

Technical Report 1323

Longitudinal Validation of Non-Cognitive Officer Selection Measures for the U.S. Army Officer Candidate School (OCS)

Matthew T. Allen (Ed.)

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U.S. Army Research Institute

September 2012



**United States Army Research Institute
for the Behavioral and Social Sciences**

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REPORT DOCUMENTATION PAGE					
1. REPORT DATE (dd-mm-yy) September 2012		2. REPORT TYPE Final		3. DATES COVERED (from... to) January 2011 to September 2012	
4. TITLE AND SUBTITLE Longitudinal Validation of Non-Cognitive Officer Selection Measures for the U.S. Army Officer Candidate School (OCS)				5a. CONTRACT OR GRANT NUMBER W91WAW-09-D-0013	
				5b. PROGRAM ELEMENT NUMBER 622785	
6. EDITOR(S) Matthew T. Allen (Human Resources Research Organization); Mark C. Young (U.S. Army Research Institute)				5c. PROJECT NUMBER A790	
				5d. TASK NUMBER 06	
				5e. WORK UNIT NUMBER 311	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Human Resources Research Organization 66 Canal Center Plaza, Suite 700 Alexandria, Virginia 22314				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Research Institute for the Behavioral and Social Sciences 6000 6th Street (Bldg 1464/Mail Stop: 5586) Ft. Belvoir, VA 22060-5586				10. MONITOR ACRONYM ARI	
				11. MONITOR REPORT NUMBER Technical Report 1323	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES Contracting Officer's Representative and Subject Matter Expert POC: Dr. Mark Young					
14. ABSTRACT (<i>Maximum 200 words</i>): This report provides recommendations regarding the implementation of Army Officer Candidate School (OCS) selection measures for enhancing performance and career continuance. The purpose of the present research was to validate an experimental selection battery called the Officer Background and Experiences Form (OBEF) against long-term (e.g., in-unit performance, service continuance) criterion measures. We collected long-term criterion measures for members of an officer cohort that had completed the OBEF upon entry into OCS in 2008. The pattern of results suggests that the OBEF was predictive of key performance and continuance outcomes approximately three years after officers received their commission. Moreover, the OBEF demonstrated incremental validity beyond that of the Armed Forces Qualification Test (AFQT). Results from longitudinal analyses showed that officers' attitudes changed over time partially as a function of whether they entered OCS through the in-service or enlistment option programs. Changes in self-ratings of morale were also predicted by the OBEF and change in morale over time was predictive of staying on active duty service beyond the end of the 3-year Active Duty Service Obligation (ADSO). In addition, self-reported career continuance intentions were positively associated with actual active duty continuance behavior.					
15. SUBJECT TERMS Manpower , Selection and classification, Officer Candidate School officer selection, Longitudinal analysis					
SECURITY CLASSIFICATION OF			19. LIMITATION OF ABSTRACT Unlimited	20. NUMBER OF PAGES 110	21. RESPONSIBLE PERSON Dorothy Young (703) 545-2316
16. REPORT Unclassified	17. ABSTRACT Unclassified	18. THIS PAGE Unclassified			

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September 2012

**Army Project Number
622785A790**

**Personnel Performance
and Training Technology**

Approved for public release; distribution is unlimited.

ACKNOWLEDGEMENTS

The authors would like to thank a number of individuals for their contribution to this effort. Winnie Young, Ani DiFazio, Ron Floden, Pam Butler, Jessica Bellamy, Lindsey Bartholomew, and Veronica Gilrane all assisted the research team with collecting the data necessary to answer the questions put forth in this report. The authors also acknowledge the database support provided by the Army's Officer Personnel Management Directorate and Leader Development Division, the Army Human Resources Command at Fort Knox, and the Defense Manpower Data Center. We also thank LTC Dean Bushnell, former OCS Commandant, for his support. Finally, the authors are indebted to the contributions of the officers that took the time to participate in this research.

LONGITUDINAL VALIDATION OF NON-COGNITIVE OFFICER SELECTION MEASURES FOR THE U.S. ARMY OFFICER CANDIDATE SCHOOL (OCS)

EXECUTIVE SUMMARY

Research Requirement:

Background. The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) has a broad, ongoing effort to identify, develop, and validate personnel tests for use in officer selection and branch assignments. The primary goal of this program is to recommend and implement such measures that will support efforts to enhance both officer performance and career continuance across commissioning sources. The effort described in this report focuses specifically on procedures for selecting candidates for the U.S. Army's Officer Candidate School.

Officer Candidate School (OCS) is an important commissioning source for Army officers. Historically, the Army has used OCS to fill accession gaps in officer requirements when other commissioning sources were unable to meet force structure needs. Compared to the Reserve Officer Training Corps (ROTC) and the U.S. Military Academy (USMA), OCS is flexible enough to increase or decrease its rate of commissioning officers on short notice.

First Phase of OCS Research. The first phase of ARI's OCS research (Russell & Tremble, 2011) served as the foundation for the effort described in this report. The first phase began in 2008, when researchers administered an extensive battery of personnel selection tests to over 1,300 entering OCS candidates. This test battery, the Officer Background and Experiences Form (OBEF), included measures of temperament, affectivity, values, and leadership. One of these measures was a version of the Rational Biodata Inventory (RBI). The RBI is a non-cognitive measure of personality and motivational attributes that has shown promise for enhancing selection of cadets in ROTC (Putka, Wasko, Tremble, Kilcullen, & Shaw, 2009; Wasko, Putka, Legree, & Kilcullen, 2011) and enlisted Soldiers (Knapp & Heffner, 2009; Knapp, Owens, & Allen, 2011). Instruments measuring work values and judgment in leadership situations also were administered as part of the OBEF. We used a longitudinal validation research design to track these tested candidates through the end of their 12-week OCS training course. In addition, approximately 50% of these individuals were further tracked into their Basic Officer Leadership Course III, where newly commissioned officers complete their branch-specific training. Data collected both at the end of OCS and the period during BOLC III (approximately 6 months following OCS graduation) were used to obtain early indicators of performance and continuance (e.g., OCS training performance scores, self-reported commitment, and career continuance intentions) for the longitudinal validation.

The preliminary findings from this first phase of OCS research showed that a subset of the OBEF was predictive of practical and conceptually important outcomes such as commitment to the Army, career continuance intentions, and OCS performance scores. Importantly, these tests demonstrated incremental validity, beyond that of the Armed Services Vocational Aptitude

Battery (ASVAB)—which the Army uses for screening applicants into OCS. In addition, the findings were similar across both the enlistment option (for civilians selected directly into OCS) and in-service (for enlisted Soldiers entering OCS) accession programs.

Current Research Objectives. The specific objectives of the current effort were to (a) collect longer-term criterion measures (e.g., in-unit performance, service continuance) for the members of the 2008 OCS cohort, (b) validate the 2008 test battery (the OBEF) against these longer-term outcomes, (c) validate the OCS selection composites developed in the first phase against the same longer-term outcomes, and (d) model changes in officer attitudes during their initial Active Duty Service Obligation, and the antecedents and consequences of those changes.

These objectives were driven in large part by a need to transition ARI's experimental OCS selection tests to operational use in an Initial Operational Test and Evaluation (IOT&E) within the next few years. The current research was designed to help inform decisions regarding the choice of the operational test battery and the Army's officer candidate selection policies.

Procedure:

At the beginning of this project in early 2011, the junior officers in the 2008 OCS cohort were approaching the end of their 3-year Active Duty Service Obligation (ADSO). This was a critical period as these officers had gained substantial experience working in their initial units and were deciding whether or not to continue serving in the Regular Army. We developed data collection approaches and measures that captured important career outcome information for these young officers during this key period.

We developed and fielded a web-based "In-Unit Survey" for measuring the officers' attitudes, performance, and continuance intentions. The performance-related items in the survey covered topics such as awards received, ratings obtained on their most recent Officer Evaluation Report (OER), scores on the Army Physical Fitness Test (APFT), weapon's qualification, and self-assessments on dimensions of in-unit performance (e.g., Technical Competence). The survey also included items addressing the officers' active duty career intentions and whether or not they had (or planned to) submit paperwork requesting separation from the Regular Army. We constructed additional outcome measures (e.g., graduation from officer training, number of medals received) using data extracted from administrative personnel and training databases.

A longitudinal validation database was constructed by integrating the survey and administrative data collected under this effort with the existing OCS cohort data. This integrated database included (a) the OBEF instrument data (predictors) collected at the beginning of OCS in 2008, (b) attitudinal and performance measures collected at the completion of OCS, (c) attitudinal and performance measures captured during the Basic Officer Leadership Course III (BOLC III; approximately 6 months after graduation from OCS), and (d) the In-Unit Survey and administrative data collected under the current effort.

Expert input guided the development of conceptually-based measures of criterion dimensions for use in analyses. We constructed these measures from items in the In-Unit Survey as well as data in the automated personnel and training databases. The constructed criterion

dimensions included Branch-Specific Technical Proficiency, Army-Wide Technical Proficiency, Personal Discipline, Physical Fitness, Leadership, Career Continuance Intentions, Branch Satisfaction, Commitment to the Army, and Morale. We also examined in-unit records of officer performance (i.e., number of awards received) and separations (e.g., separation during training, separation at the end of their ADSO) as additional outcome criteria.

Findings:

Predictive Validation of the OBEF. Although the OBEF validation findings varied by subtest/criterion/subgroup combination, the overall pattern of results clearly showed that the OBEF was predictive of key officer performance and continuance outcomes approximately three years after their time of commissioning. Specifically, aspects of the OBEF predicted the occurrence of training recycles (i.e., failing or having to repeat some aspect of an officer training program), commitment to the Army, physical fitness, technical knowledge, and career continuance intentions for officers that entered OCS through both the enlistment option and in-service accession programs. However, certain scales predicted key outcomes in one sample, and not the other. For example, valuing “skill development” in one’s work was predictive of multiple outcomes in the in-service sample, but not in the enlistment option sample. In predicting performance and continuance outcomes, the OBEF demonstrated incremental validity beyond that of the Armed Forces Qualification Test (AFQT), a key part of the ASVAB. This finding is critical, given that the ASVAB is used as a major component in the Army’s current officer selection system.

Of particular note, the OBEF composites developed in 2008 for selecting in-service and enlistment option officers into OCS predicted key performance and continuance outcomes three years later. Specifically, the in-service composite predicted key attitudinal (commitment, branch satisfaction, morale) and performance (physical fitness) outcomes, while the enlistment option composite predicted commitment, physical fitness, completion of initial officer training, and active duty separation.

Modeling Changes in Officer Attitudes Over Time. A secondary purpose of this research effort was to examine changes in officer attitudes over time, the factors that predict these attitude changes, and the consequences of negative changes in attitudes over their initial ADSO. Results from the Latent Growth Modeling (LGM) showed that officers entering OCS through the in-service and enlistment option programs differed in their change trajectories for multiple attitudinal outcomes. For example, commitment generally decreased over time for in-service sample, but stayed relatively stable for the enlistment option sample. In general, most attitudes exhibited either no change or negative change trajectories over time. In modeling predictors and outcomes of these attitude changes, we found that changes in morale could be predicted by the OBEF, and above average change in morale was associated with staying on active duty service after the end of their ADSO. Finally, we found that self-reported career continuance intentions were positively associated with actual active duty service continuance (vs. separation) behavior.

Utilization and Dissemination of Findings:

The research findings reported here provided additional evidence supporting the use of the Officer Background and Experiences Form (OBEF) as an OCS selection tool. Moreover, these findings inform the refinement of the OBEF as the Army moves it toward operational use. An Initial Operational Test and Evaluation (IOT&E) of the OBEF for enlistment option applicants currently is being planned as an interim step in this process. Some of the new measures and data collection methodologies developed under this effort will likely be used to support other related ARI officer selection research projects in the future. Findings from this research have been reported to the OCS Commandant (April 2012), the Chief, Enlisted Accession Division, Army-G-1 (June 2012), and the Chief, Officer Division, Army G-1 (June 2012).

LONGITUDINAL VALIDATION OF NON-COGNITIVE OFFICER SELECTION MEASURES FOR THE U.S. ARMY OFFICER CANDIDATE SCHOOL (OCS)

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LONGITUDINAL VALIDATION OF NON-COGNITIVE OFFICER SELECTION MEASURES FOR THE U.S. ARMY OFFICER CANDIDATE SCHOOL (OCS)

CHAPTER 1: INTRODUCTION

Mark C. Young
U.S. Army Research Institute

The project described in this report is one component of a broader, multi-year effort by the U.S. Army Research Institute (ARI) to identify, develop, and validate personnel tests for use in officer selection and branch assignments. The primary goal of this program is to recommend and implement such measures that will serve to enhance both officer performance and career continuance across commissioning sources. The current effort focuses specifically on procedures for selecting candidates for Officer Candidate School (OCS).

In this chapter, we provide general background on the role of OCS as a commissioning source for Army officers, and describe ARI's initial effort to validate selection measures for OCS candidates. Next, we highlight the primary objectives of the current effort and discuss our research approach and associated challenges. Finally, we provide a brief overview of the remaining chapters.

Background

Officer Candidate School: Background and Context

OCS is an important commissioning source for Army officers. OCS graduates are commissioned as second lieutenants (paygrade O-1), an entry-level officer rank. Historically, the Army has used OCS to fill accession gaps in officer requirements when other commissioning sources were unable to meet force structure needs. Compared to the Reserve Officer Training Corps (ROTC) and the U.S. Military Academy (USMA), OCS is flexible enough to increase or decrease its rate of commissioning officers on short notice. This is largely due to the relatively short duration of the OCS pre-commissioning program. Particularly in wartime, the Army must make the most of all officer accessioning sources to attract officer candidates with strong propensities for retention. To the extent possible, it must also offset any projected officer shortages.

When ARI's OCS selection research began in 2008, there had been a large surge in the relative numbers of OCS-commissioned accessions as the size of the Army was growing. Historically, these officers have accounted for only about 10% of new officer accessions. However, their annual accession proportion grew to a high of 40% in 2008, temporarily making OCS the largest commissioning source in the Army¹ (Wardynski, Lyle, & Colarusso, 2009).

¹ At the time of this writing in fiscal year 2012, the Army was downsizing, and the proportion of OCS commissions had dropped to approximately 20% of all new officer accessions. This annual accession proportion is projected to decrease further in fiscal year 2013.

Another way in which OCS has responded to Army mission needs was by adding and expanding the use of an alternative avenue for entry into OCS—the enlistment option program. Under this program, civilians with a college degree can enter OCS after completing Basic Combat Training. The program supplements the traditional route to OCS – the in-service program – in which Soldiers (typically Non-Commissioned Officers [NCOs]) can apply and be selected for OCS participation. The distinction between the two avenues for entry into OCS is important, because the officers commissioned through these programs tend to differ significantly in terms of demographics, temperament, and cognitive aptitude (Russell & Tremble, 2011). The analyses conducted in 2008 also distinguished enlistment option candidates with no prior military service from those who had prior service experience. The participants with prior military service were referred to as “Hybrids” to reflect characteristics shared by both in-service and enlistment option samples.²

With the growth of OCS as a commissioning source, it was especially important to examine the OCS selection process, and to determine what types of attributes could be used to select those individuals who would most likely develop into highly qualified officers motivated to pursue an Army career. Currently, with the exception of the Armed Services Vocational Aptitude Battery (ASVAB) General Technical (GT)³ score and a passing score on the Army Physical Fitness Test (APFT), the OCS selection process has relied largely on qualitative and descriptive materials such as interviews, documentation of educational attainments, recommendations from superiors, and essays asking individuals why they want to become Army officers. The need for larger numbers of officers to be commissioned through OCS prompted ARI to review the OCS selection process and to consider how selection measures and implementation procedures could be optimized. This was done in support of meeting the Army’s future OCS accessioning requirements for high-performing officers.

Preliminary OCS Research Effort

The first phase of the OCS research (Russell & Tremble, 2011) served as the foundation for the effort described in this report. This phase began in 2008 when ARI administered an extensive battery of personnel selection tests to over 1,300 entering OCS candidates. The test battery, the Officer Background and Experiences Form (OBEF), included measures of temperament, affectivity, values, and leadership. One of these measures was a version of the Rational Biodata Inventory (RBI). The RBI is a non-cognitive measure of personality and motivational attributes that has shown promise for enhancing selection of cadets in ROTC (Putka, Wasko, Tremble, Kilcullen, & Shaw, 2009; Wasko, Putka, Legree, & Kilcullen, 2011) and enlisted Soldiers (Knapp & Heffner, 2009; Knapp, Owens, & Allen, 2011). Instruments measuring work values and judgment in leadership situations were also administered as part of the OBEF. We used a longitudinal validation research design to track these tested candidates through the end of their 12-week OCS training course. In addition, approximately 50% of these

² Officers with enlisted service from another branch of the Armed Forces (e.g., Navy, Air Force) were also included in the Hybrid group.

³ In 2008, researchers were unable to obtain GT scores for the full sample of respondents (Russell & Tremble, 2011). For this reason, the Armed Forces Qualification Test (AFQT)—a composite of four individual ASVAB tests— was used as a proxy for GT in 2008 and in the present analysis.

individuals were tracked further into their Basic Officer Leadership Course III (BOLC III, now referred to as BOLC B), where newly commissioned officers complete their branch-specific training. Data collected both at the end of OCS and during BOLC III/B (approximately 6 months following OCS graduation) were used to obtain early indicators of performance and continuance (e.g., OCS training performance scores, self-reported commitment, and career continuance intentions) for the longitudinal validation.

The preliminary findings from this first phase of the OCS research showed that a subset of the OBEF measures was predictive of practical and conceptually important outcomes such as commitment to the Army, career continuance intentions, and OCS performance scores (Russell & Tremble, 2011; Young, Ardison, & Babin, 2011). Importantly, these tests demonstrated incremental validity beyond that of the Armed Forces Qualification Test (AFQT) (a composite derived from the ASVAB), and the findings were similar for the enlistment option, in-service, and hybrid subsamples. Similar validity findings were obtained from two independent samples of OCS candidates tested in 2009 and 2011 and subsequently tracked to obtain initial criterion data (Allen, Bynum, Erk, Babin, & Young, 2012; Russell, Allen, & Babin, 2011).

OCS Longitudinal Validation Research

The effort described here was supported by the Officer Candidate School (OCS; Fort Benning, Georgia) and the Office of the Army G-1. The work was conducted under contract with the Human Resources Research Organization (HumRRO). ARI worked in close collaboration with HumRRO throughout this project.

When the project began in early 2011, the junior officers in the 2008 OCS cohort were approaching the end of their 3-year Active Duty Service Obligation (ADSO). This was a critical period as officers were deciding whether or not to continue serving in the Regular Army. At that time, criterion information on these individuals had not been collected since the BOLC III/B data collection described above. The maturing of this longitudinal officer sample offered an important opportunity to capture longer-term career outcomes (i.e., performance and continuance) for use in validating the OBEF selection battery administered in 2008. The goal was to advance beyond our current and limited knowledge of the OBEF's validity, by validating the battery against an expanded set of longer-term criteria.

Objectives

The specific objectives of this effort were to (a) collect *longer-term*⁴ criterion measures (e.g., in-unit performance, service continuance) for the members of our 2008 OCS cohort, (b) validate the 2008 test battery (the OBEF) against these longer-term outcomes, and (c) validate the OCS composites developed in the first phase against the same long-term outcomes. Additionally, the data collections described above offer a unique opportunity to examine changes in officer attitudes (e.g., commitment to the Army) over time. Thus, a fourth objective was to (d)

⁴ We use the term "longer-term" in referencing career outcomes that go beyond the point of OCS training but are still relatively early in the overall officer career life-cycle.

model changes in officer attitudes during their initial ADSO, and the antecedents and consequences of those changes.

These objectives were driven in large part by a need to transition our experimental OCS selection tests to operational use in an Initial Operational Test and Evaluation (IOT&E) within the next few years. The current research was designed to help inform decisions regarding the choice of the operational test battery and the Army's officer candidate selection policies.

Challenges

In accomplishing these objectives, there was an urgency to obtain empirically-supported evidence to inform our short-term recommendations for enhancing officer selection measures and related policies. This sense of urgency was driven by previous research suggesting that the potential benefits of refining the Army's selection procedures were considerable (e.g., Russell & Tremble, 2011), and would last for many years beyond the point of the selection process. However, the junior officers in our 2008 OCS cohort had only been commissioned for approximately 3 years; therefore no opportunity existed to validate our new selection tests against "long-term" performance and continuance outcomes in this sample. Ideally, such long-term outcomes (e.g., performance as a mid-career officer, career continuance behavior observed 10 years beyond commissioning) would be used for the validation. This research constraint has been a recurring challenge throughout the OCS research program. For this reason, "interim" criterion measures (e.g., training performance, self-reported career continuance intentions) have been obtained whenever possible. These interim criterion measures help achieve key research objectives while longer-term outcome data (e.g., actual continuance well beyond the initial ADSO) becomes available for the maturing OCS research samples.

Another challenge for this effort has been the need to obtain criterion data on the 2008 OCS cohort as they have become increasingly dispersed across locations. During OCS training, all cohort members were at the same location, making it relatively easy and cost effective to collect both self-report and administrative (e.g., training-related) records. However, once they completed their initial training (through BOLC III/B) and reached their first unit of assignment, they were spread out across the globe. This made the data collections even more challenging, especially given the wartime environment (with frequent deployments) and organizational constraints regarding access to Army personnel for research support.

Developing criterion measures—along with the methods of capturing them for the target sample—has been a major focus of the current effort. Throughout the project, the most feasible and relevant outcome information given the sample, logistical, cost, and organizational constraints was obtained.

Organization of Report

Chapter 2 (Research Methodology) presents the general research approach and provides a brief description of the Officer Background and Experiences Form (OBEF) selection battery administered to the OCS candidates in 2008. After describing the research sample, the criterion measures (both self-report and administrative) are discussed in detail.

Chapter 3 (Prediction of Officer Performance and Continuance with the OBEF) begins by summarizing the original validity findings from the first phase of this research (Russell & Tremble, 2011). Next, the validation approach for the new analyses is described, followed by a presentation of the incremental validity results for both in-service and enlistment option program participants. These results show the relative predictive validity of the various tests within the selection battery across criterion measures for the two subgroups.

Chapter 4 (Longitudinal Examination of Officer Attitudes over Time) reports findings from a longitudinal analysis of self-reported commitment and career continuance intentions for in-service and enlistment option candidates. The findings are based on a Latent Growth Curve Modeling (LGM) procedure with repeated measures collected over a 3-year period. The relationships between attitude change and subsequent officer career outcomes (e.g., actual separation) also are examined.

Chapter 5 (Conclusions and Next Steps) summarizes the key findings and discusses their practical implications for moving ARI's experimental OCS selection tests toward implementation. This chapter provides specific recommendations regarding what predictor measures should be in the final operational selection battery and what testing policies and procedures would help to optimize its utility. Finally, the limitations of the current effort are noted, along with recommendations regarding next steps for addressing these issues.

CHAPTER 2: RESEARCH METHODOLOGY

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The purpose of this chapter is to describe the research methodology, with particular emphasis on the procedures and measures administered to the 2008 Officer Candidate School (OCS) sample approximately three years after completing OCS. We begin with an overview of the research design, including a description of the career progression of the OCS-commissioned officers in our sample. This is followed by a brief description of the predictor measures administered in 2008. Next, we describe the development of the “In-Unit” survey administered to the 2008 OCS cohort. We then provide a more detailed discussion of the data obtained on the research participants, which includes both administrative personnel records and self-report measures collected by the research team. We conclude the chapter with a description of the criterion measures.

Research Overview

We collected non-cognitive predictor data from over 1,300 officer candidates across 10 consecutive OCS classes in 2008. OCS is a 12-week course covering physical fitness, leadership, and academic content. After successful completion of OCS, graduates are commissioned as Second Lieutenants and attend the Basic Officer Leadership Course (BOLC). OCS graduates from the earlier classes attended BOLC II, a 7-week course covering general officer skills such as leadership, and BOLC III, a branch-specific course that varied in length. Some of the later graduates in the cohort attended BOLC B, a merged form of BOLC II and BOLC III, after BOLC II was discontinued in December 2009 (Cavallaro, 2009).

For most officers, promotion to first lieutenant (1LT) occurs when the officer has 18 months of time in service (from the date of acceptance of the commission). Promotion to 1LT is automatic, except in rare instances when an officer is under investigation or pending dismissal. For the 2008 OCS sample, this promotion would have occurred in early to mid-2010. OCS graduates incur a three-year Active Duty Service Obligation (ADSO), after which they can join the Individual Ready Reserve (IRR), an Army National Guard (ARNG) unit, the Army Reserve (USAR), or choose to remain on active duty. For the 2008 sample, we estimated the completion of this obligation would occur between the summer of 2011 and early 2012.

Beyond their 3-year ADSO, for officers that remain on active duty, promotion to captain typically occurs at about 4 years time in service. Promotion to captain is determined by the Department of the Army, but the selection rate is exceptionally high. The next formal step in an officer's education is the Captain's Career Course (CCC) which is open to senior first lieutenants and Army captains with 4-7 years of military experience. Like BOLC III, CCC is branch-specific and varies in length and substance. Upon graduation, officers transition to their next duty assignment as a company commander, battalion staff officer, brigade staff officer, or a similar position.

ARI's program of OCS research is designed to capture information regarding officer attitudes, retention, and performance at key points throughout their Army career. The correspondence between these key points and the data collections are illustrated in Figure 2.1. Specifically, the following information was collected from the 2008 sample at the various points in time:

1. *Time 1: Beginning of OCS* – Within their first week of OCS, participants from 10 consecutive classes completed the Officer Background and Experiences Form (OBEF), a battery of non-cognitive measures.
2. *Time 2: End of OCS* – About 10 weeks after the beginning of OCS data collection (near the end of OCS), participants completed a short survey regarding their attitudes towards the Army and continuance intentions. Performance information (i.e., Order of Merit List [OML] scores; Russell & Tremble, 2011) was collected on these participants from OCS administrative records.
3. *Time 3: BOLC III/B* – Approximately six months after completing OCS (near the anticipated end of BOLC III/B), participants completed a different (though similar to Time 2) survey of their attitudes and continuance intentions. Collecting information at this point was critical because it was the first time the participants received training in their branch-specific duties. Information regarding whether they recycled during BOLC II or BOLC III (or BOLC B) was collected from administrative records.
4. *Time 4: In-Unit* – Near the completion of their ADSO, participants were asked to complete a final measure of their attitudes and continuance intentions. This survey had overlapping content with the Time 2 and Time 3 surveys, but also asked participants to self-report indices of performance in their role as U.S. Army officers.

The purpose of this research was to validate the OBEF against longer-term criteria. Accordingly, only the OBEF predictor measures (from Beginning of OCS, Time 1), the In-Unit criterion instrument (from Time 4), and the performance and retention criterion data from administrative records are described in any detail in this report. Readers interested in more details for the End of OCS (Time 2) data collections should consult Babin, DiFazio, Allen, and Hooper (2011) for procedural information and Allen, Campbell, and Kilcullen (2011) regarding the End of OCS survey. Readers interested in the BOLC III/B survey should contact ARI.

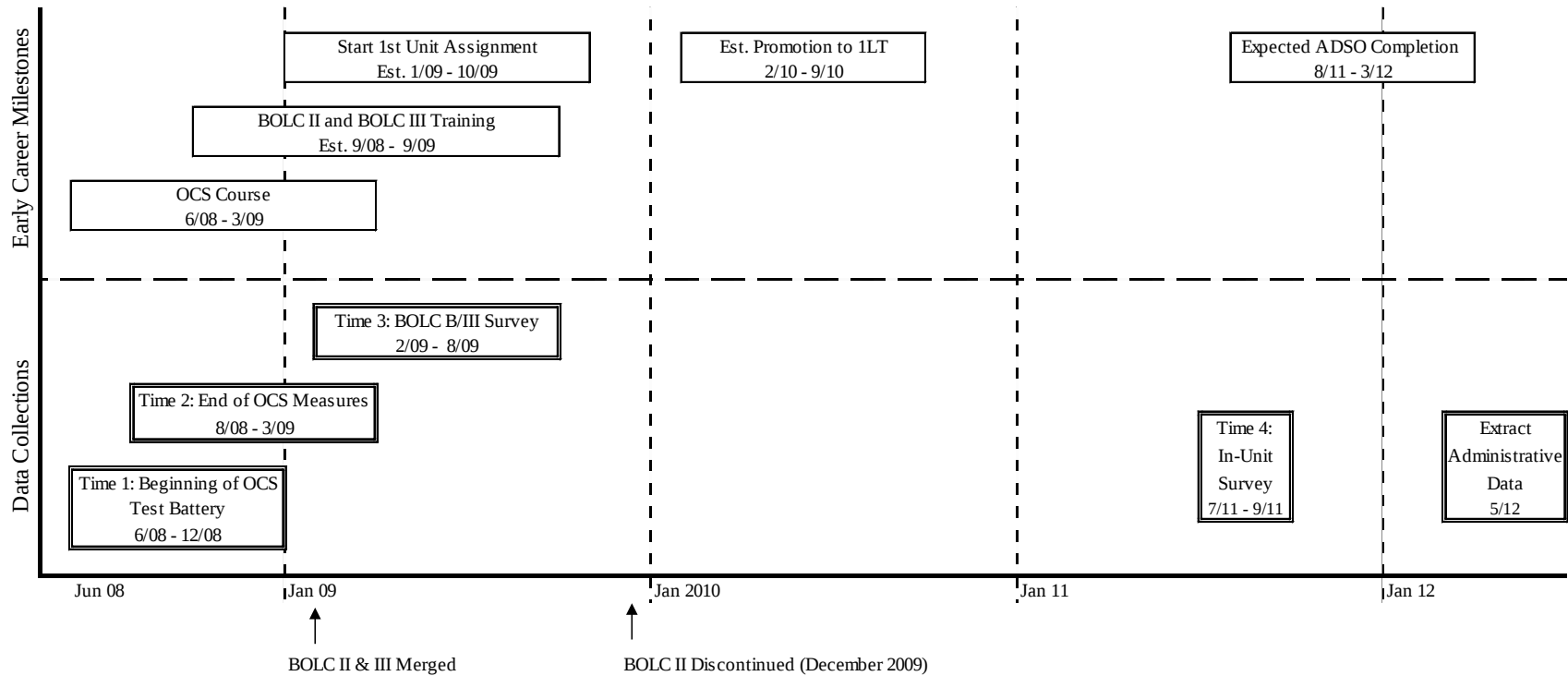


Figure 2.1. Early Officer Career Milestones for OCS 2008 Cohort and Corresponding Data Collections

Officer Background and Experiences Form (OBEF)

The OBEF is a battery of instruments designed to assess individuals' temperament, affectivity, values, and judgment. One of four versions of the OBEF was administered across 10 consecutive classes to the 2008 OCS cohort. Each of these versions contained different combinations of unique and overlapping content⁵ (see Russell & Tremble, 2011 for more details). However, a "core" set of instruments and scales was (a) common across multiple OBEF versions and (b) exhibited the most potential for selecting candidates into OCS. The core set of instruments and scales can be summarized in the following three groups:

1. Core Rational Biodata Inventory (RBI) – The RBI is a theoretically-keyed biodata instrument containing questions about previous experiences, thoughts, opinions, and actions (Kilcullen, Tremble, & Robbins, 2011). Each item contains a statement (e.g., "How often have you done X in the past") and five response options (e.g., "Very Often" to "Never"). The RBI is scored by computing an arithmetic average of a scale's component items. The core scales measure nine dimensions of individual temperament: Peer Leadership, Achievement, Fitness Motivation, Self-Efficacy, Stress Tolerance, Hostility to Authority, Army Affective Commitment, Continuance Commitment, and Traditional Values. The coefficient alphas for the component scales were generally acceptable for biodata instruments, ranging from .61 to .78, though the alpha for the Hostility to Authority scale was .58. Despite its lower reliability, we included this scale in subsequent analysis due to ambiguities in the interpretation of internal consistency estimates for scales based on biodata items (Bollen & Lennox, 1991).
2. Core Work Values – The Work Values instrument asks respondents to rate how important various aspects of a job (e.g., "Having a flexible work schedule") are to them personally on a 1 ("Not at all important") to 5 ("Extremely important") scale (Robbins, Allen, & Putka, 2011). The Work Values scales are scored by computing an arithmetic average of a scale's component items. The Core Work Values scales assess the importance of seven core work preferences to each individual: Rugged Leadership, Teamwork, Flexibility/Choice, Structure/Recognition, Altruism/Benevolence, Skill Development, and Job Security. The coefficient alphas for these scales ranged from .70 to .90.
3. Situational Judgment Test (SJT) – The SJT was developed using items from previous tests to assess an individual's judgment in leadership situations. Respondents are asked to read a brief description of a situation typically encountered by Army officers, then rate the effectiveness of four courses of action on a 1 ("Ineffective") to 7 ("Very effective") scale. Though multiple scoring algorithms were tested in the original OCS research (Pearlman, Allen, Putka, Hooper, & Waters, 2011), the scores derived from the "Standardized Subject Matter Expert (SME)-Keyed" method was used in the present research. This method involves using SMEs to determine the appropriate "effectiveness" of each action and the subsequent application of profile scoring (McDaniel, Psotka, &

⁵ Content included in most versions of the OBEF was considered "core," while the remaining content was considered "experimental." Due to sample size issues, and for the sake of parsimony in analyzing the data and writing the report, subsequent analyses only involve the "core" scales.

Legree, 2009). While the coefficient alpha for the SJT using this scoring method was low ($\alpha = .54$), it resulted in lower subgroup differences and higher validity coefficients than other scoring approaches in the 2011 analysis.

Descriptions of the component scales for the RBI and Work Values instruments can be found in Appendix A. Scales from the RBI and Work Values instruments were chosen to form two composites (one for in-service and one for enlistment option OCS applicants) designed to predict officer performance (in OCS) and retention.

In-Unit (Time 4) Survey Development

Collecting meaningful performance-related information on the 2008 OCS cohort became much more difficult as they progressed beyond the point of their initial officer training. While attending OCS, these cohort members were all at the same location and training performance information was readily accessible. However, after completing branch training (BOLC III/B) and reaching their initial unit of assignment, the officers were spread out to locations across the globe. This dispersion made it infeasible to collect outcome measures through “on site” data collections—for both cost and logistical reasons. In addition, though some useful information can be captured from automated personnel records (see later in this chapter), the amount of performance-related information covering this point in an officer’s career is generally limited because such records are intended for administrative purposes and not for personnel research. Given these constraints to collecting in-unit criterion data, it was concluded that a web-based self-report measure would provide the most feasible option for capturing most of the officer outcome information needed for this research.

The In-Unit Survey was designed to assess officers’ attitudes, retention intentions, and performance both in training and in unit. Demographic and background information thought to be predictive of officer retention was also collected. The In-Unit Survey was created using items derived from previous ARI research efforts, such as the Career History Survey from the *Army Officer Predictor and Criterion* project (Paullin et al., 2012), the *Survey on Officer Careers* (SOC; e.g., Jones, 1999), and other OCS research (e.g., Russell et al., 2011). New items tailored specifically for our sample were also created by addressing career continuance intentions and behaviors that are especially relevant to officers reaching the end of their ADSOs. The survey was divided into two major sections with respective subsections:

1. Background
 - A. Overview
 - B. Civilian and Military Education/Training
 - C. Branch and Assignments
 - D. Deployment History
2. Performance
 - A. In-Unit Performance
 - B. Career Intent and Attitudes

Background Section. The initial portion of the Background section was comprised of 4 overview questions used for identification purposes: (Q1) Army component, (Q2) current pay

grade, (Q3) marital status, and (Q4) number of dependent children. Questions 1 and 2 were adapted from the Career History Survey, while Questions 3 and 4 were adapted from ARI's SOC, a longitudinal survey of the population of Army officers that typically occurs every two years. In addition to collecting this information for identification purposes, these data were collected because SOC research has indicated that these demographic variables (e.g., marital status and number of dependent children) are related to morale and satisfaction with the Army as a career (HumRRO & Jones, 1999).

The "Civilian and Military Education/Training" comprised the second part of the Background section. Questions were derived from a combination of SOC items (e.g., GPA and level of educational attainment), the Career History Survey (i.e., undergraduate GPA; Paullin et al., 2012), the Educational Attainment Survey administered by the Census Bureau (e.g., undergraduate college major), and a BOLC III/B survey used in other ARI research⁶ (i.e., questions related to recycling in OCS and/or BOLC II/III/B and the respective reasons; performance in BOLC II/III/B).

The "Branch and Assignments" subsection was comprised of questions related to the branch to which officers were commissioned, when the branch was assigned and how the branch was determined, as well as questions regarding whether the commissioning branch was one of the officer's top three choices. These questions were adapted primarily from a BOLC III/B survey used in other ARI research.

Finally, the Background section concluded with questions related to the 2008 OCS cohort's assignments. Specific positions are theorized to relate to tenure and job performance criteria (e.g., promotion rate); however, there is currently little empirical evidence for these relationships. The questions comprising the "Deployment History" section were drawn from the Career History Survey, and were administered because of their relationship with tenure and retention. An example question is "Have you been deployed since becoming a commissioned officer?"

Performance Section. The "In-Unit Performance" section was comprised of both verifiable and subjective questions regarding officers' performance since receiving their commission. Verifiable performance was determined by asking officers about (a) awards and decorations, (b) disciplinary actions, and (c) ratings on their most recent Officer Evaluation Record (OER). These items were adapted from the BOLC III/B (Time 3) survey and Career History Survey. In addition to their intended use as test validation criteria, these performance questions are of additional interest because of their potential for predicting long-term performance and continuation of service beyond the ADSO. The verifiable performance questions were followed by more specific questions asking officers to provide their subjective evaluations of their own performance in comparison to those of their peers in the following areas:

- Physical Fitness, Health, and Endurance – Effectively engages in the Army physical readiness training program both as a leader and a participant. Meets height and weight

⁶ Note that this is not the same survey as the BOLC III/B (Time 3) survey analyzed in the present report.

standards and passes the Army Physical Fitness Test. Successfully completes all physical and endurance requirements of platoon commander or equivalent position.

- Army Values, Warrior Ethos, and Ethics – Embodies, lives, and defends Army Values and Warrior Ethos. Adheres to Army officer standards of conduct and holds to a highly ethical code of behavior.
- Technical Competence – Effectively demonstrates technical skills for performing branch integration of requirements as a member of the combined arms team.
- Tactical Competence – Effectively employs Warrior Tasks and Battle Drills, branch technical skills, and makes necessary contributions to solving tactical problems.
- Leadership – Effectively performs as an Army leader in all positions and assignments. Applies Troop Leading Procedures (TLP) in execution of leadership roles. Supports subordinate, peer, and superior leaders.
- Officership – Inculcates the characteristics of being an officer to include customs, traditions, and heritage. Develops knowledge and awareness of the Army as an institution to include military operation theory and management, personnel and career management, military justice and discipline.

Participants were asked to rate their performance in comparison to their peers on a 1-5 scale, where:

- 1 = Well Below Average: Bottom 20% of Peer Group
- 2 = Next 20% of Peer Group
- 3 = Average: Middle 20% of Peer Group
- 4 = Next 20% of Peer Group
- 5 = Well Above Average: Top 20% of Peer Group

The scale also included a “Not Applicable/Cannot Rate” option.

Finally, the “Career Intent and Attitudes” items were originally developed for the End of OCS survey. These items measured morale (e.g., “How would you rate your current level of morale?”), commitment to the Army (e.g., “I feel ‘emotionally attached’ to the Army.”), breach of psychological contract (e.g., “In general, the Army has kept its promises to me.”), highest rank estimation (e.g., “What is the highest rank you think you will achieve in your Army career?”), and general career intentions (e.g., “I plan to stay in the Army until retirement.”). Many of these items have been administered in other phases of this research effort (Beginning of OCS, End of OCS, BOLC III/B), and thus are the subject of the longitudinal analyses described in Chapter 4. Finally, the last two items asked whether the officer requested a release from active duty around the time of their ADSO completion, and if the officer did plan to separate, to indicate why (e.g., “Offered a good civilian job”). The full In-Unit Survey can be found in Appendix B.

Data Collection Procedures

The results presented in this report are based on (a) data collected from the Time 4, In-Unit Survey, which was administered online to participants from the 2008 OCS cohort, and (b) administrative performance and retention data obtained from Army records. Efforts to capture relevant information from other sources, such as the participants' supervisors, are ongoing.

In-Unit Survey Administration

The In-Unit Survey was sent to all 2008 OCS research participants who, according to administrative records, were still in the Army, regardless of component (i.e., Regular Army, USAR, ARNG). The solicitation email was sent to all participants at once, regardless of when they completed the OCS (Time 1) data collection in 2008. A number of steps were taken to increase the response rate for this data collection. First, a letter from the OCS Commandant at the time of the research was included as part of the solicitation, stressing the importance of the research and encouraging the participants to complete the instrument. Second, the survey was left open for over two months (July 18, 2011 to September 23, 2011), with multiple reminders sent to non-respondents over the course of those two months. This gave potential participants multiple opportunities to complete the survey.

Upon logging on to the survey, participants were asked to read a privacy act statement and complete an informed consent form. If the individual agreed to participate, he or she was taken to the actual survey. Overall, 543 individuals responded to the survey, or 40.4% of the original sample. The demographics of this sample are reported in Table 2.1. Approximately 45% of the sample came to OCS through the in-service option, while 33% came through the enlistment option. We classified the rest as hybrids. The sample was mostly male, non-Hispanic, and either White or African American. However, a greater proportion of African Americans were found in the in-service sample than in the enlistment option sample.

For comparison purposes, the demographic characteristics for the full 2008 sample are presented in Table 2.2. Overall, the proportions of demographics for the In-Unit Survey respondents are similar to the demographic proportions for the full sample, with some variation within the specific subsamples. For example, a higher proportion of White respondents participated in the In-Unit enlistment option sample than in the full enlistment option sample. Additionally, the Armed Forces Qualification Test (AFQT) scores are slightly higher in the In-Unit sample than the full sample. As with the full sample, AFQT scores in the In-Unit sample, and the enlistment option sample in particular, were highly range restricted (i.e., smaller standard deviations) compared to population estimates (Russell & Tremble, 2011).

Table 2.1. Officer Candidate School (OCS) Sample Demographics for In-Unit Survey Respondents

	In-Service (<i>n</i> = 243)		Enlistment Option (<i>n</i> = 181)		Hybrid (<i>n</i> = 103)		Total (<i>N</i> = 543)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender								
Male	188	77.4	143	79.0	88	85.4	424	78.1
Female	47	19.3	29	16.0	10	9.7	86	15.8
Missing values	8	3.3	9	5.0	5	4.9	33	6.1
Ethnicity								
Hispanic	52	21.4	17	9.4	19	18.4	89	16.4
Non-Hispanic	181	74.5	153	84.5	80	77.7	418	77.0
Missing values	10	4.1	11	6.1	4	3.9	36	6.6
Race								
White	127	52.3	151	83.4	79	76.7	359	66.1
American Indian/Alaskan	2	.8	0	0	1	1.0	3	0.6
Asian	4	1.6	9	5.0	4	3.9	17	3.1
Black or African American	79	32.5	8	4.4	12	11.7	101	18.6
Pacific Islander	0	0	2	1.1	1	1.0	3	0.6
Multiple	8	3.3	6	3.3	2	1.9	16	2.9
Missing values	23	9.5	5	2.8	4	3.9	44	8.1
Army Component								
Regular Army	234	96.3	167	92.3	85	82.5	500	92.1
Army Reserve	1	0.4	10	5.5	10	9.7	22	4.1
Army National Guard	5	2.1	2	1.1	5	4.9	12	2.2
Missing Values	3	1.2	2	1.1	3	2.9	9	1.7
Pay Grade								
O1	1	0.4	2	1.1	2	1.9	5	0.9
O2	239	98.4	175	96.7	94	91.3	523	96.2
O3	1	0.4	0	0.0	0	0.0	1	0.2
Missing Values	2	0.8	4	2.2	7	6.8	14	2.6
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
AFQT	70.86	19.57	90.11	8.58	82.16	10.44	79.54	17.24
Deployment since commissioning (months)	9.39	4.45	9.05	4.02	8.85	3.52	9.06	4.17
Age	35.30	4.16	29.50	4.61	33.55	4.57	32.99	5.08

Note. Thirty-nine candidates in the sample did not answer the accession option question; their data are reflected in the "Total" column. In-Service = Candidates who were enlisted Army Soldiers prior to OCS; Enlistment Option = Candidates who were civilians with no military service prior to OCS; Hybrid = Candidates with service from another military branch, with prior military service, or with experience from West Point or ROTC prior to OCS.

Table 2.2. Officer Candidate School (OCS) Full Sample Demographics

Demographic	In-Service (<i>n</i> = 553)		Enlistment Option (<i>n</i> = 521)		Hybrid (<i>n</i> = 231)		Total (<i>N</i> = 1,344)	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Gender								
Male	404	73.1	406	77.9	192	83.1	1,010	75.1
Female	124	22.4	88	16.9	27	11.7	240	17.9
Missing Values	25	4.5	27	5.2	12	5.2	94	7.0
Ethnicity								
Hispanic	95	17.2	51	6.3	35	15.2	183	13.6
Non-Hispanic	428	77.4	437	83.9	184	79.7	1,056	78.6
Missing Values	30	5.4	33	6.3	12	5.2	105	7.8
Race								
White	276	49.9	400	76.8	163	70.6	841	62.6
American Indian/Alaskan	3	0.5	0	0.0	0	0.0	3	0.2
Asian	21	3.8	30	5.8	10	4.3	61	4.5
Black/African American	193	34.9	38	7.3	38	16.5	273	20.3
Pacific Islander	0	0.0	5	1.0	1	0.4	6	0.4
Multiple	17	3.1	33	6.3	6	2.6	56	4.2
Missing Values	43	7.8	15	2.9	13	5.6	104	7.7
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	32.96	4.27	27.26	6.19	31.14	6.67	30.37	6.12
Time in Service (in months)	102.72	59.15	n/a	n/a	73.86	40.84	95.12	56.33
Time Deployed (in months)	14.57	18.51	n/a	n/a	8.75	12.38	13.11	17.28
AFQT	69.34	20.05	87.55	10.65	80.80	11.77	78.65	17.61

Note. Thirty-nine candidates in the sample did not answer the accession option question; their data is reflected in the "Total" column. In-Service = Candidates who were Army Soldiers prior to OCS; Enlistment Option = Candidates who were civilians with no military service prior to OCS; Hybrid = Candidates with service from another military branch, with prior military service, or with experience from West Point or ROTC prior to OCS. The data in this table were taken from Babin et al., 2011.

Administrative Data Collections

Although the In-Unit Survey was designed to capture a broad range of verifiable performance and continuance information from the 2008 OCS cohort, we also augmented these data with information from officers' personnel records. The Army and the Defense Manpower Data Center (DMDC) maintain a number of databases with relevant personnel records, each with their own strengths and weaknesses. We extracted performance and separation data primarily from two sources – the Army Training Requirements and Resources System (ATRRS) and Officer Master File (OMF) – and, where appropriate, addressed weaknesses in those sources with information from other personnel databases.

We first examined officer performance and separation during Initial Officer Training (IOT) – which includes OCS, BOLC II, and BOLC III (or, in some instances, BOLC B) – by extracting administrative information from the ATRRS database. ATRRS is used to manage user training requirements and track scheduling. The ATRRS database includes a record for every course an officer has taken throughout their Army career, though we only examined records pertaining to IOT courses. The database includes basic information on whether the officer

graduated or not from the course, whether he or she recycled (i.e., had to repeat) a portion of the course, and the reasons for a recycle. We were able to obtain BOLC records for most of the 2008 OCS sample from ATRRS (1,174 out of 1,387, or 84.6%, of the records in the database had either BOLC II/III or BOLC B data in ATRRS), but only 573 (41.3%) records from OCS. In other words, more than half the sample was missing an ATRRS record from OCS. As Table 2.3 shows, the non-graduation and recycle base rates for the officers in our sample was generally low, suggesting these metrics of performance and separation would be difficult to predict with the experimental predictors. If data were available for a particular officer from any one IOT course, his/her data were included in one of two summary variables (see bottom of Table 2.3). We used the constructed variables with the highest base rate for the largest sample (i.e., “Recycled at Least Once During IOT” and “Graduated from IOT”) in subsequent analyses.

Table 2.3. Summary of Potential Criterion Variables Created Using ATRRS

Variables	Number with records	Number failing/recycling	Percentage failing/recycling
<i>Graduation Variables</i>			
OCS	573	41	7.2%
BOLC II	1,218	3	0.2%
BOLC III	1,057	19	1.8%
BOLC B	158	7	4.4%
<i>Recycle Variables</i>			
OCS	573	77	13.4%
BOLC II	1,218	6	0.5%
BOLC III	1,057	47	4.4%
BOLC B	158	3	1.9%
<i>Summary Variables</i>			
Graduated from IOT	1,233	44	3.6%
Recycled at Least Once During IOT ^a	1,171	66	5.6%

Note. *N* = 1,387. ^a “Recycled at Least Once During IOT” includes officers or officer candidates that failed a course or recycled at least once, but completed the course. IOT = Initial Officer Training.

Second, we extracted in-unit officer performance and separation information from the OMF, which includes key information on officer accessions, promotions, assignments, and changes in status. We completed the extraction in May of 2012—after the entire OCS 2008 sample had reached the end of their ADSO—to ensure the data were mature enough for interpretation. In-unit performance was determined by examining the number of medals each officer in our sample received. Officers can be awarded medals for many reasons, such as deploying (e.g., Afghanistan Campaign Medal), serving on active duty (e.g., National Defense Service Medal), and meritorious service (e.g., Army Commendation Medal). Only medals for meritorious service and valor “counted” towards the awards variables (Oliver, Ingerick, Khanna, Waugh, & Wasko, 2012). We then constructed the awards variable in two ways. First, we created a variable that was the simple sum of the number of above qualifying medals received. Second, recognizing that some medals are more difficult to achieve than others, we created a second variable that differentially weighted the qualifying awards. We derived the weights from the Promotion Points Worksheet for Non-Commissioned Officers (Army Regulation 600-8-19). The awards, along with their associated weights, can be found in Table 2.4 (for more information about these medals, consult Army Regulation 600-8-22).

Table 2.4. Valor and Merit Awards with Associated Weights

Valor		Merit	
Award	Weight	Award	Weight
Distinguished Service Cross	35	Meritorious Service Medal	25
Silver Star	35	Defense Meritorious Service Medal	25
Medal of Honor	35	Army Commendation Medal	30
Distinguished Flying Cross	35	Distinguished Service Medal	35
Bronze Star Medal with Combat Distinguishing Device V	30	Defense Distinguished Service Medal	35
Army Commendation Medal with Combat Distinguishing Device V	20	Joint Service Achievement Medal	15
Joint Service Commendation Medal with Combat Distinguishing Device V	20	Joint Service Commendation Medal	20
		Legion of Merit	35
		Army Achievement Medal	15
		Defense Superior Service Medal	35
		Bronze Star Medal	30

The resulting descriptives for the total and weighted awards variables for the in-service, enlistment option, and hybrid candidates can be found in Table 2.5. Officers in the in-service sample had significantly more qualifying awards than their enlistment option counterparts (Raw Total Awards $d = 1.54$; Raw Weighted Awards $d = 1.31$). One reason for this difference is that the OMF award fields reflect awards received during enlisted and commissioned service. Given the confounding effect of time in service, the awards variables were not analyzed further in the in-service or hybrid samples. Another potentially confounding influence on these awards variables is branch assignment. Certain branches, particularly those that are more combat-oriented (e.g., Infantry), are more likely to receive medals than branches in more support-related positions (e.g., Signal Corps and Finance Corps). Recognizing that there are multiple ways to classify Army branches (see Army Regulation 600-3), for the purposes of the validation analyses we standardized the two “raw” awards variables by three traditional branch categories: (a) Combat Arms, (b) Combat Support, and (c) Combat Service Support.⁷

Table 2.5. Award Descriptives by Accession Option

	In-Service			Enlistment			Hybrid		
	<i>n</i>	Mean	Std.	<i>n</i>	Mean	Std.	<i>n</i>	Mean	Std.
Raw Total Awards	500	2.61	0.96	427	1.31	0.71	179	1.50	0.84
Raw Weighted Awards	500	51.55	22.20	427	26.73	15.13	179	29.25	17.87
Std. Total Awards	n/a	n/a	n/a	427	-0.58	0.68	n/a	n/a	n/a
Std. Weighted Awards	n/a	n/a	n/a	427	-0.51	0.67	n/a	n/a	n/a

Note. “Std.” = Standardized; standardization was completed by branch category (Combat Arms, Combat Support, Combat Services Support).

⁷ In recent years, these categories have been renamed Maneuver Fires and Effects Division, Operational Support Division, and Force Sustainment Division, respectively.

We also constructed an additional variable examining officer separation primarily from OMF data, which contains fields for separation dates and separation program designators (SPDs). SPD codes explain the reasons someone separates from active duty service. However, individuals who separated prior to January 2012 were not included in the OMF extraction. To account for this, we extracted administrative data from other sources to fill in the gaps.⁸ From these data, we sorted each individual with a valid record into one of five groups:

1. Attrition – Officer separated from the Army prior to completing their ADSO for moral (e.g., violation of Uniformed Code of Military Justice), performance (e.g., not meeting fitness standards), or other pejorative reasons.
2. Injury – Officer separated from the Army prior to completing their ADSO for a non-pejorative reason, usually an injury sustained while on active duty.
3. Did Not Commission – Records indicate that the individual never received their commission, but remains in the Army as an enlisted soldier.
4. End of ADSO – Officer separated from the active duty service after completing their 3-year ADSO.
5. Army Guard or Reserve – Some individuals in our sample attended OCS, but were sponsored by a National Guard unit or the U.S. Army Reserve. These individuals received a commission, but did not incur a 3-year ADSO.
6. Current Active Duty Officer – Officer remains on active duty at the time of the data extraction.

We report the percentage of officers in each category in Table 2.6. At the time of our data extraction, most of the officers in our sample (over 80%) were still on active duty. For subsequent analyses, we treated the “attrition,” “did not commission,” and “end of ADSO” groups as “separations” and individuals still on active duty as “stayers.” The remaining groups were treated as missing data for subsequent analyses. The base rates for the in-service, enlistment option, and hybrid groups on this analysis variable can also be found in Table 2.6.

Ongoing Data Collections

Since the early conceptualization of this project, the ARI/HumRRO research team recognized the potential value of collecting ratings of in-unit performance from the 2008 OCS cohort’s supervisors. Such ratings could expand and enrich the relatively limited longer-term performance outcome information that was available for these officers. To the extent feasible, the goal was to collect these measures for use as additional criteria for validating the OBEF as

⁸ Individuals with separation dates and codes in the OMF were treated as separated. If an individual was missing OMF data, SPD codes extracted from the Defense Manpower Data Center (DMDC) were used instead. Some individuals were missing key information for both their OMF and DMDC records (or we could not locate a record). In these cases, we examined administrative records from Human Resources Command (HRC) and ATRRS to determine if (a) s/he ever received a commission as an active duty officer, (b) s/he was in a U.S. Army Reserve or an Army National Guard unit when attending OCS, or (c) had attrited due to a disability or was killed in action.

well as to provide additional convergent and discriminant validity evidence for other criterion measures being examined. The effort to collect supervisor ratings was particularly challenging because the officers in the 2008 OCS cohort were spread out in locations throughout the world. Collecting such data also required compliance with the human subjects protection guidelines and review process (i.e., ARI's Institutional Review Board; IRB). This increased the complexity of the data collection procedures which needed to be developed, and made it more difficult to obtain high response rates. In spite of these challenges, a semi-automated web-based approach for collecting supervisor ratings was successfully developed and field tested. This approach and the rating scale instrument used are described in more detail in Appendix C. The collection of in-unit performance ratings was ongoing at the time of this writing; hence, the ratings data are not discussed further in the main body of this report.

Table 2.6. Separation Status by Accession Option

Separation Status	In-Service (n = 565)	Enlistment (n = 529)	Hybrid (n = 237)	Total (n = 1,391)
Current Active Duty Officer	89.20%	77.32%	74.68%	80.59%
Separated: Attrition	1.59%	4.16%	0.84%	2.44%
Separated: Injury	0.18%	1.13%	0.42%	0.65%
Separated: Did not commission	1.42%	1.32%	4.64%	1.87%
Separated: End of ADSO	3.19%	10.02%	5.06%	6.11%
Army Guard or Reserve at OCS	2.65%	4.35%	11.81%	4.89%
Missing	1.77%	1.70%	2.53%	3.45%
Analysis Variable	In-Service	Enlistment	Hybrid	Total
Current Active Duty Officer	89.20%	77.32%	74.68%	80.59%
<i>Separations</i> : Attrition, Did not commission, or End of ADSO	6.19%	15.50%	10.55%	10.42%
Missing or Other	4.60%	7.18%	14.80%	8.99%

Note. The "Analyses Variable" was used in subsequent analyses. Missing or Other = Missing, separated due to injury, or was in the Guard or Reserve when attending OCS.

In-Unit Survey Scoring

The In-Unit Survey includes a number of items related to officer performance and continuance. To narrow these items into a usable set of scores representing the criterion space, we consulted a recent review of "individual performance," defined by the actions one takes on the job, in the industrial and organizational psychology literature (Campbell, 2012). Campbell provides an integrative eight-factor performance model. We revised some the factors to be more Army specific and consistent with earlier taxonomies (Campbell & Knapp, 2001; Campbell, McCloy, Oppler, & Knapp, 1993) and added a couple of dimensions to more specifically include continuance intentions and attitudes, which are of particular interest to the Army. The following 12 factors guided subsequent analyses:

1. Branch-specific technical proficiency – "Branches" are Army job categories, such as Infantry, Armor, Aviation, and so forth. In the Army, officers are expected to be "generalists," but are also trained in branch-specific duties. This factor refers to officer performance of these branch-specific duties.

2. Army-wide technical proficiency – In the Army, there are a number of technical core/warrior tasks that everyone must be able to perform (e.g., navigation, weapons). This factor refers to officer performance of these common tasks.
3. Communication proficiency – Oral and written communication are critical components of officer jobs. This factor reflects this proficiency, not the correctness of what is being communicated.
4. Demonstrating effort – This factor reflects the effort exhibited by the officers on a consistent basis and particularly under adverse (e.g., dangerous) conditions.
5. Personal discipline – This factor reflects actions officers take that can have a negative effect on Army goals. It is most similar to the “counterproductive work behavior” dimension described in Campbell (2012).
6. Physical fitness – This factor refers to the extent to which officers meet or exceed the Army’s standards for fitness, strength, and weight.
7. Leadership – The leadership factor includes interpersonal aspects of officer behaviors relevant to their supervisory role. Specific behaviors include initiating structure, coaching, and serving as a model.
8. Management – Unlike the leadership factor, the management factor emphasizes more administrative behaviors related to officers’ roles. Specific behaviors include goal setting, coordinating, and decision making.
9. Career Intention – The ninth factor refers to the extent to which the officer intends to make the Army a long-term career.
10. Branch Satisfaction – This factor is intended to assess the extent to which the officer is satisfied with their branch assignment, a factor qualitatively thought to be related to officer satisfaction and continuance (Oliver, Ardison, Russell, & Babin, 2011).
11. Commitment to the Army – This factor reflects an officer’s level of commitment to the Army, which has been linked to retention in enlisted populations (Strickland, 2005). For this reason, it is frequently included in Army validation analyses and is included here for completeness.
12. Morale – The morale factor assesses an officer’s level of morale at the current moment. As with the Branch Satisfaction and Commitment to the Army factors, this factor is also thought to be predictive of continuance. Morale was assessed at three data collection time points.

As described earlier in this chapter, the In-Unit Survey was designed to assess officers’ attitudes, retention intentions, and performance both in training and in-unit. However, the items were not designed specifically to tap all of the performance/retention dimensions listed above.

To map the items in the In-Unit Survey to the factors above, 5 independent raters were recruited and asked to provide 2 judgments regarding each item/factor combination. First, raters were asked to determine whether the item was a direct measure of the factor, a non-direct measure of the factor, or not related to the factor. Second, the raters were asked to provide the directionality of the linkage (e.g., a positive or negative indicator of the factor). An item was linked to a factor when 3 of the 5 raters identified a direct linkage. Variables directly linked to a factor by 2 raters and indirectly linked by at least one additional rater were also considered to represent the criterion factor.

Descriptive statistics and intercorrelations among the linked variables within a criterion factor were considered in formulating the final variables. Qualitative information was also considered. For example, even though raters linked reception of the “Expert Field Medical” and the “Expert Infantry” badges to branch-specific technical performance, much of the sample was ineligible for these badges, and, hence, we did not include them in the branch-specific technical performance composite. Also, wherever possible, we relied on objective rather than subjective metrics for each factor because objective metrics are thought to be more accurate in a self-report context (Knapp, Campbell, Borman, Pulakos, & Hanson, 2001). The results of the linkage and analysis activities are summarized in Table 2.7.

As Table 2.7 demonstrates, differential item scaling (e.g., ordinal, dichotomous) led to unique combinations of items. For example, some items combined an ordinal scale (e.g., self-ratings of technical competence) with one or more dichotomous items (e.g., “Reason for restart BOLC III/B - Academic failure”). However, the base rate for some of these dichotomous items was low (e.g., only 13 out of 543 officers indicated a BOLC III/B Academic failure). To account for this, items with a low base rate were sometimes treated as “bonus” adjustments to the ratings. For example, Branch Satisfaction was based on an officers’ self-reported rating of satisfaction with their branch assignment, but adjusted downward by one point if they indicated leaving Active Duty Service because they could not get the branch they wanted. This procedure allowed us to include nearly all variables linked to a construct in our analysis, even the variables with a low base rate. Decisions such as these were made for all of the criterion factors, as described in Table 2.7.

In subsequent analyses reported in Chapter 3, the factors described in Table 2.7 were used as the core criteria to evaluate whether the OBEF measure predicts in-unit officer performance, retention, and attitudes. To this list, we added the key administrative criteria from Tables 2.3, 2.5, and 2.6. The descriptive statistics and intercorrelations for the criterion variables used in subsequent chapters can be found in Table 2.8.

Summary

The purpose of this chapter was to describe the research methodology. Recall that one of the main purposes of the present research is to validate the OBEF against in-unit criteria. All of the procedures feed into the criterion variables used to accomplish this objective. The pattern of intercorrelations provides convergent validity evidence for the criterion measures, suggesting they are usable for validation purposes. Future data collections will hopefully “fill the gaps” in

the performance space, such as the “Demonstrating effort” factor, not captured in the current analysis, and collect more mature administrative criteria than what was achieved here.

Table 2.7. Summary of Linkage Results

Criterion Factors	Final Items Linked	Scoring Approach
Branch-Specific Technical Proficiency	<u>Item 41</u> : Technical Competence (subjective) <u>Item 12</u> : Did you graduate from BOLC III/B? <u>Item 11c</u> : Reason for restart BOLC III/B –Excessive number of retests <u>Item 11a</u> : Reason for restart BOLC III/B - Academic failure	Start with Technical Competence rating and subtract one point if “yes” was indicated for any of the remaining items.
Army-Wide Technical Proficiency	<u>Item 42</u> : Tactical Competence (subjective) <u>Item 15</u> : Weapons Qualification Score	Start with Tactical Competence rating Add 1 point to tactical competence rating if officer reports earning “Marksman” on his/her last weapons qualification score and subtract 1 point if officer reports they did not qualify.
Communication Proficiency	NO ITEMS LINKED	
Demonstrating Effort	NO ITEMS LINKED	
Personal Discipline	<u>Item 9g</u> : Reason for restart OCS - Disciplinary reasons <u>Item 26</u> : Have you received a General officer Letter or Memorandum of Reprimand? <u>Item 29</u> : Have you received formal counseling about your behavior or discipline?	All items are dichotomous, yes/no. If “yes” is marked for any of the three items, assign a value of 1. If “no” is marked for all three items, assign a value of zero.
Physical Fitness	<u>Item 39</u> : Physical Fitness, Health and Endurance (subjective) <u>Item 38</u> : LAST APFT Score	Standardized each variable and average to produce a composite score.
Leadership	<u>Item 34</u> : Did you receive the following on your most recent OER: "Outstanding Performance Must Promote"? <u>Item 32</u> : Has a senior officer recommended you for a command on the OER?	All items are dichotomous, yes/no. If “yes” is marked for both items, assign a value of 1. If “no” is marked for either item, assign a value of zero.
Management	NO ITEMS LINKED	
Career Continuance Intentions	<u>Item 59</u> : Current active duty career intentions <u>Item 60</u> : Have you submitted a request release from Active Duty (REFRAD)?	If officer indicates s/he is “probably” or “definitely” planning to leave the Army in Item 59, or says they plan to submit a REFRAD (whether they have done so or not; Item 60), assign a value of 0 (plans to separate). If the officer indicates no intention to submit a REFRAD or indicates an intention to stay beyond their ADSO, assign a value of 1 (plans to stay in the Army).
Branch Satisfaction	<u>Item 20</u> : How satisfied are you with your branch assignment? <u>Item 61k</u> : Reason for leaving Active Duty Service - Could not get the branch I wanted	Start with branch satisfaction item and subtract 1 point if person responds “yes” to item 61k.
Commitment to the Army	<u>Items 46-49</u> : Army Affective Commitment items	Take the arithmetic average of the component items for the Affective Commitment scale, reverse coding as necessary.
Morale	<u>Item 45</u> : How would you rate your current level of morale?	

Note. Survey items can be found in Appendix B.

Table 2.8. Criterion Variable Descriptive Statistics and Intercorrelations

	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
Continuously-Scaled Criteria																
1. Army Commitment ^a	501	3.87	0.97	.92												
2. Branch-Specific TK ^a	513	4.36	0.83	.13	-											
3. Army-Wide TK ^a	509	4.45	0.86	.18	.53	-										
4. Physical Fitness ^a	494	-0.03	0.94	.13	.17	.22	.75									
5. Std. Total Awards ^b	458	-0.53	0.73	.26	.11	.08	.19	-								
6. Std. Weighted Awards ^b	458	-0.46	0.73	.26	.19	.11	.21	.93	-							
7. Branch Satisfaction ^a	501	3.78	1.52	.26	.17	.08	-.04	.13	.16	-						
8. Morale ^a	501	3.52	1.03	.61	.12	.20	.21	.19	.14	.38	-					
Dichotomously-Scaled Criteria																
9. Career Continuance Intent. ^a	543	0.84	0.37	.43	.05	.16	.04	.16	.11	.14	.43	-				
10. Active Duty Separation ^b	1,266	0.11	0.32	-.14	-.14	-.15	-.01	-.04	-.04	-.03	-.13	-.22	-			
11. Leadership ^a	543	0.76	0.43	.12	.21	.19	.10	.21	.21	.05	.03	.03	-.02	-		
12. IOT Recycles ^b	1,171	0.06	0.23	.06	-.14	-.11	.02	.02	.03	-.12	.04	.06	.16	-.08	-	
13. IOT Graduation ^b	1,233	0.96	0.19	-.04	.02	-.01	-.04	.02	.03	.02	-.05	-.07	-.39	.12	-.51	-
14. Personal Discipline ^a	543	0.04	0.20	-.04	.03	-.10	-.13	-.22	-.20	-.03	-.11	-.06	-.05	-.12	-.01	.03

Note. Correlations performed on the raw data. Where appropriate, coefficient alphas are along the diagonal in italics. TK = Technical Knowledge. Std. = Standardized. Intent. = Intentions. IOT = Initial Officer Training. The “Awards” results are limited to the enlistment option sample.

^a Refer to Table 2.7 for scaling information.

^b Refer to “Administrative Data Collections” section for information about these variables. The following scaling applies: IOT Recycles (0 = no recycles, 1 = at least one recycle), IOT Graduation (0 = did not graduate, 1 = graduated), and Active Duty Separation (1 = separated and 0 = current active duty officer).

CHAPTER 3: PREDICTION OF OFFICER PERFORMANCE AND CONTINUANCE WITH THE OBEF

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This chapter describes the analyses conducted to validate the Officer Background and Experiences Form (OBEF) as a predictor of OCS-commissioned officer performance, continuance, and attitudes in-unit as officers near the end of their active duty service obligation (ADSO)—3 years after receiving their commission. As described in Chapter 2, three OBEF predictors were examined: (a) the Core Rational Biodata Inventory (RBI) scales, (b) the Core Work Values scales, and (c) the Situational Judgment Test (SJT). The performance composites developed in the first phase of research conducted in 2008-2009 also were examined for their predictive efficacy beyond OCS (Allen, 2011). The primary objectives of this chapter were to (a) determine which OBEF scales best predict important outcomes, and (b) validate the composites constructed previously using longer-term criteria collected well beyond the initial OCS training period. This validation effort focused on the enlistment option and in-service samples. The hybrid sample was excluded from subsequent analysis due to their small sample size and heterogeneity in previous military experience.

Background

In the first phase of the OCS research (Russell & Tremble, 2011), four versions of the OBEF were administered. The four versions included both “core” and “experimental” content. The “core” content generally comprised of scales and constructs that previous research had suggested would be predictive of officer performance and retention. The “experimental” content consisted of new scales, some of which were included mainly for research purposes. In the context of the current research, this distinction is important because the “core” scales were generally administered in more versions of the OBEF than the experimental scales. Therefore, the two “core” sets of OBEF scales (Work Values and RBI) administered in the first phase of OCS research were of primary interest in the present research.

Another reason the Core RBI and Core Work Values scales were of primary interest was their efficacy for predicting key outcomes of interest in OCS. In general, the component scales for the Core RBI and Core Work Values measures had higher validity coefficients than the component scales for other measures included across versions of the OBEF for predicting OCS performance, affective commitment, and Regular Army career intentions (Allen, 2011). This was true for both the in-service and enlistment option samples. For this reason, the Core RBI and Core Work Values scales were used to formulate two predictor composites—an in-service and enlistment option version. The composites exhibited acceptable reliability, little skew, and few subgroup differences. Both composites significantly predicted affective commitment, career intentions, OCS leadership scores, OCS fitness scores, and the total OCS score.

In addition to the Core RBI and Work Values scales, one additional “experimental” OBEF measure was included in the present analysis—the Situational Judgment Test (SJT). We included the SJT in this analysis for three reasons. First, the SJT was administered to a higher proportion of OCS

candidates than most of the other experimental scales. This suggests that missing data will be less of an issue with the SJT than with other experimental OBEF scales. Second, meta-analytic evidence suggests that SJTs have incremental validity for predicting job performance beyond both cognitive ability and personality measures (McDaniel, Hartman, Whetzel, & Grubb, 2007). While we did not find strong evidence that the SJT predicted key performance and retention outcomes at the End of OCS (Allen, 2011), this may have partially been due to its narrow content focus. As described in Chapter 2, the OCS SJT was designed to evaluate candidate judgment in leadership situations. Candidates in OCS may have fewer opportunities to demonstrate their leadership judgment in a training environment than in-unit. Therefore, the SJT may have more opportunity to predict key officer outcomes after they join their units than when they were in training. Third, SJTs are thought to be less fakable than self-report measures (Hooper, Cullen, & Sackett, 2006). This suggests the SJT would be a promising instrument for operational applications, provided there is evidence it predicts key performance and retention outcomes.

In summary, the Core RBI, Core Work Values, and experimental SJT scales from the original OBEF were examined in the present analysis.

Analytic Approach

In the initial research, the potential for each OBEF measure to contribute to the Army's current selection procedures was determined by examining the incremental validity of each measure beyond a baseline measure, in this case, the Armed Forces Qualification Test (AFQT; Allen, 2011). However, the current dataset presented a number of unique challenges that required modification to this approach. First, as is often the case with longitudinal studies wherein multiple instruments are administered over time, there is a large amount of missing data in this research. Second, shown in Table 2.1, the variance in the AFQT baseline predictor is quite low, which may downwardly bias its predictive efficacy in a broader sample. Third, there is a large number of predictors in some of the measures relative to the number of cases in our small sample. This may inflate the predictive efficacy of the OBEF measures. To account for these factors, the following procedures were applied to examine the incremental validity of the experimental measures:

1. Computed the incremental validity using Ordinary Least Squares (OLS) regression with Full Information Maximum Likelihood (FIML) missing data analyses.
2. Determined the statistical significance of the incremental validity added by the OBEF measures beyond AFQT.
3. Estimated a variance/covariance matrix using FIML missing data analyses.
4. Corrected the variance/covariance matrix for direct range restriction on AFQT.
5. Computed incremental validity estimates using the corrected variance/covariance matrix.
6. Corrected the incremental validity estimates for shrinkage.

These steps are described in more detail below.

Missing Data Estimation

Studies have shown that large losses of data can lead to low power and downwardly biased estimates (Enders & Bandalos, 2001; Muthén, Kaplan, & Hollis, 1987; Roth, 1994; Schafer & Graham, 2002). As is often the case with longitudinal research, we were unable to capture criterion data for all of the individuals who took the OBEF measure in 2008. Of the over 1,300 candidates who took the OBEF, 543 (40.4%) responded to the In-Unit Survey. Additionally, because multiple versions of the OBEF were administered during the Beginning of OCS data collection, there are individuals with missing predictor data—974 (70.0%) completed the Core RBI scales, 972 (69.9%) completed the Core Work Values scales, and 718 (51.6%) completed the SJT. Combining these factors, using traditional methods to deal with missing data such as listwise deletion would have resulted in very small samples, potentially biased estimates, and limitations on the interpretability of the results.

To deal with the missing data, we opted to conduct regression analyses using FIML missing data estimation. Studies have shown that using FIML produces parameter estimates that are less biased than relying on multiple imputation, listwise, or pairwise deletion (i.e., Enders, 2001). FIML uses all of the available data to estimate the likelihood value of the parameter estimates for each individual. Specifically, when there are missing observations, matrices are produced that incorporate both observed and missing parameter information. The information associated with the complete portion of the vector is used to estimate the likelihood value of the variables with missing data (Enders, 2006). Note that unlike other missing data estimation methods, data are *not* imputed into the database. The missing data are accounted for by including additional information to estimate the parameters in the analysis.

Missing data analyses were conducted using the FIML feature in Mplus (Muthén & Muthén, 2004). To ensure there was adequate information to estimate parameters, we examined the frequency of missing data on each predictor scale. Among the Core RBI, Core Work Values and SJT, there are 20 scales. In all, 43.1% of the sample was missing data on two or fewer of the scales, 53.6% of the sample was missing data on between eight and eleven scales, and 3.3% of the sample was missing data between 17 and 20 of the scales. We decided to limit the sample to officers with data on at least 12 of the 20 scales (60% of the core predictor data). This effectively removed anyone who did not complete the core RBI scales. Limiting the sample to individuals with data on more than 12 scales would have effectively limited the sample to nearly the same number as listwise deletion. The final analyses sample was 939 (in-service = 390; enlistment option = 368; hybrid = 166). We conducted most of the analyses on the in-service and enlistment option subsamples.

Incremental Validity

To assess the criterion-related validity of the OBEF, Ordinary Least Squares (OLS) regression analyses were conducted for the continuous criterion variables and logistic regression analyses were conducted for the dichotomous criterion variables. For each criterion variable, we examined the incremental validity of each predictor set (i.e., RBI, Work Values, and SJT) over

AFQT. Incremental validity is an estimate of the change in the multiple correlation (ΔR) when a new predictor or set of predictors is added to a regression equation. New predictors that add validity beyond that already afforded by AFQT are more likely to prove useful for selection purposes. The analyses consisted of a two-step process. First, the criterion variable was regressed on AFQT. Second, all of the scales comprising the experimental predictors (i.e., RBI, Work Values, or SJT) were added to the regression equation in the same step. The difference between the multiple correlations (R) produced in the AFQT-only model and the AFQT-plus-predictors model was then calculated to determine incremental validity. For logistic regression, a pseudo- R estimate was used in place of the multiple correlation.

Two criteria were used to assess whether the OLS incremental validity coefficients (ΔR) were statistically significant: (a) the change in the log-likelihood ratio test and (b) the F-test associated with the change in R-squared. Traditional regression approaches rely on the F-test to assess significance. However, the computation of the R-squared change F-test is dependent on the sample size, such that large sample sizes tend to lead to more significant results. When using FIML missing data analyses, there is no single value of N that applies to the entire sample. Using the full sample size (including cases with incomplete data) or relying on the listwise sample size is likely to result in Type I and Type II errors, respectively. As a result, when using FIML, researchers recommend relying on the Log-likelihood to assess how well each model fits the data (Enders, 2001). The likelihood value is an assessment of how well the estimated parameters fit the observed data. Minus two times the *log* of the likelihood (-2 Log-likelihood or -2LL) is a chi-square statistic and can be modeled using the standard assumptions underlying the chi-square distribution. The difference between the -2 Log-likelihood values from the AFQT only model and the AFQT plus predictor model was used to determine whether the models significantly differ, and thus whether the addition of the predictor set significantly improved model fit.

To compare the results of the initial OBEF validation (Allen, 2011) we decided it would be helpful to present the F-test associated with the change in R-square. In an effort to be conservative, the listwise sample size (i.e., 159 for the in-service sample and 123 for the enlistment option sample) was used for computing the F-test associated with change in R-squared. Results of the -2 Log-likelihood test and the F-test are presented for the continuous criterion variables. Since the logistic regression analyses rely on a pseudo- R estimate, it is not appropriate to compute an F-test associated with the difference in the change in R-square. Therefore, the -2 Log-Likelihood test was used to assess the incremental validity for the dichotomous criterion variables.

Range Restriction

As discussed in Chapter 2, the range on the AFQT is restricted for the current sample, and particularly for the enlistment option sample. Range restriction on AFQT, uncorrected, will lead to underestimates of the validity of AFQT and, potentially, overestimates of incremental validity. Therefore, we corrected the regression coefficient between the candidates' AFQT score and each criterion for direct range restriction using Lawley's formula (cf. Hunter & Schmidt, 1990). Similar to analyses conducted on the 2008 cohort, the population AFQT standard deviation estimates were derived from the 1997 National Longitudinal Survey (NLSY97) (Bureau of Labor Statistics, 2005), a study commissioned by the Department of Labor that

includes data for 8,984 youths on a variety of variables, including college experience and ASVAB subtest scores. The college experience samples were used to derive the population standard deviation estimates for our samples. Specifically, youths from the NLSY97 data with “some college” experience (between 12 and 16 years of education) were used as the population sample for the in-service⁹ candidates in our sample, while youths from the NLSY97 data who were “college graduates” (16 or more years of schooling) were used as the population sample for the enlistment option candidates in our sample.

The linear regression analyses incorporating the range restriction were completed by creating two correlation matrices, one for the in-service sample and one for the enlistment option sample. The correlation matrices were estimated using FIML missing data analyses. Note that the difference in estimation techniques using FIML regression compared to using standard OLS regression with a FIML estimated correlation matrix may lead to slightly discrepant results. Specifically, FIML regression uses missing data information to estimate the regression parameters whereas estimating a correlation matrix with FIML relies on the missing data information to estimate the correlations. Then, the correlation estimates are used to directly compute the regression parameters.

We corrected all of the AFQT intercorrelations for direct range restriction. Then OLS regression analyses were performed on the corrected correlation matrices. The change in multiple *R* from step one to step two served as the primary diagnostic to evaluate each measure.

Shrinkage

Sample-specific error could potentially inflate the estimates of *R* for predictor measures with small sample sizes and many scales. As a result, variations in sample sizes and the number of scales constituting each predictor measure make cross-measure comparisons difficult. To address this issue, we adjusted the observed incremental validity estimates using Burket’s (1964) formula for shrinkage (cf. Formula 8; Schmitt & Ployhart, 1999). Calculating the corrected incremental validity estimates involved two additional steps:

1. Using the corrected (for direct range restriction) correlations among the experimental predictor, AFQT, and the selected criteria, adjust the correlations between the predictors and continuously-scaled criteria for sample size and number of predictors using Burket’s (1964) formula for shrinkage.
2. Calculate the corrected incremental validity estimates for the experimental predictors by subtracting the shrunken *R* (the *R* from Step 1) associated with an AFQT-only model from the shrunken *R* obtained from the AFQT plus predictor model.

⁹ Although the current policy specifies that everyone, even officer candidates entering through the In-Service Program must have a college degree prior to enrolling in OCS, the current sample includes former In-Service candidates who had not yet completed a college degree when completing OCS. Therefore, for the current research we relied on the NLSY97 data of individuals with “some college” experience to derive the population standard deviation for the In-Service sample.

In subsequent analyses, the incremental validity coefficients corrected for direct range restriction on AFQT and shrinkage constitute the more conservative “corrected” coefficients, while those not corrected constitute the “uncorrected” coefficients.

Incremental Validity Results

The incremental validity results are organized by the enlistment option and in-service samples. Each criterion is categorized as continuance, performance, or attitudinal and results are presented in accordance with this categorization. First, the results of the incremental validity are discussed. Next the results are discussed in light of the initial OBEF validity findings. Finally, we discuss the specific scales that predict each criterion. Only significant results will be discussed in the text. Full results can be found in the respective tables and Appendix D.

Enlistment Option Results

Tables 3.1 and 3.2 report the incremental validity results of the continuous and dichotomous variables, respectively, for the enlistment option sample. Appendix D presents the bivariate correlations for the raw data and the bivariate correlations produced from the FIML analyses. AFQT was not a significant predictor of any of the criterion measures.

Continuance Criteria. The Core RBI scales added incremental prediction to Army Commitment ($\Delta R = .22$). The Core Work Values scales added incrementally to the prediction of Army Commitment ($\Delta R = .19$) and Active Duty Separations ($\Delta R = .41$). The SJT added incrementally to the prediction of Army Commitment ($\Delta R = .11$) and Career Continuance Intentions ($\Delta R = .23$). In comparing these results to the results in the first phase (Russell & Tremble, 2011), the Core RBI and Work Values scales were more predictive of Commitment and Career Intentions at the End of OCS than In-Unit. However, the SJT was a better predictor of In-Unit Commitment and Career Intentions than at the End of OCS. Overall, the predictor sets accounted for an additional 1% to 5% of the variance in the continuance criteria beyond AFQT.

Looking closer at the bivariate correlations¹⁰ (see Appendix D), the Core RBI scales that were significant predictors of continuance criteria were Army Affective Commitment ($r = .29$), Stress Tolerance ($r = .26$), Self-Efficacy ($r = .25$), Fitness Motivation ($r = .25$), Peer Leadership ($r = .19$) and Achievement ($r = .17$). The Core Work values scales that served as the best predictors of continuance were Rugged Leadership ($r = .13$ to $.20$) and Flexibility/Choice ($r = -.18$ to $.22$).

¹⁰ Bivariate correlations listed in text are from the FIML estimation.

Table 3.1. Incremental Validity Results of the Continuous Criteria for Enlistment Option Sample

Predictor Measure/Outcome Variable	<i>n</i>	Uncorrected				Corrected		
		AFQT Only <i>R</i>	AFQT + Exp <i>R</i>	ΔR^a	$\Delta -2 \text{ Log}$ Likelihood ^b	AFQT Only <i>R</i>	AFQT + Exp <i>R</i>	ΔR
<i>Rational Biodata Inventory</i>								
Continuance: Army Commitment	368	.28	.50	.22	29.10	.35	.45	.10
Performance: Branch-Specific Tech Knowledge	368	.03	.32	.29	12.01	.07	.21	.14
Performance: Army-Wide Tech Knowledge	368	.08	.36	.28	17.26	-.04	.30	.33
Performance: Physical Fitness	368	.10	.58	.48	47.14	.09	.39	.30
Performance: Std. Total Awards	368	.00	.25	.25	19.83	-.38	.21	.59
Performance: Std. Weighted Awards	368	.03	.25	.22	18.90	-.02	.21	.23
Attitudinal: Branch Satisfaction	368	.00	.30	.30	10.37	-.04	.24	.28
Attitudinal: Morale	368	.19	.38	.19	12.82	.32	.38	.06
<i>Work Values</i>								
Continuance: Army Commitment	368	.28	.47	.19	15.63	.35	.48	.13
Performance: Branch-Specific Tech Knowledge	368	.03	.44	.41	14.04	.07	.31	.25
Performance: Army-Wide Tech Knowledge	368	.08	.35	.27	11.55	-.04	.24	.28
Performance: Physical Fitness	368	.10	.39	.29	10.66	.09	.20	.10
Performance: Std. Total Awards	368	.00	.26	.26	10.15	-.38	.20	.58
Performance: Std. Weighted Awards	368	.03	.24	.21	8.93	-.02	.20	.23
Attitudinal: Branch Satisfaction	368	.00	.38	.38	10.37	-.04	.40	.43
Attitudinal: Morale	368	.19	.39	.20	10.51	.32	.42	.11
<i>Situational Judgment Test</i>								
Continuance: Army Commitment	368	.28	.39	.11	5.11	.36	.50	.15
Performance: Branch-Specific Tech Knowledge	368	.03	.28	.25	4.99	.07	.27	.21
Performance: Army-Wide Tech Knowledge	368	.08	.08	.00	.01	-.04	-.08	-.05
Performance: Physical Fitness	368	.10	.14	.04	.42	.09	.09	-.01
Performance: Std. Total Awards	368	.00	.10	.10	1.71	-.38	.00	.38
Performance: Std. Weighted Awards	368	.03	.15	.12	3.63	-.02	.13	.15
Attitudinal: Branch Satisfaction	368	.00	.17	.17	1.92	-.04	.16	.20
Attitudinal: Morale	368	.19	.39	.20	2.24	.32	.37	.05

Note. Bolded results indicate significance at $p < .05$. ^a Bolded values under ΔR are based on F-test. ^b The difference between the -2 Log-likelihood values for the AFQT only model and the AFQT+ predictor model; significant value indicates that the AFQT + predictor model fits significantly better than the model with AFQT only. Uncorrected Results are based on FIML OLS regression. Corrections were made to the FIML correlation estimates for the range restriction on AFQT and the Rs were corrected directly for shrinkage. “Continuance,” “Performance,” and “Attitudinal” = types of criteria.

Performance Criteria. The Core RBI scales added incremental validity to the prediction of Physical Fitness ($\Delta R = .48$) and whether an Officer Candidate graduated from initial training ($\Delta R = .33$). While the F-test was not significant for Army-Wide Technical knowledge ($\Delta R = .28$), Total Awards ($\Delta R = .25$), or Weighted Awards ($\Delta R = .22$) the -2 Log-Likelihood test was significant, indicating that the addition of the RBI scale significantly improved the predictive efficacy of the regression models. The Core Work Values scales added incremental validity to the prediction of Army-Wide Technical Knowledge ($\Delta R = .27$), Branch-Specific Technical Knowledge ($\Delta R = .41$), and Physical Fitness ($\Delta R = .29$). The SJT added incremental validity to the prediction of Branch-Specific Technical Knowledge ($\Delta R = .25$). Leadership, Personal Discipline and whether an Officer recycled during initial training was not predicted by any of the experimental measures. Overall, the Core RBI scales accounted for an additional 8% to 23% of the variance in the performance criteria over AFQT, the Core Work Values scales accounted for an additional 2% to 17%, and the SJT accounted for an additional 0% to 6%.

Table 3.2. Incremental Validity Results of the Dichotomous Criteria for Enlistment Option Sample

Predictor Measure/Outcome Variable	n	Pseudo-R Estimates			Δ -2 Log Likelihood ^a
		AFQT Only R	AFQT + Exp R	Δ R	
<i>Rational Biodata Inventory</i>					
Continuance: Career Continuance Intentions	368	.20	.44	.24	12.42
Continuance: Active Duty Separation	368	.04	.31	.27	16.69
Performance: Leadership	368	.38	.47	.08	11.33
Performance: IOT Recycles	368	.17	.44	.28	11.64
Performance: IOT Graduation	368	.20	.53	.33	17.07
Performance: Personal Discipline	368	.31	.63	.32	12.07
<i>Work Values</i>					
Continuance: Career Continuance Intentions	368	.20	.43	.23	4.42
Continuance: Active Duty Separation	368	.04	.46	.41	22.51
Performance: Leadership	368	.38	.51	.13	3.82
Performance: IOT Recycles	368	.17	.30	.14	-2.08
Performance: IOT Graduation	368	.20	.46	.26	1.04
Performance: Personal Discipline	368	.31	.64	.33	3.65
<i>Situational Judgment Test</i>					
Continuance: Career Continuance Intentions	368	.20	.43	.23	7.20
Continuance: Active Duty Separation	368	.04	.05	.01	.17
Performance: Leadership	368	.38	.38	.00	.30
Performance: IOT Recycles	368	.17	.24	.07	.91
Performance: IOT Graduation	368	.20	.24	.04	.68
Performance: Personal Discipline	368	.31	.31	.00	.18

Note. Bolded results indicate significance at $p < .05$. ^a The difference between the -2 Log-likelihood values for the AFQT only model and the AFQT+ predictor model; significant value indicates that the AFQT + predictor model fits significantly better than the model with AFQT only. Results are based on FIML OLS regression. "Continuance" and "Performance" = types of criteria.

Examining the Core Work Values scales across all of the performance criteria (see Appendix D), Rugged Leadership ($r = .19 - .31$; mean $r = .23$) showed the strongest relationships with the performance criteria. For the Core RBI scales, Peer Leadership ($r = .19 - .25$, mean $r = .22$), Fitness Motivation ($r = .15 - .54$; mean $r = .35$), Self-Efficacy ($r = .15 - .19$, mean $r = .17$), Achievement ($r =$

.13 - .19, mean $r = .16$) and Continuance Commitment ($r = -.17$ to $-.10$; mean $r = -.14$) showed the strongest relationships with Army-Wide Technical Knowledge and Physical Fitness.

The In-Unit performance criteria were often measured differently from the criteria used at the End of OCS; however, in many cases the same criterion construct was measured, suggesting meaningful comparisons could be made. We examined the validity coefficients reported in the validation chapter of the initial report (Allen, 2011) and compared them to those derived in the current analyses. At the End of OCS, the Core RBI scales add incrementally to the prediction of OCS Fitness performance, APFT, and overall OCS performance (mean $\Delta R = .46$) and demonstrated similar incremental efficacy for physical fitness and technical in-unit performance (mean $\Delta R = .35$). The Core Work Values did not add incrementally to any performance criteria at the End of OCS. However, the Core Work Values were strong predictors of In-Unit technical knowledge and physical fitness, suggesting that Core Work Values may be a better long term predictor of performance. Finally, the SJT showed some value for predicting technical performance criteria both at the End of OCS (OCS Academic Performance) and In-Unit (Branch Specific Technical Knowledge). While none of the scales added incremental validity to the prediction of In-Unit Leadership, the Core RBI scales added incremental validity to the prediction of OCS Leadership Performance. These analyses suggest that the Core RBI scales could be used to predict both short-term and longer-term performance of officers. However, the Core Work Value scales are better suited to predicted longer-term performance.

Attitudinal Criteria. The Core Work Values scales added incremental validity to the prediction of Branch Satisfaction ($\Delta R = .38$) and Morale ($\Delta R = .20$), accounting for an additional 14% and 4% of the variance, respectively. The Core RBI scales and the SJT did not predict the attitudinal criteria. These results are not consistent with the results reported in Russell and Tremble (2011), where the RBI added incrementally to the prediction of Morale and the Core Work Values scales did not add incrementally to the prediction of Branch Satisfaction. However, the Core Work Values added incrementally to the prediction of Morale both at the End of OCS and In-Unit.

The Core Work Values Rugged Leadership ($r = .23$), Skill Development ($r = .21$), and Teamwork ($r = .24$) were significantly related to Morale, while Core Work Values Altruism/Benevolence ($r = .16$) and Job Security ($r = -.21$) were significantly related to Branch satisfaction.

Summary of incremental validity results for the enlistment option sample:

- The Core RBI scales had stronger relationships with In-Unit continuance criteria than the Core Work Values scales or SJT.
- The Core Work Values scales were the only predictors to add incrementally to the prediction of actual Separations.
- Both the Core RBI scales and Core Work Values scales showed strong relationships with the performance criteria.
- The Core Work Values scales showed stronger relationships with the attitudinal criteria than the RBI or SJT.

- The Core Work Values scales generally added less incremental validity to the prediction of the criteria at the End of OCS, but showed greater predictive utility among the In-Unit criteria.
- The Core RBI scales showed more consistency in predicting the performance criteria at the End of OCS and In-Unit than the Core Work Values scales or SJT.
- Among the Core Work Values scales, the Rugged Leadership (mean $r = .20$) and Teamwork (mean $r = .15$) scales showed the strongest correlations across all criteria.
- Several Core RBI scales exhibited statistically significant correlations across the criteria of interest, with the highest magnitude scales being Fitness Motivation (mean $r = .22$), Stress Tolerance (mean $r = .18$), Self-Efficacy, (mean $r = .16$), and Peer Leadership (mean $r = .14$).

In-Service Results

Tables 3.3 and 3.4 report the incremental validity results of the continuous and dichotomous variables, respectively, for the in-service sample. Appendix D presents the bivariate correlations for the raw data and the bivariate correlations produced from the FIML analyses. AFQT was not a significant predictor of any of the criterion measures. AFQT accounted for between one and four percent of the variance in the In-Unit criteria.

Continuance Criteria. The Core Work Values scales added incremental validity to the prediction of Army Commitment ($\Delta R = .25$) and Career Intentions ($\Delta R = .50$), while the Core RBI scales added incrementally to the prediction of Army Commitment ($\Delta R = .32$). The Core Work Values and Core RBI scales accounted for an additional 6% to 25% of the variance in continuance criteria. The SJT did not add incremental validity to either of the continuance criteria and Separations were not predicted by any of the predictor measures. In comparing these results to the results at the End of OCS (Russell & Tremble, 2011), the RBI, Work Values, and SJT were generally more predictive of commitment at the End of OCS than In-Unit. However, the Core Work Values scales were more predictive of In-Unit Career Intentions than Officer Career Intentions at the End of OCS.

Peer Leadership ($r = .21$), Achievement ($r = .26$) and Army Affective Commitment ($r = .45$) stood out as the driving predictors of Army Commitment among the Core RBI scales. Of the Work Value scales, Rugged Leadership ($r = .26$), Structure/Recognition ($r = .20$), Skill Development ($r = .31$), Altruism/Benevolence ($r = .26$) and Teamwork ($r = .36$) emerged as the driving predictors of the continuance criteria.

Table 3.3. Incremental Validity Results of the Continuous Criteria for the In-Service Sample

Predictor Measure/Outcome Variable	n	Uncorrected				Corrected		
		AFQT Only R	AFQT + Exp R	ΔR^a	Δ -2 Log Likelihood ^b	AFQT Only R	AFQT + Exp R	ΔR
<i>Rational Biodata Inventory</i>								
Continuance: Army Commitment	390	.19	.51	.32	43.64	.23	.45	.22
Performance: Branch-Specific Tech Knowledge	390	.13	.34	.21	16.30	.25	.39	.15
Performance: Army-Wide Tech Knowledge	390	.07	.33	.26	15.74	.12	.33	.21
Performance: Physical Fitness	390	.07	.42	.35	29.72	.07	.40	.33
Attitudinal: Branch Satisfaction	390	.06	.37	.30	25.11	.09	.30	.21
Attitudinal: Morale	390	.15	.40	.25	25.98	.18	.35	.17
<i>Work Values</i>								
Continuance: Army Commitment	390	.19	.44	.25	20.59	.23	.36	.12
Performance: Branch-Specific Tech Knowledge	390	.13	.17	.04	1.01	.25	.30	.06
Performance: Army-Wide Tech Knowledge	390	.07	.42	.35	10.15	.12	.28	.16
Performance: Physical Fitness	390	.07	.39	.32	11.60	.07	.34	.27
Attitudinal: Branch Satisfaction	390	.07	.26	.19	5.97	.09	.29	.20
Attitudinal: Morale	390	.15	.47	.32	19.74	.18	.47	.29
<i>Situational Judgment Test</i>								
Continuance: Army Commitment	390	.19	.30	.11	1.69	.23	.25	.02
Performance: Branch-Specific Tech Knowledge	390	.13	.14	.01	.06	.25	.25	.01
Performance: Army-Wide Tech Knowledge	390	.07	.08	.01	.04	.12	.13	.01
Performance: Physical Fitness	390	.06	.16	.09	1.13	.07	.21	.15
Attitudinal: Branch Satisfaction	390	.06	.06	.00	.00	.09	.07	-.02
Attitudinal: Morale	390	.15	.20	.05	.87	.18	.30	.13

Note. Bolded results indicate significance at $p < .05$. ^a Bolded values under ΔR are based on F-test. ^b The difference between the -2 Log-likelihood values for the AFQT only model and the AFQT+ predictor model; significant value indicates that the AFQT + predictor model fits significantly better than the model with AFQT only. Uncorrected results are based on FIML OLS regression. Corrections were made to the FIML correlation estimates for the range restriction on AFQT and the Rs were corrected directly for shrinkage. "Continuance," "Performance," and "Attitudinal" = types of criteria.

Performance Criteria. The Core RBI scales added incremental validity to the prediction of Army-Wide Technical Knowledge ($\Delta R = .26$), Physical Fitness ($\Delta R = .35$), Personal Discipline ($\Delta R = .53$), and whether an Officer recycled during initial training ($\Delta R = .52$). The Core RBI scales accounted for an additional 7% to 27% of the variance in the three performance criteria. These results are consistent with the Russell and Tremble (2011) results, where the RBI added incrementally to the prediction of Academic Performance, Fitness Performance, and overall OCS Performance (mean $r = .27$). The Core Work Values scales added incremental validity to the prediction of Army-Wide Technical Knowledge ($\Delta R = .35$) and Physical Fitness ($\Delta R = .32$), accounting for an addition 10% and 12% of the variance. These results are inconsistent with the results from the first phase of this research. The Core Work Values scales added more incrementally to the prediction of In-Unit performance criteria compared to similar criteria at the End of OCS. The SJT did not add incremental validity to either of the continuance criteria. Branch-Specific Technical Knowledge, Leadership, and whether an Officer candidate graduated from initial training were not predicted by any of the experimental measures.

Table 3.4. Incremental Validity Results of the Dichotomous Criteria for the In-Service Sample

Predictor Measure/Outcome Variable	n	Pseudo-R Estimates			Δ -2 Log Likelihood ^a
		AFQT Only R	AFQT + Exp R	ΔR	
<i>Rational Biodata Inventory</i>					
Continuance: Career Continuance Intentions	390	.14	.52	.38	11.97
Continuance: Active Duty Separation	390	.18	.44	.26	14.40
Performance: Leadership	390	.10	.24	.14	4.52
Performance: IOT Recycles	390	.08	.60	.52	18.97
Performance: IOT Graduation	390	.11	.64	.53	12.12
Performance: Personal Discipline	390	.40	.93	.53	21.47
<i>Work Values</i>					
Continuance: Career Continuance Intentions	390	.15	.65	.50	14.55
Continuance: Active Duty Separation	390	.20	.41	.21	5.84
Performance: Leadership	390	.09	.52	.42	10.68
Performance: IOT Recycles	390	.08	.72	.64	12.88
Performance: IOT Graduation	390	.11	.39	.28	-.19
Performance: Personal Discipline	390	.40	.65	.25	6.12
<i>Situational Judgment Test</i>					
Continuance: Career Continuance Intentions	390	.15	.33	.18	-.43
Continuance: Active Duty Separation	390	.20	.20	.00	-.68
Performance: Leadership	390	.09	.15	.05	-.98
Performance: IOT Recycles	390	.08	.33	.25	2.18
Performance: IOT Graduation	390	.12	.37	.25	.23
Performance: Personal Discipline	390	.40	.80	.40	1.73

Note. Bolded results indicate significance at $p < .05$. ^a The difference between the -2 Log-likelihood values for the AFQT only model and the AFQT + predictor model; a bolded value indicates that the AFQT + predictor model fits significantly better than the model with AFQT only. The pseudo-R estimates are based on FIML logistic regression. "Continuance" and "Performance" = types of criteria.

The Core Work Values scales Rugged Leadership ($r = .27, .29$), Altruism/Benevolence ($r = .25, .24$), Structure/Recognition ($r = .14, .19$) and Teamwork ($r = .21, .13$) showed the strongest relationships with Physical Fitness and Army-Wide Technical Knowledge, respectively. Among the Core RBI scales, Fitness Motivation ($r = .19, .38$) and Self-Efficacy (r

= .24, .11) showed the strongest relationships with Physical Fitness and Army-Wide Technical Knowledge, respectively.

Attitudinal Criteria. The Core RBI scales added incremental validity to the prediction of Branch Satisfaction ($\Delta R = .30$), and Morale ($\Delta R = .25$), accounting for an additional 9% and 6% of the variance in the respective attitudinal criteria. The Core Work Values scales only added incremental validity to the prediction of Morale ($\Delta R = .32$). The SJT did not add incremental validity to any of the attitudinal criteria. Comparing these results to those found in Russell and Tremble (2011), the Core RBI and Work Values scales predicted Morale similarly at the End of OCS, but the Core RBI was a better predictor of In-Unit Branch Satisfaction.

Examining the bivariate correlations of the Core RBI scales show that Achievement ($r = .17, .25$), Stress Tolerance ($r = .22, .16$), Self-Efficacy ($r = .20, .32$), and Army Affective Commitment ($r = .25, .30$) were the strongest predictors of Branch Satisfaction and Morale. Several Work Values scales were highly correlated with Morale, including Rugged Leadership ($r = .33$), Altruism/Benevolence ($r = .20$), Skill Development ($r = .32$), Job Security ($r = .21$), and Teamwork ($r = .33$).

Summary of incremental validity results for the in-service sample:

- Among all of the Core RBI scales, Peer Leadership (mean $r = .16$), Fitness Motivation (mean $r = .14$), Self-Efficacy (mean $r = .20$) and Army Affective Commitment (mean $r = .23$) showed the strongest average relationships with the criteria.
- With the exception of the Flexibility/Choice scale, the Core Work Values scales generally showed significant relationships with the performance (mean $r = .14$), continuance (mean $r = .26$), and attitudinal criteria (mean $r = .21$).
- Overall, both the Core RBI scales and the Core Work Values scales predicted the continuance and attitudinal criteria well for the in-service sample.
- For the most part, the Core RBI and Work Value scales afforded similar or better predictive utility for the In-Unit criteria compared to the criteria at the End of OCS.

OBEF Predictor Composites

During the validation of the predictor measures at the End of OCS (Allen, 2011), composites were identified in an effort to combine predictor scales that would optimize the prediction of end-of-OCS criteria. The in-service OBEF composite was comprised of five positively valenced scales and two negatively valenced scales. The in-service composite is represented with the following formula:

In-Service OBEF Composite = RBI Achievement + RBI Fitness Motivation + RBI Stress Tolerance + RBI Self-Efficacy + Work Values Skill Development - Work Values Flexibility/Choice - Work Values Structure/Recognition

The enlistment option OBEF composite included four positively valenced scales and three negatively valenced scales. The composite is represented with the following formula:

$$\text{Enlistment Option OBEF Composite} = \text{RBI Achievement} + \text{RBI Fitness Motivation} + \text{RBI Stress Tolerance} + \text{Work Values Altruism/Benevolence} - \text{RBI Hostility to Authority} - \text{Work Values Flexibility/Choice} - \text{Work Values Structure/Recognition}$$

The composites identified using the End-of-OCS criteria were examined to assess how well the composites predicted the In-Unit criteria. Table 3.5 presents the results for both samples.

Continuance Criteria. Both the in-service composite and the enlistment option composite added incremental validity to the prediction of Army Commitment ($\Delta R = .21$; $\Delta R = .23$), respectively. The enlistment option composite added incrementally to the prediction of Separations ($\Delta R = .42$). Career Intentions was not predicted by the composite for either sample.

Performance Criteria. The in-service composite added incrementally to the prediction of Army-Wide Technical Knowledge ($\Delta R = .24$) and Physical Fitness ($\Delta R = .37$). For the enlistment option sample, the composite added incrementally to the prediction of Physical Fitness ($\Delta R = .47$) and whether an Officer candidate graduated from initial training ($\Delta R = .34$). Branch-Specific Technical Knowledge, Leadership, Awards, and whether an Officer recycled during initial training were not predicted by the composite for either sample.

Attitudinal Criterion. For the in-service sample, the composite added incremental validity to the prediction of Branch Satisfaction ($\Delta R = .33$) and Morale ($\Delta R = .30$). The enlistment option did not add incremental validity to the prediction of any of the attitudinal criterion.

Conclusion

The results of the incremental validity analyses showed significant relationships between the Core predictor scales and the performance and continuance outcomes. Of all the criterion variables, Army Commitment was best predicted, while Leadership and Branch-specific job-knowledge were poorly predicted. For the in-service sample, the Core RBI scales, the Core Work Values scales, and the OBEF composites were all significant predictors of continuance, performance, and attitudinal outcomes. For the enlistment option sample, the Core Work Values scales were the strongest predictors of outcomes, however there were a number of outcomes predicted by the Core RBI scales and the OBEF Composites. The SJT was not a particularly good predictor; there were no significant relationships for the in-service sample. However, for the enlistment option sample the SJT predicted Branch-Specific Knowledge and Career Intentions, neither of which were predicted by the RBI or Work Values scales. The SJT may offer some utility in addition to the RBI and Work Values scales, but only for the enlistment option sample.

Table 3.5. Incremental Validity of the OBEF Predictor composite for In-Service and Enlistment Option
Incremental Validity of the OBEF Predictor Composites for the In-Service and Enlistment Option Samples

OBEF Predictor Composite	<i>In-Service</i>					<i>Enlistment Option</i>				
	<i>n</i>	AFQT Only <i>R</i>	AFQT + Exp <i>R</i>	ΔR	Δ -2 Log Likelihood ^a	<i>n</i>	AFQT Only <i>R</i>	AFQT + Exp <i>R</i>	ΔR	Δ -2 Log Likelihood ^a
<i>Continuous Criterion</i>										
Army Commitment ¹	390	.19	.41	.21	20.59	368	.28	.51	.23	25.64
Branch-Specific Technical Knowledge ²	390	.13	.26	.14	7.99	368	.03	.28	.25	7.62
Army-Wide Technical Knowledge ²	390	.07	.31	.24	12.21	368	.08	.33	.25	10.38
Physical Fitness ²	390	.07	.44	.37	29.47	368	.10	.57	.47	44.66
Std. Total Awards ²	--	--	--	--	--	368	.00	.23	.23	12.82
Std. Weighted Awards ²	--	--	--	--	--	368	.03	.22	.19	11.82
Branch Satisfaction ³	390	.07	.40	.33	22.20	368	.00	.31	.31	8.75
Morale ³	390	.15	.46	.30	26.56	368	.19	.31	.12	7.78
<i>Dichotomous Criterion</i>										
Career Continuance Intentions ¹	390	.15	.47	.32	10.25	368	.20	.47	.27	12.52
Active Duty Separation ¹	390	.20	.31	.11	-.80	368	.04	.46	.42	27.73
Leadership ²	390	.09	.21	.12	1.06	368	.38	.50	.12	12.10
IOT Recycles ²	390	.08	.72	.64	13.46	368	.17	.44	.27	10.12
IOT Graduation ²	390	.12	.76	.64	12.31	368	.20	.54	.34	14.37
Personal Discipline ²	390	.41	.61	.20	4.32	368	.31	.62	.31	9.34

Note. Bolded results indicate significance at $p < .05$. ^aThe difference between the -2 Log-likelihood values for the AFQT only model and the AFQT + predictor model; a bolded value indicates that the AFQT + predictor model fits significantly better than the model with AFQT only. Results are based on FIML OLS regression. ¹Continuance Criteria, ²Performance Criteria, ³Attitudinal Criteria.

CHAPTER 4: LONGITUDINAL EXAMINATION OF OFFICER ATTITUDES OVER TIME

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For the purposes of the longitudinal validation research, we collected data from and tracked officers across four time points. As discussed in Chapter 2, those time points included the Beginning of OCS, the End of OCS, BOLC III/B, and In-Unit (near the end of the active duty service obligation [ADSO]). Several attitudinal measures were administered three or more of these time points, allowing a unique opportunity to examine how these variables change over time, the antecedents of these changes, and their consequences.

Variables such as Career Intentions, Commitment, and Morale have previously been used as proxy criteria to validate new selection measures, particularly non-cognitive selection measures. Career Intentions and Affective Commitment, in particular, have been a focus of the Army as the Army looks to identify highly-qualified officer candidates who will continue service beyond their initial obligations. Understanding how attitudes change over time, whether there are factors that influence how attitudes change over time and the consequences of changes in attitudes is an important research topic. The current analysis seeks to investigate these issues by answering the following questions:

- How do Officer Commitment, Career Intentions, Branch Satisfaction, and Morale change over the first three years of post-commissioning service?
- Are these propensities for change different for enlistment option and in-service samples?
- Can individual differences (measured through the OBEF) be used to identify officers who have a higher propensity to be more satisfied and committed to the Army over time?
- What are the consequences of attitudes decreasing or increasing over time? For example, if Morale increases, do officers show higher commitment, stronger Career Intentions, and less instances of separation?

The remainder of this chapter outlines the specific analyses used to examine longitudinal change over time and the associated results. Finally, we discuss the implications and how the results can contribute to our understanding of officer candidate selection.

Approach

We examined change in five attitudinal variables: Affective Commitment, Continuance Commitment, Career Intentions, Morale, and Satisfaction with Branch Assignment. Table 4.1

provides a brief description of each variable and a list of time points when each variable was measured. Note that these variables are different from those described in Chapter 2. The variables described in Chapter 2 are constructs derived from one or more measures, whereas the variables in this chapter are specific scales that were measured at the given time points. The Core RBI scales, Core Work Values scales, SJT, and the selection composites developed in the first phase of this research were examined as predictors of change. Separation, In-Unit career intentions, and awards were examined as outcomes of change.

Table 4.1. Description of Longitudinal Variables.

Scale	Description	Measurement Occasions
Continuance Commitment	Four-item scale measuring the extent to which the candidate was committed to completing their Active Duty Service Obligation (ADSO). An example item is “It would be too costly for me to leave the Army in the near future.” Items were scored on a 1 to 5 scale ranging from “Strongly Disagree” to “Strongly Agree.” Administered with Version 1 of the OBEF and both end-of-class surveys.	• Beginning of OCS (Time 1) • End of OCS (Time 2) • BOLC III/B (Time 3) • In Unit/ Prior to end of ADSO (Time 4)
Affective Commitment	Four-item scale measuring the extent to which a candidate felt emotionally attached to the Army. An example item is “I feel like ‘part of the family’ in the Army.” Items were scored on a 1 to 5 scale ranging from “Strongly Disagree” to “Strongly Agree.” Administered with all versions of the OBEF and both end-of-class surveys.	• Beginning of OCS (Time 1) • End of OCS (Time 2) • BOLC III/B (Time 3) • In Unit/ Prior to end of ADSO (Time 4)
Morale	A single-item measure of a candidate’s current level of morale (i.e., “What is <u>your</u> current level of morale?”). The item was scored on a 1 to 5 scale ranging from “Very Low” to “Very High.” Administered with both versions of the end-of-class surveys.	• End of OCS (Time 2) • BOLC III/B (Time 3) • In Unit/ Prior to end of ADSO (Time 4)
Career Intentions	A single-item measure of a candidate’s active duty career intentions (i.e., “What are your current active duty career intentions?”). The item was scored on a 1 to 5 scale ranging from “I will definitely quit the Army upon completion of my obligation” to “I plan to stay in the Army beyond 20 years or until retirement.” Administered with all versions of the OBEF and both versions of the end-of-class surveys.	• End of OCS (Time 2) • BOLC III/B (Time 3) • In Unit/ Prior to end of ADSO (Time 4)
Branch Satisfaction	A single-item measure of a candidate’s satisfaction with branch assignment (i.e., “How satisfied are you with your branch assignment?”). The item was scored on a 1 to 5 scale ranging from “Very Satisfied” to “Very Dissatisfied”.	• End of OCS (Time 2) • BOLC III/B (Time 3) • In Unit/ Prior to end of ADSO (Time 4)

Latent Growth Modeling (LGM), an application of confirmatory factor analysis, was used to model change over time. Repeated measures of a variable over time are used as the manifest indicators of two (for linear change) or three (for non-linear change) latent variables: (a) initial status, (b) change, and (c) quadratic change. We used Mplus LGM analyses with Full Information Maximum Likelihood (FIML) missing data (Muthén & Muthén, 2004). As discussed in Chapter 3, FIML uses all available information to estimate parameters, even when data are missing. Officers with at least two time points on the longitudinal measures were included in the analyses. We used three stages to assess the change in each variable and to examine the predictors and outcomes of change:

- Stage 1: Examine the type of change that characterized the data, linear or non-linear.
- Stage 2: Assess whether the change trajectory for the in-service and enlistment option samples are equivalent.
- Stage 3: Examine whether there is variance associated with the change trajectories across individuals and model predictors and outcomes of change.

Stage 1. To examine linear change, two latent variables were specified for each LGM – initial status and change – and the observed variable for each measurement occasion was included as a manifest indicator of the two latent variables. Initial status represents the mean starting value of the variable of interest across all individuals. Change represents the mean change in the variable across all individuals. In order to model the latent growth, the factor loadings for each of the four measurement occasions were constrained to be one for the initial status latent construct (see Figure 1). For the change latent construct, the time one factor loading was constrained to zero, the time two factor loading was constrained to one, the time three factor loading was constrained to two, and the time four (if applicable) factor was constrained to three. To examine non-linear change, an additional factor was added to the model, quadratic change. The factor loadings were the same as described above for the initial status and linear change constructs. For the quadratic latent construct, the factor loadings for time one, two, three, and four were constrained to 0, 1, 4, and 9, respectively.

The model produces goodness-of-fit estimates that assess overall model fit and mean and variance estimates of the initial status and change constructs. Overall model fit was assessed using the χ^2 statistic, the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR). CFI and TLI values $\geq .95$ and SRMR and RMSEA values $\leq .08$ indicate acceptable fit. A significant mean change estimate suggests significant growth over time in the attitudinal variable. Significant variance estimates suggest individual differences in change over time. Critical z-scores were used to test significance of the mean and variance parameters. To determine the best fitting growth pattern, the significance values of the latent mean estimates for linear change and for quadratic change were compared. Note that the results for this stage are not reported for Morale due to the sensitivity concerns.

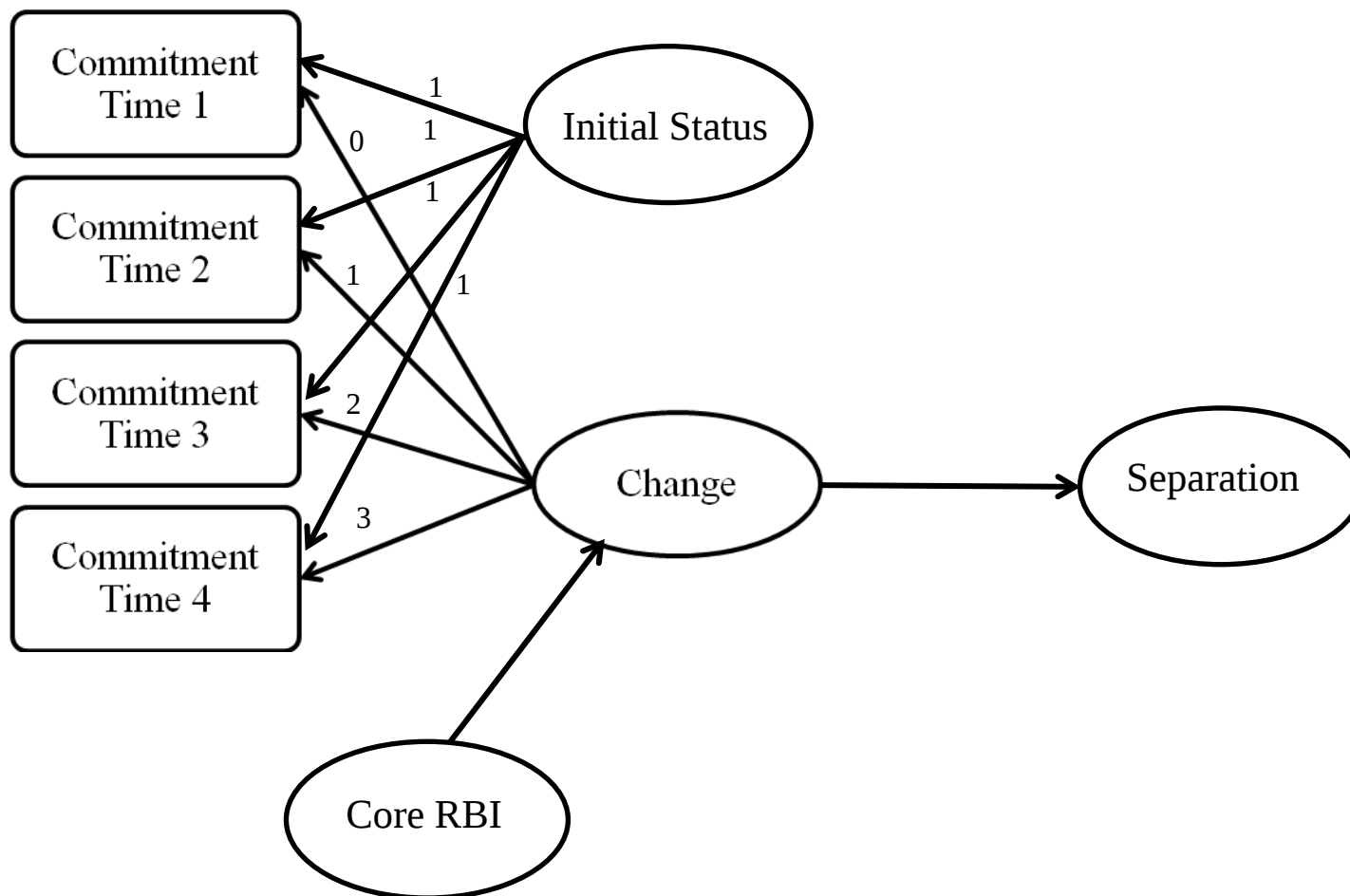


Figure 4.1. Latent Growth Model of Change in Commitment with Core RBI as a predictor of change, and Separation as an outcome of change.

Stage 2. A series of steps were taken to examine the differences in change between the in-service and enlistment option samples. Multiple groups LGM was conducted where, within the same overall model, separate covariance matrices and model parameters are estimated for each group. Using this method, the change and initial status can be constricted to be equal to compare whether the parameter estimates for each group are similar or different. First, a model is estimated where the change and initial status for each group is free to vary. To determine if the mean initial status is significantly different between groups, a LGM is constructed where the initial status for each group is constrained to be equal. The fit of the constrained and unconstrained models are compared using a chi-square difference test. If the models are significantly different, where the model with the unconstrained estimate fits significantly better, then we can conclude there are differences between the two groups initial status. If there is no difference in the model fit between the unconstrained and the constrained models, the more parsimonious model is considered to be the better fitting and we proceed with the model where the two groups' initial status parameters are equal. Next, a model is estimated where the change parameters are constricted to be equal between groups. Based on the outcome of the first test, the initial status parameter is left constrained or unconstrained. If there is a significant drop in fit when the mean change estimate is constrained to be equal compared to when the mean change estimate is unconstrained, we can conclude there is a significant difference in the mean change between the two groups. A final model is determined based on whether the initial status latent constructs are equivalent and whether the change latent constructs are equivalent between groups.

Stage 3. In order to examine predictors and outcomes of change, there must be adequate amounts of variance in the mean change factor. No variance in the change factor indicates that all of the officers in the sample are changing along similar trajectories. If there is non-significant amount of variance in the change factor then no additional analyses will be conducted. To examine key predictors and outcomes of change, the predictor variables are added to the model by regressing the change factor onto the predictor variables of interest (see Figure 1, Change on RBI). The outcomes are added to the model by regressing the outcome variable onto the change factor (see Figure 1, Separation on Change). Multiple predictors were included in the model and each predictor was examined for significance.

Results

Change Over Time

The following describes the results of the LGMs assessing linear and non-linear change. Note, mean change, listed in the results, represents the average change between each time point. Table 4.2 lists the full results for each variable including the goodness-of-fit measures for each model.

The in-service sample demonstrated a significant increase in Affective Commitment over time while the enlistment option stayed relatively static over time (*Mean change* = .04; see Figure 4.2). On average, Affective Commitment increased by .12 or 3% at each point of measurement for the in-service sample.

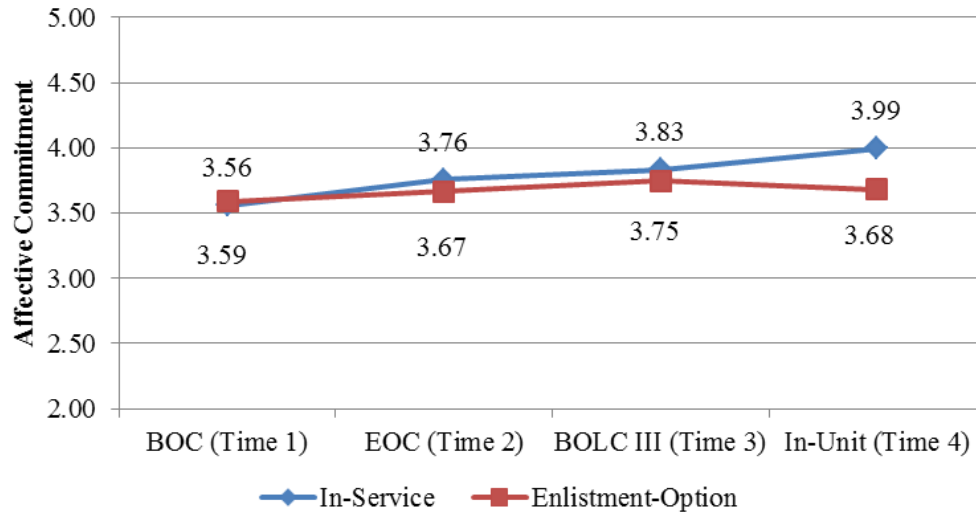


Figure 4.2. Latent Growth Model of Affective Commitment for In-Service and Enlistment Option Samples

There was a significant non-linear change in Continuance Commitment over time for the enlistment option (*Mean change* = -.11). Specifically, there was a curvilinear decrease in commitment, such that between the Beginning of OCS and the end of BOLC III/B there was an increase in commitment; however, nearing the end of ADSO there was a decrease in commitment. There was no significant change for the in-service sample; Continuance Commitment remained relatively static over time (see Figure 4.3).

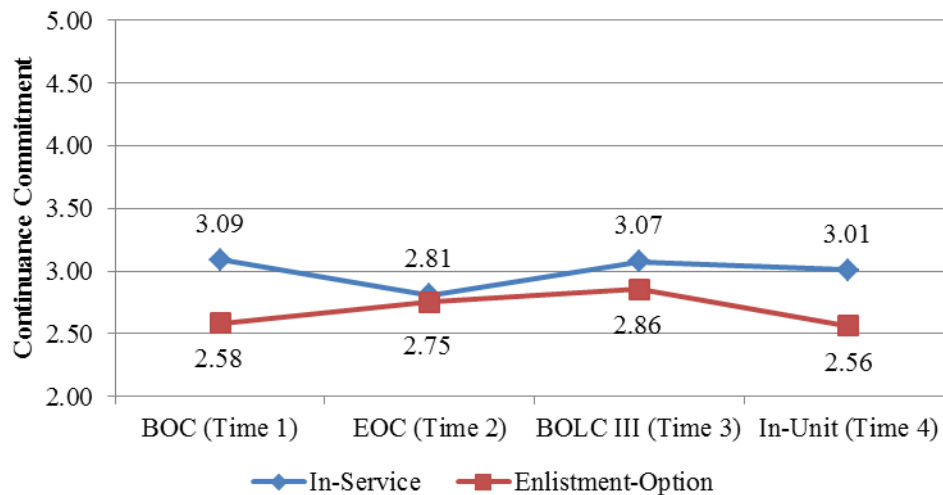


Figure 4.3. Latent Growth Model of Continuance Commitment for In-Service and Enlistment Option Samples

Career Intentions for both the in-service (*Mean change* = -.01) and enlistment option (*Mean change* = .01) samples were relatively static over time (see Figure 4.4).

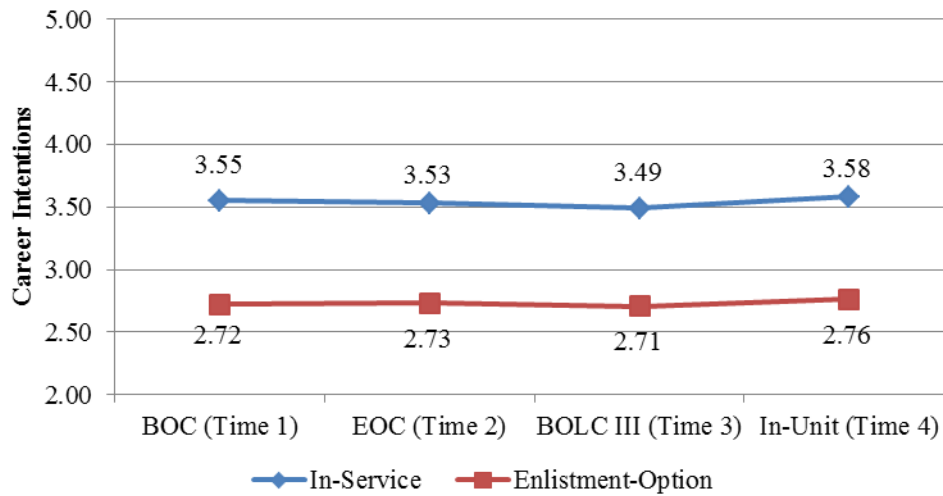


Figure 4.4. Latent Growth Model of Career Intentions for In-Service and Enlistment Option Samples

Both the enlistment option and in-service samples showed a significant decrease in Satisfaction with Branch Assignment over time (see Figure 4.5). On average, Satisfaction with Branch Assignment decreased by .27 or 6% at each point of measurement for both samples.

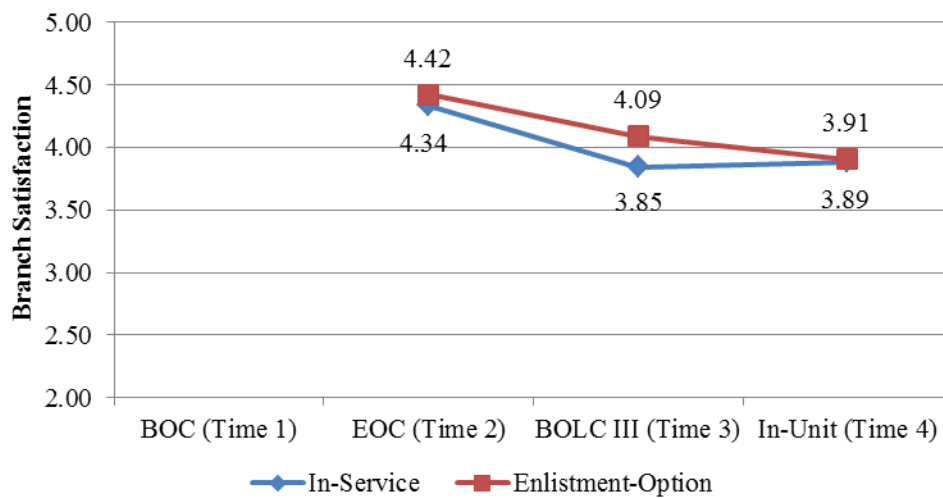


Figure 4.5. Latent Growth Model of Satisfaction with Branch Assignment for In-Service and Enlistment Option Samples

Table 4.2. Stage 1 Latent Growth Model Results

Scale	Group	N	Model	Initial Status	Mean Linear Change	Mean Quadratic Change	χ^2	df	CFI	TLI	RMSEA	SRMR
Affective Commitment	In-Service	281	Linear	3.61	.12	--	6.83	5	.99	.99	.04	.05
			Quadratic	3.60	.15	-.01	30.22	4	.88	.82	.15	.14
	Enlistment Option	208	Linear	3.62	.04	--	8.21	6	.99	.99	.04	.07
			Quadratic	3.58	.14	-.03	19.83	5	.92	.90	.12	.13
Continuance Commitment	In-Service	204	Linear	2.87	.05	--	7.67	6	.94	.94	.10	.09
			Quadratic	2.97	-.14	.06	27.59	4	.88	.82	.17	.12
	Enlistment Option	148	Linear	2.73	.01	--	11.82	5	.96	.95	.10	.05
			Quadratic	2.55	.35	-.11	2.56	3	1.00	1.00	.00	.03
Career Intentions	In-Service	342	Linear	3.54	-.01	--	10.07	5	.99	.99	.05	.10
	Enlistment Option	258	Linear	2.72	.01	--	3.02	5	1.00	1.00	.00	.05
Satisfaction with Branch Assignment	In-Service	301	Linear	4.27	-.27	--	14.23	1	.91	.72	.21	.06
	Enlistment Option	217	Linear	4.41	-.27	--	.92	1	1.00	1.00	.00	.02

Note. Bolded results indicate significance at $p < .05$. CFI = Comparative Fit Index; TLI = Tucker Lewis Fit Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CFI and TLI values $\geq .95$ and SRMR and RMSEA values $\leq .08$ indicate acceptable fit. Initial status represents the mean starting value of the variable of interest across all individuals. Change represents the mean change at each point of measurement in the variable of across all individuals. Results are based on FIML likelihood analyses and include individuals with data on at least two time points.

Differences in Changes over Time by Entry Status

Several of the first stage LGMs showed differences in the change trajectory for the in-service and enlistment option samples, making it unnecessary to directly test the differences in mean change and initial status. Specifically, the change trajectory for Affective Commitment and Continuance Commitment differed; the in-service sample showed significant linear change on Affective Commitment while the enlistment options sample showed no change. Similarly, the enlistment option sample showed a significant non-linear change on continuance commitment while the in-service sample showed no change. We directly tested for difference in mean change and initial status for Career Intentions, Morale, and Satisfaction with Branch. Table 4.3 displays the full results for the group comparisons.

- For Career Intentions, there was no difference in change between the in-service and enlistment option samples. However, there was a significant difference in initial status such that the in-service sample showed higher initial Career Intentions compared to the enlistment option sample. Given there was no difference in change, the difference in Career Intentions remained consistent over time.
- There was no significant difference in initial status or change in Morale.
- There was not a significant difference in initial status or change for Satisfaction with Branch Assignment. Both samples had similar levels of satisfaction with their branch assignment at the End of OCS and both samples' satisfaction decreased over time.

Overall, the in-service and enlistment option samples had similar changes on Branch Satisfaction—it decreased over time. Generally, the in-service sample planned to stay with the Army longer than the enlistment option sample—this did not change over time. While Career Intentions did not change for the in-service sample, Affective Commitment did increase. Continuance Commitment initially increased for the enlistment option sample but decreased as officers neared the end of their ADSO.

Table 4.3. Latent Growth Modeling Result Assessing Difference in OCS Accession Option

	Model	χ^2	<i>df</i>	CFI	TLI	RMSEA	SRMR	$\Delta\chi^2$	Δdf
Career Intentions	Baseline	13.09	10	1.00	1.00	.03	.08		
	Equal IS	123.46	11	.86	.85	.19	.19	110.37^a	1
	<i>Equal CH</i>	13.26	6	1.00	1.00	.03	.08	.17 ^b	1
Satisfaction with Branch Assignment	Baseline	15.15	2	.94	.83	.16	.05		
	Equal IS	17.11	3	.94	.88	.14	.05	1.96 ^a	1
	<i>Equal IS-CH</i>	17.55	4	.94	.91	.11	.05	.44 ^c	1
Morale	Baseline	18.18	4	.89	.83	.13	.25		
	Equal IS	21.97	5	.86	.84	.13	.28	3.79 ^a	1
	<i>Equal IS-CH</i>	9.42	6	.99	.99	.06	.06	-8.76^c	1

Note. Bolded results indicate significance at $p < .05$. Italicized Models indicate the model that was determined to be the best fitting. ^a Difference between the baseline model and the Equal IS model. ^b Difference between the Baseline model and the Equal CH model. ^c Difference between the Equal IS model and the Equal IS-CH model. CFI = Comparative Fit Index; TLI = Tucker Lewis Fit Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CFI and TLI values $\geq .95$ and SRMR and RMSEA values $\leq .08$ indicate acceptable fit.

Predictors and Outcomes of Change

To assess *predictors* and *outcomes* of change, there must be non-zero variance in the latent variable estimate of change. To assess whether the change variance was non-zero, we examined the latent variance produced by the model and the associated significance test. Significant variance indicates that the change trajectory differs within the sample. There was significant variance in the change factor for Morale in the enlistment option and Career Intentions for both in-service and enlistment option samples. While average change in Career Intentions was non-significant, the significant variance estimates indicate that there are differences *within* the sample—there may be some individuals with static Career Intentions, others with increasing Career Intentions and others with decreasing Career Intentions. Therefore, predictors and outcomes will be examined for both Morale and Career Intentions.

The Core RBI, Core Work Values, SJT and selection composite scales were examined as *predictors* of change. Table 4.4 lists the full results for each model including the goodness-of-fit measures and the multiple correlations.

- Morale – The Core RBI scales and the Core Work Values scales were significant predictors of change in Morale. The Core RBI and Core Work Values scales accounted for 13% and 20% of the variance in change in Morale, respectively. The SJT and selection composite accounted for a non-significant portion of the variance. The latent correlations between the Core RBI scales and change in Morale showed Hostility to Authority (positively related to change in Morale), Stress Tolerance (positive), and Self-Efficacy (negative) as having the highest predictive utility of change in Morale. Altruism/Benevolence (negative) and Teamwork (positive) showed the highest predictive utility of change in Morale among the Core Work Value scales.
- Career Intentions – The Core RBI, Core Work Values, SJT and the selection composite predicted non-significant amounts of variance in change in Career Intentions for both the in-service and enlistment option sample.

Career Intentions at Time 4, Separations, and Award Performance were examined as *outcomes* of change. Significant relationships are described in text, the remaining results can be found in Table 4.4.

- Morale – Stable or increasing Morale over time was a positive predictor of Career Intentions at Time 4, accounting for 34% of the variance. Change in Morale was also a negative predictor of Separation, accounted for 16% of the variance. That is, as Morale increases over time, an officer's intention to stay in the Army increased and the likelihood of separating from active duty officer status decreased. Change in Morale over time was not a significant predictor of Awards.

Table 4.4. Latent Growth Results of Predictors and Outcomes of Change

	<i>n</i>	χ^2	<i>df</i>	CFI	TLI	RMSEA	SRMR	<i>R</i>
Morale – Enlistment Option								
<i>Predictors</i>								
RBI	185	20.81	12	.90	.75	.06	.06	.37
Work Values	185	9.15	10	1.00	1.00	.00	.04	.45
SJT	185	.76	3	1.00	1.00	.00	.02	.28
Selection Composite	185	16.91	10	.92	.80	.06	.06	.27
<i>Outcomes</i>								
Career Intentions	185	12.70	5	.93	.91	.09	.10	.58
OMF: Total Awards	185	2.68	5	1.00	1.00	.00	.04	.12
OMF: Weight Awards	185	2.42	5	1.00	1.00	.00	.04	.06
Separations	185	1.67	5	1.00	1.00	.00	--	.40
Career Intentions – Enlistment Option								
<i>Predictors</i>								
RBI	258	32.80	24	.98	.97	.04	.03	.37
Work Values	258	24.38	20	.99	.98	.03	.04	.50
SJT	258	8.32	8	1.00	1.00	.01	.06	.28
Selection Composite	258	27.71	20	.98	.97	.04	.04	.38
<i>Outcomes</i>								
OMF: Total Awards	258	3.96	8	1.00	1.00	.00	.04	.10
OMF: Weight Awards	258	3.68	8	1.00	1.00	.00	.04	.06
Career Intentions - In-Service								
<i>Predictors</i>								
RBI	342	41.44	24	.97	.94	.05	.06	.53
Work Values	342	42.22	20	.95	.92	.06	.07	.51
SJT	342	19.89	8	.97	.97	.07	.14	.46
Selection Composite	342	41.42	20	.95	.92	.06	.07	.50

Note. Bolded values indicate significance at $p < .05$. CFI = Comparative Fit Index; TLI = Tucker Lewis Fit Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CFI and TLI values $\geq .95$ and SRMR and RMSEA values $\leq .08$ indicate acceptable fit.

Discussion

Longitudinal Change

A number of variables showed significant change over time. While there is no direct indication of why Satisfaction with Branch Assignment decreased over time in both samples, we propose one theory. For the majority of the respondents, branch selections/assignments were made at the midpoint (end of week six) of OCS. The decrease in branch satisfaction coincides, in time, with branch selection (End of OCS), branch training (BOLC III/B), and finally their in-unit branch assignment. These results suggest that the perception and the reality of branching—from OCS, through BOLC III/B, and into the unit—are very different. What officers conceived or expected (as the ideal) may be very different from what they actually experienced, thus accounting for a decrease in satisfaction over time. Providing Officers with a realistic preview of branch-specific duties in OCS may help to reduce the decrease in Satisfaction with Branch Assignment (Oliver, Ardison et al., 2011; Oliver et al., 2012). Additional research should be

conducted to examine the role of branch preference, assignment, and other external factors such as deployments in the decrease in Satisfaction over time.

Group Differences

While, in general, there were few attitudinal measure differences between the in-service and enlistment option samples, the most striking difference was with *Career Continuance Intentions*. The in-service officers had much higher Career Continuance Intention scores than the enlistment option group, and this difference remained consistent over time. The in-service group is older, has more time in service, and is closer to retirement age. This may explain their higher career intention ratings. On the other hand, the enlistment option group is generally just out of college and younger, and thus may not yet have made a final career decision. Additionally, scores on Affective Commitment appear to be higher for in-service than the enlistment option, at least once within the in-unit environment. This may also relate to their prior military history as enlisted Soldiers, because they have already invested more time in the Army.

Predictors and Outcomes

We found very little variance among officers in the mean change estimate. That is, for the in-service and enlistment options the change functions for the attitudinal variables were similar for most officers. With the exception of Morale and Career Intentions there were no significant individual differences in how officers changed *over time*. The lack of variance suggests that there may be a group effect that is driving how Affective Commitment, Continuance Commitment, and Branch Satisfaction change over time.

The Core RBI and Core Work Values scales were significant predictors of change in Morale. In terms of implications for selecting in-service and enlistment option candidates into OCS, this is the most fruitful finding in that both the RBI and Work Values scales showed promise to explain change in certain attitudes, such as Morale. In turn, change in Morale predicted Career Intentions and Separations. Specifically, those with positive changes in Morale tended to have higher career aspirations and lower rates of separating. These findings suggest that the RBI and Work Values could be useful in selecting individuals with a higher propensity for positive change in Morale over time, which in turn may lead to a higher likelihood that these individuals stay in the Army. Alternatively, the predictors could be used to select out individuals with a higher propensity of decreased Morale over time, which would reduce the number of individuals with a high probability of having shorter careers with the Army.

Conclusion

This research offers a perspective on how attitudes change over time in the first three years of active duty service for officers and examines potential predictors and outcomes of change. These findings provide initial groundwork for understanding how attitudes change. As large sample sizes become available, more research needs to be conducted to determine the generalizability of these findings. Initial findings suggest that there may be some utility in using these findings to guide selection decisions, but more research needs to be conducted to better understand the impact of changing attitudes on performance and continuance in the Army.

CHAPTER 5: CONCLUSIONS AND NEXT STEPS

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The overarching purpose of the ongoing research program described in this report is to develop a valid assessment for selecting candidates – whether through the in-service or enlistment option – into the U.S. Army’s Officer Candidate School (OCS). To accomplish this, ARI and HumRRO developed and validated a battery of measures called the Officer Background and Experiences Form (OBEF) in 2008 (see Russell & Tremble, 2011). The OBEF assesses non-cognitive aspects of a candidate’s persona, such as personality/temperament, values, and judgment. This compliments the Army’s current assessment tool—the Armed Services Vocational Aptitude Battery (ASVAB)—which assesses mostly knowledge and cognitive aptitudes.

The purpose of the present report was to expand on the initial work performed in 2008 by determining whether the OBEF could predict OCS-commissioned officer performance and continuance beyond the training environment. Specifically, the objectives of the present research were to (a) collect longer-term performance and continuance measures, (b) validate the OBEF against these outcomes, (c) examine changes in officer attitudes over time, and (d) determine the antecedents and consequences of those attitude changes. The research team faced a number of challenges in accomplishing these objectives, and learned a number of lessons that can be applied to future longitudinal validation studies.

Summary of Methodological Approach

Our research approach was driven by an urgency to obtain empirically supported evidence to inform near-term recommendations for enhancing the Army’s OCS selection process. This urgency was driven by the desire to capture key criteria of interest from our sample prior to their separation from active duty. However, long-term career outcome measures (e.g., performance as a mid-career officer)—which would have been most desirable for use in the test validation—were unavailable for our relatively young 2008 OCS cohort. Accordingly, considerable effort was focused on obtaining the most relevant and viable early career outcome measures that could be used as “interim” criteria. We used innovative approaches to obtain the richest and most complete set of emerging outcome measures feasible, given the short timeframe for this project. These efforts involved the use of multiple data collection approaches and we were successful in obtaining a relatively wide range of officer performance outcome measures.

In any context obtaining criterion data for a sample approximately three years after the original assessment date is a logistical challenge. This is particularly true in the present research, as the 2008 OCS cohort is now dispersed around the globe. Concerns about privacy, inconsistent administrative records, obtaining adequate response rates, and the desire to collect information on a broad range of performance and retention-related criteria all increased the complexity of the

data collection process. With these challenges in mind, the research team took a number of steps to ensure that the data were of high enough quality to answer key research questions of interest and mitigate logistical difficulties. These steps included:

- *Developing a self-report criterion instrument that combined verifiable performance questions, subjective performance questions, and attitudinal proxy measures.* The “In-Unit Survey” developed for the present research leveraged previous ARI-sponsored research in a number of ways. First, the instrument relied heavily on verifiable performance and retention questions, which previous research has shown to be relatively accurate (Campbell & Knapp, 2001). Second, in key performance domains where verifiable performance data was not available, subjective ratings were gathered. However, by using a relative performance scale (as opposed to absolute rating scales; see items 39 through 44 in Appendix B), we hoped these subjective ratings would be less influenced by social desirability than traditional behavioral rating scales. Finally, attitudinal scales that recent research has found to be reasonable proxies of key outcomes of interest (such as retention beyond their service obligation) were also administered (Oliver, Ingerick et al., 2012). In combination, these items provided a wide-ranging (though not complete, see Campbell, 2012) picture of the performance and retention-related factors critical to validating the OBEF.
- *Taking steps to maximize the response rate.* Traditionally, the response rate for unproctored internet surveys in the Army is quite low. To enhance the In-Unit Survey response rate, the researchers (a) promised a short survey (approximately 10 minutes) in the solicitation email, (b) sent multiple reminders to complete the survey, and (c) asked the former Commandant of OCS to endorse the solicitation email. We feel that all of these factors contributed to a higher-than-typical response rate (exceeding 40%) in a short amount of time.
- *Piloting new methods for collecting supervisory ratings.* At the time of this writing, the research team was also piloting a non-obtrusive approach for gathering supervisory ratings of in-unit performance among the 2008 OCS officer cohort. Early returns on the new approach currently being tested (see Appendix B for more details) were encouraging.
- *Mining administrative records.* To the extent possible, the research team relied on administrative personnel records to obtain performance and retention information about the participants in the present sample. When feasible, we also obtained these records concurrently from multiple data sources (i.e., military agencies). The rationale was to use the strengths of some personnel files to help offset the weaknesses in others. This approach was used in developing the integrated personnel record database for constructing our administrative criteria. In combination, all of these strategies helped to increase the quality and completeness of the data, thereby enhancing the available sample size for many of the validation analyses reported here.
- *Applying state-of-the-art missing data methods in conducting analyses.* Collecting data longitudinally at multiple points in time can lead to small samples of respondents with data at all points. Traditional methods for handling these missing data, such as

listwise deletion (i.e., omitting those with missing data at any one time point from the analysis), can lead to low power and biased statistical estimates (Enders & Bandalos, 2001; see Chapter 3 for more details). To account for this limitation, we used state-of-the-art missing data techniques in our analysis. Previous research has shown these techniques to be more accurate than traditional methods.

- *Applying corrections for statistical artifacts.* To account for potential artifacts in the data, the validation analyses applied statistical corrections for range restriction and shrinkage. These estimates are a more conservative test of the efficacy of the OBEF for predicting key performance and retention outcomes by giving more weight to the Armed Forces Qualification Test (AFQT) in the analyses and penalizing the OBEF for contributing multiple scales to the regression equation.

Variants of many of these procedures have been applied in previous research. However, we feel this combination of steps will be useful to other researchers, particularly military researchers, who want to collect and analyze empirical data without relying heavily on face-to-face data collections.

Summary of Results

One key purpose of this research was to validate the OBEF against performance-related, retention-related, and attitudinal outcomes for both the enlistment option and in-service samples. In support of this objective, we captured a broad spectrum of the officer criterion space through the theory-informed development of 14 different scales built from survey data and administrative records. The overall pattern of results clearly showed that the OBEF was predictive of important officer career outcomes roughly three years after receiving their commission. Significantly, some degree of validity evidence was found for nearly all of the criterion measures we examined. From the analyses conducted in Chapter 3, we can further conclude the following:

1. *The OBEF demonstrated significant promise for predicting key in-unit performance, continuance, and attitudinal outcomes in the enlistment option sample.* Specifically, temperament (measured using the Core Rational Biodata Inventory [RBI]) and work values (measured using the Core Work Values scales) aspects of the OBEF were particularly strong predictors of officer performance, attitudes, and continuance. The Situational Judgment Test (SJT) also predicted non-trivial variance in certain criteria beyond the AFQT (most notably In-Unit Career Continuance Intentions and Commitment). All three measures were predictive of officer commitment to the Army while in their units, but generally less predictive of leadership and personal discipline.
2. *The OBEF also demonstrated promise for predicting key in-unit performance, continuance, and attitudinal outcomes in the in-service sample.* As with the enlistment option sample, the OBEF was significantly predictive of key outcomes such as affective commitment, technical knowledge, branch satisfaction, morale, and recycles during Initial Officer Training (IOT) beyond the AFQT. The Core RBI scales were particularly strong predictors of these outcomes, though the Core Work Values scales were also predictive of a number of outcomes. The SJT was generally not a significant predictor of any outcomes in this sample.

3. *Some OBEF scales consistently predicted aspects of both in-service and enlistment option officer outcomes, while other scales were more predictive in one sample than another.* The Core Work Values Rugged Leadership and Teamwork, and the Core RBI Peer Leadership, Self-Efficacy, and Army Affective Commitment scales predicted outcomes in both samples. In contrast, the Skill Development Work Values was a significant predictor of multiple outcomes in the in-service sample, but was non-significant across most outcomes in the enlistment option sample. RBI Fitness Motivation predicted physical fitness and no other outcomes in the in-service sample, but predicted multiple outcomes (e.g., leadership, commitment) in the enlistment option sample. RBI Stress Tolerance also predicted multiple outcomes in the enlistment option sample, but not the in-service sample.
4. *The OBEF composites developed in 2008 for selecting in-service and enlistment option officers into OCS predicted key performance and continuance outcomes three years later.* Specifically, the in-service composite predicted key attitudinal (commitment, branch satisfaction, morale) and performance (physical fitness) outcomes, while the enlistment option composite predicted commitment, physical fitness, completion of initial officer training, and active duty separation.

A secondary purpose of this research was to examine changes in OCS-commissioned officer attitudes over time, the factors that predict attitude change, and the consequences of changing attitude for outcomes near the end of their initial Active Duty Service Obligation (ADSO). From the analyses conducted in Chapter 4, we can conclude the following:

1. *In-Service and enlistment option officers differed in their change trajectories for multiple attitudinal outcomes.* In-service officer commitment and career intentions stayed relatively stable over time. The results were more mixed for the enlistment option sample, showing stable affective commitment and career intentions, but decreasing continuance commitment, over time. Both samples showed decreased branch satisfaction over time. Officers in the in-service sample generally had longer career intentions than their enlistment option counterparts.
2. *Change in Morale was predicted by the OBEF and linked to officer separation.* Specifically, the Core RBI Hostility to Authority, Self-Efficacy, and Continuance Commitment scales, and the Core Work Values Altruism/Benevolence and Teamwork scales predicted change in Morale. Change in Morale was predictive of both In-Unit Career Intentions and Separations from active duty service, such that stable or increasing change in Morale decreased the likelihood of leaving in the Army.
3. *Self-reported Career Intentions are related to actual separations.* Officers were asked to describe their career intentions at four points in time—at the Beginning of OCS(Time 1), at the End of OCS(Time 2), during BOLC III/B (Time 3), and while In-Unit (Time 4), nearing completion of their ADSOs. Regardless of the timing, career intentions were correlated with each other significantly in both the in-service and enlistment option samples—for example, Time 1 correlated with Time 2 ($r = .68$ and $.66$, respectively); Time 1 correlated with Time 4 ($r = .42$ and $.45$, respectively). Time 2, 3, and 4 career intentions each correlated significantly with actual separations, albeit the magnitude of the correlation was not large (see Appendix D). Since some officers who intend to

separate may not have yet done so, we expect the correlation between career intentions and actual separation to increase over time. Based on the current data, career intentions appear to be a moderate predictor of actual separation.

Several important conclusions can be drawn from the results. First, the OBEF predicts key early-career performance and retention outcomes well beyond the point of initial officer training. Earlier research has focused only on criteria that could be collected at the end of OCS such as the OCS Order of Merit List (OML) ranking, peer ratings, and physical and academic performance in OCS. Finding that the OBEF predicts in-unit outcomes for junior officers is an important contribution and a milestone in the ongoing OBEF validation process. Also, the procedures and resources used to collect survey and administrative data for this report will be important for future longitudinal validation efforts.

Finally, we found that officer attitudes, such as satisfaction with their branch assignment, sometimes changed negatively over time. It is tempting to suggest that the “new” might have worn off for the young trainees as they joined units; however, attitude formation is a complex process. Societal factors, family matters, and deployments also affect attitudes. For example, surveys of officers suggested that morale of officers deployed to Iraq increased between 2009 and 2011 while it decreased for those deployed to Afghanistan, and morale was higher for officers in garrison than on deployment (Riley, Hatfield, Nicely, Keller-Glaze, & Steele, 2011). Changes in attitudes for the 2008 cohort are likely tied to a number of external factors that are beyond the scope of the current paper.

Limitations

In longitudinal research, the timing of data collection at key milestones is critical. To evaluate the potential of the OBEF for predicting early career outcomes, we collected and analyzed administrative data in April of 2012, a date selected because, at that point, our 2008 sample had reached the end of their ADSOs. Separations were fairly low, from a data analysis standpoint, making accurate predictions difficult. Officers do not have to re-enlist at the end of their ADSOs and can simply opt to stay for an unspecified amount of time. Therefore, we believe that separations for this sample will likely continue before stabilizing. Indeed, some of the officers who told us in the In-Unit survey that they planned to leave Active Duty had not done so at the time when we obtained the administrative data. Collecting administrative data again in 6 months or one year would allow the creation of more mature continuance criteria with greater variance. Such criteria would likely be superior to existing criteria for the purpose of validating the OBEF against continuance behavior.

Another limitation has to do with the generalizability of research results to the operational setting. Self-report instruments like the OBEF are often criticized for their potential for response distortion. Response distortion occurs when a respondent, intentionally or not, inaccurately presents himself in a positive light. There is more pressure on the applicant to distort responses when something is at stake, such as selection into OCS. When the 2008 sample took the OBEF under for-research-only conditions, they had no external pressure toward response distortion. The results for some of the OBEF scales might change under operational conditions. Accordingly, future research needs to evaluate the OBEF under such conditions.

Future Directions

Future OBEF research needs to focus on (a) continued examination of longitudinal outcomes for cohorts of OCS officers who have taken the OBEF and (b) the efficacy of the OBEF for use in an operational setting.

Longitudinal Database Development and Validation

Future analyses of longitudinal data will evaluate the extent to which the OBEF results described in this report hold up over time and across samples. In all, the OBEF has been administered to three cohorts of OCS candidates. The current report discusses longitudinal results for the first cohort, tested in 2008. Two additional cohorts were tested, one in 2010 (5 classes; total $n = 781$; Russell, Allen, & Babin, 2011) and another in 2011 (5 classes; total $n = 459$; Allen et al., 2012).

Overall, the basic research design has remained constant across cohorts. That is, the OBEF was administered at the Beginning of OCS (Time 1). As shown in Table 5.1, at Time 2, officer candidates took the End of OCS survey just before they graduated from OCS. Then, about 6 months after graduating from OCS, the participants (then second lieutenants) took the BOLC III/B survey (about the time they were in or had completed BOLC III/B). While Time 1, 2, and 3 data have been collected for all cohorts, the Time 4 In-Unit Survey has only been administered to the 2008 cohort. Additionally, separation data will continue to mature for the 2008 cohort as well as the other cohorts. Furthermore, promotions to captain have recently become more competitive, thus days to promotion to captain will be a criterion of interest in coming years.

Table 5.1. Longitudinal Milestones for the 2008, 2010, and 2011 OCS Cohorts

Milestones	Cohort		
	2008	2010	2011
Time 1 - Beginning of OCS OBEF	√ 6/08 - 12/08	√ 2/10 - 5/10	√ 5/11 - 8/11
Time 2 - End of OCS Survey/Data	√ 8/08 - 3/09	√ 4/10 - 7/10	√ 7/11 - 12/11
Time 3 - BOLC III/B Survey	√ 2/09 - 8/09	√ 9/10 - 12/10	√ 1/12 - 4/12
Time 4 – In-Unit Survey	√ 6/11 - 9/11	9/12 - 12/12	12/13 - 3/14
Complete ADSO (Separation Data)	√ 8/11 - 3/12	4/13 - 7/13	7/14 - 12/14
Promotion to Captain	8/12 - 3/13	4/14 - 7/14	7/15 - 12/15

Note. √ indicates data collections that have taken place.

Longitudinal data are challenging to obtain, and if the emergent data are not collected during particular time frames, the opportunity for capturing them can be lost. ARI has made a significant investment in OCS data collections; completing the databases with longitudinal data must be done in a timely way in order to maximize the usefulness and potential value of this investment.

The Efficacy of the OBEF for Operational Use

Eventually, the predictive validity of the OBEF must be evaluated with applicants in an operational setting. While the OBEF has been tested extensively in ARI's OCS selection research program, it has never been administered to an applicant population. Research participants were officer candidates in OCS who were already selected on the basis of their ASVAB test scores, academic record, and performance before a selection board. The OBEF data were collected for research purposes and officer candidates were assured that their data would not be used by the Army for any other purpose.

As of this writing, plans are currently underway for ARI to test the OBEF in an applicant setting. In this proposed Initial Operational Test and Evaluation (IOT&E), the Army would administer a shortened version of the OBEF to OCS enlistment option applicants, most likely at the Military Entrance Processing Stations (MEPS). Such research would address the generalizability concerns expressed above and thus is a logical extension of the current research.

The IOT&E would allow ARI to evaluate the potential effects of response distortion and the validity of the OBEF under operational conditions. It would also provide data that could be used to finalize composites, evaluate those composites, and determine cut scores. To date, our research has focused on the development of composites for predicting performance and continuance, sometimes using one composite to predict both (Russell & Tremble, 2011) and developing multiple composites in others (Allen et al., 2012). However, in an operational setting, the composite scores will need to be used together to make a yes or no decision about the selection of an applicant. Composite scores can be combined in a compensatory way (such that good performance on one makes up for poor performance on the other) or in a non-compensatory fashion (where there are separate cut scores for each composite). Also, scores can be used to either select in the best or select out the weakest applicants. Data from the operational environment can be used to simulate the pass rates, adverse impact, reliability, and validity of alternative scoring systems. Moreover, future research should not only select the scales to be used in composites but also evaluate the validity and practicability (in terms of applicant flow rates) of alternative scoring and cut score approaches. Efforts to accomplish these objectives are ongoing.

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APPENDIX A

CORE RBI AND WORK VALUES COMPONENT SCALE DESCRIPTIONS

Table A.1. Description of Core Rational Biodata Inventory (RBI) Component Scales

Scale	Definition
Peer Leadership	Seeks positions of authority and influence. Comfortable with being in charge of a group. Willing to make tough decisions and accept responsibility for the group's performance.
Achievement	The willingness to give one's best effort and to work hard towards achieving difficult objectives.
Fitness Motivation	Degree of enjoyment from participating in physical exercise. Willingness to put in the time and effort to maintain good physical conditioning.
Stress Tolerance	Ability to maintain one's composure under pressure. Remaining calm and in control of one's emotions instead of feeling anxious and worried.
Hostility to Authority	Being suspicious of the motives and actions of legitimate authority figures. Viewing rules, regulations, and directives from higher authority as punitive and illegitimate.
Self-Efficacy	Feeling that one has successfully overcome work obstacles in the past and that one will continue to do so in the future.
Traditional Values	Acceptance of societal values, authority, and the value of discipline.
Army Identification	The degree of personal identification with, and intrinsic interest in becoming, a U.S. Army Soldier.
Continuance Commitment	The degree of commitment to the Army because alternatives are less attractive or because the cost of leaving the Army is too great.

Note. The information in this table was taken from Russell and Tremble (2011). A validity scale, administered to detect and adjust for inaccurate responding, was also administered as part of the RBI.

Table A.2. Description of Core Work Values Component Scales

Scale	Definition
Rugged Leadership	Preference for a work environment in which one is responsible for leading others under physically challenging circumstances
Teamwork	Preference for a work environment in which one can establish close ties with co-workers and work as part of a team
Flexibility/Choice	Preference for a flexible work environment that respects one's time and personal needs and in which one can work independently
Job Security	Preference for a work environment that offers job security
Structure/Recognition	Preference for a highly structured work environment in which one is recognized and admired by others
Altruism/Benevolence	Preference for a work environment in which one can help others
Skill Development	Preference for a work environment that makes full use of one's skills and abilities and offers opportunities for learning and developing new skills

Note. The information in this table was taken from Russell and Tremble (2011).

APPENDIX B

IN-UNIT (TIME 4) SURVEY CONTENT

Background

1. What is your Army component?
 - ☐ Regular (Active) Army
 - ☐ Army Reserve
 - ☐ Army National Guard
2. What is your current pay grade?
 - ☐ O1
 - ☐ O2
 - ☐ O3
3. What is your marital status?
 - ☐ Married
 - ☐ Legally separated or filing for divorce
 - ☐ Single, never married
 - ☐ Divorced
 - ☐ Widowed
4. How many dependent children do you have (for whom you provide over half of their support)?
 - ☐ None
 - ☐ 1
 - ☐ 2
 - ☐ 3 or more

Civilian and Military Education/Training

5. What is the highest level of civilian education you have completed?
 - ☐ Some college credits, no degree
 - ☐ Associate or other two-year degree
 - ☐ Bachelor's degree
 - ☐ Some graduate school credits, no degree
 - ☐ Master's degree (e.g., MA, MS, or MBA)
 - ☐ Doctorate (PhD) or professional degree (e.g., MD, DDS, or JD)
6. What was (were) your major area(s) of study as a college undergraduate before you began OCS? Mark all that apply.
 - ☐ Agriculture
 - ☐ Architecture
 - ☐ Business
 - ☐ Communications
 - ☐ Computer and Information Science
 - ☐ Education
 - ☐ Engineering

- ☐ English Literature
- ☐ Foreign language
- ☐ Health Sciences
- ☐ Mathematics
- ☐ Military Science
- ☐ Natural Sciences
- ☐ Philosophy
- ☐ Physical Sciences
- ☐ Pre-professional
- ☐ Psychology
- ☐ Public Administration
- ☐ Recreation and Fitness Studies
- ☐ Security and Protective Services
- ☐ Social Sciences
- ☐ Theology/Religion
- ☐ Other: please specify _____
- ☐ DOES NOT APPLY: I did not complete college prior to OCS

7. What was your undergraduate GPA on a 4-point scale?

- ☐ Unsure / My degree program did not use a 4-point GPA scale
- ☐ Less than 2.6
- ☐ 2.6-3.0
- ☐ 3.1-3.5
- ☐ 3.6 or above

8. When you were in **OCS** were you ever restarted (i.e., repeated/recycled a portion of the course or been assigned to a new class)?

- ☐ Yes
- ☐ No

9. Please indicate the reason(s) you restarted/recycled (choose all that apply):

- ☐ Academic failures
- ☐ Injury/medical reasons
- ☐ Excessive number of retests
- ☐ Leadership deficiencies
- ☐ APFT failure
- ☐ Administrative reasons (such as emergency leave)
- ☐ Disciplinary reasons
- ☐ Missed excessive instructional periods or critical instructional blocks
- ☐ Other, please specify: _____

10. When you were in **BOLC-III** (now called **BOLC B**) were you ever restarted/recycled (i.e., repeated a portion of a course or been assigned to a new class)?

- ☐ Yes
- ☐ No

11. Please indicate the reason(s) you restarted/recycled (choose all that apply):
- ☐ Academic failures
 - ☐ Injury/medical reasons
 - ☐ Excessive number of retests
 - ☐ Leadership deficiencies
 - ☐ APFT failure
 - ☐ Administrative reasons (such as emergency leave)
 - ☐ Disciplinary reasons
 - ☐ Missed excessive instructional periods or critical instructional blocks
 - ☐ Other, please specify: _____
12. Did you graduate from **BOLC-B/BOLC III**?
- ☐ Yes
 - ☐ No
13. What was your overall percentage for graduation from BOLC-B/BOLC III?
- ☐ 91% or higher (i.e., you scored in the top 10% of your class)
 - ☐ 81-90%
 - ☐ 71-80%
 - ☐ 61-70%
 - ☐ 51-60%
 - ☐ 41-50%
 - ☐ 31-40%
 - ☐ 21-30%
 - ☐ 11-20%
 - ☐ 10% or less (i.e., you scored in the bottom 10% of your class)
 - ☐ I don't know
14. Did you make the Commandant's List (top 20% of your class) in BOLC-B/ BOLC III?
- ☐ Yes
 - ☐ No
15. What is your last weapon's qualification score?
- ☐ Marksman (MKM)
 - ☐ Sharpshooter (SPS)
 - ☐ Expert (EXP)
 - ☐ Did not qualify
 - ☐ Not attempted

Branch and Assignments

16. What branch were you commissioned in?

- ☐ Infantry
- ☐ Field Artillery
- ☐ Signal Corps
- ☐ Military Police Corps
- ☐ Military Intelligence Corps
- ☐ Adjutant General Corps
- ☐ Financial Management
- ☐ Chemical Corps
- ☐ Transportation
- ☐ Armor
- ☐ Ordnance Corps
- ☐ Corps of Engineers
- ☐ Quartermaster Corps
- ☐ Medical Service Corps
- ☐ Aviation
- ☐ Air Defense Artillery

17. When was your branch assigned?

- ☐ Before entry into OCS
- ☐ At the beginning of OCS
- ☐ In the middle of OCS (at the 6-week point)
- ☐ Near the end of OCS

18. How was your branch determined?

- ☐ HRC assigned my branch to me.
- ☐ Given my OML rank at OCS, I chose my branch from those available.
- ☐ Other, please specify: _____

19. Was your commissioning branch one of your top three choices?

- ☐ Yes
- ☐ No

20. How satisfied are you with your branch assignment?

- ☐ Very satisfied
- ☐ Somewhat satisfied
- ☐ Neither satisfied nor dissatisfied
- ☐ Somewhat dissatisfied
- ☐ Very dissatisfied

21. Since commissioning, what jobs/assignments have you held for at least 90 days or are currently assigned to? If you started the job at one rank and continued in the same job at a higher rank, indicate the job under both columns. Choose all that apply for each rank.

Job/Assignment	2nd Lieutenant	1st Lieutenant	Captain
Platoon/Team Leader	☐	☐	☐
Fire Support/Fire Direction Officer	☐	☐	☐
Pilot in Command	☐	☐	☐
Specialty Platoon Leader	☐	☐	☐
Company/Troop/Battery/Detachment XO	☐	☐	☐
Detachment Commander	☐	☐	☐
Company/Troop/Battery Commander	☐	☐	☐
Battalion/Squadron/Group HQ Level Assistant/Special Staff Officer/Commander	☐	☐	☐
Brigade/BCT/Regiment HQ Level Staff Assignment/Commander	☐	☐	☐
Division/Installation HQ Level Staff Assignment	☐	☐	☐
Corps/Theater HQ Level Staff Assignment	☐	☐	☐
Service School Staff Assignment	☐	☐	☐
Small Group Leader (SGL)/Tactical Officer (TAC)	☐	☐	☐
Aide de Camp	☐	☐	☐
Operations Officer	☐	☐	☐
Other Assignment (not listed); please specify below:	☐	☐	☐

Deployment History

22. Have you been deployed since becoming a commissioned officer?

- ☐ Yes
- ☐ No

23. How many total months have you been deployed since becoming a commissioned officer?

- ☐ Scale Ranging from 0 through 36 months

24. Being deployed has increased the likelihood that I will remain in the Army beyond my Active Duty Service Obligation.

- ☐ Strongly Agree
- ☐ Somewhat Agree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Disagree
- ☐ Strongly Disagree

Performance

25. Have you received any of the following awards and/or decorations since becoming a commissioned officer? (Choose all that apply)

- ☐ Air Medal
- ☐ Army Achievement Medal
- ☐ Army Commendation Medal
- ☐ Bronze Star Medal
- ☐ Combat Action Badge
- ☐ Combat Field Medical Badge
- ☐ Combat Infantryman Badge
- ☐ Distinguished Flying Cross
- ☐ Expert Field Medical Badge Medal
- ☐ Good Conduct Medal
- ☐ Joint Service Achievement Medal
- ☐ Joint Service Commendation Medal
- ☐ Meritorious Service Medal
- ☐ Purple Heart
- ☐ Silver Star
- ☐ Soldier's Medal
- ☐ Have not received an award or decoration

Please indicate whether you have ever received the following since becoming a commissioned officer:

	Yes	No
26. a General Officer Letter or Memorandum of Reprimand (GOLOR/GOMR)?	☐	☐
27. a letter of concern?	☐	☐
28. formal counseling about lack of effort?	☐	☐
29. formal counseling about your behavior or discipline?	☐	☐
30. formal counseling about unsatisfactory performance?	☐	☐
31. a referred OER?	☐	☐

32. Has a senior officer or rater ever recommended you for command on the OER?

- ☐ Yes
- ☐ No

33. In your most recent OER, how many "NO" ratings in Part IV - Performance Evaluation - Professionalism section did you receive?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4 or more
- ☐ Cannot remember

Did you receive the following on your most recent OER?

	Yes	No
34. "Outstanding Performance Must Promote" evaluation from a rater?	☐	☐
35. "Unsatisfactory Performance Do Not Promote" evaluation from a rater?	☐	☐
36. "Best Qualified" evaluation from a Senior Rater?	☐	☐
37. "Do Not Promote" evaluation from a Senior Rater	☐	☐

38. What was your latest Army Physical Fitness Test (APFT) score? If you cannot remember your exact score, please provide your best estimate. (Score ranges from 0-300)

Score: _____

In-Unit Performance

Please rate your performance in each of the following areas ***relative to your peers of the same rank whom you know or work with***. These self-ratings will require that you provide estimates that may be difficult to make because they require you to evaluate not only yourself, but also others in your peer group. Please be candid and give us your honest evaluation.

39. Physical Fitness, Health, and Endurance: Effectively engages in the Army physical readiness training program both as a leader and a participant. Meets height and weight standards and passes the Army Physical Fitness Test. Successfully completes all physical and endurance requirements of platoon commander or equivalent position.

- ☐ Well Below Average **Bottom 20%** of Peer Group
- ☐ **Next 20%** of Peer Group
- ☐ Average **Middle 20%** of Peer Group
- ☐ **Next 20%** of Peer Group
- ☐ Well Above Average **Top 20%** of Peer Group
- ☐ *Not Applicable/Cannot Rate*

40. Army Values, Warrior Ethos, and Ethics: Embodies, lives, and defends Army Values and Warrior Ethos. Adheres to Army officer standards of conduct and holds to a highly ethical code of behavior.

- ☐ Well Below Average **Bottom 20%** of Peer Group
- ☐ **Next 20%** of Peer Group
- ☐ Average **Middle 20%** of Peer Group
- ☐ **Next 20%** of Peer Group
- ☐ Well Above Average **Top 20%** of Peer Group
- ☐ *Not Applicable/Cannot Rate*

41. **Technical Competence:** Effectively demonstrates technical skills for performing branch-specific requirements.

- o Well Below Average **Bottom 20%** of Peer Group
- o **Next 20%** of Peer Group
- o Average **Middle 20%** of Peer Group
- o **Next 20%** of Peer Group
- o Well Above Average **Top 20%** of Peer Group
- o *Not Applicable/Cannot Rate*

42. **Tactical Competence:** Effectively employs Warrior Tasks and Battle Drills, tactical skills, and makes necessary contributions to solving tactical problems.

- o Well Below Average **Bottom 20%** of Peer Group
- o **Next 20%** of Peer Group
- o Average **Middle 20%** of Peer Group
- o **Next 20%** of Peer Group
- o Well Above Average **Top 20%** of Peer Group
- o *Not Applicable/Cannot Rate*

43. **Leadership:** Effectively performs as an Army leader in all positions and assignments. Applies Troop Leading Procedures (TLP) in execution of leadership roles. Supports subordinate, peer and superior leaders.

- o Well Below Average **Bottom 20%** of Peer Group
- o **Next 20%** of Peer Group
- o Average **Middle 20%** of Peer Group
- o **Next 20%** of Peer Group
- o Well Above Average **Top 20%** of Peer Group
- o *Not Applicable/Cannot Rate*

44. **Officership:** Inculcates the characteristics of being an officer to include customs, traditions and heritage. Develops knowledge and awareness of the Army as an institution to include military operation theory and management, personnel and career management, military justice and discipline.

- o Well Below Average **Bottom 20%** of Peer Group
- o **Next 20%** of Peer Group
- o Average **Middle 20%** of Peer Group
- o **Next 20%** of Peer Group
- o Well Above Average **Top 20%** of Peer Group
- o *Not Applicable/Cannot Rate*

Career Intent and Attitudes

Please choose the response that indicates the extent to which you agree with each of the following statements regarding your feelings about the Army.

45. How would you rate your current level of morale?

- ☐ Very high
- ☐ High
- ☐ Moderate
- ☐ Low
- ☐ Very Low

46. I feel 'like part of the family' in the Army.

- ☐ Strongly Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Strongly Agree

47. I feel 'emotionally attached' to the Army.

- ☐ Strongly Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Strongly Agree

48. The Army has a great deal of personal meaning for me.

- ☐ Strongly Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Strongly Agree

49. I feel a strong sense of belonging to the Army.

- ☐ Strongly Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Strongly Agree

50. I am afraid of what might happen if I quit the Army without having another job lined up.

- ☐ Strongly Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Strongly Agree

51. Too much of my life would be disrupted if I decided I wanted to leave the Army now.
- ☐ Strongly Disagree
 - ☐ Somewhat Disagree
 - ☐ Neither Agree nor Disagree
 - ☐ Somewhat Agree
 - ☐ Strongly Agree
52. It would be too costly for me to leave the Army in the near future.
- ☐ Strongly Disagree
 - ☐ Somewhat Disagree
 - ☐ Neither Agree nor Disagree
 - ☐ Somewhat Agree
 - ☐ Strongly Agree
53. One of the problems of leaving the Army would be the lack of available alternatives.
- ☐ Strongly Disagree
 - ☐ Somewhat Disagree
 - ☐ Neither Agree nor Disagree
 - ☐ Somewhat Agree
 - ☐ Strongly Agree
54. In general, the Army has kept its promises to me.
- ☐ Strongly Disagree
 - ☐ Somewhat Disagree
 - ☐ Neither Agree nor Disagree
 - ☐ Somewhat Agree
 - ☐ Strongly Agree
55. In most instances, the Army has not met its obligations to me.
- ☐ Strongly Disagree
 - ☐ Somewhat Disagree
 - ☐ Neither Agree nor Disagree
 - ☐ Somewhat Agree
 - ☐ Strongly Agree
56. In general, I have kept my promises to the Army.
- ☐ Strongly Disagree
 - ☐ Somewhat Disagree
 - ☐ Neither Agree nor Disagree
 - ☐ Somewhat Agree
 - ☐ Strongly Agree

57. In most instances, I have not met my obligations to the Army.
- ☐ Strongly Disagree
 - ☐ Somewhat Disagree
 - ☐ Neither Agree nor Disagree
 - ☐ Somewhat Agree
 - ☐ Strongly Agree
58. What is the highest rank you think you will achieve in your Army career?
- ☐ Captain
 - ☐ Major
 - ☐ Lieutenant Colonel
 - ☐ Colonel
 - ☐ General Officer
59. Which of the following best describes your current active duty career intentions?
- ☐ I plan to stay in the Army beyond 20 years
 - ☐ I plan to stay in the Army until retirement (e.g., 20 years or when eligible to retire)
 - ☐ I plan to stay in the Army beyond my obligation, but I am undecided about staying until retirement
 - ☐ I am undecided whether I will stay in the Army upon completion of my obligation
 - ☐ I will probably leave the Army upon completion of my obligation
 - ☐ I will definitely leave the Army upon completion of my obligation
60. Have you submitted a request release from active duty (REFRAD)?
- ☐ I do not plan to submit a request REFRAD in the near future, because I expect to continue my Army service for more than 6 months beyond my ADSO.
 - ☐ Not yet, but I plan to submit one in time to separate within 6 months after my ADSO ends.
 - ☐ Yes, I have submitted a request REFRAD and plan to separate within 6 months after my ADSO ends.
61. If you plan to leave active duty service, please indicate the reason(s) you plan to leave the Army after your obligation is completed (mark all that apply).
- ☐ Going into the Army Reserve
 - ☐ Going into the Army National Guard
 - ☐ Have achieved what I wanted in an Army career
 - ☐ Too many deployments
 - ☐ Offered a good civilian job
 - ☐ Quality of military leadership
 - ☐ Lack of stability/predictability of Army life
 - ☐ Away from family too much
 - ☐ Spouse wants me to leave the Army
 - ☐ Lack of promotion potential
 - ☐ Could not get the branch I wanted
 - ☐ Could not get the assignment I wanted
 - ☐ Could not get graduate education
 - ☐ Lack of employment opportunities for my spouse

o Other, please specify: _____

APPENDIX C

SUBSEQUENT DATA COLLECTIONS AND INSTRUMENTS

Supervisor Ratings of In-Unit Performance

As with ARI's other officer-selection projects, obtaining quality in-unit performance data for use in test validation has been an ongoing challenge. Performance-related information available from automated personnel records is generally limited and deficient, as such measures are intended for administrative purposes and not personnel research. Some useful performance-related data can be obtained directly through self-reports using surveys (as with the In-Unit Survey described in Chapter 2), but this data collection approach also has significant limitations.

Collecting Supervisor Ratings Data

Accordingly, we sought a means for collecting supervisor ratings to enrich the criterion space for our OCS longitudinal validation sample. The approach needed to be technically sound, cost effective, and practical. This goal was made more challenging by the fact that the officers in the 2008 OCS cohort were spread out in locations throughout the world. In addition, ARI's Internal Review Board (IRB) guidance for this research required that we obtain explicit permission from potential ratees prior to requesting any performance information from their supervisors. This requirement further complicated the logistical challenges, and we recognized that collecting supervisor ratings would likely be a labor-intensive and potentially expensive process.

As an initial step in this effort, we developed in-unit performance rating materials and administered them to several supervisors of the OCS cohort members (with permission from the ratees) during face-to-face sessions at one Army post. We sought this particular post because a relatively large number of individuals in our target sample of OCS-commissioned officers were stationed there at the time. Our experience there helped inform both the refinement of the measures and the refinement of our data collection approach. We concluded that it would not be feasible to pursue on-site data collections, due to their logistical challenges and time-consuming nature. Relatively few ratings were collected given the investment in time and resources.¹¹

Through a process which evolved over several months, we later developed a web-based, semi-automated performance rating system, which is being fielded at the time of this writing. In the first step of this approach, participants from the OCS 2008 cohort are contacted by e-mail and asked permission to have ratings collected. If they agree to participate, they are asked to provide their supervisor's contact information on a secure server. Next, the supervisors are contacted by e-mail and asked to complete confidential ratings of the Junior Officer Performance Rating Scales (JOPRS) through a secure website. If this performance rating system approach proves to be feasible for collecting data from small samples of ratees, we anticipate that it will be used not only to obtain rating data for our OCS cohort members, but eventually for other ARI officer selection research efforts also.

¹¹ The on-site data collection was made more difficult by the relatively high frequency of deployments among the sample of officers we were seeking. This was largely due to the Army's operational requirements at that time.

Junior Officer Performance Rating Scales

The Junior Officer Performance Rating Scales (JOPRS) were extracted from a larger set of rating scales developed for the Army Officer Predictor and Criterion project (Paullin et al., 2012). The JOPRS contains rating scales for 7 foundational skills, 24 leadership duties, and 18 management duties. The foundational skills are aimed at major dimensions of performance from Campbell, McCloy, Oppler, and Sager (1993) model of performance, which was largely based on the results of the Army's Project A (Campbell & Knapp, 2001). The leadership and managerial duties were originally developed in a job analysis of officer jobs (Paullin et al., 2010) and were organized into breakdowns of leadership and managerial dimensions in Campbell's recent expansion of his performance model (Campbell, 2012). For the skill and duty items, respondents rate the junior officer using a 5-point rating scale, ranging from "Well Below Average (Bottom 20% of Peer Group)" to "Well Above Average (Top 20% of Peer Group)."

A final JOPRS item asks respondents to rate the officer's likely effectiveness in a field grade leadership position using an 8-point rating scale ranging from "Likely to be a poor to marginal performer" to "Likely to be a truly exceptional performer." Readers interested in more detailed information on the development of the JOPRS should consult the Officer Predictor and Criterion project technical report (Paullin et al., 2012). The solicitation emails and full JOPRS data collection materials are presented on subsequent pages.

Request for JOPRS Participation (Email Sent to Ratees)

SUBJECT: Performance Ratings for OCS Selection Research

Dear OCS Commissioned Officer:

The U.S. Army Research Institute (ARI), in partnership with OCS, is continuing the evaluation of assessments to enhance the selection of the most promising candidates for OCS. Beginning in 2008, you participated in a related ARI research effort. We are informing you of additional efforts to collect information related to OCS and performance as an Army officer.

With your permission, we would like to obtain "off the record" supervisor ratings of your in-unit performance. These confidential ratings would be used to further evaluate the assessment measures you completed at the beginning of OCS. Your participation in this effort is voluntary. If collected, the ratings would be used for research purposes only. They would not be used in any way to evaluate you or any other individual. Your supervisor's ratings would not become part of your Army record and would have no impact on your Army career. Beyond ARI, no Army agency would ever have any control or access to the rating data being collected on individual officers.

This is a unique opportunity for us to capture officer performance information that will be very beneficial to the Army as we move our experimental OCS selection tests toward implementation.

Thank you for your consideration; your willingness to participate would be greatly appreciated.

At your earliest convenience, please click on the link below and indicate whether you approve or decline participation. Before accessing the website, you will need to enter the user ID code shown below.

If you have any questions about this request, please feel free to contact us directly using the phone numbers provided below.

Very Respectfully,

Signature and contact information included

Request for JOPRS Participation (Ratee Survey Content)

Are you [participant name]?

☐ Yes

☐ No

<if answer yes>

With your permission, we would like to obtain “off the record” supervisor ratings of your in-unit performance. These ratings would be used to further evaluate the OCS assessment measures, and kept confidential and private. They **never** become part of your Army record.

Please indicate below whether or not you approve of confidential performance ratings being collected on you.

☐ Yes, I approve

☐ No, I do not approve

<for those who are willing to participate>

Please provide the names and contact information for a supervisor who can provide ratings of your in-unit performance. Raters should:

- be your superior in rank and
- **have closely observed your performance over time**

Often this is a current supervisor; however, a former supervisor would be preferred if he/she has had better opportunity to observe your performance. If more than one individual could serve as a rater for you, please provide two names.

Supervisor 1:

Rank: [drop down menu: O2, O3, O4, O5, O6, Mr., Ms., Mrs., I don't know]

Last Name: _____

First Name: _____

Middle Initial: _____

AKO email address: _____@us.army.mil

Enterprise email address: _____[drop down menu: .mil@mail.mil, .civ@mail.mil]

Current location: _____

Supervisor 2:

Rank: [drop down menu: O2, O3, O4, O5, O6, Mr., Ms., Mrs., I don't know]

Last Name: _____

First Name: _____

Middle Initial: _____

AKO email address: _____@us.army.mil

Enterprise email address: _____[drop down menu: .mil@mail.mil, .civ@mail.mil]

Current location: _____

<closing screen>

Thank you. Your willingness to participate is greatly appreciated

Request for JOPRS Participation (Email Sent to Raters)

[Rank] [Last name]:

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is evaluating a new selection battery for OCS. In this research phase, we are linking test scores collected from OCS candidates in 2008 with their in-unit performance as junior officers.

Our research team needs your help in providing confidential "off the record" performance ratings of [Rank] [Full Name]. [Rank] [Last name] has given approval for us to contact you. The task should take less than ten minutes of your time.

Your participation is voluntary and the data would be kept confidential for research purposes only.

This is a unique opportunity for us to capture officer performance information that will be very beneficial to the Army as we move our experimental OCS selection tests toward implementation.

Thank you for your consideration; your willingness to provide the performance ratings would be greatly appreciated.

At your earliest convenience, please click on the link below and indicate whether you would be able to provide us with the requested ratings. You will need to enter the USER ID code shown below when you indicate your intention to participate (or not participate).

If you have any questions about this request, please feel free to contact us directly.

Very Respectfully,

Signature and contact information included

<rating materials are presented on subsequent pages>

Privacy Act Statement

AUTHORITY: The Department of the Army may collect the information requested in this study under the authority of 10 United States Code, Section 2358, "Research and Development Projects." In accordance with the Privacy Act of 1974 (Public Law 93-579), this notice informs you of the purpose, use, and confidentiality of this session.

PURPOSE: The purpose of this research is to develop and evaluate measures for selecting officer candidates. You are being asked to provide performance ratings of an officer who is or was under your supervision. Your ratings will be used to validate the selection measures that this individual completed upon entry into OCS in 2008.

WHAT IS BEING ASKED OF YOU: You are being asked to complete a questionnaire wherein you will rate the performance of an individual who is or was under your supervision.

ROUTINE USES: Findings from this questionnaire may be used to formulate, refine, and improve future officer candidate selection tests. The purpose of the data is to develop and evaluate new selection measures, and the research findings may be provided to Army leaders to develop policy initiatives regarding officer selection.

DISCLOSURE: The data collected will be used for research purposes only. They will not be used to evaluate you or any other individual. Only aggregated data will be reported. Your responses will not become part of anyone's Army record and will have no impact on anyone's Army career. Participating in this rating task is voluntary and you may choose at any time not to participate. There is no penalty for choosing not to participate.

CONFIDENTIALITY: We will not identify you, or attribute your responses to you. We will NOT include your name or other personally identifiable information in our reports. ARI will safeguard your privacy by dropping any personal identifiers that could be traced back to you.

CONTACT: For further information about this project or rights as a participant, send email to: [REDACTED]. Reference project name: Measures for Selecting Officer Candidates – Junior Officer Performance Ratings.

Informed Consent

PURPOSE OF THE RESEARCH STUDY: The purpose of this research is to develop and evaluate measures for selecting officer candidates. You are being asked to provide performance ratings of an officer who is or was under your supervision. Your ratings will be used to validate the selection measures that this individual completed upon entry into OCS in 2008.

WHAT YOU WILL BE ASKED TO DO IN THIS RESEARCH: In this research, you are being asked to complete a questionnaire wherein you will rate the performance of an individual who is or was under your supervision. Your responses will be kept strictly confidential, and will be used for research purposes only. No information regarding any individual's responses on this survey will be provided to anyone's chain of command.

VOLUNTARY PARTICIPATION: Your participation is voluntary; if you do not want to participate there will be no penalty or loss of benefits to which you are otherwise entitled. You have the right to withdraw from the research at any time without bias or penalty of any kind.

TIME REQUIRED: Up to 10 minutes

RISKS: All questionnaire items ask about your judgments and views rather than about information that would be considered personal in nature. We do not anticipate that your participation has any risks greater than those encountered in everyday activities.

BENEFITS: Your responses will help in developing measures that can be used to select candidates who are likely to perform well as junior officers, fit well in the Army's culture, demonstrate leadership potential for higher ranks, and pursue a long-term Army career.

COMPENSATION: No compensation is provided for your participation.

WHOM TO CONTACT IF YOU HAVE QUESTIONS ABOUT THE QUESTIONNAIRE:

You should send your questions to [REDACTED]. Reference project name: Measures for Selecting Officer Candidates – Junior Officer Performance Ratings.

WHOM TO CONTACT ABOUT YOUR RIGHTS IN THIS STUDY: You should send your questions to [REDACTED]. Reference project name: Measures for Selecting Officer Candidates – Junior Officer Performance Ratings.

INFORMED CONSENT: If you agree to provide a performance rating, please click on the "I agree to participate" button below to access the rating form.

Junior Officer Performance Rating Scales

You will be rating the following Officer(s).

[name 1]

[name 2]

Background Questions

Instructions: Please complete this form by selecting the appropriate response option.

Please rate the extent to which you have had opportunity to observe [officer name] you will be rating.

- ☐ Not enough to judge *any* aspects of the officer's performance
- ☐ Enough to judge *some* aspects of the officer's performance
- ☐ Enough to judge *most* aspects of the officer's performance
- ☐ Enough to judge *almost all* aspects of the officer's performance

Which of the following best describes your relationship with [officer name]?

- ☐ I am currently his/her supervisor.
- ☐ I was previously his/her supervisor.
- ☐ I never supervised him/her but have observed his/her in-unit performance.
- ☐ Other; Please specify: _____

Please indicate your rank.

- ☐ O3
- ☐ O4
- ☐ O5
- ☐ O6

Please indicate your time of service in the Army.

Years	
0	0
1	1
2	2
3	3
	4
	5
	6
	7
	8
	9

Months	
0	0
1	1
	2
	3
	4
	5
	6
	7
	8
	9

Please indicate your Branch below.

- ☐ Adjutant General Corps
 - ☐ Air Defense Artillery
 - ☐ Armor
 - ☐ Aviation
 - ☐ Chemical Corps
 - ☐ Corps of Engineers
 - ☐ Field Artillery
 - ☐ Financial Management
 - ☐ Other, Please specify:
-

- ☐ Infantry
- ☐ Medical Services Corps
- ☐ Military Intelligence Corps
- ☐ Military Police Corps
- ☐ Ordnance Corps
- ☐ Quartermaster Corps
- ☐ Signal Corps
- ☐ Transportation

Consider the officer's typical performance over the time you have observed him/her. Indicate how well the officer performs **relative to other officers with similar post-commissioning experience that you have observed** using the rating scale shown below. For each of the 49 tasks, select the rating that best reflects the officer's performance. If you have not observed the officer's performance sufficiently to make a rating on a given task, select "Not Observed/Cannot Rate."

	Well Below Average	Below	Average	Above	Well Above Average	Not Observed/ Cannot Rate
How well does this officer perform relative to other officers with similar post-commissioning experience?	Bottom 20% of Peer Group	Next lower 20% of Peer Group	Middle 20% of Peer Group	Next higher 20% of Peer Group	Top 20% of Peer Group	
FOUNDATIONAL DUTIES						
1. Performs technical and tactical duties proficiently	☐	☐	☐	☐	☐	☐
2. Performs core warrior tasks proficiently	☐	☐	☐	☐	☐	☐
3. Communicates clearly in writing	☐	☐	☐	☐	☐	☐
4. Communicates clearly when speaking	☐	☐	☐	☐	☐	☐
5. Demonstrates effort and willingness to keep working under adverse conditions	☐	☐	☐	☐	☐	☐
6. Demonstrates self-control and personal discipline	☐	☐	☐	☐	☐	☐
7. Maintains physical fitness, strength, and weight standards	☐	☐	☐	☐	☐	☐
LEADERSHIP: CONSIDERATION, SUPPORT, PERSON-CENTERED						
8. Balances the requirements of the mission with the welfare of others	☐	☐	☐	☐	☐	☐
9. Builds trust and working relationships with other units within the Army	☐	☐	☐	☐	☐	☐
10. Resolves conflict through consensus-building and negotiation.	☐	☐	☐	☐	☐	☐
11. Listens actively to others	☐	☐	☐	☐	☐	☐
12. Fosters effective teamwork and cooperation.	☐	☐	☐	☐	☐	☐
13. Creates a fair and inclusive work environment that acknowledges and makes effective use of diverse backgrounds and skills	☐	☐	☐	☐	☐	☐
14. Demonstrates a concern for people and their well-being	☐	☐	☐	☐	☐	☐
15. Accepts and effectively deals with reasonable setbacks and failures of subordinates and others	☐	☐	☐	☐	☐	☐
16. Builds trust and working relationships with individuals, groups, and organizations outside the Army	☐	☐	☐	☐	☐	☐

[illegible]

[illegible]

How well does this officer perform relative to other officers with similar post-commissioning experience?	Well Below Average	Below	Average	Above	Well Above Average	Not Observed/ Cannot Rate
	Bottom 20% of Peer Group	Next lower 20% of Peer Group	Middle 20% of Peer Group	Next higher 20% of Peer Group	Top 20% of Peer Group	
44. Identifies and adjusts to external influences on the mission or organization	☐	☐	☐	☐	☐	☐
45. Makes decisions that reflect an understanding of sphere of influence	☐	☐	☐	☐	☐	☐
46. Creates and disseminate a vision of the future	☐	☐	☐	☐	☐	☐
47. Expands knowledge of technical, technological, and tactical areas	☐	☐	☐	☐	☐	☐
MANAGEMENT: COMMITMENT AND COMPLIANCE						
48. Demonstrates the Army Values and Warrior Ethos	☐	☐	☐	☐	☐	☐
MANAGEMENT: ADMINISTRATION						
49. Identifies, obtains, allocates, and manages resources	☐	☐	☐	☐	☐	☐

50. Please rate this officer's likely effectiveness in a **field grade** leadership position (e.g., Battalion Commander, Brigade Commander).

Likely to be a <u>poor to marginal</u> performer		Likely to be a <u>satisfactory to good</u> performer		Likely to be a <u>very good to excellent</u> performer		Likely to be a <u>truly exceptional</u> performer		Cannot Rate: Inadequate opportunity to observe this person
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	N/A ☐

Thank you for making your ratings.

APPENDIX D

BIVARIATE CORRELATION TABLES

Table D.1. Full Information Maximum Likelihood (FIML) Bivariate Correlations by In-Service and Enlistment Options

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 RBI: Peer Leadership	-	.47	.36	.15	-.15	.47	.25	-.11	.16	.21	.48	.05	.17	.33	.24	.14	.34
2 RBI: Achievement	.49	-	.25	.10	-.26	.41	.24	-.09	.19	.20	.30	-.05	.24	.35	.35	.16	.33
3 RBI: Fitness Motivation	.29	.25	-	.26	-.04	.42	.17	-.21	.09	.10	.28	-.04	.00	.13	.17	-.04	.09
4 RBI: Stress Tolerance	.07	.11	.17	-	-.31	.33	.24	-.09	-.09	.35	-.01	-.27	-.12	.06	.07	-.07	-.05
5 RBI: Hostility to Authority	-.10	-.26	.12	-.37	-	-.24	-.21	-.10	-.09	-.40	-.07	.09	-.04	-.21	-.32	-.14	-.10
6 RBI: Self-Efficacy	.50	.57	.26	.20	-.18	-	.21	-.20	.10	.26	.35	.02	.02	.27	.27	.02	.17
7 RBI: Army Affective Commitment	.31	.45	.13	.15	-.22	.35	-	-.01	.23	.15	.32	-.23	.19	.25	.16	.26	.24
8 RBI: Continuance Commitment	-.18	-.06	-.09	-.10	-.02	-.19	.10	-	-.05	.03	-.02	.01	.18	-.01	.10	.32	.15
9 RBI: Traditional Values	.15	.08	.16	-.12	.11	.17	.08	-.04	-	.05	.23	-.06	.20	.11	.16	.15	.13
10 RBI: Validity Scale	.18	.24	.15	.20	-.24	.26	.22	.00	.01	-	.12	.05	.13	.18	.21	.03	.05
11 Values : Rugged Leadership	.31	.44	.25	-.08	-.02	.35	.29	-.02	.16	.16	-	.23	.36	.44	.45	.30	.58
12 Values : Flexibility/Choice	-.01	.06	-.05	-.36	.12	.03	-.21	.02	.01	.02	.31	-	.32	.22	.30	.17	.22
13 Values : Structure/Recognition	.08	.18	.06	-.20	.09	.12	.23	.12	.00	.20	.57	.37	-	.33	.33	.49	.50
14 Values : Altruism/Benevolence	.27	.49	.21	-.01	-.10	.39	.40	-.11	.11	.22	.60	.14	.45	-	.54	.23	.44
15 Values : Skill Development	.32	.50	.03	.02	-.16	.29	.18	.04	.09	.23	.59	.30	.44	.52	-	.35	.46
16 Values : Job Security	-.05	.12	-.06	-.24	-.03	.07	.03	.32	-.06	.11	.24	.42	.40	.24	.35	-	.43
17 Values : Teamwork	.27	.38	.11	-.07	-.07	.33	.39	.05	-.01	.19	.64	.15	.54	.59	.51	.33	-
18 Situational Judgment Test	.27	.22	.17	.12	-.13	.17	.12	.07	.21	-.10	.06	-.07	-.12	.08	.05	-.05	.01
19 Promotion Rate 1st Lieutenant	.01	-.03	.13	.05	.02	.03	-.01	-.01	-.04	.05	-.05	.04	.04	-.02	-.07	-.01	.04
20 Std. Total Awards	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21 Std. Weighted Awards	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22 AFQT	-.06	-.16	.08	.13	.01	-.18	-.24	-.16	.09	-.31	-.28	-.18	-.40	-.25	-.15	-.22	-.34
23 IOT Graduation	-.02	.03	-.07	.06	-.03	.10	.00	.03	.02	.03	.02	.04	-.01	-.02	-.07	-.03	-.01
24 IOT Recycles	.08	.02	.06	-.05	.00	-.06	.07	.15	-.01	.08	.07	-.03	.16	.02	.15	.08	.10
25 Personal Discipline	.25	.06	.06	-.01	-.03	.13	-.05	-.26	.01	.00	-.02	.09	-.07	-.11	.03	-.15	-.09
26 Leadership	-.10	.04	.06	-.04	.01	.02	.02	.03	-.03	-.15	.23	.02	.15	.17	.02	.14	.28
27 Career Continuance Intentions	-.01	-.09	-.03	.03	.11	.09	-.14	-.11	.14	.05	-.28	-.08	-.13	-.21	-.37	-.15	-.30
28 Branch-Specific Tech Knowledge	.23	.05	.10	-.03	-.08	.19	.15	-.10	.04	.20	.08	.08	.03	.00	.04	.07	.08
29 Army-Wide Tech Knowledge	.11	.05	.19	.03	-.05	.24	.11	-.14	.04	.14	.29	-.01	.14	.25	.08	.15	.21
30 Physical Fitness	.21	.13	.38	.04	-.04	.11	.13	-.05	.01	.17	.27	.08	.19	.24	.16	.05	.13
31 Branch Satisfaction	.01	.17	-.02	.22	-.16	.20	.25	-.06	-.03	.00	.19	-.01	.19	.06	.16	.12	.25
32 Army Commitment	.21	.26	.09	.08	-.06	.14	.45	.09	-.13	.12	.26	-.01	.20	.26	.31	.14	.36
33 Morale	.18	.25	.09	.16	-.16	.32	.30	.06	.02	.18	.33	-.06	.12	.20	.32	.21	.33
34 Active Duty Separation	-.04	.04	-.05	.02	-.06	.04	-.12	.00	.04	.03	-.09	-.01	-.04	.04	.03	.03	.03

Scale	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1 RBI: Peer Leadership	.10	.03	.10	.09	-.16	-.04	.03	-.02	.15	-.05	.25	-.01	.19	.08	.19	.12	-.04
2 RBI: Achievement	.27	-.06	.09	.09	-.04	-.11	.08	-.09	.01	-.02	.13	-.03	.19	.09	.17	.17	.04
3 RBI: Fitness Motivation	-.04	.10	.15	.16	-.01	.09	-.09	-.18	.21	-.07	.15	.15	.54	.07	.25	.14	-.05
4 RBI: Stress Tolerance	.16	-.02	.07	.04	.00	.06	-.06	-.13	.14	-.18	.07	.17	.20	.16	.26	.23	.02
5 RBI: Hostility to Authority	-.23	-.01	.05	.03	.07	-.05	.07	.10	-.02	.11	.02	-.05	.05	.01	-.12	-.14	-.05
6 RBI: Self-Efficacy	.09	-.02	.05	.03	-.07	-.04	-.01	-.23	.10	-.08	.15	.19	.19	.09	.25	.09	.04
7 RBI: Army Affective Commitment	.04	-.01	.05	.01	-.11	.03	-.02	-.12	.03	-.12	-.03	.28	.11	.02	.29	.19	-.12
8 RBI: Continuance Commitment	-.06	-.08	-.19	-.18	-.20	-.08	.11	-.14	-.12	-.06	-.17	.06	-.10	-.08	-.11	.06	.00
9 RBI: Traditional Values	-.09	-.02	.06	.09	.10	-.05	.03	.01	.00	.13	-.01	-.02	.08	-.22	-.07	-.10	.03
10 RBI: Validity Scale	.03	-.05	.03	.01	-.11	-.03	.02	-.05	.04	-.11	.10	.03	.13	.05	.06	.18	.03
11 Values : Rugged Leadership	.00	-.14	-.02	.01	-.24	-.09	.08	-.14	.00	-.04	.19	.20	.31	.08	.20	.23	-.09
12 Values : Flexibility/Choice	-.11	-.10	-.10	-.09	-.17	-.15	.11	-.09	-.09	.10	.06	-.05	.11	-.06	-.18	-.03	.00
13 Values : Structure/Recognition	.06	-.01	.06	.08	-.26	.03	-.04	-.09	.11	-.16	.17	.04	.05	.09	.06	.03	-.04
14 Values : Altruism/Benevolence	.05	-.06	.04	.05	-.13	-.04	.02	-.22	.13	.05	.08	-.10	.14	.16	.08	.08	.05
15 Values : Skill Development	.07	-.05	-.09	-.06	-.09	-.03	.02	-.13	-.01	.02	.06	.06	.06	.01	.02	.21	.03
16 Values : Job Security	-.02	-.07	-.08	-.07	-.35	-.07	.08	.01	-.05	-.01	-.19	.01	-.04	-.21	.10	.07	.03
17 Values : Teamwork	.06	-.18	.07	.07	-.32	-.12	.09	-.16	.08	-.01	.09	.15	.14	.06	.19	.24	.04
18 Situational Judgment Test	-	.13	.08	.16	.05	.07	-.13	.03	-.01	-.25	.33	.13	-.04	.19	.33	.20	.03
19 Promotion Rate 1st Lieutenant	.04	-	.11	.13	.09	.85	-.65	.01	-.14	.14	.68	-.42	.51	-.09	.01	.07	.36
20 Std. Total Awards	-	-	-	.92	.01	.12	-.09	-.20	.14	-.12	.19	.10	.34	.12	.33	.19	-.27
21 Std. Weighted Awards	-	-	-	-	.04	.14	-.09	-.17	.17	-.10	.24	.07	.36	.12	.29	.14	-.23
22 AFQT	-.34	.07	-	-	-	.10	-.11	-.01	-.15	.28	-.02	-.03	-.10	-.01	-.21	-.17	.09
23 IOT Graduation	-.01	.03	-	-	-.02	-	-.80	.02	.00	.16	.77	-.35	.69	-.02	.05	.06	-.11
24 IOT Recycles	.10	-.08	-	-	-.02	-.57	-	.15	-.12	.10	-.64	.14	.55	-.11	-.04	.00	.11
25 Personal Discipline	-.09	.19	-	-	.12	.00	.07	-	.00	.06	.08	-.16	-.11	.00	-.24	-.18	-.12
26 Leadership	.28	.00	-	-	.08	.28	-.24	-.21	-	-.07	.06	.03	.04	.24	.22	.29	.02
27 Career Continuance Intentions	-.30	.09	-	-	.06	.06	-.04	.05	-.05	-	.06	-.15	.05	-.24	-.37	-.48	.47
28 Branch-Specific Tech Knowledge	-.05	-.13	-	-	-.13	-.11	-.06	.02	.10	-.10	-	.21	.12	.26	.17	.03	-.12
29 Army-Wide Tech Knowledge	-.04	-.07	-	-	-.07	-.02	-.13	-.11	.24	-.10	.50	-	.24	.14	.36	.29	.04
30 Physical Fitness	.11	-.07	-	-	-.07	-.13	.10	-.06	.13	-.10	.20	.22	-	.04	.32	.30	.17
31 Branch Satisfaction	-.04	-.07	-	-	-.07	.07	-.09	-.12	.04	-.24	.20	.11	-.05	-	.28	.41	-.19
32 Army Commitment	-.01	-.15	-	-	-.15	-.01	.16	-.03	-.01	-.52	.03	.02	.08	.29	-	.62	-.34
33 Morale	.05	-.11	-	-	-.11	-.01	.12	-.16	-.01	-.44	.20	.18	.13	.48	.56	-	-.22
34 Active Duty Separation	.03	.35	-	-	.09	-.11	.11	-.12	.03	.46	-.13	.02	.18	-.20	-.33	-.23	-

Note. Correlations for the enlistment option sample appear above the diagonal; correlations for the in-service sample appear below the diagonal. $n = 368$ for enlistment; $n = 390$ for in-service. IOT = Initial Officer Training, AFQT = Armed Forces Qualification Test. Values greater than .10 are statistically significant.