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

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Recommendations for an Army NCO Semi-Centralized Promotion System for the 21st Century

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

A Directorate of the U.S. Total Army Personnel Command

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Director

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The NCO21 research program was undertaken to help the U.S. Army plan for the impact of future demands on the noncommissioned officer (NCO) corps. The performance requirements and associated knowledges, skills, and aptitudes (KSAs) expected of future successful NCOs were used as a basis for developing tools that could be incorporated into an NCO performance management system geared to 21st-century job demands.

The predictor measures include the Armed Services Vocational Aptitude Battery (ASVAB), Assessment of Individual Motivation (AIM), and Biographical Information Questionnaire (BIQ), which are already used in the Army for other purposes. A written Situational Judgment Test (SJT), the Experience and Activities Record (ExAct), Personnel File Form (PFF21), and a semi-structured interview were developed for this project. Two types of rating scale instruments were developed for gathering criterion data against which to validate (evaluate) the predictor measures. The Observed Performance Rating Scales ask supervisors to rate soldiers on how well they perform in their current jobs. The Expected Future Performance Rating Scales ask supervisors to predict how their soldiers would perform in specific sets of conditions expected to be characteristic of future Army requirements.

This report summarizes the NCO21 research program and offers recommendations for Army policymakers regarding use of the tools developed through this research.

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FOREWORD

The goal of the Selection and Assignment Research Unit of the United States Army Research Institute for the Behavioral and Social Sciences (ARI) is to conduct research, studies, and analysis on the measurement of aptitudes and performance of individuals to improve the Army's selection and classification, promotion, and reassignment of officers and enlisted soldiers. The research described in this report provides the foundation for recommending improvements to promotion and development procedures for enlisted personnel.

This project, entitled "NCO21: 21st-Century Noncommissioned Officer Requirements," is being conducted by ARI under the sponsorship of the Army G-1. The goal of NCO21 is to conduct an analysis of future conditions and future job demands in order to identify critical performance predictors—knowledges, skills, and aptitudes (KSAs)—that may eventually be used to select and grow future noncommissioned officers (NCOs). This project has been divided into three phases. Completion of the first two phases was documented in earlier reports. Phase I was the development of a detailed research plan for identifying characteristics required of future NCOs. In Phase II, the methodological steps of the Phase I research plan were executed. Anticipated job requirements of 21st-century NCOs (for the years 2000 through 2025) were forecasted and the most important KSAs needed for success in Army jobs were estimated.

Phase III involves the remainder of the project activities, including development and validation of KSA measures. This report documents the second stage of Phase III, which involved the collection and analysis of criterion-related validation data. The information presented in this report was briefed to the Chief, Enlisted Division, Directorate of Military Personnel Management, Deputy Chief of Staff (DCS), Army G-1 and the Army G-1 Sergeant Major on 13 August 2001. It was briefed to U.S. Army Training and Doctrine Command (TRADOC) representatives on 11 October 2001, to the Commanding General, U.S. Total Army Personnel Command on 29 July 2002, and to the Director, Human Resources, Policy Directorate, DCS G-1 on 21 January 2003. Applications of the tools developed in this effort will be determined in discussions with Army G-1 and TRADOC representatives based on the findings obtained from the Phase III validation.

FRANKLIN L. MOSES
Acting Technical Director

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Many people contributed to the work documented in this and related NCO21 project reports. Dr. Tonia Heffner served as ARI's contracting officer's representative (COR) in the last 2 years of the project. Dr. Michael G. Rumsey was the original COR and Dr. Trueman Tremble of ARI also provided oversight during the course of the research. The HumRRO project team was led by Dr. Deirdre Knapp (project director) and Dr. John Campbell (principal scientist). Other major contributors from HumRRO included Dr. Laura Ford, Mr. Roy Campbell, Dr. Chris Sager, Dr. Gordon Waugh, Dr. Dan Putka, Ms. Jennifer Burnfield, and Dr. Charlie Reeve. The many more researchers and hundreds of soldiers and NCOs who worked with us were key to the successful completion of this research effort. Finally, we wish to acknowledge SGM Larry Strickland and SGM Gerald Purcell for serving as primary liaisons between the research team and potential Army users.

RECOMMENDATIONS FOR AN ARMY NCO SEMI-CENTRALIZED PROMOTION SYSTEM FOR THE 21ST CENTURY

EXECUTIVE SUMMARY

Research Requirement

The NCO21 research program was undertaken to help the U.S. Army plan for the impact of future demands on the noncommissioned officer (NCO) corps. When the NCO21 research program began, a great deal of effort was being devoted to analyzing national and global trends (e.g., more complex technology with increasingly sophisticated capabilities, demographic changes) that would presumably affect the U.S. military in terms of its missions, organizational structure and technology, strategies and tactics, and personnel systems. But these analyses and forecasts were not available in any consolidated form. Indeed, there was (and still is) considerable variation in the prognostications being made. Moreover, little had been done to look at the implications of expected future changes for the performance requirements of individual soldiers. The purposes of the first stage of this research program, then, were to (a) identify and review the available information on predictions and plans related to the Army's future and (b) attempt to abstract from these a reasonable idea of what performance expectations would be imposed on NCOs of the future. In subsequent stages of the research program, these expectations were used to develop procedures and methods that could be incorporated into the NCO performance management system in an effort to make the NCO corps better prepared to handle 21st-century job demands. Specifically, predictor and criterion (job performance) measures were designed and developed for use in a criterion-related validation effort. This report briefly summarizes the NCO21 research program and offers recommendations for the application of tools developed during the course of the research. It is primarily targeted toward a non-technical audience interested in the products/tools resulting from this research program.

Procedure

There were seven predictor measures to be validated. Three measures—the Armed Services Vocational Aptitude Battery (ASVAB), Assessment of Individual Motivation (AIM), and Biographical Information Questionnaire (BIQ)—are operational tests (in whole or in part) already used in the Army for other purposes. Experimental versions of the AIM and BIQ were prepared for use in the present research. Four measures—a written Leadership Judgment Exercise (LeadEx) (and a related test, the SJT-X), the Experience and Activities Record (ExAct), the Personnel File Form (used to compute a Promotion Point Worksheet score that simulates the current promotion system), and a semi-structured interview—were developed for this project.

The predictor measures were validated by seeing how strongly they were associated with job performance as measured by two types of supervisor rating scale instruments. The Observed Performance Rating Scales ask supervisors to rate soldiers on how well they perform in their current jobs. The Expected Future Performance Rating Scales ask supervisors to predict how their soldiers would perform in specific sets of conditions expected to be characteristic of future Army requirements.

Using a concurrent validation design, predictor data were collected from roughly 1,900 soldiers in pay grades E4 though E6. Performance ratings were collected for about 70% of the E5 and E6 soldiers, so they constituted the primary validation sample. The research findings are detailed in a companion technical report: *Validation of Measures Designed to Maximize 21st Century Army NCO Performance* (Knapp, McCloy, & Heffner, 2003).

Findings

The results of the validation analyses were very promising. All of the predictor instruments yielded one or more scores that were significantly correlated with performance, both current and future. Even when examining incremental validity over the current system, most instruments performed well. Complicating the analyses and subsequent conclusions was the finding that the empirical results varied across pay grade and career management field (CMF). Despite extensive analyses to identify artifactual source(s) of these differences (e.g., range restriction), none were found.

Utilization of Findings

We have used these findings as a basis for recommendations to the Army about the possible implementation of the NCO21 measures. Although the evidence supporting implementation of several of the NCO21 measures is quite positive, it is based on a concurrent validation sample in a research setting. Additional analyses upon data collected using a longitudinal design in an operational setting are recommended to support the assignment of promotion points in the Army's semi-centralized NCO promotion system based on any of these new measures. As of the writing of this report, a longitudinal validation study sponsored by the Enlisted Division, Directorate of Military Personnel Management, Deputy Chief of Staff (DCS), Army G-1 is underway.

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RECOMMENDATIONS FOR AN ARMY NCO SEMI-CENTRALIZED PROMOTION SYSTEM FOR THE 21ST CENTURY

INTRODUCTION

In 1998, the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) started a research project to help prepare for the needs of the 21st-century by focusing on evolving requirements for the Army's backbone – the noncommissioned officer (NCO) corps. This project has since been known as "NCO21," and it has yielded findings that the Army can use to make NCO promotion, training, and development activities more effective for meeting both current and future manpower and leadership needs.

ARI sponsored the NCO21 work as part of its larger mission of providing tools and information that will support the Army in its move toward the Objective Force. ARI is part of the G-1 function of the Army and is the Army's primary arm for conducting research and analysis on personnel performance. The Human Resources Research Organization (HumRRO) provided contractor support for this effort. HumRRO was created over 50 years ago to conduct leadership and training research for the U.S. Army. Although HumRRO became an independent, non-profit research organization in 1969, it has maintained a close alliance with the Army in a wide array of research areas.

The NCO21 project focused on identifying possible improvements to the semi-centralized NCO promotion system. In the current system, the soldier's commander and the battalion promotion board make recommendations for considering soldiers for promotion. In addition to the recommendations by the commander and a promotion board, a promotion point score is determined by giving administrative points for (a) awards, decorations, and achievements; (b) military education; (c) civilian education; and (d) military training. A future-oriented promotion system designed to accommodate the current model yet include additional measures to better predict performance in emerging environments would be ideal. New elements could be integrated with existing measures fairly easily, particularly as most aspects of the promotion process are becoming automated.

The ARI/HumRRO team published three technical reports that detail the NCO21 research methodology and findings (Ford, R. Campbell, J. Campbell, Knapp, & Walker, 2000; Knapp et al., 2002; Knapp, McCloy, & Heffner, 2003). We also produced a brief ARI "special report" targeted to a general Army audience (R. Campbell & Knapp, 2002). The present report, in contrast, is targeted to those who are interested in or tasked with establishing Army policy related to the implementation of changes to the Army NCO promotion and development systems. Specifically, this report is a vehicle to help inform Army policymakers.

This report is organized in two parts—Part I summarizes the NCO21 research and Part II describes recommended applications of the tools generated by the research as well as important caveats.

PART I: NCO21 RESEARCH PROGRAM

NCO21 Project Overview

Figure 1 provides an overview of the NCO21 research effort, which involved four major steps. The first step was to systematically identify 21st-century NCO requirements both in terms of what NCOs will have to do (performance requirements) as well as the characteristics they will need to successfully perform their jobs. The second step was to identify (and in many cases, create) instruments to measure job performance and instruments to measure personal characteristics (e.g., temperament, judgment skills). To determine how strongly the "predictor" measures would be associated with actual job performance, a field validation was conducted. Measures designed to predict job performance levels that actually do predict performance would be potentially useful tools for determining promotion decisions. Thus, the third step was to collect the field validation data and the final step was to analyze the data.

Define NCO Requirements

The project team conducted a future oriented job analysis by (a) reviewing relevant documents, (b) interviewing military planners and futures experts, and (c) analyzing existing jobs believed to be similar to future jobs (Ford et al. 2000). Over 400 written sources including official military documents and contractor reports were reviewed for pertinent information. Interviews were conducted with more than 300 subject matter experts (SMEs) and soldiers in future-like jobs (e.g., digital force soldiers, signal soldiers, military police, and special operation forces). This approach identified the knowledge, skills, and attributes (KSAs) and performance requirements (as opposed to detailed job tasks) expected to be important in future jobs. The KSAs and performance requirements are listed in Appendix A. Although the job analysis work was conducted before the language of the Objective Force was adopted, the results have proven to be applicable to even the most recent visions of future requirements.

Once the potential KSAs and performance components were identified, two expert panels were assembled to complete the analysis. The first panel consisted of senior NCOs and officers from diverse backgrounds who had in-depth knowledge about future military conditions and jobs. These experts reviewed information about future expectations, revised the lists of performance requirements and KSAs, and ordered the KSAs based on expected importance to future job success. A second panel of personnel specialists also ordered the KSAs, and the results from the two panels were integrated. The most important KSAs were emphasized in the predictor measure assessment plan.

The data collection conducted as part of the future oriented job analysis also allowed for the extraction of general themes that will impact Army NCOs in the future. The following six themes were identified:

- *Transition to digital operations and an ever-increasing pace of adaptation of technologies* – The change to digital/computer based technologies and updating of these technologies will occur frequently and quickly, requiring training and adaptation.

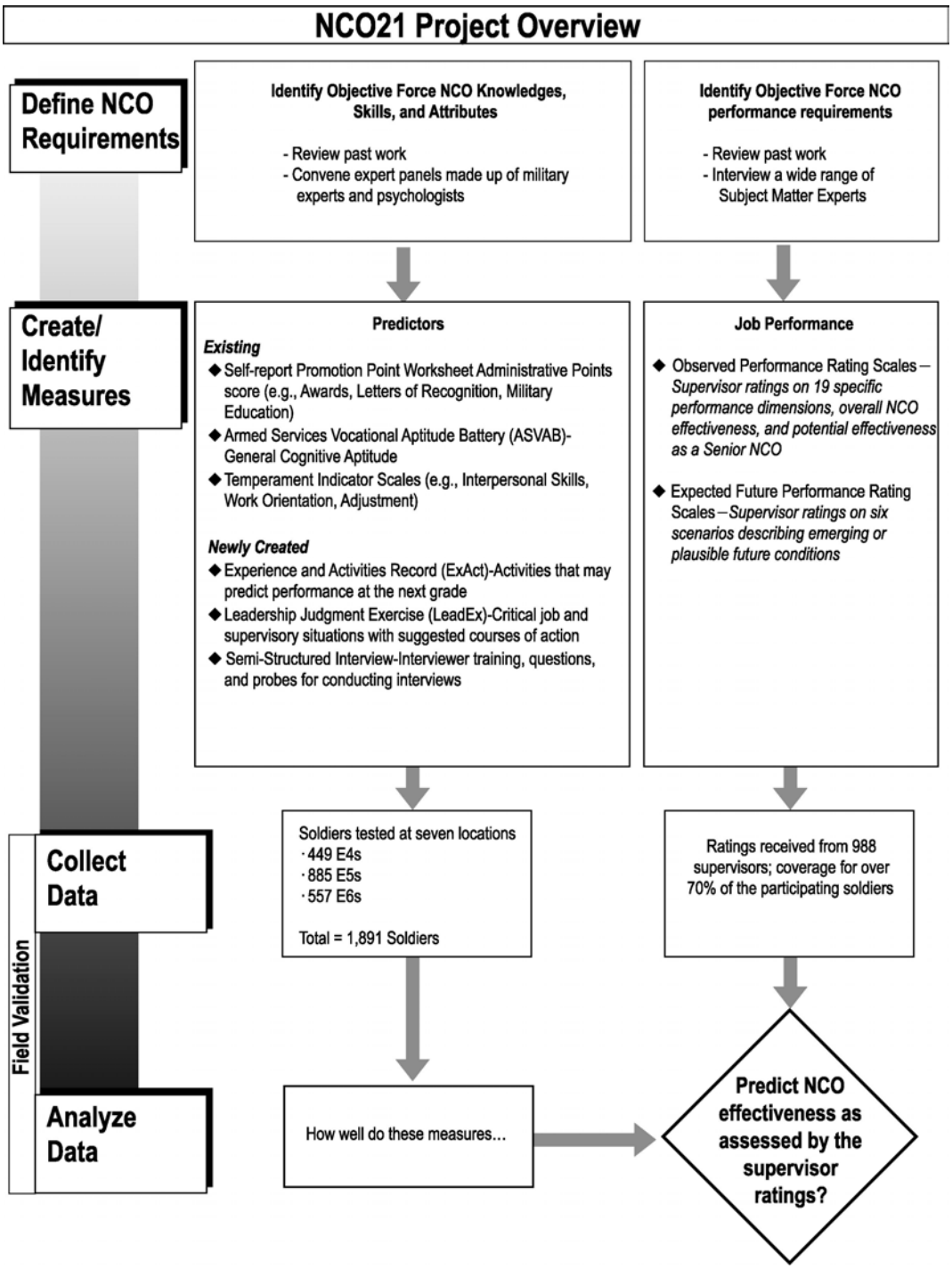

Figure 1. NCO21 project overview.

- *Diverse missions and frequent deployments* – Soldiers will be expected to deploy more frequently, deploy more quickly, and deal with a variety of missions including peacekeeping, humanitarian aid, and nation building.

- *Diversity of forces and mission-specific organizations* – The variety of fielded equipment, techniques, and training will range from traditional equipment to the very cutting edge, with reduced standardization across the force.

- *Decentralized operations* – Technology will allow for greater dispersion and missions relying on smaller, more autonomous units.

- *Changes in training structure, requirements, and delivery* – Training will require more self-assessment and self-management, with an emphasis on advanced training delivery techniques.

- *Changes in youth population and recruiting needs* – The need for high quality youth in the Army will increase at the same time that more opportunities will become available to this segment of the population, creating even greater recruiting competition.

Create/Identify Measures

Project staff conducted a literature review to identify existing instruments that might be used to measure the critical 21st-century KSAs (predictors) and performance requirements (criteria). Relevant sources included research studies, instrument development projects (particularly those done for the military), and test publishers. Considerations in the final selection of measurement methods/instruments included the following:

- Coverage of the highest priority KSAs and full coverage of the performance requirements;
- Anticipated reliability and validity in an operational context, as suggested by previous research and experience with similar measures;
- Reasonable development, validation, and administration costs; and
- Suitability of the KSA measures for use in a large-scale promotion system.

In 2000, the measures were tested using 513 E4, E5, and E6 soldiers at three Army installations. Job performance ratings data were collected from supervisors of the E5 and E6 field test participants. This step was critical for evaluating and refining the instruments and also for testing the data collection protocols and database management procedures.

The following predictor assessment tools (described in detail in a later section) were used to assess the current and future-oriented KSAs:

- Personnel File Form (PFF21),
- Experience and Activities Record (ExAct),
- Armed Services Vocational Aptitude Battery (ASVAB),
- Leadership Judgment Exercise (LeadEx),
- Experimental Situational Judgment Test (SJT-X),
- Semi-Structured Interview (SSI),
- Assessment of Individual Motivation (AIM), and
- Biographical Information Questionnaire (BIQ).

Together, these measures allowed us to represent the current promotion system (through self-report information on the PFF21) and a potential future oriented promotion system through the remaining measures. Two instruments for collecting performance ratings (one focused on current

performance and the other on expected performance under future conditions) from supervisors were developed to use as a basis for validating the predictor measures.

Collect Validation Data

We used a *concurrent validation* design in which we collected predictor (KSA) data on E4, E5, and E6 soldiers and criterion (job performance) data on E5 and E6 soldiers. (Administering the predictors to the E4 soldiers helped ensure the measures were suitable for this target population.) Data were collected in 2001 at seven sites from approximately 1,900 soldiers and 988 supervisors representing 122 Military Occupational Specialties (MOS). Table 1 shows the sample sizes by pay grade and location. The goal was to collect ratings from two supervisors per E5/E6 participant. Roughly 70% of the soldiers had at least one supervisor rater; about 30% had two raters.

Table 1. NCO21 Concurrent Validation Research Sample Sizes

	Site							
Grade	Hood	Bragg	Lewis	Riley	Campbell	Carson	Stewart	Total
E4	82	62	56	36	89	59	65	449
E5	177	162	69	143	126	102	106	885
E6	135	58	67	68	91	75	63	557
Total	394	282	192	247	306	236	234	1,891

Analyze Data/General Findings

The concurrent validation database was analyzed to (a) examine the psychometric characteristics of the predictor and criterion measures, (b) estimate the criterion-related validity of each predictor (i.e., the extent to which the predictor measures are related to the criterion measures), and (c) estimate the extent to which the experimental predictors improve the prediction of performance over a simulated administrative promotion point score using the current system ("incremental" validity). All the predictor and criterion measures exhibited reasonable psychometric characteristics. Most of the individual scores produced by the predictor measures showed statistically significant relationships with both current and future performance ratings. Several scores were particularly useful predictors, in part because they showed significant incremental validity over the current promotion system.

For reasons we do not completely understand, most predictors tended to work much better at the E5 level compared to the E6 level. Although there were insufficient numbers of soldiers in different military occupational specialties (MOS) or career management fields (CMFs) to do extensive analyses, there also appeared to be differences in how well both the current and future-oriented predictors work across job types.

The NCO21 Assessment Tools

In this section, we provide more details about each of the NCO21 measurement tools. Table 2 illustrates which KSAs each predictor instrument was intended to measure.

Table 2. NCO21 Measurement Methods by KSAs

KSA	Measurement Method						
	PFF21	LeadEx	AIM	BIQ	Interview	ExAct	ASVAB
General Cognitive Aptitude		X			X		✓
Working Memory							X
Basic Math Facility							✓
Basic Electronics Knowledge							✓
Basic Mechanical Knowledge							✓
Spatial Relations Aptitude							✓[a]
Perceptual Speed & Accuracy							✓[a]
Psychomotor Aptitude							
Problem-Solving/Decision Making		✓					X
Information Management							X
Writing Skill	X					✓	X
Oral Communication Skill					✓		
MOS-Specific Knowledge & Skill	X				✓		X
Common Task Knowledge & Skill	X						X
Safety Consciousness							
Computer Skills						✓	
Knowledge of the Inter-Relatedness of Units		SJT-X					X
Management and Coordination of Multiple Battlefield Functions							X
Motivating, Leading, and Supporting Individual Subordinates		✓	X		✓[b]	✓	X
Directing, Monitoring, and Supervising Individual Subordinates		✓	X			✓	X
Training Others		✓	X		✓[b]	✓	X
Modeling Effective Performance	X	X	X			X	
Relating to and Supporting Peers		✓			✓		
Team Leadership		✓			✓[b]	✓	
Concern for Soldier Quality of Life		✓					
Cultural Tolerance		✓					
Selfless Service Orientation							
Level of Effort and Initiative on the Job	X		X		✓	✓	
Need for Achievement			✓				
Conscientiousness/Dependability			✓	✓			
Adherence to Regulations, Policies, and Procedures	✓		X	X			
Level of Integrity and Discipline on the Job	✓		X	X	✓		
Emotional Stability			✓				
Adaptability			✓		✓		
General Self-Management Skill					✓		
Self-Directed Learning Skill	X				✓		
Physical Fitness	✓		X				
Military Presence					✓		

Note. ✓ = designed to measure; X = indirectly associated.

[a]Spatial relations and perceptual speed and accuracy are measured by the Assembling Objects subtest which is now included as an experimental test on the CAT-ASVAB.

[b]Several KSAs were combined for measurement via the interview.

Criterion Measures

Supervisors provided performance assessments on two types of rating instruments. They rated current performance in 19 areas (e.g., supervising subordinates, teamwork) as well as overall performance and senior NCO potential. Supervisors also rated their soldiers on how well they would be expected to perform in six scenarios characteristic of the future Army. Two scores were used in the validation analyses—an overall composite (based on the average rating across scales) from the current performance rating scales and an overall composite from the expected future performance scales. Both sets of rating scales are shown in Appendix B.

Although we discuss findings related to supervisor ratings of both current and expected future performance, it is not clear how well supervisors could really distinguish between the two. That is, ratings of future performance are probably driven largely by the raters' perceptions of current performance and they probably should be. But this phenomenon makes it dangerous to draw strong conclusions about differences in how well the experimental predictors truly relate to performance in the future versus current job performance.

Predictor Measures

Past Education, Training, Awards, Achievements, and Experience

The self-report *Personnel File Form 21 (PFF21)* was used to obtain information that allowed researchers to construct simulated administrative point scores based on the Army's current Promotion Point Worksheet (PPW) system. In past research, soldiers have been found to accurately report this information (J. Campbell & Knapp, 2001). Five scores were generated:

- PPW Awards, Decorations, and Achievements,
- PPW Military Education,
- PPW Civilian Education,
- PPW Military Training, and
- Simulated PPW Composite (total of the four component scores).

To the greatest extent possible, we used the same scoring procedures the Army currently uses to compute these scores. For example, the PPW Awards score was capped at a maximum of 100 points. Although we used the simulated PPW Composite (SimPPW) as a proxy for the current system, it is important to recognize that it does not exactly model that system. In particular, it does not include commander's evaluation points or promotion board points. Because there is usually not a great deal of variability in these points across soldiers, we believe the SimPPW is a reasonable proxy for the current system.

In the concurrent validation, SimPPW showed a significant correlation with performance (both observed current and expected future ratings) for both E5 and E6 NCOs, suggesting that the Army's current semi-centralized promotion system is working fairly well. In accordance with standard practice, correlations were statistically "corrected" for range restriction in the predictor measure (because in an operational setting the E5 predictors would be administered to E4 soldiers) and unreliable criterion measurement (i.e., adjusting for the fact that the performance measures are imperfect). Table 3 shows the corrected correlations, which can range in value from

–1.00 to 1.00, with 0.00 indicating the absence of any relationship between the SimPPW and either performance score.

The *Experience and Activities Record (ExAct)* has 46 self-report items that measure how frequently soldiers engage in tasks such as training others, acting as supervisors, and working with computers. The items were written to tap seven KSAs (see Table 2). Three scores were derived from the ExAct: Supervisory Experience, General Experience, and Computer Experience. A copy of the ExAct is provided in Appendix C.

All three ExAct scores were correlated with performance for E5 soldiers, but generally did not correlate with performance at the E6 level. However, because the ExAct is at least conceptually similar to the types of information on the Promotion Point Worksheet, there was little evidence of incremental validity over the SimPPW score (see Table 3). In other words, adding the ExAct to the current promotion point system likely would not improve it very much.

Table 3. Correlations between Predictor and Criterion Scores by Pay Grade

Predictors	Corrected Correlation				Corrected Incremental Correlation			
	Observed Performance Composite		Expected Future Performance Composite		Observed Performance Composite		Expected Future Performance Composite	
	E5	E6	E5	E6	E5	E6	E5	E6
SimPPW Composite	.19	.13	.13	.18				
ASVAB GT Score	.11	.19	.10	.20	.04	.04	.02	.03
LeadEx Composite	.39	.25	.37	.28	.20	.09	.26	.09
SJT-X Composite	.	.18	.	.22	.	.06	.	.08
Interview Composite	.25	.	.26	.	.16	.	.24	.
ExAct Computer Experience	.14	.10	.14	.21	.02	.00	.04	.06
ExAct Supervisory Experience	.21	-.03	.30	.05	.03	.04	.00	.00
ExAct General Experience	.19	.10	.20	.11	-.01	-.01	.01	.01
AIM Dependability	.17	-.02	.21	.02	.06	.01	.17	.00
AIM Adjustment	.08	.10	.08	.19	.03	.00	.06	.08
AIM Work Orientation	.40	.13	.46	.17	.26	.00	.45	.02
AIM Agreeableness	.02	-.01	-.02	.03	.02	.01	.01	.02
AIM Physical Conditioning	.15	.03	.16	.06	.11	.00	.22	.00
AIM Leadership	.33	.09	.43	.12	.18	.00	.34	.01
BIQ Hostility to Authority	-.08	-.17	-.11	-.15	.01	.03	.10	.01
BIQ Manipulativeness	-.11	-.15	-.11	-.17	.03	.04	.08	.03
BIQ Social Perceptiveness	.21	-.02	.25	.04	.13	.01	.18	.01
BIQ Social Maturity	.09	.08	.02	.11	.01	.00	.00	.00
BIQ Tolerance for Ambiguity	.18	.07	.19	.14	.09	.00	.08	.01
BIQ Openness	.06	-.09	.10	-.08	.00	.01	.02	.01
BIQ Emergent Leadership	.33	.05	.42	.09	.23	.01	.38	.00
BIQ Interpersonal Skill	.16	.18	.15	.21	.10	.03	.16	.03

Note. n_{E5} = 471-613; n_{E6} = 341-399. "Corrected" correlations were corrected for criterion unreliability and range restriction on the predictor. LeadEx composite based on 24-item form.

Cognitive Ability and Judgment

The General Technical (GT) score from the pre-enlistment Armed Services Vocational Aptitude Battery (ASVAB) was used as a measure of general cognitive ability. The GT score is currently used as a screen for reenlistment and entry into certain advanced MOS (e.g., Special Forces).

In sharp contrast to most of the other predictor scores, the GT score was correlated with performance more strongly for E6 soldiers than E5 soldiers. This might be because general cognitive ability becomes more important after NCOs have learned to supervise and lead at the E5 level. As indicated in Table 3, however, the GT score did not appreciably improve the prediction of job performance over SimPPW alone.

The *Leadership Judgment Exercise (LeadEx)* measures eight KSAs including leadership and decision making (see Table 2) by presenting several brief scenarios and asking the soldier to identify the best and worst possible actions from a list of four alternatives. Figure 2 shows two example LeadEx items. Some of the 40 test items were adapted from measures developed in other Army research projects and others were developed specifically for this research. The items were scored in relation to effectiveness ratings provided by SMEs (senior NCOs). A single composite LeadEx score was used in the validation research.

Sample LeadEx Items

Instructions: For each item, mark which course of action you would be most likely to follow with an "M" and mark the choice that you would least choose with an "L."

As a junior NCO, you need to counsel a subordinate. What is the most important thing to do when preparing for and conducting the counseling?

____ a. Prepare a course of action that you want the soldier to follow.

____ b. Plan to guide and encourage the soldier to arrive at his own solutions.

L c. Focus on the sanctions and rewards that you control.

M d. Follow the outline of the DA Form 4856-R, General Counseling Form.

Your unit is on a joint British-US exercise. You are supervising a joint communications center. One of your soldiers is talking with a British officer on the phone. He greets him and says goodbye using a British slang term he has heard. After he gets off the phone, one of the British soldiers in the room informs your soldier that the slang term he used is considered an insult in this context. What should you do?

____ a. Tell the soldier to not use slang terms unless he is sure of the meaning.

M b. Inform all staff members that all business will be conducted in a professional, military manner: no slang, street talk, etc. Strictly military.

L c. Let the soldier involved and the British soldier who corrected him work it out. No action is required on your part.

____ d. Explain to the British soldiers that no insult was intended and that you all have to learn about each other's ways and tolerate each other while the learning is going on.

Figure 2. Example LeadEx items.

The LeadEx composite score was strongly correlated with performance, particularly for E5 soldiers. Even more striking, the LeadEx increments predictive validity over the SimPPW. Based on these data, we would expect that using both together would yield more accurate promotion decisions than the current system alone.

These promising results led the NCO21 project team to explore the LeadEx instrument more thoroughly. For one thing, we developed shorter (24-item) versions of the LeadEx that differed for E5 and E6 pay grades. This improved the correlation with performance at both pay grades.

A second type of situational judgment test *(SJT-X)* was designed to measure the futuristic KSA "knowledge of the interrelatedness of units" using three lengthy scenarios. These scenarios were developed specifically for this research based on the themes identified as important for the future. Like the LeadEx, the items were scored in relation to effectiveness ratings provided by SMEs and a single composite score based on responses to all the items was computed.

The SJT-X was administered only to E6 soldiers because of its length and difficulty. For a 3-item test, the SJT-X showed unexpectedly high correlations with performance and incremental validity over SimPPW. However, because it is geared to a future-oriented KSA that is not currently required by most E5 and E6 NCOs, we recommend postponing use of this type of tool for another few years.

Temperament

The *Assessment of Individual Motivation* (*AIM*; White & Young, 1998) assesses six personality qualities. Unlike the preceding instruments, the AIM was not developed specifically for the NCO21 research effort. However, the characteristics it measures are related to the NCO21 KSAs (as indicated in Table 2). The 38-item AIM uses a forced-choice format designed to minimize faking. Respondents indicate which of the four statements in each item is most like them and which is least like them. An item that illustrates the AIM format is shown in Figure 3. AIM is currently used in the Army's pilot GED Plus enlistment program and will soon be used in the selection of recruiters. AIM yields scores for the following KSAs:

- Dependability,
- Adjustment,
- Work Orientation,
- Agreeableness,
- Physical Conditioning, and
- Leadership.

The *Biographical Information Questionnaire* (*BIQ*; Kilcullen, Mael, Goodwin, & Zazanis, 1996) assesses eight characteristics by asking soldiers to answer questions about their attitudes and past experiences. The BIQ is a 154-item multiple choice format measure developed from several operational measures (e.g., the Assessment of Right Conduct used by Special Forces). Two items similar to those on the BIQ are shown in Figure 4. The BIQ yields the following scores that are related to the NCO21 KSAs:

- Hostility to Authority,
- Manipulativeness,
- Social Perceptiveness,
- Social Maturity,
- Tolerance for Ambiguity,
- Openness,
- Emergent Leadership, and
- Interpersonal Skill.

Mark the statement that is most like you with an "M" and mark the statement that is least like you with an "L."

M A. I rarely got into trouble with my high school teachers.

L B. I have not exercised routinely over the past year.

_____ C. I have enjoyed being in positions of authority.

_____ D. I sometimes lose sleep over worries.

Figure 3. Example AIM item.

On a 5-point scale, indicate how much you agree or disagree with the following statements.

1. To what extent have you enjoyed thinking about the plusses and minuses of alternative approaches to a problem?
2. How likely are you to criticize others when they start criticizing you?

Figure 4. Example BIQ items.

Several of the temperament measure scores were correlated with performance (some of them strongly) and showed incremental validity over the current system, as represented by the SimPPW. The strongest showings were made by the following scores: AIM Work Orientation, AIM Leadership, BIQ Social Perceptiveness, and BIQ Emergent Leadership.

Although these findings are favorable, caution is warranted. Self-report personality measures are subject to faking – that is, respondents misrepresenting themselves. In a research setting, such as what we had in the concurrent validation, there is little reason for participants to fake. Using the AIM and BIQ (or any similar temperament instruments) in an operational setting with no subsequent follow-up would likely yield different results. Although it uses a forced

choice format to deter faking, analysis of the GED Plus program shows that AIM predicted first-term attrition much better in a research setting than it does under the experimental GED Plus program, although subsequent scoring adjustments improved its performance in this context. With regard to the BIQ, it has mostly been used in smaller-scale contexts in which the instrument is used as a diagnostic test. The importance of temperament to successful NCO performance is clear; the way to measure it in a way that cannot be compromised is not.

Interview

The *Semi-Structured Interview*, administered to E4 and E5 soldiers in the concurrent validation, was used to evaluate an alternative to the traditional format for asking questions during the promotion board. Senior NCOs, E7 to E9, were trained how to ask questions, write questions (to supplement those provided in a question bank), take notes, and score respondents' answers using structured rating scales. These senior NCOs then worked in pairs to conduct the interviews. Soldiers responded to 14 hypothetical situation and past experience questions designed to assess seven areas (covering a total of 10 KSAs). Two more KSAs, oral communication skill and military presence, were assessed from the soldier's responses to all questions. MOS-specific questions were included in the interview if an interviewer and the soldier were in the same MOS. The two interviewers' ratings were combined to yield a single overall interview score. Sample interview questions are shown in Figure 5.

Past experiences in specific situations

Tell me about a time when you planned an event or prepared an assignment well in advance and your supervisor changed it at the last minute. What did you do?

Hypothetical situations

You have just broken an important piece of equipment. If you turn it in to the armorer, there is a chance it will not be blamed on you. What would you do?

Figure 5. Example NCO21 interview questions.

The interview also showed reasonably high correlations with performance and incremental validity over the SimPPW. Following some initial resistance, the senior NCOs who served as interviewers in the concurrent validation were impressed with the process. Of the 40 interviewers who completed the interview evaluation form, 25 (63%) thought it should be used to replace or supplement the promotion board. Despite the promising results, however, we recognize that the board interview is unlikely to be replaced with the NCO21 semi-structured interview. As suggested a bit later in this report, however, there are other ways this technique could be used to positively impact NCO performance.

PART II: CONCLUSIONS AND RECOMMENDATIONS

Deriving Recommendations

Our suggestions regarding the possible uses of the tools and information produced in the NCO21 project are, of course, driven in large part by the empirical findings of our research – that is, what our statistics tell us. We also recommend additional research prior to implementation of some of these tools. But research findings are not the only source we draw upon as we consider what recommendations to convey to Army policymakers. Indeed, there are at least three other sources. One is experience. ARI and HumRRO researchers bring a great deal of experience in organizational change and innovation. Moreover, the research and subsequent recommendations have been reviewed and approved by an independent 3-member Scientific Review Panel whose members have a broad range of applied experience as well.

Another key source of input has been the ideas and feedback the research team has received throughout the project from various Army staff reviewers, particularly Army G-1 representatives. Project staff have met with interested Army organizations and groups periodically to ensure the relevance of the research to operational requirements. Finally, the research involved collecting information and data from thousands of soldiers in various pay grades and positions. Their unvarnished reactions and ideas were very valuable for giving us perspective on the potential for each of the measures in an operational environment.

Any and all changes to the Army's semi-centralized system should:

- Strengthen the entire NCO corps by improving the pool of junior NCOs;
- Use the status quo (i.e., the current system) as a starting point;
- Be explainable and acceptable to soldiers; and
- Avoid adding subjectivity or unnecessary complexity to the system.

In the remainder of this report, we discuss the recommendations bulleted below. All are intended to help the Army mold an NCO corps prepared to meet the demands of the 21st century, either directly (through changes to the basis for semi-centralized NCO promotion decisions) or indirectly (through improved NCO performance evaluation and counseling).

- Improve Promotion Point Worksheet scoring rules.
- Add a Leadership Assessment component to the promotion system.
- Use the NCO21 performance rating instrument either to restructure the commander's evaluation or for performance counseling.
- Allow the systems for E4 to E5 and E5 to E6 promotions to vary.
- Provide training on semi-structured interview procedures to NCOs conducting board and other types of interviews.
- Offer the ExAct as a counseling tool.

It is important to note that these recommendations are neither mutually exclusive nor completely independent. For example, more accurate promotion decisions would result from changes to the Promotion Point Worksheet scoring rules and/or the addition of more information to the worksheet (e.g., a Leadership Assessment component). If both changes were adopted, they could

either be done incrementally or at the same time. Army policymakers could adjust the point assignment rules for the current Promotion Point Worksheet, then adjust the rules again when new elements (e.g., a Leadership Assessment score or a new technical competency assessment score) are added to the worksheet.

Potential Promotion System Applications

Improve Promotion Point Worksheet Scoring Rules

The NCO21 research strongly suggests that the current Army NCO promotion system could be improved simply by changing the way in which points are assigned on the current Promotion Point Worksheet. While making such changes under the current manual promotion system would be difficult, the planned automation of this process greatly simplifies the situation.

Determining the desired allocation of points is a more complicated process than it first appears. For example, the current system assigns a maximum of 100 (out of 800) points for awards and a maximum of 100 points for training. This gives soldiers the impression that awards and training equally contribute to promotion potential. The extent to which these two components affect the promotion decision, however, is determined both by the number of points and the extent to which the assigned points vary across soldiers. An example will help explain this point. In our research sample, E5 soldiers varied among each other much more on their awards score than on their training score. For E5 soldiers, then, the awards score would be a stronger factor in the promotion decision than the training score because the soldiers differ on their awards scores and not on their training scores, *even though most people probably believe both are "weighted" the same*[1].

As another example, commanders who recommend a soldier for promotion will generally give most, if not all 150 possible points for the commander's evaluation component of the promotion worksheet. To the extent this is true, the number of points given will not differentiate between those in the pool of soldiers eligible for promotion who are more or less qualified. If everyone gets 147-150 points, the impact on the final ranking is negligible. Where the commander's input has the most impact is likely in the decision to recommend a soldier for promotion in the first place—a simple, but very important, go/no-go decision.

The point to be made here is twofold. First, the actual impact that a given component of the promotion decision process has on the promotion decision is *not* determined solely by how many points it gets assigned (e.g., 200 out of 800 possible points). Second, we can use data to understand (a) the actual impact of each component of the process on the final ranking of soldiers eligible for promotion and (b) how the components could be "re-weighted" to yield more accurate soldier rankings.

To date, we have conducted just a few analyses out of the wide array possible for identifying potential improvements to the Promotion Point Worksheet scoring system. Primarily, we have looked at the effects of removing point caps and changing the number of points given to

[1] This same phenomenon helps explain why soldiers concerned about promotion inequities across MOS may be operating under a false impression. Since soldiers compete for promotion within MOS, giving points for civilian education (for example) is only unfair to the extent that opportunities for accessing such education are substantially greater for some soldiers within that MOS. In MOS where such opportunities are limited, the opportunities are limited for everyone. Hence, there will be little variability in civilian education scores in that MOS and therefore little impact on soldier promotion rankings.

the four administrative components (awards, military education, civilian education, training). These analyses were quite promising. For example, removing the point limits on the awards scale significantly improves the predictive value of the system, particularly for E6 soldiers. It would be possible to use data analyses to explore other changes to the point assignment system, including changes at the most microscopic level (e.g., the number of points given for particular awards).

Although we believe that substantial benefit would arise from scoring system changes, improvements suggested by empirical data analysis should be endorsed and modified as needed by Army subject matter experts. Despite the difficulty in understanding the actual impact of a weighting system (as discussed above), the system simply must, on the surface, make sense to Army personnel. We believe it is possible to do both—that is, have a scoring system that both looks sensible and functions in a way that maximizes future job performance.

Add Leadership Assessment Component

Army G-1 personnel reviewing the NCO21 research results have envisioned a "Leadership Assessment" tool that could be used as an additional source of points on the Promotion Point Worksheet. Ideally, this tool would include the LeadEx and some elements measured by the two temperament instruments (AIM and BIQ). The appeal of this idea is that it adds assessment information about an area that should be a key requirement for promotion. While leadership potential is at least indirectly reflected by elements already on the Promotion Point Worksheet, this would be an explicit, objectively scored assessment. It would send a clear message about the importance of leadership skills and set a clear standard.

Although we believe this is an avenue well worth pursuing, additional work is required before it could become an effective reality. In anticipation of implementation, project researchers have developed shortened versions of the LeadEx (tailored by pay grade) that works better than the longer research version. Adapting the AIM and/or BIQ for implementation will be trickier because both are likely to be subject to intentional response distortion (i.e., faking) in an operational setting. Researchers have been grappling with this problem for decades—trying to measure temperament and motivational characteristics in a manner that examinees cannot manipulate. Measuring something like general cognitive ability (where you just need to keep the scoring key secure) is much easier. ARI and its contractors are continuing to address this need, and may be able to identify alternatives to (or adaptations of) the AIM and BIQ to implement as part of the Leadership Assessment.

No matter what the elements (LeadEx, AIM, BIQ, or other test) of the Leadership Assessment, additional research will be needed to (a) develop a psychometrically sound and practically feasible plan for developing alternate forms, (b) evaluate how well the assessment works in a longitudinal and then an operational setting, and (c) determine how the score(s) will be combined with other components of the promotion system. The Army would also need to develop applicable policies and procedures (e.g., retest policy).

Restructure the Commander's Evaluation

The utility and acceptability of the observed current performance supervisor rating scales were apparent based on anecdotal feedback from the data collection in which NCO supervisors voiced interest in getting a copy to use in their own soldier counseling sessions. As mentioned later in this report, the current performance rating scales could be offered to senior NCOs as a counseling tool. They would make a more direct contribution to the promotion system, however, if they were used to structure the commander's evaluation. Under this scenario, commanders would be required to use these rating scales as the basis for the assignment of promotion points. There would be at least two major benefits to this approach. First, it would *standardize the criteria* that commanders consider when evaluating soldiers for promotion. The performance areas covered by the rating scales are comprehensive and were generated with the input of a large number of representative senior NCOs. Second, if used properly, the process would increase the variability in commander's evaluation points across soldiers. As discussed earlier, this would *increase the impact of commanders' judgments on promotion decisions*.

Little needs to be done to the rating scales to apply them in this manner. The scales themselves (including anchor descriptions) probably need only a general review to ensure they fit the intended operational use. A brief set of instructions on how to optimally use the scales would need to be developed, as would a process for assigning promotion points based on the ratings. It may also be useful to consider strategies for helping to ensure variance in the ratings (i.e., so commanders do not simply assign the highest rating on all scales for all their soldiers).

Allow System to Vary by Pay Grade

Regardless of the nature of the changes made to the semi-centralized NCO promotion system, the NCO21 research strongly suggests the system will be more effective if it reflects differences in the predictor information that is useful in making E5 versus E6 promotion decisions. The differences could be fairly transparent, in the sense that each would share the same components. But allowing the Leadership Assessment (if adopted) to have different forms, depending on whether the examinee is an E4 or E5, or adopting different point allocation models (e.g., weighting awards more than training for E4s, but not for E5s) is a powerful way to make the system more effective.

Although the size of the research sample did not allow us to explore the differences very thoroughly, the NCO21 research has also suggested that the promotion system would benefit from reflecting differences in what is required for successful performance between MOS. One could argue that this would make the whole system too complicated or that soldiers would want to move to MOS where they believed the promotion criteria to be more favorable. But with the pending computerization of the personnel system, the idea of tailoring the system to better fit the specific jobs to which soldiers are being promoted is a tempting one that warrants discussion.

Other Potential Applications

Semi-Structured Interview

Although it worked quite well in a research setting, there are enough obstacles to requiring the NCO21 interview to be used for all promotion boards to make us reluctant to recommend this option. Educating Army personnel on the principles underlying the semi-structured interview and possibly offering the question bank for their use, however, could increase the effectiveness of a variety of Army interview and counseling activities—including promotion boards.

The Army conducts a lot of board interviews and appearances. E5 and E6 Promotion Boards are required and their set-up and content (but not necessarily their procedures) are established by regulation. Other boards are less formalized—some examples are the E4 Promotion Board, Soldier/NCO of the Month/Quarter, Audie Murphy Board, Sergeant Morales Board, Commandant's candidates, and specialized recognitions (Drill Sergeant/Recruiter/Medic/ Mechanic of the Month/Quarter). We have been unable to locate any guidance on how to actually conduct a board and use it to extract meaningful information. Instead, most boards are conducted based on the intuition and experience of their members.

To be applied, the NCO21 interview procedures would need to be formalized along the lines of a training support package (TSP) as outlined in TRADOC REG 350-70 (*Systems Approach to Training Management, Processes, and Products*). What project staff accomplished during the half-day train-up of the senior NCO interviewers during the research data collection would be incorporated into a "how-to" manual. Our procedures for conducting interviews are fairly complex and therefore need to be rather detailed. The content also needs to be reviewed to ensure that it is applicable to a wide range of boards or interviews, not just promotion boards. The materials and procedures used to train NCO interviewers in the data collection is a good starting point but will need to be designed to fit a more general purpose and for delivery without face-to-face instruction.

The advantage of the NCO21 interview is that, if Army organizations are going to conduct boards (of any type), this is a more powerful procedure. The end product would not necessarily be directive but could be used on a voluntary basis as an available tool. Potential users would be units – battalion through division – and possibly the NCO Academies.

Observed Performance Rating Scales

If not used as a basis for the commander's evaluation, the observed (current) performance rating scales should be offered as a counseling tool. Users would be soldier supervisors and possibly trainers at the Primary Leadership Development Course (PLDC) and the Basic NCO Course (BNCOC) as well. The rating scales could also be paired with the ExAct to support counseling activities. It may also be helpful to explore a potential tie-in with the NCO Evaluation Report (NCOER) (AR 623-205). A brief set of instructions for using the scales would need to be developed prior to its operational use.

The civilian world has increasingly used 360° performance feedback as an important professional development tool. Using a multi-rater process, performance ratings are generally collected from one or more supervisors, peers, and (if applicable) subordinates and compared to self-ratings. Such a tool could be very useful for counseling and training applications, benefiting the target soldier as well as making peers (and perhaps subordinates) part of the professional development process. Somewhat more work would be required to create such a multi-rater package using the NCO21 rating scales as the basis, but even this would not require a great deal of time or effort.

Experiences and Activities Record (ExAct)

We think the ExAct has a role as a road map or a blueprint for junior leaders (E5, E6) and especially potential junior leaders (E4s), to identify the types of activities and accomplishments that can serve to enhance their value to the Army and, indirectly, their potential for advancement. It would be a tool for use by both soldiers and supervisors, perhaps even jointly. It would not necessarily have any official status (that is, it would not "count" in the promotion system), but if carefully constructed, would contain those accomplishments and activities that would get soldiers "noticed" for performing those activities the Army deems important. Its strong points are its directness, its simplicity, and its checklist format. Potential users would be first and second line supervisors, PLDC, and BNCOC. There should potentially be some association with the NCOER and the recurring counseling process.

Prior to any application, the current content listing needs to be validated and expanded. One approach might be to review the Sergeant Major of the Army's NCOER "bullet list" and extract those statements of specific activities that he and his staff have identified as attracting their attention. Another idea is to add an MOS-specific section where the experiences and activities list would be filled in by the unit or supervisor, as it applies to their specific situation.

Status Report and Next Steps

Based on the strong research results to date, the Army G-1 has requested a longitudinal validation of the NCO21 tools that will begin in FY03. This research will include a large sample of E4 and E5 soldiers who will be tested on the NCO21 predictors when they are eligible for promotion and rated by their supervisors after they are promoted. Although the concurrent validation research used paper-and-pencil measures, some (if not all) measures will be transitioned to computer-based administration. A major goal of the longitudinal data collection will be to simulate the operational promotion context as closely as possible to provide a stronger test of the utility of the measures. It will also allow further examination of potential scoring improvements to the current Promotion Point Worksheet, as well as the pay grade and MOS differences in predictor validity that were apparent in the initial research sample.

In addition to this planned follow-on research, project researchers will discuss with TRADOC representatives potential applications and strategies for making NCO21 tools available to Army users for training and development purposes. Tools that are used voluntarily could be made available through some of the quasi-official NCO websites.

The groundwork for improvements to the Army's NCO semi-centralized promotion system has been laid. Much additional work remains, however. In addition to further research, the associated procedural and policy decisions will require careful consideration in light of practical constraints or opportunities as well as soldier perceptions. Moreover, the NCO21 research samples have only included Active Component soldiers. While there is little reason to believe our recommendations should differ for NCOs in the Army Reserve and National Guard, it will be important to consider the question carefully prior to implementation of any changes.

ARI continues to explore possible applications of the NCO21 research findings and consider the implications and requirements for future research. Ideas and suggestions from interested parties are encouraged.

References

Campbell, J.P., & Knapp, D.J. (Eds.) (2001). *Exploring the Limits in Personnel Selection and Classification.* Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Campbell, R. C., & Knapp, D. J. (2002). *Selection for Leadership: Transforming NCO Performance* (U.S. Army Research Institute Special Report # 52). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Ford, L. A., Campbell, R. C., Campbell, J. P., Knapp, D. J., & Walker, C. B. (2000). *21st Century Soldiers and Noncommissioned Officers: Critical Predictors of Performance* (Technical Report #1102). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Kilcullen, R. N., Mael, F. A., Goodwin, G. F., & Zazanis, M. M. (1996). Predicting U.S. Special Forces Field Performance. *Journal of Human Performance in Extreme Environments, 4,* 53-63.

Knapp, D. J., Burnfield, J. L., Sager, C. E., Waugh, G. W., Campbell, J. P., Reeve, C. L., Campbell, R. C., White, L. A., & Heffner, T. S. (2002). *Development of predictor and criterion measures for the NCO21 research program* (Technical Report 1128). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Knapp, D. J., McCloy, R. A., & Heffner, T.S. (2003). *Validation of Measures Designed to Maximize 21st Century Army NCO Performance* (ARI Technical Report under review). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

White, L. A., & Young, M. C. (1998). *Development and Validation of the Assessment of Individual Motivation (AIM)*. Paper presented at the annual meeting of the American Psychological Association, San Francisco, CA.

Appendix A

NCO21 Knowledges, Skills, and Aptitudes (KSAs) and Performance Requirements

Items 1-11 can be viewed as KSAs (i.e., predictors) only.

1. *Conscientiousness/Dependability*. The general tendency to be trustworthy, reliable, planful, and accountable. A general willingness to accept responsibility.

2. *General Cognitive Aptitude.* Has the overall capacity to understand and interpret information that is being presented, the ability to identify problems and reason abstractly, and the capability to learn new things quickly and efficiently.

3. *Need for Achievement*. Is generally predisposed to have confidence in own abilities and to seek and enjoy positions of leadership and influence. Would typically demonstrate enthusiasm and energy, and strive for accomplishment and recognition in almost any situation.

4. *Emotional Stability*. Has the tendency to act rationally and to display a generally calm, even mood. Typically maintains composure and is not overly distraught by stressful situations.

5. *Working Memory*. Has the ability to maintain information in memory for short periods of time and to retrieve it accurately.

6. *Spatial Relations Aptitude*. Has the ability to mentally visualize the relative positions of objects in two-dimensional or three-dimensional space, and how they will be positioned if they are moved or rotated in different ways.

7. *Perceptual Speed and Accuracy*. Has the ability to recognize and interpret visual information quickly and accurately, particularly with regard to comparing similarities and differences among words, numbers, objects, or patterns, when presented simultaneously or one after the other.

8. *Psychomotor Aptitude.* Has the ability to coordinate the simultaneous movements of one's limbs (arms, legs), to operate single controls or to operate multiple controls simultaneously, and to make precise control adjustments that involve eye-hand coordination.

9. *Basic Math Facility*. Knows and applies addition, subtraction, multiplication, division, and simple mathematical formulas.

10. *Basic Electronics Knowledge*. Knows general information regarding electronic principles and electronics equipment operation and repair. Knows general facts and principles relevant for a wide variety of electronics related tasks, but does not necessarily have highly specific electronics knowledge required for a particular job.

11. *Basic Mechanical Knowledge*. Knows general information regarding mechanical principles, tools, and mechanical equipment operation and repair. Knows general facts and principles relevant for a wide variety of tasks that require technical knowledge, but does not necessarily have highly specific mechanical knowledge required for a particular job.

The remaining items can be viewed as either KSAs (predictors) or performance requirements (criteria).

12. *Problem-Solving/Decision Making Skill*. Reacts to new problem situations by applying previous experience and previous education/training appropriately and effectively. Does not apply rules or strategies blindly. Assesses costs and benefits of alternative solutions and makes timely decisions even with incomplete information.

13. *Writing Skill*. Communicates thoughts, ideas, and information successfully to others through writing. Uses proper sentence structure including grammar, spelling, capitalization, and punctuation.

14. *Oral Communication Skill*. Speaks in a clear, organized, and logical manner. Communicates detailed information, instructions, or questions in an efficient and understandable way. Note that this skill refers to how well the individual can speak and communicate, not whether technical expertise is high or low.

15. *MOS/Occupation-Specific Knowledge and Skill*. Possesses the necessary technical knowledge and skill to perform MOS/occupation-specific technical tasks at the appropriate skill level. Stays informed of the latest developments in field.

16. *Common Task Knowledge and Skill*. Possesses the necessary knowledge and skill to perform common tasks at the appropriate skill level (e.g., land navigation, field survival techniques, and nuclear, biological, and chemical [NBC] protection).

17. *Safety Consciousness*. Follows safety guidelines and instructions. Checks the behavior of others to ensure compliance.

18. *Computer Skills*. Understands computer systems, operating systems (e.g., Unix, Windows NT, and Army specific systems) and applications. Can perform routine troubleshooting of computer systems and applications.

19. *Motivating, Leading, and Supporting Individual Subordinates*. Recognizes, encourages, and rewards effective performance of individual subordinates. Corrects unacceptable conduct. Communicates reasons for actions and listens effectively to subordinates one-on-one. Fosters loyalty and commitment.

20. *Directing, Monitoring, and Supervising Individual Subordinates*. Works with subordinates one-on-one to assign tasks and set individual goals for work and assignments. Ensures that assignments are clearly understood. Monitors individual subordinate performance and gives appropriate feedback.

21. *Training Others*. Evaluates and identifies individual or unit training needs. Institutes formal or informal programs to address training needs. Develops others by providing appropriate work experiences. Guides and tutors subordinates on technical matters.

22. *Relating to and Supporting Peers.* Treats peers in a courteous, respectful, and tactful manner. Provides help and assistance to others. Backs up and fills in for others when needed. Works effectively as a team member.

23. *Team Leadership.* Communicates team goals and organizes and rewards effective teamwork. Leads the team to adapt quickly when missions change and keeps team focused on new goals. Resolves conflicts among team members. Shares relevant information with team members.

24. *Concern for Soldier Quality of Life*. Is aware of subordinates' off-duty needs and constraints. Is sensitive to others' priorities, interests, and values, and tries to assist subordinates in making their personal and family life better.

25. *Cultural Tolerance*. Demonstrates tolerance and understanding of individuals from other cultural and social backgrounds, both in the context of the diversity of U.S. Army personnel and interactions with foreign nationals during deployments or when training for deployment.

26. *Modeling Effective Performance*. Acts in ways that consistently serve as a model for what effective performance should be like, be it technical performance, military bearing, commitment to the Army, support for the Army mission, or performance under stressful or adverse conditions. Can consistently set an example for others to follow.

27. *Level of Effort and Initiative on the Job*. Demonstrates high effort in completing work. Takes independent action when necessary. Seeks out and willingly accepts responsibility and additional challenging assignments. Persists in carrying out difficult assignments and responsibilities.

28. *Adherence to Regulations, Policies, and Procedures*. Adheres to policies and follows prescribed procedures in carrying out duties and assignments.

29. *Level of Integrity and Discipline on the Job*. Maintains high ethical standards. Does not succumb to peer pressure to commit prohibited, harmful, or questionable acts. Demonstrates trustworthiness and exercises effective self-control. Understands and accepts the basic values of the Army and acts accordingly.

30. Adaptability. Can modify behavior or plans as necessary to reach goals or to adapt to changing goals. Is able to maintain effectiveness when environments, tasks, responsibilities, or personnel change. Easily commits to learning new things when the technology, mission, or situation requires it.

31. *Physical Fitness*. Meets Army standards for weight, physical fitness, and strength. Maintains health and fitness to meet deployability and field requirements as well as the physical demands of the daily job.

32. *Military Presence*. Presents a positive and professional image of self and the Army even when off duty. Maintains proper military appearance.

33. *Information Management*. Effectively monitors, interprets, and redistributes digital display information (as well as printed and orally delivered information) from multiple sources to multiple recipients. Sorts, classifies, combines, excludes, and presents information so that it is useable by others. Does not readily succumb to information overload.

34. *Selfless Service Orientation*. Commits to the greater good of the team or group. Puts organizational goals ahead of individual goals as required.

35. *General Self-Management Skill*. Uses appropriate strategies to self-manage the full range of own work and non-work responsibilities (e.g., work assignments, personal finances, family). Such strategies include setting both long- and short-term goals, allocation of effort and personal resources to goal priorities, and assessing one's own performance. Works effectively without direct supervision, but seeks help and advice from others when appropriate.

36. *Self-Directed Learning Skill*. Has a clear goal of maintaining continuous learning and training over entire career. Is proficient at determining personal training needs, planning education and training experiences to meet them, and evaluating own training success. Uses efficient personal learning strategies (e.g., organizing the material to be learned, and practicing the new skills in an appropriate context).

37. *Knowledge of the Inter-Relatedness of Units*. Is capable of analyzing how goals and operations of own unit are inter-related with other units and systems, and how one unit's actions affect the performance of other units. Can see the larger strategic picture and interpret how one's own unit relates to it.

38. *Management and Coordination of Multiple Battlefield Functions*. Can individually apply and effectively integrate and coordinate multiple battlefield functions such as direct and indirect fires, communications, intelligence, and combat service support to achieve tactical goals.

Note that the KSAs and performance requirement lists overlap because E4 performance requirements are the KSAs relevant for promotion to E5.

Appendix B

Observed Performance and Expected Future Performance Rating Scales

Section I: Observed Performance Rating Scales

1. MOS/Occupation-Specific Knowledge and Skill		
How effectively does this soldier display job-specific knowledge and skill?		
Does not display the knowledge or skill required to perform many work assignments or tasks; is unaware of recent developments relevant to his/her MOS.	Displays adequate knowledge of most aspects of the job; has sufficient skills to handle moderately difficult problems and to get most assignments done properly; attempts to keep informed of most important developments in his/her MOS.	Is highly competent in performing the technical tasks for which he/she is responsible; has skills and technical knowledge necessary to handle difficult problems; strives to stay informed of latest developments in his/her MOS.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

2. Common Task Knowledge and Skill		
How effectively does this soldier display the necessary knowledge and skill to perform common tasks?		
Does not display the knowledge or skill required to perform common assignments or tasks (e.g., land navigation, field survival techniques, NBC protection).	Displays good knowledge of most common areas; has sufficient skills to handle moderately difficult problems and to perform common tasks properly.	Is highly competent in performing common tasks; possesses skills and knowledge necessary to handle most common tasks, even under difficult conditions.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

3. Computer Skills		
To what extent does this soldier display an understanding of computer systems, operating systems, and applications?		
Does not display any understanding of computers above basic usage or Windows-based applications; cannot troubleshoot even the most basic application errors.	Displays basic understanding of some operating systems (e.g., DOS, Windows NT); can troubleshoot basic application errors; can troubleshoot simple systems errors; understands computer terminology.	Is highly competent administrating most operating systems (e.g., DOS, Windows NT, Army specific); can troubleshoot serious application errors; can set up and troubleshoot computer systems; well versed in computer terminology.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

4. Writing Skill		
How effectively does this soldier prepare written materials?		
Usually writes in an awkward or confusing manner; uses incorrect grammar, punctuation, and spelling; often includes irrelevant information in the material; written products often require a lot of editing.	Typically writes logically but will occasionally make grammatical, punctuation, or spelling errors; usually includes most relevant information and tries to tailor the work to the audience; written products sometimes require editing.	Usually writes concisely, clearly, and logically; focuses on relevant issues; uses correct grammar, punctuation, and spelling; effectively tailors the work to the audience; written products require little or no editing.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

5. Oral Communication Skill		
How effectively does this soldier orally communicate?		
Speaks in an awkward or confusing manner; does not present ideas clearly; often rambles or strays to irrelevant topics; mispronounces words or terms; speaks too fast or too slow.	Usually expresses him or herself clearly and logically; makes few grammatical errors; typically gets information across effectively; generally speaks at an appropriate, smooth pace.	Always expresses him or herself clearly and logically; gets to the point quickly; uses correct grammar; appropriately tailors the presentation to the audience; focuses on relevant and important issues; always speaks fluently and at a smooth pace.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

6. Level of Effort and Initiative on the Job		
To what extent does this soldier put forth effort and initiative on the job/mission/assignment?		
Shows little effort or initiative to accomplish tasks; completes assignments carelessly; often fails to meet deadlines; rarely seeks out additional responsibilities or challenging tasks.	Demonstrates sufficient effort on most tasks and assignments; is usually reliable about completing assignments on time; puts forth extra effort when necessary; sometimes seeks out additional responsibilities, training, or challenging tasks.	Shows a lot of initiative and often puts forth extra effort to get tasks done effectively, even under difficult conditions; reliably accomplishes work on time; enthusiastically takes on challenging assignments and additional responsibilities.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

7. Adaptability		
How effectively does this soldier adapt to varying environments by modifying behavior, plans, or goals?		
Has difficulty functioning effectively in new situations; does not adapt quickly to new environments, people, or equipment; is easily frustrated in situations that do not go as planned.	Is able to function adequately in new situations; modifies behavior when faced with unexpected events or conditions; adapts fairly readily to new people, situations, or equipment.	Thinks and acts quickly in response to changes in the environment; often develops innovative and imaginative approaches to dealing with unexpected events; can effectively change plans when the situation requires it.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

8. Self-Management and Self-Directed Learning Skill		
How effectively does this soldier self-manage his/her job responsibilities, training and career development, and personal responsibilities?		
Makes little or no effort to balance work and personal responsibilities; uses finances irresponsibly; ignores or otherwise fails to participate in relevant career training opportunities; needs constant supervision; fails to seek advice when needed.	Shows effort to manage work and personal responsibilities; typically uses finances responsibly; participates in required courses/training; attempts to work on problem areas when encouraged to do so; can usually work independently; seeks advice when needed but sometimes from inappropriate sources.	Effectively manages work and personal responsibilities; demonstrates exceptional financial responsibility; studies and works hard during off-duty hours to improve job-related skills; actively seeks additional responsibilities to improve job skills and increase chance of promotion; works well without supervision; willingly seeks advice when appropriate.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

9. Demonstrated Integrity, Discipline, and Adherence to Army Procedures		
To what extent does this soldier adhere to Army procedures and values, and demonstrate integrity, ethical behavior, and self-discipline on the job?		
Is disrespectful toward superiors; is sometimes dishonest; has difficulty accepting and following superiors' orders; makes up excuses to avoid assignments; fails to take responsibility for his/her job-related errors; often fails to follow rules, policies, and regulations; takes unnecessary risks that endanger the safety of self and/or others.	Is usually respectful to superiors; is generally honest; obeys direct orders; takes responsibility for most job-related mistakes he/she makes; usually attempts to follow applicable rules, policies, and regulations; typically avoids unnecessary risks and notices potential safety hazards.	Is always respectful to superiors; is honest about work matters, even when it may go against personal interests; obeys orders; ensures others are not blamed for his/her mistakes; carefully follows rules, policies, and regulations; tries to make sure others follow the rules; takes steps to protect self and others from safety risks.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

10. Acting as a Role Model		
To what extent does this soldier set a good example for others to follow in terms of physical fitness, military bearing, and appropriate behavior?		
Is generally overweight or in poor physical condition; avoids exercise; often dresses sloppily; displays poor military bearing; sets a poor example for others to follow and fails to model even minimally acceptable behavior as a soldier.	Meets basic standards for physical fitness; dresses properly, maintaining Army standards; usually displays good military bearing; attempts to set a good example of soldier behavior for others to follow.	Exercises consistently to maintain excellent physical fitness; always dresses sharply in correct uniform; consistently maintains excellent military bearing; sets an outstanding example for others by exceeding the standards for appropriate military behavior.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

11. Relating to and Supporting Peers		
How effectively does this soldier relate to and support peers?		
Tends to be rude, selfish, and insensitive to peers' concerns; generally fails to provide assistance to others, even when there is a clear need to do so; may force his/her approach to tasks on others without seeking input.	Usually courteous and tactful when dealing with peers; provides assistance to others, especially when it is clear that help is needed; tries to develop approaches to tasks that take into account obvious differences of opinion.	Always treats peers in a courteous and tactful manner; offers assistance without waiting to be asked, even in situations that involve complicated interpersonal situations; actively seeks out peers' opinions and incorporates peers' ideas into own plans.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

12. Cultural Tolerance		
How effectively does this soldier demonstrate tolerance and understanding of other cultural and social backgrounds both in the context of the diversity of U.S. Army personnel and interactions with foreign nationals?		
Does not understand or show respect for other cultural practices or beliefs; makes insensitive comments or slurs to others based on social or cultural differences, (e.g., racial heritage, religious beliefs, ethnic customs, language); cannot work, socialize, or communicate effectively with others from different backgrounds.	Recognizes need to be tolerant and respectful of other cultural, ethnic, and belief systems but does not always demonstrate understanding of social and cultural diversity; willing to work, communicate, and perhaps socialize with others from different backgrounds but does not do so easily.	Shows tolerance, understanding, and respect for other cultural, ethnic, and belief systems; shows respect for social and cultural diversity, (e.g., racial heritage, religious beliefs, ethnic customs, language); easily works, socializes, and communicates well with others regardless of differences in background.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

13. Selfless Service Orientation		
To what extent does this soldier display a selfless service orientation?		
Fails to support team or group; has a "looking out for number one" attitude; explicitly asks for credit for unselfish behavior.	Supports team or group when called upon to do so, but usually waits until asked; puts group or team goals ahead of own goals when it is easy to do so.	Willingly commits to the greater good of the team; willingly puts group or team goals ahead of individual goals when appropriate; does not expect credit for unselfish behavior.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

14. Leadership Skills		
To what extent does this soldier demonstrate strong leadership skills by effectively motivating, supporting and supervising individuals and being an effective team leader?		
Fails to support subordinates; does not reward effective behavior or provide useful feedback to improve performance; assigns duties unfairly; rarely makes sure assignments are understood and completed; does not communicate team goals; fails to lead team to adapt to mission changes; fails to resolve conflicts or does so unfairly.	Usually supports subordinates and rewards effective behavior; provides feedback to improve performance, but it is not always helpful; generally assigns work fairly; typically makes sure subordinates' work meets standards; communicates team goals but not always clearly; leads team to adapt to mission changes but takes time/effort to do so; attempts to resolve conflicts fairly.	Always supports subordinates and rewards effective behavior; maintains high morale; provides helpful feedback to improve performance; always assigns work fairly; always makes sure subordinates' assignments are understood and completed; clearly communicates team goals; leads team to adapt quickly to mission changes; resolves conflicts among subordinates fairly.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

15. Concern for Soldier Quality of Life		
How effectively does this soldier show consideration for subordinates' quality of life?		
Generally ignores subordinates' personal needs, constraints, and values; ignores or is insensitive to potential conflicts between subordinates' personal needs and duty demands; fails to show concern for the well-being of subordinates' personal lives.	Usually is aware of and attempts to help resolve conflicts between subordinates' work and personal needs; is sometimes sensitive to potential work/personal conflicts and attempts to help subordinates avoid such situations; shows basic awareness of subordinates personal needs, constraints, and values.	Has keen awareness of subordinates personal needs, constraints, and values; takes extra steps to resolve and avoid subordinate work/personal life conflicts; shows genuine concern for the well-being of subordinates' personal lives.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

16. Training Others		
How effectively does this soldier provide relevant training experiences for subordinates?		
Is unaware of or ignores individual or unit training needs; fails to provide training experiences or gives subordinates inappropriate training; does not prepare well for formal training situations; fails to guide subordinates on technical training matters.	Usually ensures that important subordinate training needs are met when made aware of such needs; uses existing classroom or on-the-job training techniques; prepares as required for training sessions; sometimes guides and tutors subordinates on technical matters.	Actively seeks to be aware of individual or unit training needs; always makes time to provide relevant formal and informal training experiences for subordinates; prepares thoroughly for training sessions; effectively guides and tutors subordinates on technical matters.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

17. Coordination of Multiple Units and Battlefield Functions		
To what extent does this soldier demonstrate knowledge of the interrelatedness among different units (including his/her own unit), as well as how to coordinate multiple battlefield functions?		
Cannot apply or coordinate multiple battlefield functions such as direct/indirect fires, communications, intelligence, and combat service support (CSS) to achieve tactical goals; shows little or no ability to understand how one unit's actions can affect the performance of other units; does not see how his/her unit's operations relate to the overall system.	Can apply and coordinate multiple battlefield functions (e.g., direct/indirect fires, communications, intelligence, CSS) with assistance; usually recognizes how one unit's actions can affect the performance of other units; understands how some goals and operations of own unit and other units relate but has difficulty analyzing the overall system.	Can independently apply and coordinate multiple battlefield functions (e.g., direct/indirect fires, communications, intelligence, and CSS) to achieve tactical goals; clearly understands how one unit's actions can affect the performance of other units; can quickly and accurately analyze how goals and operations of own unit relate to the overall system.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

18. Problem-Solving/Decision Making Skill		
How effectively does this soldier react to new problem situations and make reasonable, informed decisions regarding solutions?		
Usually reacts to new problem situations with frustration and confusion; fails to apply previous experience and training or realize their relevance; blindly applies rules or strategies without regard to the uniqueness of the situation; fails to assess costs or benefits of alternative solutions before making decisions.	Often reacts to new problem situations by applying previous experience or education/training, but does not always do so effectively; seldom applies rules or strategies blindly; attempts to assess costs and benefits of alternative solutions but does not always make timely decisions; has trouble making appropriate decisions with incomplete information.	Consistently reacts to new problem situations by applying previous experience and previous education/training appropriately and effectively; does not apply rules or strategies blindly; assesses costs and benefits of alternative solutions and makes timely decisions even with incomplete information.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

19. Information Management		
How effectively does this soldier monitor, interpret, and redistribute information received from multiple sources (especially in a digitized environment)?		
Easily experiences information overload; has trouble monitoring and interpreting multiple information sources; is unable to cope with a digitized environment; is inefficient or unable to process information and prepare it for redistribution so that it is useable by others.	Usually can handle a fair amount of information effectively; often able to effectively monitor multiple information sources, but can become overwhelmed by the speed of communication provided by digitized equipment; is able to process information and redistribute it for use by others, but fails to effectively combine or exclude information.	Can monitor, interpret, and redistribute large amounts of information received from multiple sources, especially in digitized environments; processes information effectively so that it is optimally useful to others; does not readily experience information overload.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

Section II: Overall Effectiveness

Please read the description below of overall soldier effectiveness and then rate how effective each soldier is by marking the appropriate number.

Overall Effectiveness How effectively does this soldier perform overall?		
Performs poorly in important effectiveness areas; does not meet standards for soldier performance compared to peers at same experience level.	Performs adequately in important effectiveness areas; meets standards and expectations for soldier performance compared to peers at same experience level.	Performs excellently in all or almost all effectiveness areas; exceeds standards and expectations for soldier performance compared to peers at same experience level.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

Section III: Senior NCO Potential

On this rating, evaluate each soldier on his or her potential effectiveness as a senior NCO (E-7 to E-9). At this point, you are not to rate on the basis of present performance and effectiveness, but instead, indicate how well each soldier is likely to perform as a senior NCO in his or her MOS (assume each will have an opportunity to be a senior NCO). Thus, the "overall effectiveness" rating you completed in Section II and this rating of senior NCO potential may not necessarily agree closely.

Senior NCO Potential Which of the following best describes each soldier's senior NCO potential?		
Would likely be a bottom-level performer as a senior NCO.	Would likely be an adequate performer as a senior NCO.	Would likely be a top-level performer as a senior NCO.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

Expected Performance Under Future Army Conditions

Instructions

In this booklet, you will read several scenarios that describe some of the major changes predicted to occur in the future Army. After you read each scenario please rate how effectively you would expect each soldier to meet those future NCO requirements. Note that actual future Army conditions may differ from these scenarios.

Use the separately provided scannable sheet to record your ratings.

Scenario #1: Increased Requirements for Self-Direction and Self-Management

The predicted changes in missions, technology, structure, and tactics will require that NCOs have a greater ability to guide their own professional development and manage their personal affairs (e.g., family concerns and financial matters). Obviously, increasing mission diversity and frequency will be disruptive. For example, frequent deployments away from U.S. home bases will require a strong ability to manage personal matters effectively. In addition, the restructuring of the Army into smaller, more independent units will require that NCOs have a greater ability to take initiative in their actions and make their own decisions without direct supervision. Finally, due to greater technological change and more frequent changes in missions, there is an expectation that individual NCOs will need to assume more and more responsibility for their own training. That is, they will be required to identify their own training needs and to seek out training experiences that meet these needs. They will need to evaluate their own training accomplishments and take corrective steps if necessary.

1. How effectively would you expect the soldier to meet these future NCO requirements?

Not likely to meet the NCO demands described under these conditions.	Likely to be generally successful, but will struggle to meet the NCO demands described under these conditions.	Likely to successfully meet or exceed NCO demands described under these conditions.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

Scenario #2: Use of Computers, Computerized Equipment, and Digitized Operations

The digitization of the Army that started in the mid-1990s will increase and become more widespread by 2010. Commercial applications of personal computers (PCs), laptops, and small hand-held devices will become the standard means for communicating and relaying information for all soldiers, in all jobs, at all levels. Specialized military applications of computers will become more widespread and will be found on all tactical vehicles and weapons systems. Voice recognition will provide essentially hands-free operation for crewmembers. Individualized applications, available to dismounted soldiers in a variety of roles, will provide automated links

for information flow in tactical settings. In addition, a tactical Internet will make it possible for operators to link to each other at all levels and locations in real time. Automation will have a serious impact on the logistical and service support functions of the Army in that most aspects of supply, maintenance, and transport will use some form of computerized system. These will start with the user of the service or supply and be linked upwards to the depot level and beyond.

While much of the focus will be on computer hardware, the truly significant advancements in technology will involve the development of specialized software. These programs will cover a variety of functions such as land navigation, orders preparation, after action analysis, and information sorting and processing. This specialized software could change how soldiers function at all levels. The Army will likely be able to automate many of the current manual functions, giving greater skills and abilities to more individuals. At the same time, specialized software will require specialized input and manipulation.

Computerization and automation will not be foolproof. System failures, clutter, jamming, hacking, interceptions, and false information are all risks that come with the use of computer-based communications. The need for back-up manual knowledge, alternate procedures, fail-safe checks, and trouble-shooting skills will place increased demands on soldier knowledge and performance. NCOs and officers will need to be able to oversee and monitor systems used by lower-level operators and implementers. In all, increased computerization will bring more, rather than less, complex demands on the NCO.

2. How effectively would you expect this soldier to meet these future NCO requirements?

Not likely to meet the NCO demands described under these conditions.	Likely to be generally successful, but will struggle to meet the NCO demands described under these conditions.	Likely to successfully meet or exceed NCO demands described under these conditions.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

Scenario #3: Increased Scope of Technical Skill Requirements

The future Army will be based on a combination of advanced weapons systems, various levels of information systems, and sophisticated communications. Organizationally, a significant part of the Army is intended to contain small, flexible battle force teams. These teams will be highly trained with a mixing of roles across ranks and with all team members cross-trained in each others' skills. The existing structure of a large number of specialized MOS likely will be replaced by a system in which NCOs are classified into broad areas of job abilities based primarily on types of units or echelons of employment. NCOs in battle forces will be expected to employ a full array of organic and supporting fires, maneuver and transportation, intelligence gathering facilities, engineering methods, data communications, and protective measures. Logistics, including supply, maintenance and repair, and field medical and evacuation will become organic requirements of the battle force. The NCO of the future will have almost unlimited access to information sources for diagnoses and step-by-step procedures, but actual performance will still have to be learned and practiced. The end result will be an increase in the technical requirements for future NCOs, probably doubling or tripling the number of skill tasks associated with today's NCOs.

3. How effectively would you expect this soldier to meet these future NCO requirements?

Not likely to meet the NCO demands described under these conditions.	Likely to be generally successful, but will struggle to meet the NCO demands described under these conditions.	Likely to successfully meet or exceed NCO demands described under these conditions.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

Scenario #4: Increased Requirements for Broader Leadership Skills at Lower Levels

Over the next 20 years, broader leadership skills will be a critical requirement of the NCO. Units the size of current platoons and companies will be the focal points of operations. Combat support and combat service support organizations will be even smaller with only 1 to 5 person cells providing specialized assistance. It will be common for units to be widely scattered and, while communication and information linkage will increase, there will be less physical contact between units of all sizes. In many situations the chain of command will be temporary and will be through information linkages rather than established relationships. Furthermore, because many missions will be situation specific, NCOs will not be able to rely as much on past experiences when making decisions in new situations.

As a result, many of the requirements for leadership, decision making, initiative, responsibility, and accountability that are today thought of as company-grade and junior officer requirements will become the domains of the E7 and E6. In turn, the level of leadership, authority, and responsibility that is currently associated with platoon sergeants, staff shift supervisors, detachment, and shop supervisors will migrate down to the E5 and E4 levels. Although at some point, future NCOs will be able to access automated decision matrices or artificial intelligence to assist them with their leadership decisions, they will have many requirements similar to what leaders have always faced – unpredicted situations, human interactions and stresses, system malfunctions, and time pressures. The difference will be that these requirements, and their consequences, will be experienced in a greater degree and at lower ranks by future NCOs.

4. How effectively would you expect this soldier to meet these future NCO requirements?

Not likely to meet the NCO demands described under these conditions.	Likely to be generally successful, but will struggle to meet the NCO demands described under these conditions.	Likely to successfully meet or exceed NCO demands described under these conditions.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

Scenario #5: Need to Manage Multiple Operational Functions and Deal with the Inter-relatedness of Units

The future Army will have a less rigid organizational structure, more mission type operations that have multiple purposes (e.g., mixed peace making/peacekeeping), more independent operations at lower levels, and increased low-level lethality. It will still employ the engagement systems of maneuver; fire support; information dominance; reconnaissance, surveillance, and intelligence; mobility and survivability; and air defense along with the integrating systems of command and control and combat service support. However, as technology and information flow improves, these will be planned for, integrated, and executed at lower and lower levels. With more capabilities at lower levels and operating under mission-type orders, NCOs will have more

flexibility in the courses of actions available to them in any given situation. Along with this will come a requirement to be more aware of how one's own actions affect the total environment in which the NCO is operating. Impacts on other units, higher headquarters missions, civilian populations, strategic goals, and fratricide possibilities must be weighed by individual NCOs into any course of action they are contemplating. The ability to predict the effects of an activity onto others within the battlespace will become a crucial element of NCO-led operations. The boundaries of these operations will not be limited to what they can see or even by physical limits. NCOs must be able to operate by projecting the effects of their decisions in many directions and levels simultaneously. Although these requirements will be accompanied by improvements in technology and decision software, the timing and control of the use of available systems will remain very much a human element.

5. How effectively would you expect this soldier to meet these future NCO requirements?

Not likely to meet the NCO demands described under these conditions.	Likely to be generally successful, but will struggle to meet the NCO demands described under these conditions.	Likely to successfully meet or exceed NCO demands described under these conditions.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

Scenario #6: Mental and Physical Adaptability and Stamina

There is no indication that the current demands for physical strength and endurance will change much in the near future. However, future operations will likely involve new aspects of physical, psychomotor, and mental skills. Future conflicts are expected to involve more intense and sustained operations that will require enough physical and mental stamina to conduct high paced operations over long periods. Individuals must become capable of cycling between periods of work and rest instantaneously and at unpredictable intervals. Mental sharpness will be important as individuals will be required to process, sort, and prioritize digital information and data flow without being overwhelmed, even when fatigued or stressed. NCOs must be able to recognize and respond to mental cues and images (such as icons and graphics) rather than visual or sound stimuli of real-life events.

In these intense fluid situations, NCOs must be capable of solving problems effectively without knowing all of the facts. Operations in uncertain environments will demand that NCOs are able to make reasoned, logical assessments of conditions without exaggerating the situation or becoming distressed. Situations will change rapidly and NCOs will often acquire information *en route*. Equipment failures, fluidity of operations, and novel missions will demand frequent and sometimes unprecedented levels of mental and physical adaptability to changing conditions.

6. How effectively would you expect this soldier to meet these future NCO requirements?

Not likely to meet the NCO demands described under these conditions.	Likely to be generally successful, but will struggle to meet the NCO demands described under these conditions.	Likely to successfully meet or exceed NCO demands described under these conditions.
LOW	**MODERATE**	**HIGH**
1 2	**3 4 5**	**6 7**

Please use the answer sheet to rate how confident you are about the accuracy of the ratings you have provided.

Appendix C

Experience and Activities Record (ExAct)

Experience & Activities Record

This form lists a variety of experiences, activities, or assignments that some soldiers have had. Please respond to each item based on your experience.

Experiences and Activities	*Frequency* In the last 2 years, how often have you performed each activity?					
	Never	**A few times a year**	**About once a month**	**A few times a month**	**A few times a week**	**Daily**
Computer Related Activities						
1. Used a PC, Mac, or laptop.	❒	❒	❒	❒	❒	❒
2. Communicated using e-mail.	❒	❒	❒	❒	❒	❒
3. Used the Internet for job or training requirements.	❒	❒	❒	❒	❒	❒
4. Used the Windows NT operating system.	❒	❒	❒	❒	❒	❒
5. Operated an Army-specific computer system (e.g., IVIS, ASAS, FBCB2, AFATDS).	❒	❒	❒	❒	❒	❒
6. Troubleshooted a computer system malfunction.	❒	❒	❒	❒	❒	❒
7. Used Windows Office programs to do job tasks (e.g., Word®, Access®, Excel®, PowerPoint®).	❒	❒	❒	❒	❒	❒
8. Trained or assigned as an instructor/operator (I/O) on any computer based simulator (e.g., COFT, BBS, CBS, SIMNET, Janus).	❒	❒	❒	❒	❒	❒
Leadership/Supervisory						
9. Assigned to duty position with a responsibility for supervising 2 or more soldiers.	❒	❒	❒	❒	❒	❒
10. Provided performance feedback to subordinates.	❒	❒	❒	❒	❒	❒

11. Established goals or other incentives to motivate subordinates.	❒	❒	❒	❒	❒	❒
12. Corrected unacceptable conduct of a subordinate.	❒	❒	❒	❒	❒	❒
13. Trained other soldiers in a task or a procedure.	❒	❒	❒	❒	❒	❒
14. Conducted formal inspection of subordinates' completed work.	❒	❒	❒	❒	❒	❒
15. Counseled subordinates regarding career planning.	❒	❒	❒	❒	❒	❒
16. Counseled subordinates with disciplinary problems.	❒	❒	❒	❒	❒	❒
17. Served as a member of a unit advisory council or committee.	❒	❒	❒	❒	❒	❒
18. Applied and supervised all 8 steps of troop leading procedures (TLP).	❒	❒	❒	❒	❒	❒
Additional Duties						
19. Volunteered for additional duties/assignments.	❒	❒	❒	❒	❒	❒
20. Requested additional training opportunities.	❒	❒	❒	❒	❒	❒

Assignments and Positions	*Duration* How much time have you spent in each of the following?				
	Never	**Less than 6 Months**	**6 months to a year**	**1 year to 2 years**	**More than 2 years**
Duration of Experiences					
21. Total time spent in duty position one grade higher than actual grade.	❒	❒	❒	❒	❒
22. Total time spent in a leadership or supervisory position.	❒	❒	❒	❒	❒
23. Total time spent in MTOE slot assignment.	❒	❒	❒	❒	❒
24. Total time in a unit specialty assignment (e.g., Commander's or First Sergeant's driver, Assistant Training NCO, NBC, Unit Lifesaver).	❒	❒	❒	❒	❒

Training and Duties	*Frequency* How many times have you done each of the following?		
	Never	**Once**	**Twice or more**
Formal Training/Assignments			
25. Participated in CTC/NTC/JRTC rotation or FTX over 30 days.	❒	❒	❒
26. Deployed on combat mission.	❒	❒	❒
27. Deployed on peace-keeping mission.	❒	❒	❒
28. Prepared a lesson plan.	❒	❒	❒
29. Led a PT class.	❒	❒	❒
30. Taught a platform class to 5 or more people.	❒	❒	❒
31. Served as an assistant instructor in a class of 10 or more people.	❒	❒	❒
32. Been part of a crew to perform Table VIII, Table XII, or TCPC.	❒	❒	❒
33. Participated as a team leader or above in a live fire exercise (LFX).	❒	❒	❒
34. Conducted primary marksmanship instruction (PMI).	❒	❒	❒
Communications			
35. Received and implemented a written operations order.	❒	❒	❒
36. Issued a 5 paragraph oral operations order.	❒	❒	❒
37. Prepared and submitted a written report of recognition for a subordinate.	❒	❒	❒
38. Prepared and conducted a briefing for 2 or more officer, senior NCO, or civilian personnel.	❒	❒	❒
39. Prepared a written plan/schedule of future subordinate activities covering 5 days or more.	❒	❒	❒
40. Prepared a written counseling statement.	❒	❒	❒

Training and Duties	*Frequency* How many times have you done each of the following?		
	Never	**Once**	**Twice or more**
41. Led/commanded soldiers in drill and ceremony activities.	❒	❒	❒
42. Conducted an inspection in ranks or standby.	❒	❒	❒
43. Performed as Color Guard.	❒	❒	❒
44. Acted as assistant commander at funeral detail or other public ceremony.	❒	❒	❒
45. Served as a VIP escort.	❒	❒	❒
46. Appeared before a Soldier of the Month (or equivalent) Board.	❒	❒	❒