** (.38)	.21 (.35)
Characteristics C-Score	-.02	.00	1.1			.00	.03	0.7		
Skills C-Score	.07	.04	7.1			-.03	-.04	0.7		

	OML: LDAC Platoon Tactical Evaluation Score					OML: LDAC Land Navigation Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.14**	.24	*54.4*	**.13** (.21)	.12 (.20)	**.21**	.51	*86.2*	**.22** (.49)	.21 (.49)
Step 2: Operational CBEF	**.12**	.10	*44.0*	***.18*** (.23)	.16 (.20)	.02	.01	*1.3*	**.22** (.49)	.21 (.48)
Step 3: LKT			*1.6*	**.18** (.24)	.15 (.19)			*12.5*	**.23** (.49)	.20 (.47)
Characteristics C-Score	-.03	-.07	1.1			.04	-.03	8.4		
Skills C-Score	-.02	.00	0.5			.02	-.02	4.1		

	OML: PMS Potential Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.13**	.20	*25.2*	**.14** (.21)	.13 (.20)
Step 2: Operational CBEF	**.22**	.17	*70.2*	***.26*** (.27)	.25 (.25)
Step 3: LKT			*4.7*	**.27** (.28)	.25 (.24)
Characteristics C-Score	-.03	.01	0.5		
Skills C-Score	.05	.04	4.2		

Note. n = 637. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.14. ***Incremental Validity of the Graphical Army Identification Scales for Predicting OML and LDAC Criteria over WPS and the Operational CBEF Composite***

	OML Score					OML: LDAC Performance Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.23**	.39	*47.4*	**.26** (.50)	.25 (.50)	**.19**	.34	*69.8*	**.20** (.37)	.19 (.36)
Step 2: CBEF composite	**.30**	.27	*39.1*	***.32*** (.52)	.32 (.51)	**.12**	.05	*20.3*	***.23*** (.37)	.22 (.36)
Step 3: GAI			*13.5*	***.36*** (.55)	.34 (.53)			*9.9*	**.23** (.38)	.20 (.34)
Identity Magnitude Score	-.06	.04	3.2			-.04	-.03	1.8		
Identity Centrality Score	-.01	-.09	2.7			.07	.08	6.4		
Identity Stability Score	**-.14**	-.19	7.6			-.03	-.10	1.7		

	OML: LDAC Platoon Tactical Evaluation Score					OML: LDAC Land Navigation Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.13**	.22	*55.7*	**.14** (.21)	.13 (.20)	**.22**	.48	*95.6*	**.22** (.49)	.22 (.49)
Step 2: CBEF composite	**.11**	.07	*29.8*	***.18*** (.23)	.16 (.20)	.04	.02	*2.5*	**.23** (.49)	.21 (.48)
Step 3: GAI			*14.5*	**.18** (.23)	.14 (.17)			*1.9*	**.23** (.49)	.19 (.47)
Identity Magnitude Score	-.03	.03	2.6			.03	.09	0.7		
Identity Centrality Score	.06	.02	9.1			-.04	-.04	0.8		
Identity Stability Score	-.05	-.02	2.8			.00	-.08	0.4		

	OML: PMS Potential Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.16**	**.**23	*34.3*	**.16** (.21)	.15 (.20)
Step 2: Operational CBEF	**.20**	.13	*44.7*	***.27*** (.27)	.25 (.25)
Step 3: GAI			*21.1*	**.27** (.29)	.25 (.24)
Identity Magnitude Score	.02	.14	6.5		
Identity Centrality Score	.07	.01	11.1		
Identity Stability Score	-.07	-.08	3.5		

Note. n = 656. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.15. ***Incremental Validity of the Overall Identity Score for Predicting OML and LDAC Criteria over WPS and the Operational CBEF Composite***

	OML Score					OML: LDAC Performance Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: WPS	**.24**	.40	*49.7*	**.25** (.50)	.25 (.50)	**.19**	.36	*73.5*	**.20** (.37)	.19 (.36)
Step 2: CBEF composite	**.30**	.28	*40.3*	***.32*** (.52)	.32 (.51)	**.11**	.05	*22.5*	***.23*** (.37)	.22 (.36)
Step 3: Overall Identity	**-.18**	-.22	*10.0*	***.35*** (.54)	.34 (.53)	.00	-.02	*4.0*	**.23** (.38)	.21 (.36)
	OML: LDAC Platoon Tactical Evaluation Score					OML: LDAC Land Navigation Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: WPS	**.14**	.22	*61.0*	**.14** (.21)	.13 (.20)	**.22**	.48	*96.9*	**.22** (.49)	.22 (.49)
Step 2: CBEF composite	**.11**	.07	*33.9*	***.18*** (.23)	.16 (.20)	.04	.02	*2.6*	**.23** (.49)	.21 (.48)
Step 3: Overall Identity	-.01	.03	*5.2*	**.18** (.23)	.15 (.19)	-.01	-.02	*0.6*	**.23** (.49)	.21 (.48)
	OML: PMS Potential Score									
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}					
Step 1: WPS	**.16**	.24	*36.5*	**.16** (.21)	.15 (.20)					
Step 2: CBEF composite	**.20**	.14	*51.7*	***.27*** (.27)	.25 (.25)					
Step 3: Overall Identity	.02	.06	*11.8*	**.27** (.28)	.25 (.25)					

Note. n = 656. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.16. ***Regression of GPA and APFT Scores on All CBEF Biodata Scales***

	OML: Cumulative Overall GPA Score			OML: LDAC APFT Score			OML: Fall Semester APFT Score		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Core CBEF Biodata									
Achievement	**.40**	.42	53.2	.06	.13	1.6	**.08**	.15	2.6
Army Identification	**-.17**	-.21	7.9	**-.12**	-.13	1.9	**-.14**	-.18	3.1
Fitness Motivation	**.08**	.06	2.6	**.60**	.57	81.9	**.44**	.42	74.5
Hostility-Social Maturity	**-.11**	-.12	6.6	-.04	.01	0.2	-.02	-.02	0.1
Self Efficacy	.03	.12	2.8	.01	.06	2.7	.00	.11	2.4
Stress Tolerance	.03	.01	1.1	-.01	-.06	1.4	.01	-.03	1.8
Response Distortion	**-.07**	-.17	1.3	.01	.02	0.0	.01	.02	0.0
Experimental CBEF Biodata									
Manipulativeness	.01	.06	0.6	.04	.07	0.3	.04	.11	0.6
Tolerance for Injury	.00	.01	1.3	-.03	.04	5.5	.04	.12	7.9
Instrumentality of ROTC to Career Goals	-.04	-.13	6.2	.01	-.07	0.3	.04	.02	0.4
Interest in Leadership	**.10**	.20	3.3	.01	.00	1.4	.06	.04	2.1
Leadership Self-Efficacy	**-.16**	-.23	3.5	**-.08**	-.13	1.3	**-.14**	-.24	2.7
Peer Leadership	.01	-.02	2.0	-.02	.01	0.9	-.03	.03	1.0
Selfless Service	-.02	.03	2.1	-.01	-.09	0.4	.02	-.03	0.5
Social Interests	**-.12**	-.11	5.5	-.03	-.03	0.3	-.02	.00	0.3
Model R	**.47** (.66)			**.56** (.60)			**.44** (.51)		
Model R_{cv}	.45 (.65)			.54 (.59)			.42 (.49)		

Note. Four-year scholarship n = 1,217 for all CBEF biodata scales. B_r = Standardized regression coefficient for the full model (all 15 biodata scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.17. ***Regression of GPA and APFT Scores on All TAPAS Scales***

	OML : Cumulative Overall GPA Score			OML: LDAC APFT Score			OML: Fall Semester APFT Scores		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Achievement	**.14**	.17	28.9	**.08**	.11	6.5	**.07**	.18	6.4
Curiosity	**.11**	.13	20.2	.02	.03	0.3	-.03	-.04	0.7
Non-Delinquency	.06	-.08	7.8	**-.11**	-.24	6.0	**-.07**	-.21	4.1
Dominance	-.05	-.07	0.8	-.01	.00	0.7	.00	-.05	1.1
Even Temper	.01	.03	0.3	.05	.13	0.3	.03	.08	0.2
Intellectual Efficiency	.02	.17	1.8	**-.13**	-.04	4.8	**-.14**	-.04	7.7
Adjustment	**-.07**	-.03	8.6	.05	-.05	0.9	.06	.08	1.6
Physical Conditioning	.01	-.03	1.6	**.41**	.41	74.0	**.33**	.36	68.6
Responsibility	**.08**	.12	11.5	.01	-.03	0.4	.02	-.05	0.7
Tolerance	**.09**	.13	12.3	.03	-.01	0.1	.05	.07	0.4
Trust/Cooperation	**-.08**	-.08	5.3	**-.09**	-.04	5.7	**-.10**	-.07	7.9
Optimism	.04	-.02	0.8	-.03	-.07	0.4	-.01	-.07	0.6
Model R	**.28** (.41)			**.48** (.50)			**.40** (.48)		
Model R_{cv}	.25 (.34)			.46 (.44)			.38 (.42)		

Note. Four-year scholarship n = 1,205 for TAPAS scales. B_r= Standardized regression coefficient for the full model (all 12 TAPAS scales).B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, p<.05 (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.18. ***Regression of GPA and APFT Scores on the CBEF Core Biodata Scales***

	OML : Cumulative Overall GPA Score			OML: LDAC APFT Score			OML: Fall Semester APFT Scores		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Achievement	**.39**	.48	65.6	.05	.12	1.6	**.06**	.13	2.7
Army Identification	**-.23**	-.35	17.3	**-.14**	-.23	3.1	**-.11**	-.17	3.4
Fitness Motivation	**.07**	.06	2.6	**.58**	.57	90.0	**.45**	.44	88.4
Hostility-Social Maturity	**-.09**	-.06	7.7	-.03	.05	0.1	.00	.05	0.1
Self-Efficacy	-.02	.10	3.5	-.05	.00	3.5	-.06	.01	3.1
Stress Tolerance	.04	.02	1.2	-.02	-.05	1.7	.01	-.02	2.1
Response Distortion	**-.09**	-.25	2.2	-.01	-.04	0.0	-.01	-.05	0.1
Model R	**.44** (.66)			**.55** (.58)			**.43** (.47)		
Model R_{cv}	.43 (.64)			.54 (.55)			**.**42 (.43)		

Note. Four-year scholarship n = 1,218 for the core biodata scales. B_r = Standardized regression coefficient for the full model (all seven core biodata scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.19. ***Regression of GPA and APFT Scores on the Experimental CBEF Biodata Scales***

	OML : Cumulative Overall GPA Score			OML: LDAC APFT Score			OML: Fall Semester APFT Scores		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Manipulativeness	-.05	.03	2.7	.01	.04	0.8	.01	.06	1.4
Tolerance for Injury	-.05	-.02	6.5	**.18**	.23	69.4	**.18**	.24	69.2
Instrumentality of ROTC to Career Goals	**-.16**	-.35	43.3	**-.07**	-.21	7.0	-.05	-.14	2.8
Interest in Leadership	**.16**	.35	15.5	.07	.06	12.0	**.10**	.09	14.7
Leadership Self-Efficacy	**-.14**	-.22	7.7	-.03	-.02	3.1	**-.10**	-.13	5.5
Peer Leadership	.06	.03	6.5	.02	.04	5.8	.01	.07	4.2
Selfless Service	.06	.09	3.0	-.03	-.08	1.3	.00	-.03	1.8
Social Interests	**-.12**	-.11	15.0	-.01	.02	0.5	-.01	.04	0.5
Model R	**.26** (.51)			**.19** (.33)			**.19** (.31)		
Model Rcv	.24 (.47)			.16 (.26)			.16 (.24)		

Note. Four-year scholarship n =1,217 for experimental CBEF biodata scales. B_r = Standardized regression coefficient for the full model (all eight biodata scales).B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.20. *Regression of GPA and APFT Scores on the Work Values Scales*

	OML : Cumulative Overall GPA Score			OML: LDAC APFT Score			OML: Fall Semester APFT Scores		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Selfless Service	**.13**	.11	30.4	.03	-.02	3.0	.05	.00	7.6
Leadership Opportunities	-.05	.03	4.8	.02	.03	2.3	.05	.08	5.7
Recognition	.07	.14	6.0	.05	.10	3.1	.01	.06	2.5
Pay	-.08	-.16	13.9	-.08	-.18	9.3	**-.14**	-.22	28.9
Structured Work	-.06	-.19	12.5	-.04	-.04	3.9	-.03	-.03	2.3
Comfortable Work Environment	-.03	-.05	3.8	.02	.10	1.4	-.03	-.01	8.7
Work Close to Home	.05	.13	1.5	-.05	.02	4.9	-.01	.06	2.8
Challenge	.02	-.03	0.7	**.21**	.28	66.4	**.16**	.19	37.9
Self-Direction	-.07	.02	13.4	-.03	-.03	1.9	.02	.09	1.4
Teamwork	-.07	-.32	12.0	-.01	-.13	1.9	-.03	-.10	1.1
Variety	.02	.17	0.9	-.04	-.02	2.0	-.02	-.06	1.0
Model R	**.19** (.45)			**.22** (.31)			**.23** (.31)		
Model R_{cv}	.10 (.38)			.15 (.21)			.16 (.20)		

Note. Four-year scholarship n = 651 for Work Values scales. B_r = Standardized regression coefficient for the full model (all 11 Work Values scales).B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.21. *Regression of GPA and APFT Scores on the LKT Scales*

	OML : Cumulative Overall GPA Score			OML: LDAC APFT Score			OML: Fall Semester APFT Scores		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Characteristics C-Score	.01	.16	11.5	-.03	.13	7.3	-.02	.15	5.4
Skills C-Score	**.17**	.15	88.5	**.07**	-.01	92.7	**.10**	.00	94.6
Model R	**.18** (.27)			.07 (.12)			**.09** (.15)		
Model R_{cv}	.17 (.25)			.04 (.07)			.08 (.11)		

Note. Four-year scholarship n = 1,121. *Br* = Standardized regression coefficient for the full model (both LKT scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.22. ***Regression of GPA and APFT Scores on the GAI Scales***

	OML : Cumulative Overall GPA Score			OML: LDAC APFT Score			OML: Fall Semester APFT Scores		
Predictor / Criterion	B_r	B_c	RW_r	B_r	B_c	RW_r	B_r	B_c	RW_r
Identity Magnitude Score	.03	-.10	9.9	.04	.12	34.2	.04	.00	22.7
Identity Centrality Score	-.04	.01	25.6	.06	-.03	48.9	.08	**.20**	45.8
Identity Stability Score	**-.11**	**-.27**	64.5	-.06	**-.21**	16.8	**-.09**	**-.26**	31.5
Model R	**.12** (.35)			.07 (.17)			**.08** (.20)		
Model R_{cv}	.10 (.32)			.03 (.11)			.05 (.15)		

Note. Four-year scholarship n = 1,162. B_r = Standardized regression coefficient for the full model (all three GAI scales). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution.

Table F.23. ***Incremental Validity of All CBEF Biodata Scales for Predicting GPA and APFT Scores over WPS***

	OML: Cumulative Overall GPA Score					OML: LDAC APFT Score					OML: Fall Semester APFT Score				
Predictor / Criterion	*Br*	*Bc*	*RWr*	*R*	*Rcv*	*Br*	*Bc*	*RWr*	*R*	*Rcv*	*Br*	*Bc*	*RWr*	*R*	*Rcv*
Step 1: Whole Person Score	**.18**	.32	10.1	**.23** (.49)	.22 (.49)	**.10**	.21	12.8	**.11** (.24)	.10 (.23)	**.07**	.19	3.2	**.08** (.22)	.06 (.21)
Step 2: All CBEF Biodata Scales				***.54*** (.69)	.51 (.67)				***.55*** (.62)	.52 (.60)				***.45*** (.52)	.41 (.49)
Achievement	**.46**	.42	8.9			**.09**	.13	52.3			**.09**	.14	2.0		
Army Identification	**-.19**	-.18	1.0			**-.16**	-.11	7.3			**-.15**	-.16	3.3		
Fitness Motivation	**.10**	.12	47.1			**.57**	.61	2.4			**.42**	.45	74.7		
Hostility-Social Maturity	-.07	-.09	0.3			.02	.03	4.6			.00	.00	0.3		
Self Efficacy	.02	.10	4.4			.01	.04	2.2			.03	.10	2.6		
Stress Tolerance	.05	.00	0.9			.01	-.06	1.1			.03	-.03	1.6		
Response Distortion	-.05	-.12	0.3			.05	.05	0.8			.06	.05	0.5		
Manipulativeness	.00	-.01	2.3			.05	.03	0.5			.06	.07	0.8		
Tolerance for Injury	-.04	-.08	5.7			-.01	-.02	2.0			.05	.06	6.1		
Instrumentality of ROTC to Career Goals	.00	-.03	0.5			.05	.01	4.8			.09	.08	0.5		
Interest in Leadership	.07	.12	10.3			.00	-.05	2.1			.01	-.01	1.2		
Leadership Self-Efficacy	**-.12**	-.21	2.5			-.08	-.12	2.1			**-.13**	-.22	1.4		
Peer Leadership	-.05	-.07	3.6			-.05	-.02	1.4			.02	.00	0.9		
Selfless Service	-.07	.05	1.6			-.05	-.08	2.2			.00	-.02	0.8		
Social Interests	-.04	-.08	0.7			.01	-.01	1.3			-.01	.02	0.2		

Note. n = 704. B_r = Standardized regression coefficient for the full model (all predictors). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.24. ***Incremental Validity of All TAPAS Scales for Predicting GPA and APFT Scores over WPS***

	OML: Cumulative Overall GPA Score					OML: LDAC APFT Score					OML: Fall Semester APFT Score				
Predictor / Criterion	*Br*	*Bc*	*RWr*	*R*	*Rcv*	*Br*	*Bc*	*RWr*	*R*	*Rcv*	*Br*	*Bc*	*RWr*	*R*	*Rcv*
Step 1: Whole Person Score	**.25**	.61	36.0	**.23** (.49)	.22 (.49)	**.16**	.33	6.9	**.12** (.24)	.11 (.23)	**.13**	.31	5.6	**.09** (.22)	.07 (.21)
Step 2: TAPAS				***.38*** (.58)	.34 (.56)				***.51*** (.55)	.48 (.53)				***.46*** (.52)	.43 (.49)
Achievement	**.18**	.17	21.2			.04	.11	3.2			**.09**	.18	6.9		
Curiosity	**.10**	.05	11.7			.04	-.02	0.8			-.04	-.08	0.6		
Non-Deliquency	.04	.07	3.4			**-.13**	-.15	7.1			**-.08**	-.13	4.6		
Dominance	-.07	-.05	1.3			.00	.01	1.0			.01	-.04	1.6		
Even Temper	-.01	.01	0.2			**.07**	.11	0.7			.03	.07	0.3		
Intellectual Efficiency	-.07	-.11	1.6			**-.17**	-.19	5.7			**-.18**	-.19	8.5		
Adjustment	**-.09**	-.11	7.1			-.02	-.09	0.2			.05	.04	1.5		
Physical Conditioning	.03	.00	1.7			**.43**	.42	70.0			**.36**	.37	60.5		
Responsibility	.05	.10	3.7			-.03	-.05	0.4			-.02	-.07	0.3		
Tolerance	**.11**	.11	10.6			.01	-.01	0.1			**.10**	.07	2.4		
Trust/Cooperation	-.04	-.07	1.1			-.06	-.03	3.6			**-.09**	-.06	6.7		
Optimism	.00	.07	0.4			-.04	-.02	0.4			-.02	-.02	0.5		

Note. n = 701. B_r = Standardized regression coefficient for the full model (all predictors). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.25. ***Incremental Validity of the Experimental CBEF Biodata Scales for Predicting GPA and APFT Scores over WPS and the Operational CBEF Composite***

	OML : Cumulative Overall GPA Score					OML: LDAC APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.18**	.36	*27.6*	**.23** (.49)	.22 (.49)	.07	.05	*14.0*	**.11** (.24)	.10 (.23)
Step 2: CBEF composite	**.30**	.29	*22.0*	***.26*** (.50)	.25 (.49)	**.13**	.12	*16.9*	***.16*** (.25)	.14 (.23)
Step 3: Experimental CBEF			*50.4*	***.39*** (.61)	.35 (.58)			*69.1*	***.25*** (.34)	.19 (.26)
Manipulativeness	.00	-.01	0.8			.05	.05	3.6		
Tolerance for Injury	**-.13**	-.16	8.6			**.18**	.20	42.5		
Instrumentality of ROTC to Career Goals	**-.22**	-.29	28.2			**-.12**	-.23	11.5		
Interest in Leadership	.09	.18	4.3			.03	.02	3.3		
Leadership Self-Efficacy	**-.14**	-.22	3.7			-.05	-.03	2.0		
Peer Leadership	-.01	-.05	1.4			.00	.02	2.1		
Selfless Service	-.01	.10	1.0			-.08	-.09	3.5		
Social Interests	-.05	-.08	2.4			.01	.02	0.6		

	OML: Fall Semester APFT Score				
	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	.04	.07	*6.5*	**.08** (.22)	.06 (.21)
Step 2: CBEF Composite	**.11**	.12	*18.8*	***.15*** (.25)	.13 (.23)
Step 3: Experimental CBEF			*74.8*	***.23*** (.33)	.17 (.24)
Manipulativeness	.04	.06	3.0		
Tolerance for Injury	**.18**	.21	51.1		
Instrumentality of ROTC to Career Goals	-.06	-.15	2.9		
Interest in Leadership	.03	.05	4.8		
Leadership Self-Efficacy	-.10	-.14	3.7		
Peer Leadership	.05	.04	7.2		
Selfless Service	-.02	-.03	1.5		
Social Interests	-.01	.04	0.6		

Note. n = 704. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. *RW* = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.26. ***Incremental Validity of the Work Values Scales for Predicting GPA and APFT Scores over WPS and the Operational CBEF Composite***

	OML : Cumulative Overall GPA Score					OML: LDAC APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.19**	.44	*26.1*	**.20** (.49)	.18 (.49)	.04	**.**21	*2.6*	.05 (.24)	.00 (.23)
Step 2: CBEF composite	**.18**	.19	*11.8*	**.22** (.50)	.19 (.49)	.09	.09	*10.2*	*.12* (.25)	.07 (.23)
Step 3: Work Values			*62.0*	***.37*** (.57)	.29 (.52)			*87.0*	***.18*** (.36)	.16 (.26)
Selfless Service	**.14**	.09	9.6			.00	-.03	0.3		
Leadership Opportunities	-.07	-.04	3.1			.02	.00	1.1		
Recognition	.10	.07	3.2			.06	.06	2.4		
Pay	-.07	-.10	2.8			**-.15**	-.15	10.9		
Structured Work	**-.15**	-.12	13.8			-.03	.00	1.7		
Comfortable Work Environment	-.02	.01	1.2			.12	.13	3.8		
Work Close to Home	**.18**	.17	6.8			.01	.04	0.6		
Challenge	**-.12**	-.11	6.6			**.26**	.24	58.6		
Self-Direction	-.09	-.10	5.3			-.07	-.09	3.0		
Teamwork	-.10	-.14	8.6			-.07	-.05	3.0		
Variety	.05	.07	1.0			-.04	-.07	1.6		

	OML: Fall Semester APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	.03	.18	*3.0*	.06 (.22)	.01 (.21)
Step 2: CBEF composite	.10	.08	*15.2*	***.15*** (.25)	.11 (.23)
Step 3: Work Values			*81.8*	***.27*** (.34)	.15 (.23)
Selfless Service	.04	.00	3.6		
Leadership Opportunities	.04	.05	4.5		
Recognition	.02	.03	2.0		
Pay	**-.19**	-.20	29.2		
Structured Work	-.02	.00	1.0		
Comfortable Work Environment	.02	.02	2.6		
Work Close to Home	.04	.08	1.1		
Challenge	**.17**	.15	30.7		
Self-Direction	.04	.04	2.6		
Teamwork	-.08	-.03	2.8		
Variety	-.05	-.10	1.7		

Note. n = 371. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.27. ***Incremental Validity of the Officer Fit Index for Predicting GPA and APFT Scores over WPS and the Operational CBEF Composite***

	OML : Cumulative Overall GPA Score					OML: LDAC APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.21**	.50	*74.6*	**.20** (.49)	.18 (.49)	.05	.24	*20.1*	.05 (.24)	.00 (.23)
Step 2: CBEF composite	**.12**	.13	*19.5*	**.22** (.50)	.19 (.49)	.09	.09	*63.9*	*.12* (.25)	.07 (.23)
Step 3: Officer Fit Index	-.09	-.09	*5.9*	**.23** (.51)	.20 (.50)	.03	-.01	*16.0*	.12 (.25)	.05 (.21)

	OML: Fall Semester APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	.05	.22	*12.3*	.06 (.22)	.01 (.21)
Step 2: CBEF composite	**.11**	.10	*56.8*	***.15*** (.25)	.11 (.23)
Step 3: Officer Fit Index	.07	.03	*30.9*	**.16** (.25)	.11 (.21)

Note. n = 371. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.28. ***Incremental Validity of the LKT Scales for Predicting GPA and APFT Scores over WPS and the Operational CBEF Composite***

	OML : Cumulative Overall GPA Score					OML: LDAC APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.20**	.47	*50.7*	**.21** (.49)	.21 (.49)	**.11**	.23	*42.5*	**.11** (.24)	.09 (.23)
Step 2: Operational CBEF	**.15**	.10	*27.8*	***.26*** (.50)	.25 (.49)	**.12**	.09	*49.8*	***.16*** (25)	.14 (.23)
Step 3: LKT			*21.5*	***.28*** (.51)	.26 (.49)			*7.7*	**.16** (.26)	.13 (.21)
Characteristics C-Score	-.01	-.02	3.2			-.04	.04	1.7		
Skills C-Score	**.11**	.10	18.3			.04	-.04	6.0		

	OML: Fall Semester APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	.05	.20	*12.1*	.06 (.22)	.03 (.21)
Step 2: Operational CBEF	**.12**	.11	*59.7*	***.14*** (.25)	.11 (.23)
Step 3: LKT			*28.2*	**.16** (.26)	.12 (.21)
Characteristics C-Score	-.04	.07	2.3		
Skills C-Score	.09	-.02	25.9		

Note. n = 637. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.29. ***Incremental Validity of the GAI Scales for Predicting GPA and APFT Scores over WPS and the Operational CBEF Composite***

	OML : Cumulative Overall GPA Score					OML: LDAC APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.19**	.34	*37.8*	**.22** (.49)	.21 (.49)	**.12**	.19	*45.2*	**.13** (.24)	.12 (23)
Step 2: CBEF composite	**.28**	.30	*31.0*	***.25*** (.50)	.24 (.49)	**.15**	.15	*38.8*	***.17*** (.25)	.15 (.23)
Step 3: GAI			*31.2*	***.33*** (.56)	.31 (.54)			*15.9*	**.18** (.29)	.14 (.24)
Identity Magnitude Score	-.10	-.08	9.7			-.02	.14	2.8		
Identity Centrality Score	-.09	-.15	8.6			.03	-.11	4.3		
Identity Stability Score	**-.14**	-.17	12.9			-.09	-.15	8.8		

	OML: Fall Semester APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.08**	.16	*20.5*	**.09** (.22)	.08 (.21)
Step 2: CBEF composite	**.14**	.14	*37.5*	***.15*** (.25)	.13 (.23)
Step 3: GAI			*41.9*	***.20*** (.29)	.16 (.24)
Identity Magnitude Score	-.06	.01	5.5		
Identity Centrality Score	**.14**	.12	24.1		
Identity Stability Score	**-.13**	-.21	12.3		

Note. n = 656. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).

Table F.30. ***Incremental Validity of the Overall Identity Score for Predicting GPA and APFT Scores over WPS and the Operational CBEF Composite***

	OML : Cumulative Overall GPA Score					OML: LDAC APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.19**	**.34**	*39.1*	**.22** (.49)	.21 (.49)	**.12**	**.19**	*50.8*	**.13** (.24)	.12 (.23)
Step 2: CBEF composite	**.28**	**.30**	*30.6*	***.25*** (.50)	.24 (.49)	**.14**	**.15**	*43.0*	***.17*** (.25)	.15(.23)
Step 3: Overall Identity Score	**-.27**	**-.35**	*30.3*	***.33*** (.56)	.31 (.54)	-.06	-.11	*6.1*	**.17** (.27)	.13 (.22)

	OML: Fall Semester APFT Score				
Predictor / Criterion	B_r	B_c	RW_r	R	R_{cv}
Step 1: Whole Person Score	**.09**	**.20**	*34.1*	**.09** (.22)	.08 (.21)
Step 2: CBEF composite	**.14**	.14	*58.8*	***.15*** (.25)	.13 (.23)
Step 3: Overall Identity Score	-.02	-.04	*7.1*	**.16** (.25)	.11 (.19)

Note. n = 656. B_r = Standardized regression coefficient for the full model (all predictors in Steps 1 to 3). B_c = Standardized regression coefficient calculated based on data corrected for multivariate range restriction. RW_r = Relative weight statistics reflecting the relative percentage of full model R^2 accounted for by the given predictor (based on raw data). Model R = Multiple correlation for full model (range restriction corrected estimate noted in parenthesis). Model R_{cv} = Cross-validated multiple correlation for full model (range-restriction corrected estimate noted in parentheses). Bolded values are statistically significant, $p < .05$ (one-tailed for regression coefficients, one-tailed for raw model R). Significance is not indicated for corrected statistics as there is no known sampling distribution. Italicized R indicates the change in R between steps of the model was statistically significant, $p < .05$ (one-tailed).